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DOC #	REV #	TITLE	INSTRUCTIONS

THE FOLLOWING PROCEDURE(S) HAS BEEN REVISED, PLEASE REMOVE YOUR CURRENT COPY AND REPLACE WITH ATTACHED UPDATED REVISION:

IP-EP-340 REVISION 8
IP-EP-350 REVISION 5
IP-EP-410 REVISION 16
IP-EP-430 REVISION 17
IP-EP-510 REVISION 9

EFFECTIVE DATE: 5/17/2021

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ATTACHMENT 10.2 IPEC PROCEDURE REVIEW AND APPROVAL

(Page 1 of 1)

Procedure Title: Meteorological Information and Dose Assessment System (MIDAS)

Procedure No: IP-EP-340 Existing Rev: 7 New Rev: 8 DRN/EC No: 21-00118

Procedure Activity (MARK Applicable)	☐ Converted To IPEC, Replaces:	**Temporary Procedure Change (MARK Applicable)**
☐ NEW PROCEDURE ☐ GENERAL REVISION ☑ PARTIAL REVISION ☐ EDITORIAL REVISION ☐ VOID PROCEDURE ☐ SUPERSEDED	Unit 1 Procedure No: _____ Unit 2 Procedure No: _____ Unit 3 Procedure No: _____	☐ EDITORIAL Temporary Procedure Change ☐ ADVANCE Temporary Procedure Change ☐ CONDITIONAL Temporary Procedure Change Terminating Condition: _____
☐ RAPID REVISION	Document in Microsoft Word: ☐ Yes ☐ No	☐ VOID DRN/TPC No(s): _____

Revision Summary ☑ N/A - See Revision Summary page.

Implementation Requirements

Implementation Plan? ☐ Yes ☑ No Formal Training? ☐ Yes ☑ No Special Handling? ☐ Yes ☑ No
Quality Related? ☐ Yes ☑ No. **If Yes, then ensure the procedure cover page is marked "Quality Related"**

RPO Dept: Emergency Planning Writer **(Print Name/ Ext/ Sign)**: Richard Watts/6805 Dara Gray for R. Watts

Review and Approval (Per Attachment 10.1 IPEC Review and Approval Requirements)

1. ☑ Technical Reviewer: Dara Gray/ Dara Gray 4-19-21
   (Print Name/ Signature/ Date)
2. ☐ Cross-Disciplinary Reviewers:
   Dept: _____ Reviewer: _____
   (Print Name/ Signature/ Date)
   Dept: _____ Reviewer: _____
   (Print Name/ Signature/ Date)
3. ☑ **RPO- Responsibilities/Checklist**: Frank Mitchell/ 4/19/21
   (Print Name/ Signature/ Date)
   - ☐ PAD required and is complete (PAD Approver and Reviewer qualifications have been verified)
   - ☑ Previous exclusion from further LI-100 Review is still valid
   - ☐ PAD not required due to type of change as defined in 4.6
4. ☐ Non-Intent Determination Complete: _____
   (Print Name/ Signature/ Date)

   NO change of purpose or scope
   NO reduction in the level of nuclear safety
   NO voiding or canceling of a procedure, unless requirements are incorporated into another procedure or the need for the procedure was eliminated via an alternate process.
   NO change to less restrictive acceptance criteria
   NO change to steps previously identified as commitment steps
   NO deviation from the Quality Assurance Program Manual
   NO change that may result in deviations from Technical Specifications, FSAR, plant design requirements or previously made commitments.
5. ☐ On-Shift Shift Manager/CRS: Frank Mitchell - RPO 4/19/21
   (Print Name/ Signature/ Date)
6. ☐ User Validation: User: _____ _____
7. ☐ Special Handling Requirements Understood: _____

10CFR50.54(Q)(2) Review

Procedure/Document Number: IP-EP-340	Revision: 8
Equipment/Facility/Other: Indian Point Energy Center	
Title: Meteorological Information and Dose Assessment System (MIDAS)	

Part I. Description of Activity Being Reviewed (event or action, or series of actions that have the potential to affect the emergency plan or have the potential to affect the implementation of the emergency plan):

This procedure was revised to reflect the conditions of the facility which meet the requirement in the Post Unit 3 Shutdown E-Plan (PSEP) as submitted to the NRC per LAR, license #NL-19-001. Please see the attached matrix for the changes that have been made. This procedure will be effective May 17th, 2021.

Part II. Emergency Plan Sections Reviewed (List all emergency plan sections that were reviewed for this activity by number and title. IF THE ACTIVITY IN ITS ENTIRETY IS AN EMERGENCY PLAN CHANGE, EAL CHANGE OR EAL BASIS CHANGE, ENTER THE SCREENING PROCESS. NO 10CFR50.54(q)(2) DOCUMENTATION IS REQUIRED.

Part 1 Introduction:

Section A: Purpose

Part 2 Planning Standards and Criteria:

Section A: Assignment of Responsibility

Section B: Station Emergency Response Organization

Section D: Emergency Classification System

Section E: Notification Methods and Procedures

Section H: Emergency Facilities and Equipment

Section I: Accident Assessment

Section J: Protective Response

Part III. Ability to Maintain the Emergency Plan (Answer the following questions related to impact on the ability to maintain the emergency plan):

1. Do any elements of the activity change information contained in the emergency plan (Section 3.0 Step 6)?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

2. Do any elements of the activity change an emergency classification Initiating Condition, Emergency Action Level (EAL), associated EAL note or associated EAL basis information or their underlying calculations or assumptions?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

3. Do any elements of the activity change the process or capability for alerting and notifying the public as described in the FEMA-approved Alert and Notification System design report?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

4. Do any elements of the activity change the Evacuation Time Estimate results or documentation?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

5. Do any elements of the activity change the Onshift Staffing Analysis results or documentation?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

10CFR50.54(Q)(2) Review

Procedure/Document Number: IP-EP-340	Revision: 8
Equipment/Facility/Other: Indian Point Energy Center	
Title: Meteorological Information and Dose Assessment System (MIDAS)	

Part IV. Maintaining the Emergency Plan Conclusion The questions in Part III do not represent the sum total of all conditions that may cause a change to or impact the ability to maintain the emergency plan. Originator and reviewer signatures in Part V document that a review of all elements of the proposed change have been considered for their impact on the ability to maintain the emergency plan and their potential to change the emergency plan.

1. Provide a brief conclusion that describes how the conditions as described in the emergency plan are maintained with this activity.
2. Check the box below when the 10CFR50.54(q)(2) review completes all actions for all elements of the activity – no 10CFR50.54(q)(3) screening or evaluation is required for any element. Otherwise, leave the checkbox blank.

☒ I have completed a review of this activity in accordance with 10CFR50.54(q)(2) and determined that the effectiveness of the emergency plan is maintained. This activity does not make any changes to the emergency plan. No further actions are required to screen or evaluate this activity under 10CFR50.54(q)(3).

Per Post Shutdown Emergency Plan (PSEP), both Unit 2 and Unit 3 will be defueled and will no longer operate. The changes made to this procedure (see attached matrix) reflects the changes made to the document submitted to the NRC (license # NL-19-001) as well as some minor editorial changes. The NRC has approved the Unit 3 PSEP per RA-20-040.

A review of this activity in accordance with 10CFR50.54(q)(2) has been completed and has determined that the effectiveness of the PSEP is maintained. This revision aligns the procedure with the protocols of the post Unit 3 shutdown. None of the changes affect the ability to perform classifications, notifications or PARS. Additionally, it does not affect the activation of the Emergency Response Organization and the planning standard requirements are maintained. The changes made do not require a change to the Emergency Action Level scheme, On-Shift Staffing Study or the PSEP.

No further actions are required to screen or evaluate this activity under 10CFR50.54(q)(3).

Part V. Signatures:

Preparer Name (Print) Dara Gray	Preparer Signature	Date: 4/5/2021
(Optional) Reviewer Name (Print)	Reviewer Signature	Date:
Reviewer Name (Print) Timothy Garvey Nuclear EP Project Manager	Reviewer Signature	Date:
Approver Name (Print) Emergency Planning Manager or designee	Approver Signature	Date: 4/6/2021

IP-EP-340, Meteorological Information and Dose Assessment System (MIDAS) (Revision 8) Revision Matrix

Change No.	Page/Section	Previous Version	New Version	Editorial Change	Effect on 10 CFR 50.47(b) Planning Standards or NUREG-0654 program elements? Justify if NO.
1.	Cover Page	Rev 7	Rev 8	Yes	No- This is an editorial change to the Revision number and effective date. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

IP-EP-340, Meteorological Information and Dose Assessment System (MIDAS) (Revision 8) Revision Matrix

Change No.	Page/Section	Previous Version	New Version	Editorial Change	Effect on 10 CFR 50.47(b) Planning Standards or NUREG-0654 program elements? Justify if NO.
2.	Previous Table of Contents	9.2 Flow Charts 9.4 Quick Guide for MIDAS Operation (Plant Vent Quick Dose) 9.5 Quick Guide for MIDAS Operation (S/G Tube Rupture Quick Dose) 9.6 Quick Guide for MIDAS Operation (S/G Tube Rupture)	Deleted previous Attachments 9.2, 9.4, 9.5 and 9.6 from Table of Contents. Renumbered remaining Attachments as: 9.1 Event Trees 9.2 Plant & Site Specific Parameters 9.3 Quick Guide for MIDAS Operation (EOF – Auto H) 9.4 Quick Guide for MIDAS Operation (Offsite Users – Auto H) 9.5 Quick Guide for MIDAS Operation (Manual B – no automated data) 9.6 Quick Guide for MIDAS Operation – Multiple Accident (EOF) 9.7 Quick Guide for MIDAS Operation – Multiple Accident (CCR) 9.8 Quick Guide for MIDAS Part 1 Form Generator Guidance	No	No, Deleted attachments which no longer are applicable for post-shutdown of Unit 2 and 3. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

IP-EP-340, Meteorological Information and Dose Assessment System (MIDAS) (Revision 8) Revision Matrix

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3.	Pg 6 Section 5.5.8	Select Automatic or Manual, or Simulation	Select Automatic or Manual	No	No . Deleted simulation mode which will no longer apply post-shutdown because U2 and U3 simulators which will not be available. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.
4.	Pg 6 Section 5.5.8	NOTE: Simulation uses automated DRILL data. Simulation should be selected whenever possible during DRILLS unless it is KNOWN that the automated drill data is wrong, unavailable, or misleading.	Note Deleted	No	No . Deleted simulation mode which will no longer apply post-shutdown because U2 and U3 simulators which will not be available. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

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5.	Pg 6 Section 5.5.9	5.5.9 Based on the choices of CCR/EOF and Automatic (Simulator) / Manual the list of available choices in the 'Accident Run Menu Selection' will change.	5.5.9 Based on the choices of CCR/EOF and Automatic / Manual the list of available choices in the 'Accident Run Menu Selection' will change.	No	No. Deleted simulation mode which will no longer apply post-shutdown because U2 and U3 simulators which will not be available. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.
6.	Pg 7 (Top of page)	NOTE: To the user, Automatic and Simulator processes are the same, only changing the data source for automatic data collection. Automatic and Simulator processes are generally referred to throughout this procedure as 'Automatic'.	Note deleted		No. Deleted simulation mode references which will no longer apply post-shutdown because U2 and U3 simulators which will not be available. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

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7.	Pg 10 Section 5.5.11	5.5.11 With 'CCR' selected, only the automatic (Menu G & Menu J) or manual (Menu A & Menu D) quick dose projection is available as described in Section 5.5.12.	Deleted		No. The MIDAS CCR menus which no longer apply post-shutdown of U2 and U3 were deleted from the procedure. The MIDAS software itself was not changed. . The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

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8.	Pg 7 5.5.12	5.5.12 With 'EOF' selected the following menus are available: Automatic a. Menu G – Auto Quick dose projection Plant Vent – this menu uses automatically loaded data to project doses with minimal user intervention or input required. b. Menu H – Auto Enhanced dose projection – this menu uses automatically loaded data but allows the user to select relevant release points and other parameters c. Menu I – Auto Met Event Tree - uses automatically loaded meteorological data but uses a pull down event tree selection process to determine source term and release rates instead of using plant monitor data d. Menu J – Auto Quick dose projection Steam Generator Tube Rupture – this menu uses automatically loaded data to project doses with minimal user intervention or input required. e. Menu K-W – Auto Met Back Calculation – uses manually entered offsite monitoring centerline plume dose rate readings to estimate the release source term based on	5.5.11 With 'EOF' selected the following menus are available: Automatic a. Menu H – Auto Enhanced dose projection – this menu uses automatically loaded data but allows the user to select relevant release points and other parameters b. Menu K-W – Auto Met Back Calculation – uses manually entered offsite monitoring centerline plume dose rate readings to estimate the release source term based on automatically collected meteorological data. This menu option should generally not be used if plant monitors are available. c. Menu L – Auto Accum. Dose Last 24 Hr – uses the automated data collected for the last 24 hours to summarize the total dose committed for that period. This menu option would not generally be used during the initial protective action phase of an event d. Menu N – Auto Met Isotopic Entry – uses automatically collected meteorological data and manually entered isotopic release data to project dose – requires knowledge of release by isotope, e.g. from an	No	No. The MIDAS Automatic menus which no longer apply post-shutdown of U2 and U3 were deleted from the procedure. The MIDAS software itself was not changed. . The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

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		automatically collected meteorological data. This menu option should generally not be used if plant monitors are available. f. Menu L – Auto Accum. Dose Last 24 Hr – uses the automated data collected for the last 24 hours to summarize the total dose committed for that period. This menu option would not generally be used during the initial protective action phase of an event g. Menu N – Auto Met Isotopic Entry – uses automatically collected meteorological data and manually entered isotopic release data to project dose – requires knowledge of release by isotope, e.g. from an isotopic analysis of effluent stack samples. h. Menu Y – Auto All Screens – is for re-creation of past events and program testing and should not be used for emergency response. i. Multiple Accident Run - Allows for dose calculations for accidents occurring simultaneously at both units. (See Section 5.14).	isotopic analysis of effluent stack samples. e. Menu Y – Auto All Screens – is for re-creation of past events and program testing and should not be used for emergency response f. Multiple Accident Run - Allows for dose calculations for accidents occurring simultaneously at both units. (See Section 5.14).		

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9.	Pg 7 5.5.13	5.5.13 With 'EOF' selected the following menus are available: Manual a. Menu A – Quick dose projection – this menu assumes the release is monitored and prompts the user for input of meteorological and radiological data. b. Menu B – Enhanced dose projection – this menu prompts the user for manual input of release point, meteorological data, isotopic mix, and effluent monitor readings. c. Menu C –Event Tree - this menu prompts the user for manual input of meteorological data but uses a pull down event tree selection process to determine source term and release rates instead of using plant monitor data. d. Menu D – Quick dose projection Steam Generator Tube Rupture – this menu assumes the release is monitored and prompts the user for input of meteorological and radiological data. e. Menu E-W –Back Dose Calculation – uses manually entered offsite monitoring centerline plume dose rate readings and a pull down event tree selection process to	5.5.12 With 'EOF' selected the following menus are available: Manual a. Menu B – Enhanced dose projection – this menu prompts the user for manual input of release point, meteorological data, isotopic mix, and effluent monitor readings. . b. Menu E-W –Back Dose Calculation – uses manually entered offsite monitoring centerline plume dose rate readings and a pull down event tree selection process to determine the isotopic mix to estimate the release source term using manually entered meteorological data. This menu option should generally not be used if plant monitors are available. c. Menu F – Auto Accum Dose Last 24 Hr – uses the data entered for the last 24 hours to summarize the total dose committed for that period. This menu option would not generally be used during the initial protective action phase of an event d. Menu M – Isotopic Entry – uses manually entered meteorological data and manually entered isotopic release data to	No	No. The MIDAS Manual menus which no longer apply post-shutdown of U2 and U3 were deleted from the procedure. The MIDAS software itself was not changed. . The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

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		determine the isotopic mix to estimate the release source term using manually entered meteorological data. This menu option should generally not be used if plant monitors are available. f. Menu F – Auto Accum Dose Last 24 Hr – uses the data entered for the last 24 hours to summarize the total dose committed for that period. This menu option would not generally be used during the initial protective action phase of an event g. Menu M – Isotopic Entry – uses manually entered meteorological data and manually entered isotopic release data to project dose – requires knowledge of release by isotope, e.g. from an isotopic analysis of effluent stack samples. h. Menu X – Advanced Calcs All Screens – is for re-creation of past events and program testing and should not be used for emergency response i. Multiple Accident Run - Allows for dose calculations for accidents occurring simultaneously at both units. (See Section 5.14).	project dose – requires knowledge of release by isotope, e.g. from an isotopic analysis of effluent stack samples. e. Menu X – Advanced Calcs All Screens – is for re-creation of past events and program testing and should not be used for emergency response f. Multiple Accident Run - Allows for dose calculations for accidents occurring simultaneously at both units. (See Section 5.14).		

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10.	Pg 13 5.6.5	5.6.5 Isotopic Data spreadsheet - includes date and time, and input fields for the concentrations or release rates and flow rates in a known mix. The sheet contains additional input columns to the right not shown in this screen view.	5.6.5 Isotopic Data spreadsheet - includes date and time, and input fields for the concentrations or release rates and flow rates in a known mix. The sheet contains additional input columns to the right not shown in this screen view. (NOTE: MIDAS USER AID FOR SFP RELEASE provides additional details on assessment of spent fuel accident releases).	No	No – This change directs the MIDAS operator to a new user aid to facilitate the use of the isotopic entry menus for post-shutdown releases from a SFP. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

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11.	Pg 15 Section 5.7	5.7 Release Points - There are four release points available in MIDAS 5.7.1 Release Point 1 – Plnt Vnt – (Plant Vent) a, represents releases from the normal plant ventilation system b. R-44 and R-27 (Unit 2) c. R-14 and R-27 (Unit 3) d. stack flow rate required for R14 / R44 5.7.2 Release point 2 – CAEJ – (Condenser Air Ejector) a. represents releases from the condenser air ejectors / vacuum system b. R-45 (Unit-2) c. R-15 (Unit 3) d. offgas flow rate required 5.7.3 Release Point 3 – Stm Dmp – (Steam Dump) a. represents releases from atmospheric steam reliefs and dump valves b. R-28, R-29, R-30, and R-31 (Unit 2) c. R-62A, R-62B,R-62C, R-62D (Unit 3) d. estimates of steam flow through the open valves is required	5.7 Release Points - There is one release point available in MIDAS for each unit: 5.7.1 Release Point 1 – Plnt Vnt – (Plant Vent) a, represents releases from the normal plant ventilation system b. R-44 and R-27 (Unit 2) c. R-27 (Unit 3) d. stack flow rate required for R44	No	No – This change reflects that other previous release points (CAEJ, Steam Dump, and Vapor Containment) are no longer applicable post-shutdown. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

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		1. Flow instrumentation may not give valid values for atmospheric releases through open ADVs or Safeties 2. Initial flow rates at high temperature and pressure may greatly overestimate the total release if long durations are assumed 5.7.4 Release Point 4 – Vap Cont – (Vapor Containment) a. represents releases direct from the containment including damage to containment and containment bypass releases b. possible unmonitored pathways c. Containment dome monitors R-25, R-26 (Unit 2) d. Containment dome monitors R-25, R-26 (Unit 3) e. Estimate of flow rate required			

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Change No.	Page/Section	Previous Version	New Version	Editorial Change	Effect on 10 CFR 50.47(b) Planning Standards or NUREG-0654 program elements? Justify if NO.
12.	Pg 40 Section 9.0 Attachments	9.1 Event trees 9.2 Flow charts 9.3 Plant and Site Specific Parameters 9.4 Quick Guide for MIDAS Operation – Auto G: Plant Vent Quick Dose (CCR) 9.5 Quick Guide for MIDAS Operation – Auto J: SGTR Quick Dose (CCR) 9.6 Quick Guide for MIDAS Operation – Auto H: Enhanced Dose Projection SGTR (EOF) 9.7 Quick Guide for MIDAS Operation – Auto H: Enhanced Dose Projection (EOF) 9.8 Quick Guide for MIDAS Operation – Auto H: Enhanced Dose Projection (offsite) 9.9 Quick Guide for MIDAS Operation – Manual B: Enhanced Dose Projection (EOF) 9.10 Quick Guide for MIDAS Operation – Multiple Accident (EOF) 9.11 Quick Guide for MIDAS Operation – Multiple Accident (CCR) 9.12 Quick Guide for MIDAS Part 1 Form Generator	9.1 Event Trees 9.2 Plant & Site Specific Parameters 9.3 Quick Guide for MIDAS Operation (EOF – Auto H) 9.4 Quick Guide for MIDAS Operation (Offsite Users – Auto H) 9.5 Quick Guide for MIDAS Operation (Manual B – no automated data) 9.6 Quick Guide for MIDAS Operation – Multiple Accident (EOF) 9.7 Quick Guide for MIDAS Operation – Multiple Accident (CCR) 9.8 Quick Guide for MIDAS Part 1 Form Generator	No	No. Attachments which no longer apply post-shutdown of U2 and U3 were deleted and remaining ones were renumbered. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

IP-EP-340, Meteorological Information and Dose Assessment System (MIDAS) (Revision 8) Revision Matrix

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13.	Attachment 9.1 Event Trees Pg 1 of 1	1.0 Accident type – four choices 1.1 Containment release 1.2 Steam Generator Tube Rupture 1.3 Containment Bypass 1.4 Spent Fuel Pool release 2.0 Core Condition – six choices in two sets of three – one set applies to operating core accidents, one set to spent fuel 2.1 For containment, containment bypass, and Steam Generator releases: 2.1.1 Gap release 15-30 min – represents 5 % core activity release from gap activity with some core damage 2.1.2 In-vessel severe core damage uncover >30 minutes – represents core melt in vessel 2.1.3 Normal coolant with 100x spike – normal coolant activity with iodines and particulates multiplied by 100 to represent worst case normal trip 2.2 For spent fuel pool releases: 2.2.1 Zircaloy Fire in one three month batch 2.2.2 Gap release from one three month batch 2.2.3 Gap release from a full pool	1.0 Accident type – (one choice used post-defueling) 1.1 Spent Fuel Pool release 2.0 Core Condition –one set to spent fuel releases 2.1 For spent fuel pool releases: 2.1.1 Zircaloy Fire in one three month batch 2.1.2 Gap release from one three month batch 2.1.3 Gap release from a full pool	No	No. This change deleted event trees which no longer apply post-shutdown for U2 and U3. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

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		3.0 Tube Leak Rate – two choices - used for the steam generator tube rupture to identify the RCS to steam side transfer rate 3.1 1 tube at high pressure – initial condition of a single full tube failure 3.2 Charging pump flow – lower pressure condition assuming equilibrium with one			
14.	Page 42, Attachment 9.2 Flow Charts Pages 1 through 16	Pages 1 -16	Deleted all flow charts	No	No. Deleted flow charts, which were previously for background documentation and not intended as procedure steps. . The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

IP-EP-340, Meteorological Information and Dose Assessment System (MIDAS) (Revision 8) Revision Matrix

<table>
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<tr><td>15.</td><td>Attachment 9.3
Plant and Site Specific Parameters
Page 1 of 1</td><td>Listing of rad monitors</td><td>Deleted rad monitors all except R-27, R-44G and R-14G</td><td>No</td><td>No. Deleted rad monitors no longer apply post-shutdown for U2 and U3.
The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.</td></tr>
<tr><td>16.</td><td>Attachment 9.3
Plant and Site Specific Parameters
Page 1 of 1</td><td>Release Points Both Units:<table><tr><th>Point</th><th>Type</th></tr><tr><td>1 – station vent</td><td>Ground</td></tr><tr><td>2 – condenser offgas</td><td>Ground</td></tr><tr><td>3 – steam dumps</td><td>Ground</td></tr><tr><td>4 – containment leakage</td><td>Ground</td></tr></table></td><td>Release Points Both Units:<table><tr><th>Point</th><th>Type</th></tr><tr><td>1 – station vent</td><td>Ground</td></tr></table></td><td>No</td><td>No. Deleted release points no longer apply post-shutdown for U2 and U3.
The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.</td></tr>
</table>

IP-EP-340, Meteorological Information and Dose Assessment System (MIDAS) (Revision 8) Revision Matrix

Change No.	Page/Section	Previous Version	New Version	Editorial Change	Effect on 10 CFR 50.47(b) Planning Standards or NUREG-0654 program elements? Justify if NO.
17.	Previous pg 59 Attachment 9.4 Quick Guides for MIDAS Operation Page 1 of 2 CCR –Auto G (Used for Plant Vent Quick Dose)		Entire previous Attachment 9.4 deleted.		No. Deleted attachment no longer applies post-shutdown for U2 and U3. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.
18.	Previous pg 61 Attachment 9.5 Quick Guides for MIDAS Operation Page 1 of 2 CCR –Auto J (Used for Steam Generator Tube Rupture Quick Dose)		Entire previous Attachment 9.5 deleted.	No	No . No. Deleted attachment no longer applies post-shutdown for U2 and U3. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

IP-EP-340, Meteorological Information and Dose Assessment System (MIDAS) (Revision 8) Revision Matrix

Change No.	Page/Section	Previous Version	New Version	Editorial Change	Effect on 10 CFR 50.47(b) Planning Standards or NUREG-0654 program elements? Justify if NO.
19.	Previous pg 75 Attachment 9.6 Quick Guides for MIDAS Operation Page 1 of 4 EOF –Auto H (For Steam Generator Tube Rupture)		Entire previous Attachment 9.6 deleted.	No	No . No. Deleted attachment no longer applies post-shutdown for U2 and U3. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.
20.	Previous pg 83 Attachment 9.12 Quick Guides for MIDAS Operation Block 4	b. IF it is an INITIAL PAR, THEN answer whether the criteria for a RPSA have been met. i. RPSA criteria are defined in IP-EP-410, Attachment 9.1.	b. IF it is an INITIAL PAR, THEN answer whether the criteria for a Rapidly Progressing Severe Accident have been met. NOTE: THIS WILL ALWAYS BE "NO".	No	No. A RPSA is not applicable under permanent shutdown conditions for U2 and U3. The meaning or intent of description in the emergency plan, facilities or equipment described in the PSEP or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

Attachment 9.1

Emergency Planning Document Change Checklist Form

(All sections must be completed, N/A or place a check on the line where applicable)

Section 1

Doc/Procedure Type:	Administrative ☐ Implementing ☒ EPLAN ☐ N/A ☐
Doc/Procedure No:	IP-EP-340
Doc/Procedure Title:	Meteorological Information and Dose Assessment System (MIDAS)
New revision number:	8
Corrective Action:	Yes ☒ No ☐ N/A ☐ CR#: OL-OLI-2018-00090 CA 19
Effective date:	May 17, 2021

Section 2

Change Description

1. Ensure the following are completed, or are not applicable and are so marked:
   a. 50.54q ☒ N/A ☐
   b. EN-FAP-OM-023 ☐ N/A ☒
   c. IP-SMM- AD-102 ☒ N/A ☐
   d. OSRC ☐ N/A ☒
   e. NRC Transmittal (within 30 days) ☐ N/A ☒
2. List any other documents affected by this change: N/A
3. Transmittals are completed: ☒ N/A ☐ Date: 4/29/21
4. Ensure the proper revision is active in eB Ref. Lib.: ☒ N/A ☐
5. Approved doc/procedure delivered to Doc. Control for distribution: ☒ N/A ☐ Date: 4/29/21
6. Position Binders updated: ☒ N/A ☐ Date: 4/29/21
7. Copy of EPDCC placed in EP file: ☒ N/A ☐ Date: 4/29/21
8. Supporting documentation is submitted as a general record in eB Ref. Lib.: ☒ N/A ☐ Date: 4/29/21
9. Word files are moved from working drafts folder to current revision folder in the EP drive: ☐ N/A ☒ Date: 5/17/21

CONTROLLED

Meteorological Information and Dose Assessment System (MIDAS)

Prepared by:	Richard Watts Print Name	R. Watts Signature	4/7/2021 Date
Approval:	Frank Mitchell Print Name	Frank Mitchell Signature	4/7/2021 Date

Effective Date: May 17, 2021

This procedure excluded from further LI-100 review

Table of Contents

1.0 PURPOSE

To describe the methods of estimating the whole body and thyroid doses to onsite and offsite persons in the event of potential or actual accidental release of radioactivity to the environment

2.0 REFERENCES

2.1 MIDAS user manual (ABS Consulting)

2.2 IP-EP-510, Meteorological, Radiological & Plant Data Acquisition System

2.3 IP-EP-410, Protective Action Recommendations

3.0 DEFINITIONS

3.1 MRPDAS - Meteorological, Radiological, and Plant Parameter Data Acquisition System – the system which provides meteorological, Reuter Stokes and certain plant parameter data (VC Temperature, VC Pressure, Plant Vent and VC High Radiation Monitors)

3.2 Total Effective Dose Equivalent (TEDE) – The sum of the Deep Dose Equivalent (DDE) and the Committed Effective Dose Equivalent (CEDE).

3.3 Committed Dose Equivalent Thyroid (CDE Thyroid) – The dose equivalent to the thyroid that will be received from an intake of radioiodine by an individual during the 50-year period following the intake.

3.4 CEDE - Committed effective dose equivalent is the sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues

3.5 Site Boundary - For Dose Assessment and Protective Action Recommendation purposes the Site Boundary is the closest distance at which members of the public would be exposed to a radioactive release. When the plume is traveling toward the water, the distance to the nearest point on the far shore is used.

3.6 MIDAS - Meteorological Information and Dose Assessment System – computer software for determining source term, atmospheric dispersion, and dose consequences

3.7 Source term – generic term for curies available for release or actually being released. 'Term' in mathematics is any single factor in an equation. Hence 'source term', 'dispersion term', etc are simply portions of the equation for the calculation

3.8 Ground level release – an effluent release point model that assumes that the release point is at ground level, with no accounting for the additional mixing from other release point factors such as height above the ground, plume temperature, and exit velocity

3.9 Multiple Accident Run - Allows for dose calculations for accident releases occurring simultaneously from different release locations at one or both units.

4.0 RESPONSIBILITIES

Dose Assessment staff in the Control Room (CR) and in the Emergency Operations Facility (EOF) are responsible for assessing actual and potential planned and unplanned radioactive releases to the environment. Attachments at the end of the procedure may be used as a reference when stepping through a MIDAS dose assessment calculation.

NOTE:

When a dose assessment is being performed you may proceed directly to the applicable attachment in the procedure for the type of dose assessment being performed.

5.0 DETAILS

5.1 MIDAS is a menu driven computer system - menus are described below throughout Section 5

5.2 Step by step option selection for each menu are shown in the attachments

5.3 MIDAS uses a segmented plume model with terrain and meteorology specific wind fields. Displayed plumes are EXPECTED to have unusual shapes. (See Section 5.12)

5.4 MIDAS also uses an automated plant data collection system 'NDCIP' which runs in the background on the MIDAS computer

5.5 **MIDAS Startup**

5.5.1 PC computer system should be running with the program "NDCIP" active

NOTE:

NDCIP provides the automated interface between the plant data sources (e.g. PI computer) and the MIDAS system for automated plant monitor and meteorological data collection and should not be closed by the user.

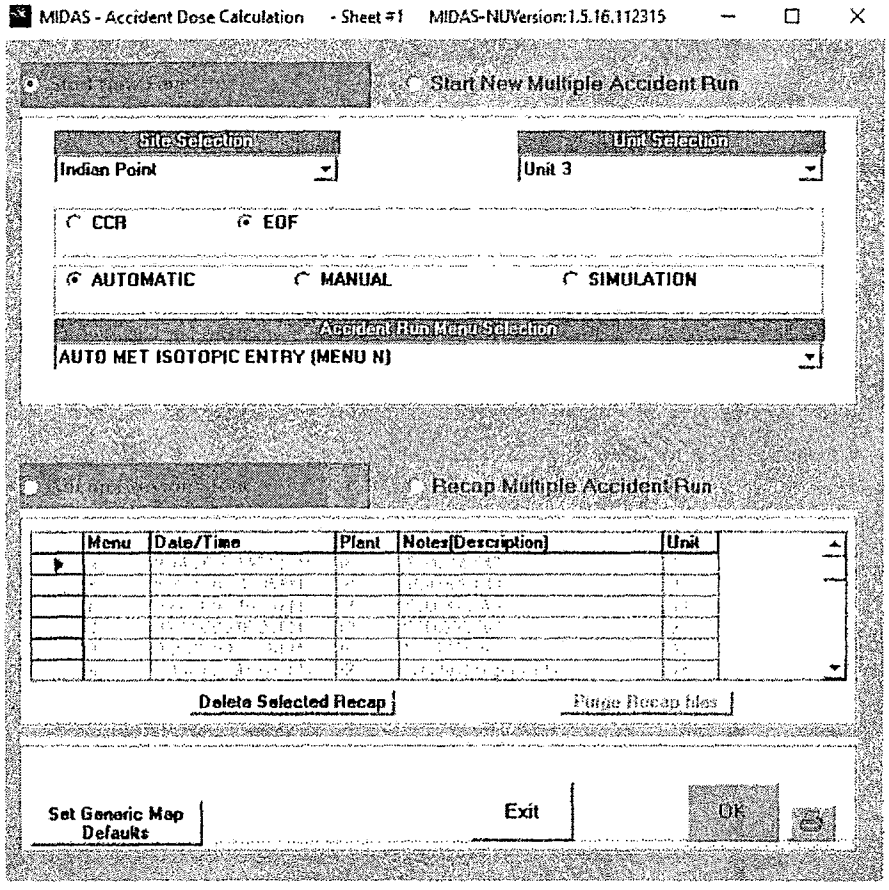
NOTE:

If NDCIP is not already active in the computer, it will start when MIDAS is started. In this case, there will not be recent history or current automated data available until a data collection cycle is completed.

5.5.2 Start MIDAS by 'double-clicking' on the 'MIDAS Accident Calcs' icon

5.5.3 After a few second delay with a startup screen showing a photograph of the plant, the accident dose startup menu screen will be displayed as shown in Figure 1 below.

Figure 1 Example: MIDAS Startup / Menu Screen



5.5.4 Ensure "Indian Point' is selected for the Site Selection on the upper left

5.5.5 Select 'Start New Run' for calculations involving an accident at either Unit 2 or Unit 3; or, select "Start Multiple Accident Run for accident releases occurring simultaneously from different release locations at one or both units. (See Section 5.14).

a. 'Recap Previous Run' near the bottom left is the alternate button selection for 'Start New Run'

b. 'Recap Previous Run' allows display of previously saved runs from the list at the bottom of the page

c. 'Recap Previous Run' will generally not be needed in the initial phase of dose evaluation but can be used if hard copy printouts of a previous run are needed

5.5.6 Select the appropriate Unit (2 or 3) on the upper right

a. If more than one location is experiencing a release, a calculation must be completed for each location.

- (ex. Unit 2, Unit 3, Spent Fuel Pool)

5.5.7 Select your location CCR or EOF

5.5.8 Select Automatic or Manual

NOTE:

Automatic should be selected whenever possible unless it is KNOWN that the automated data is wrong, unavailable, or misleading.

NOTE:

Choosing 'Automatic' will force MIDAS to use any of the effluent and radiation monitor data and meteorological data automatically collected from the plant computer system (PI computers). Manual will cause MIDAS to IGNORE this available data and will REQUIRE the user to obtain and enter this data by hand.

5.5.9 Based on the choices of CCR/EOF and Automatic / Manual the list of available choices in the 'Accident Run Menu Selection' will change.

5.5.10 The Automatic and Manual lists represent the same processes but using or not using the automatically collected data

5.5.11 With 'EOF' selected the following menus are available: **Automatic**

a. Menu H – *Auto Enhanced dose projection* – this menu uses automatically loaded data but allows the user to select relevant release points and other parameters

b. Menu K-W – *Auto Met Back Calculation* – uses manually entered offsite monitoring centerline plume dose rate readings to estimate the release source term based on automatically collected meteorological data. This menu option should generally not be used if plant monitors are available.

c. Menu L – *Auto Accum. Dose Last 24 Hr* – uses the automated data collected for the last 24 hours to summarize the total dose committed for that period. This menu option would not generally be used during the initial protective action phase of an event

d. Menu N – *Auto Met Isotopic Entry* – uses automatically collected meteorological data and manually entered isotopic release data to project dose – requires knowledge of release by isotope, e.g. from an isotopic analysis of effluent stack samples.

e. Menu Y – *Auto All Screens* – is for re-creation of past events and program testing and should not be used for emergency response

f. Multiple Accident Run - Allows for dose calculations for accidents occurring simultaneously at both units. (See Section 5.14).

NOTE:

If the automatic process identifies missing or bad data MIDAS will prompt the user for manual inputs, even in automatic menu modes.

5.5.12 With 'EOF' selected the following menus are available: **Manual**

a. Menu B – *Enhanced dose projection* – this menu prompts the user for manual input of release point, meteorological data, isotopic mix, and effluent monitor readings.

b. Menu E-W –*Back Dose Calculation* – uses manually entered offsite monitoring centerline plume dose rate readings and a pull down event tree selection process to determine the isotopic mix to estimate the release source term using manually entered meteorological data. This menu option should generally not be used if plant monitors are available.

c. Menu F – *Auto Accum Dose Last 24 Hr* – uses the data entered for the last 24 hours to summarize the total dose committed for that

period. This menu option would not generally be used during the initial protective action phase of an event

d. Menu M – *Isotopic Entry* – uses manually entered meteorological data and manually entered isotopic release data to project dose – requires knowledge of release by isotope, e.g. from an isotopic analysis of effluent stack samples.

e. Menu X – *Advanced Calcs All Screens* – is for re-creation of past events and program testing and should not be used for emergency response

f. Multiple Accident Run - Allows for dose calculations for accidents occurring simultaneously at both units. (See Section 5.14).

5.6 MIDAS data input process

5.6.1 MIDAS accumulates automatically collected data or manually input data into spreadsheets. There are two sets of four primary spreadsheets, one set for manually entered data and one set for automatically collected data.

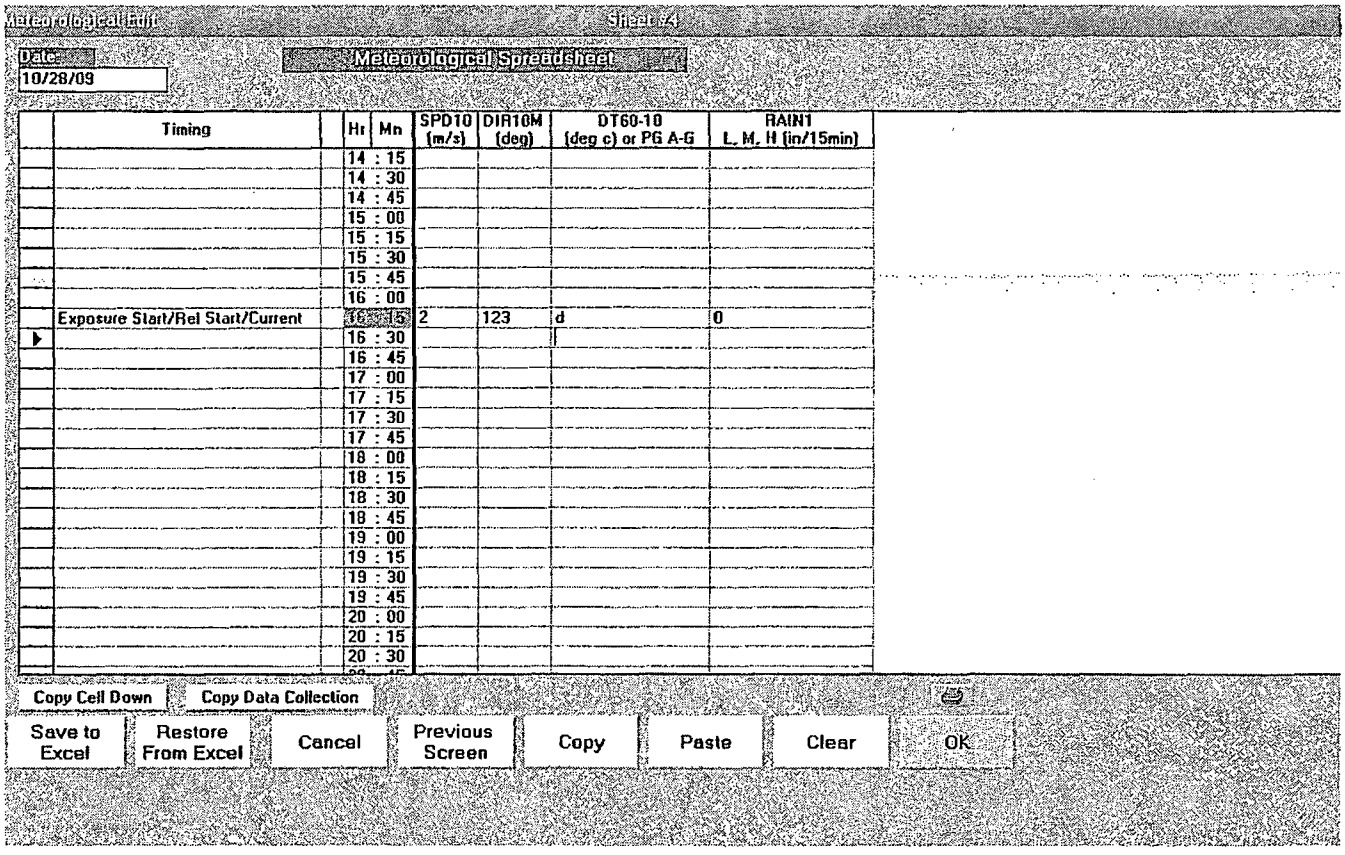
5.6.2 Meteorological spreadsheet – includes date and time, wind direction, wind speed, delta T (or stability class), and precipitation

a. Make certain that the proper met data is being applied when entering data manually because several sets of meteorological data are available from sensors at different levels on the primary tower and from a backup tower.

b. Because all release points are treated as ground level, the speed and direction values should be from the primary tower 10 meter sensors and the stability should be derived from the 60 – 10 delta T.

c. The meteorological data spreadsheet is shown below in Figure 2

Figure 2 Example: MIDAS Meteorological Data Input Sheet

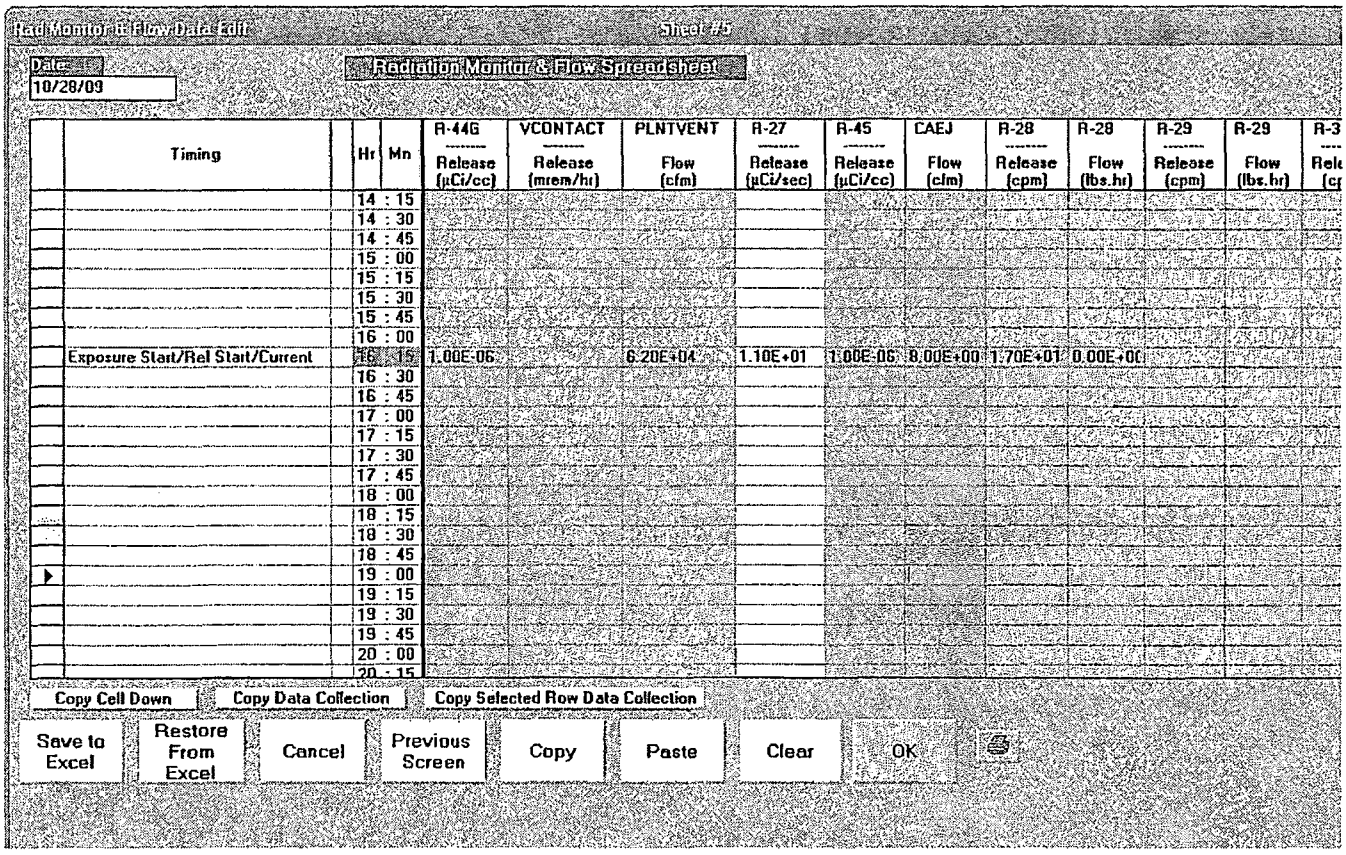


5.6.3 Radiation Monitor & Flow spreadsheet - includes date and time, and input fields for the plant effluent monitors, flow rates of release points, and the containment dome monitors as shown in Figure 3. The sheet may contain additional input columns to the right not shown in this screen view dependent on the release points selected as active.

a. The content and columns displayed on this sheet are modified based on the selection of the four release points

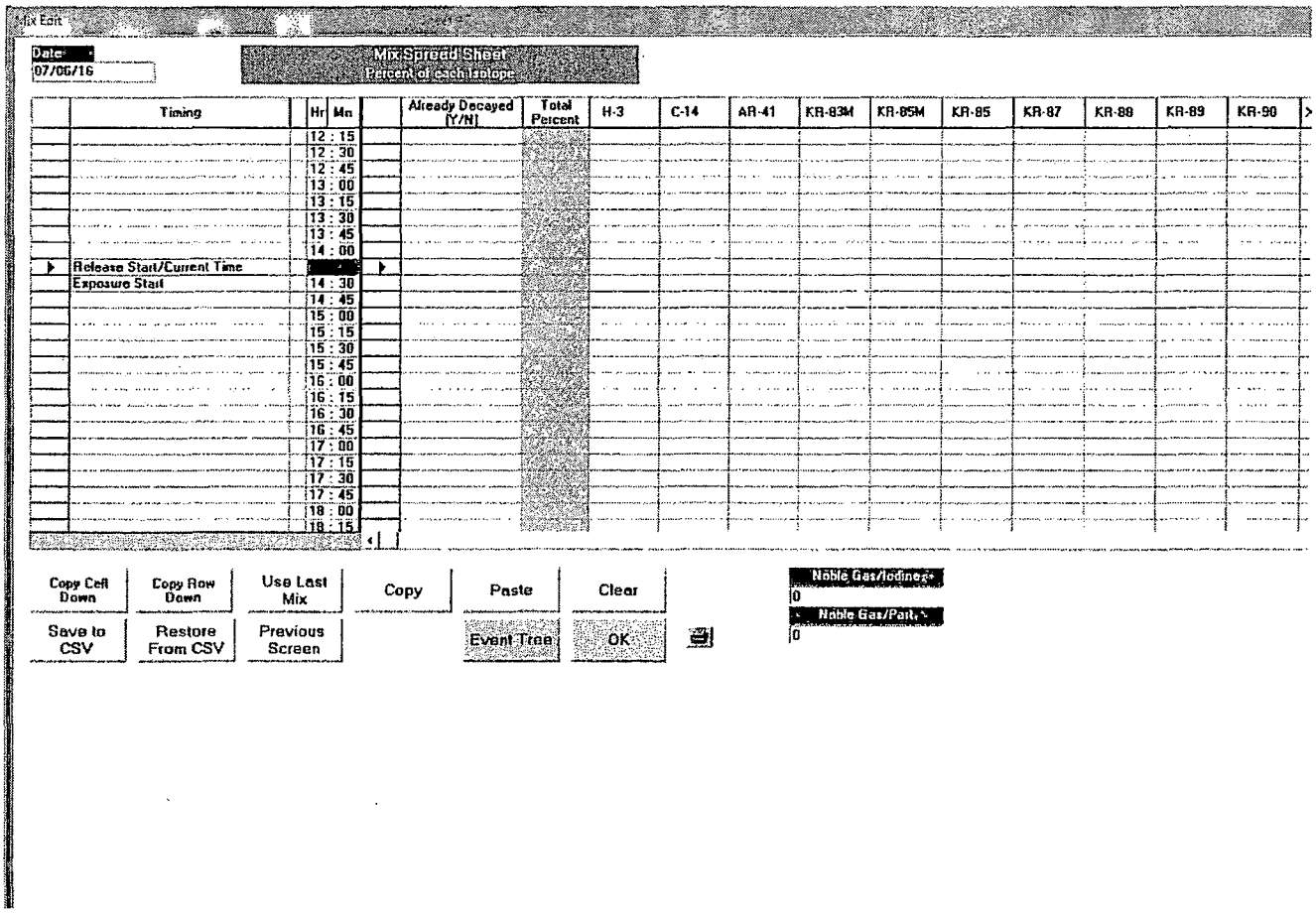
b. Columns for effluent monitors, dome monitors, flow instruments are selected based on the applicability of each sensor to the selected release points

Figure 3 Example: MIDAS Radiation, Effluent Monitor and Flow Data Input Sheet



5.6.4 Mix spreadsheet - includes date and time, and input fields for the ratios of isotopes in a known mix in percent as shown below in Figure 4. The sheet contains additional input columns to the right not shown in this screen view. The sheet will adjust the input percentages to total 100, so mixes do not need to be in percent to be input.

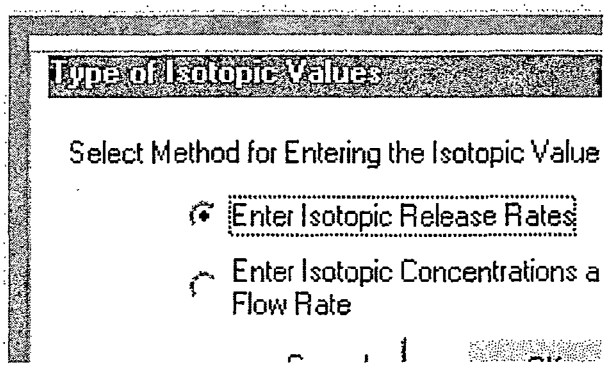
Figure 4 Example: MIDAS Effluent Isotopic Mix Data Input Sheet



5.6.5 Isotopic Data spreadsheet - includes date and time, and input fields for the concentrations or release rates and flow rates in a known mix. The sheet contains additional input columns to the right not shown in this screen view. (NOTE: ***MIDAS USER AID FOR SFP RELEASE*** provides additional details on assessment of spent fuel accident releases).

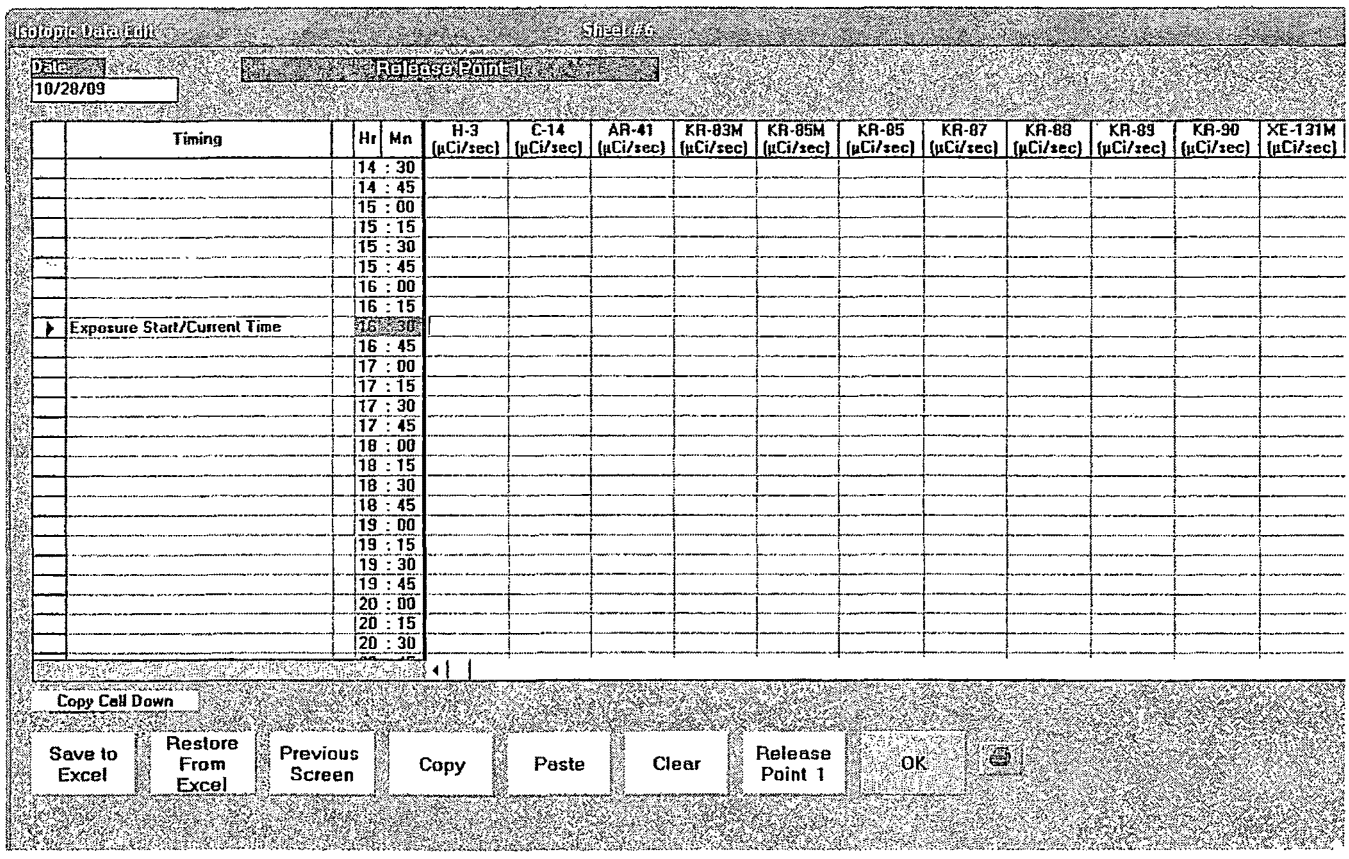
5.6.5.1 Before entering data, select if data is available in rate or concentration in the selection menu as shown in Figure 5.

Figure 5 Example: MIDAS Effluent Isotopic Sample Data Type Selection Menu



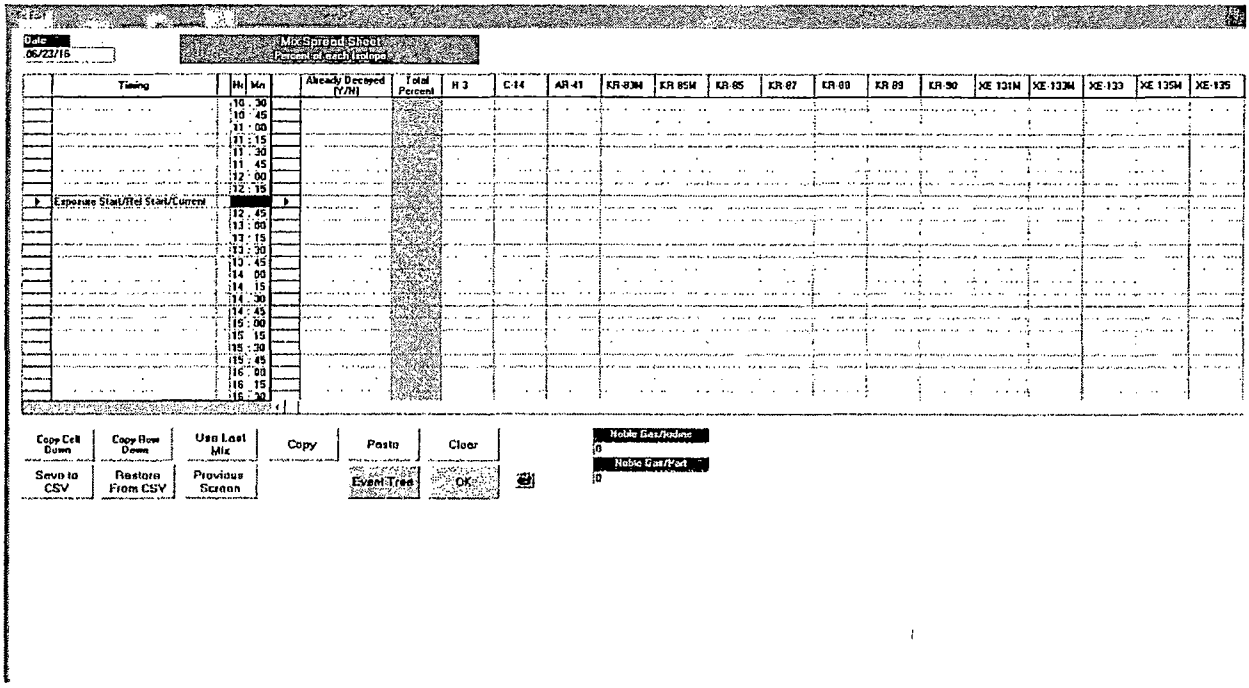
a. With release rate selected the input process requires release rate in uCi/sec for each isotope as shown in the input sheet in Figure 6

Figure 6 Example: MIDAS Effluent Isotopic Sample Data Release Rate Input Sheet



b. With release concentration and flow selected the input process requires release rate in uCi/sec for each isotope as shown in the input sheet in Figure 7

Figure 7 Example: MIDAS Effluent Isotopic Sample Data Concentration and Flow Rate Input Sheet

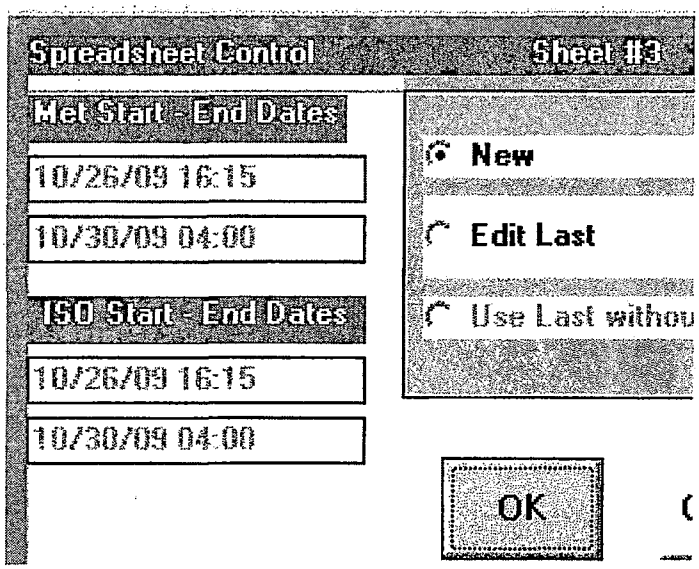


NOTE:

The ISOTOPIC DATA sheets are release point specific. If more than one release point is active you MUST enter data on sheets for each release point by clicking on the Release Point button to the left of the "OK" to toggle between release point sheets

5.6.6 Under many circumstances when release points are changed or calculation menu choices are changed MIDAS will provide a prompt to initialize ('New') or retain the old ('Edit Last') data collection spreadsheets as shown in Figure 8

Figure 8 Example: MIDAS Spreadsheet Initialization Selection Menu



5.6.7 The user MUST select 'NEW' when first starting MIDAS, otherwise the spreadsheet dates will be left over from the last time the program was used and WILL cause dose projection errors.

5.6.8 When changing menus or release points, a similar prompt may appear. If the dates of the various sheets shown are not consistent and are not appropriate for the current calculation the user MUST select 'NEW'.

5.6.9 Spreadsheet lines highlighted in the time column with RED are the start time of the release.

5.6.10 Spreadsheet lines highlighted in the time column in LIGHT BLUE are the start time of the dose assessment.

5.6.11 Because, for offsite protective action purposes, dose that has already been incurred is not used for protective action decisions, the start of release and start of dose assessment will not be the same except for initial calculations.

5.6.12 Make CERTAIN that the spreadsheets contain data in the highlighted lines. Meteorological data from previous lines is assumed to 'persist' into the current time. Release data does NOT 'persist' and blank lines are interpreted as NO RELEASE.

5.6.13 Buttons on the spreadsheets allow copying lines of data and pasting to new lines, clearing lines of data, and saving and retrieving sheets to / from Excel readable spreadsheet files.

5.7 **Release Points** - There is one release point available in MIDAS for each unit:

5.7.1 Release Point 1 – PInt Vnt – (Plant Vent)

a, represents releases from the normal plant ventilation system

b. R-44 and R-27 (Unit 2)

c. R-27 (Unit 3)

d. stack flow rate required for R44

5.7.2 The Plant Vent release points are treated as ground level releases

a. application of ground level release point model to station vent will likely cause underestimate of offsite mixing and overestimate of dose consequences of release

5.8 **Times and timing in MIDAS**

5.8.1 There are several timing concepts important to successful MIDAS dose projections

5.8.2 **Meteorological data**

a. Always provided in 15 minute average data

b. Averages are CENTERED on the 15 minute clock time e.g. the 1300 average is accumulated from 12:52:30 to 13:07:30

c. Manually entered data COULD be in instantaneous values but may not represent the long term dispersion

5.8.3 **Start Date of Exposure –**

a. The date and time for the beginning of calculation of dose consequences

b. Because dose already incurred is irrelevant to protective actions, this is typically set to the current time

c. Defaults times will be set to Meteorological times – e.g. HH: 08, HH: 23, HH: 38, HH: 53

5.8.4 **Trip/Shutdown**

a. The date and time of the plant trip or shutdown

b. Used to decay default and other isotopic information to adjust isotopic mixes and monitor response factors based on mix

c. Should be set once at start of event

d. MIDAS will remember this value

5.8.5 **Release time**

a. The date and time of the start of the release

b. Different from start of exposure because previous releases are kept track of in MIDAS and doses for the activity already in the environment may be included in the dose assessment

c. Should be set to the earliest time of significant releases – should NOT be the current time except for the first calculation.

d. Should be set once at start of event

e. MIDAS will remember this value

5.8.6 **Remaining duration**

a. Represents the approximate remaining duration of significant releases

b. Used to 'persist' releases into the future

c. Four hours is the typical default.

5.8.7 **Exposure time to be calculated**

a. Specific times that projections will be provided for

b. Provides basis for plume plots, long term projections

c. At least one value should be 4 in order to provide specific projection at the default duration

5.8.8 **Daylight savings time**

a. MET data is maintained in Eastern Standard Time (EST)

b. The PI computer tags data strings with eastern daylight time (EDT) when applicable

c. Conflicting times will cause problems with auto data collection

d. MIDAS contains a data file (DST.txt) that tells MIDAS when to assume EDT.

e. This file MUST be maintained annually due to possible changes in EDT/EST changeover as federally mandated

f. MIDAS will subtract 1 hour from the PI reported met string during EDT based on the period defined in the DST.txt file.

5.9 **Automated Data collection**

5.9.1 Automated collection of data is obtained from the EOFPI, U2PI, and U3PI servers.

5.9.2 Short delays are expected between data collection at the source and the availability of the data in the PI servers.

5.9.3 MIDAS delays acquisition of data for about 75 seconds to ensure data is updated. IF data collection is delayed longer than 75 seconds or there are errors in the time in the computers, automatic data collection will fail.

5.9.4 Because the data collection into the PI computers is dependent on the time and timing of multiple PI servers as well as other plant computers and data loggers (met towers) bad or old data may be collected due to delays in the data transfer path before MIDAS tries to acquire the data.

5.10 Event Trees

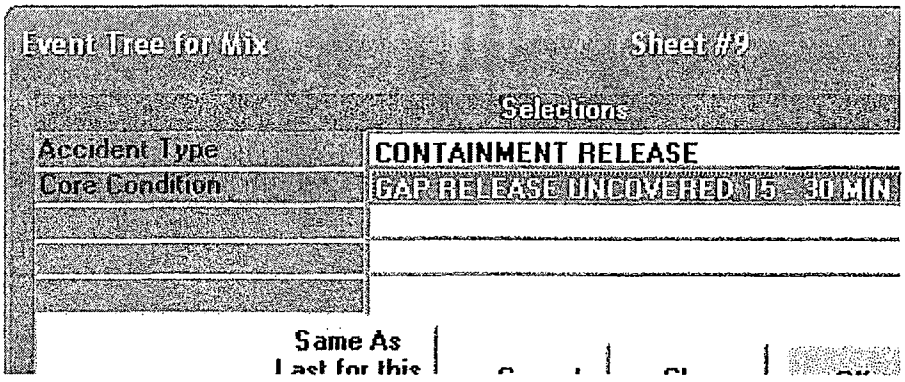
5.10.1 In some events source term may be developed or enhanced by selection of plant conditions from an 'event tree'

5.10.2 The event tree is based on the event trees in the NRC Response Technical Manual but applies only the default noble gas to iodine mixes of 10000:1 or 100:1 in use at IPEC.

5.10.3 As the name suggests, the event tree is a branching process that asks questions based on previous answers

5.10.4 The event tree may have one or two branches after the initial trunk question as shown in the example in Figure 9 below.

Figure 9 Example: MIDAS Event Tree Menu



5.10.5 Each line is based on a pull-down selection list with the next branch typically dependent on the answer to the previous branch.

5.10.6 There are four accident types, three isotopic mixes, and for steam generator releases, two possible flow rates in event tree. The tree selections are shown in detail in Attachment 9.1

5.10.7 The event tree selects the isotopic mix and / or the curies available for release by determining core condition, release conditions (flow rates etc) and adjustments for the default Noble Gas to Iodine ratios for each accident type.

5.10.8 For unmonitored releases, the event tree will derive isotopic release rates (mix and magnitude)

5.10.9 For releases with monitor data, the event tree will determine the isotopic mix which is then applied to the total activity applicable for the monitor reading to determine the magnitude of the release

5.10.10 The selection of release point does NOT limit the event tree menu choices. Therefore the user must ensure that the release point and the accident type in the event tree are consistent. E.g. do not select release point 1 and a steam generator tube failure event tree (more appropriate for release point 3).

5.11 MIDAS Main input control page

NOTE:

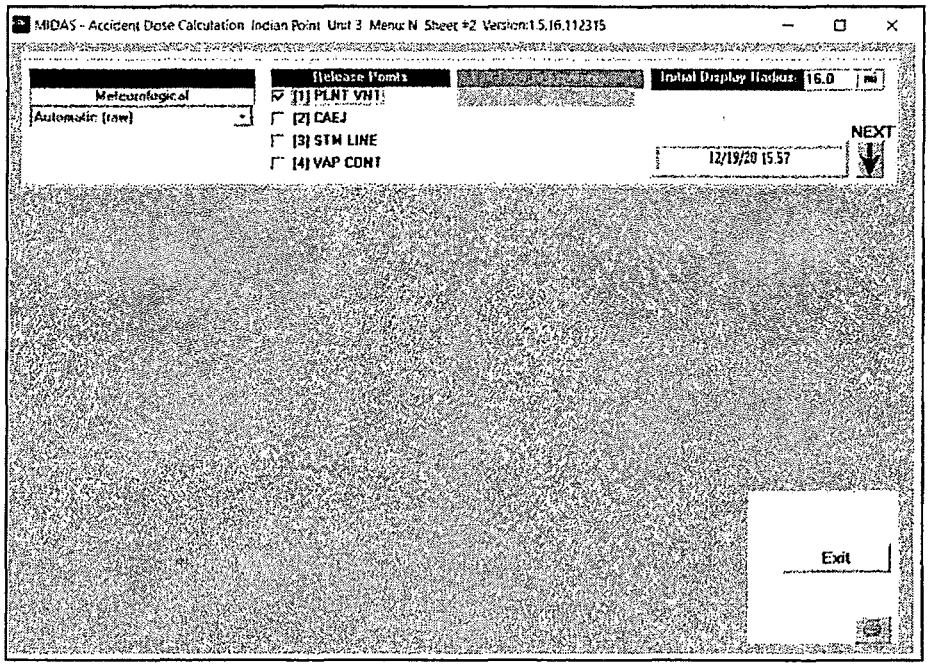
Each time the NEXT arrow is selected, MIDAS will inspect the input parameters to test if there is valid complete data for a successful dose projection and will provide warnings if data is incomplete or invalid. Some of these warnings are informational and some are critical. The warnings messages must be reviewed to determine if they are critical or not.

5.11.1 MIDAS uses a main input control page to sequence the user through the input process. At each step, additional panes are shown as required as described below for individual parameter input

5.11.2 The input control page is divided into four sections horizontally

5.11.3 The first section allows selection of release points and plume plot display distance as shown in Figure 10. Default for the initial display radius is 16 miles

Figure 10 Example: MIDAS Main Input Page, first quarter pane section



5.11.4 CLICK on the NEXT down arrow to continue – the arrow label will change to DONE and will turn green

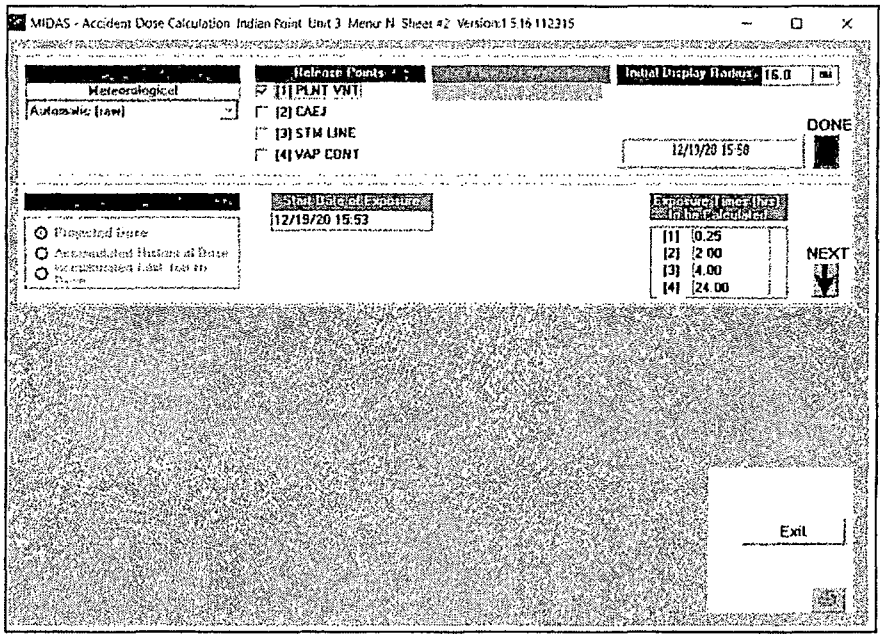
5.11.5 'Exit' terminates MIDAS and must be clicked TWICE to exit

NOTE:

Gray items are not used in the selected menu. Most users will not need these items during emergency response activities

5.11.6 The second quarter pane of the screen inputs exposure start date/time and desired calculation times and is shown in Figure 11 below. At least one of these times should be 4 hours

Figure 11 Example: MIDAS Main Input Page, second quarter pane section



5.11.7 CLICK on the NEXT down arrow to continue

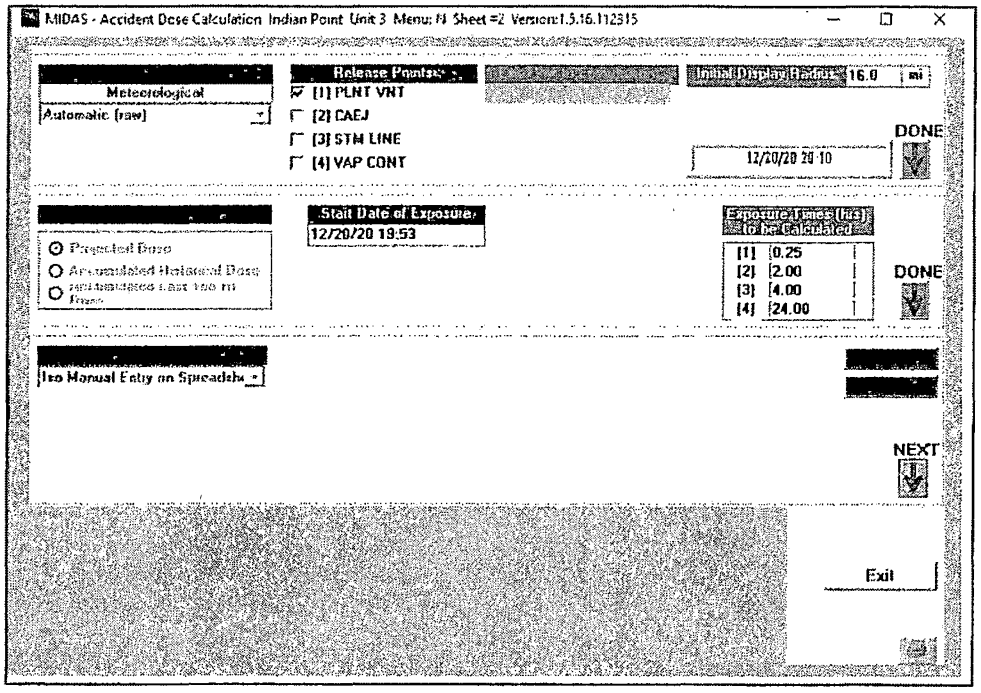
5.11.8 DEPENDING on the initial menu selection, the manual input spreadsheets or the event tree will now be displayed

5.11.9 After completing the spreadsheets or event tree, or if automated data is available, the previous Next down arrow will turn green and be relabeled DONE.

5.11.10 Click boxes are displayed on the right of the third input page section for each spreadsheet used as shown in Figure 12 below.

1. If all boxes are GREEN, MIDAS has determined that the input data is usable for calculations – i.e. there is sufficient valid data for a projection at the current projection time
2. If any box is RED, MIDAS has determined that the data for that input item may not be usable.
3. If any box is RED, click on that box to repeat the input process for that item.

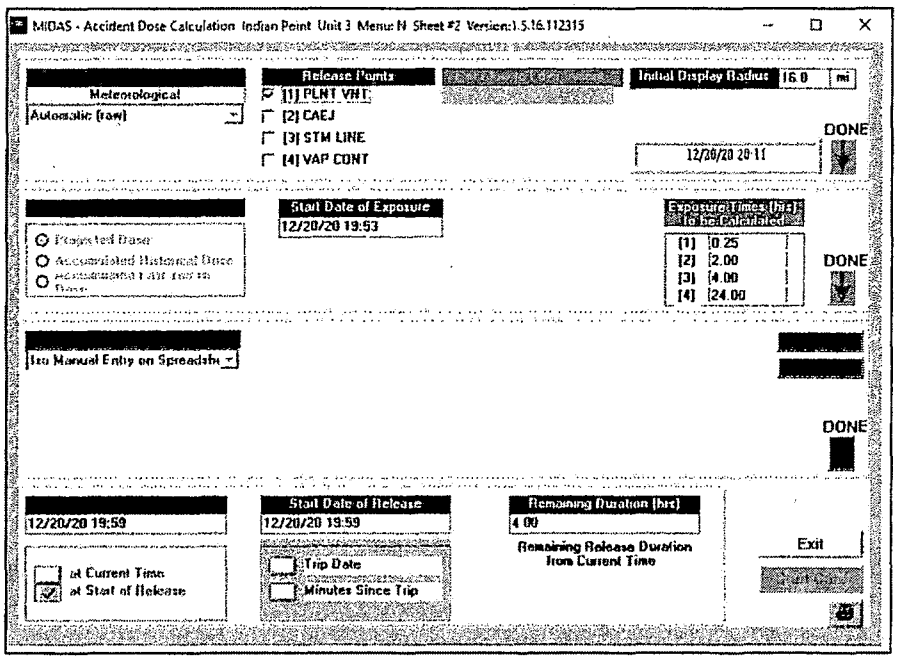
Figure 12 Example: MIDAS Main Input Page, third quarter pane section



5.11.11 CLICK on the NEXT down arrow to continue – the arrow label will change to DONE and the arrow will turn green

5.11.12 The final section of the input page allows changing the Trip and Release Start times, as well as the release duration as shown in Figure 13 below.

Figure 13 Example: MIDAS Main Input Page, fourth quarter pane section



5.11.13 Click 'Start Calc' to continue and start the offsite dose calculations

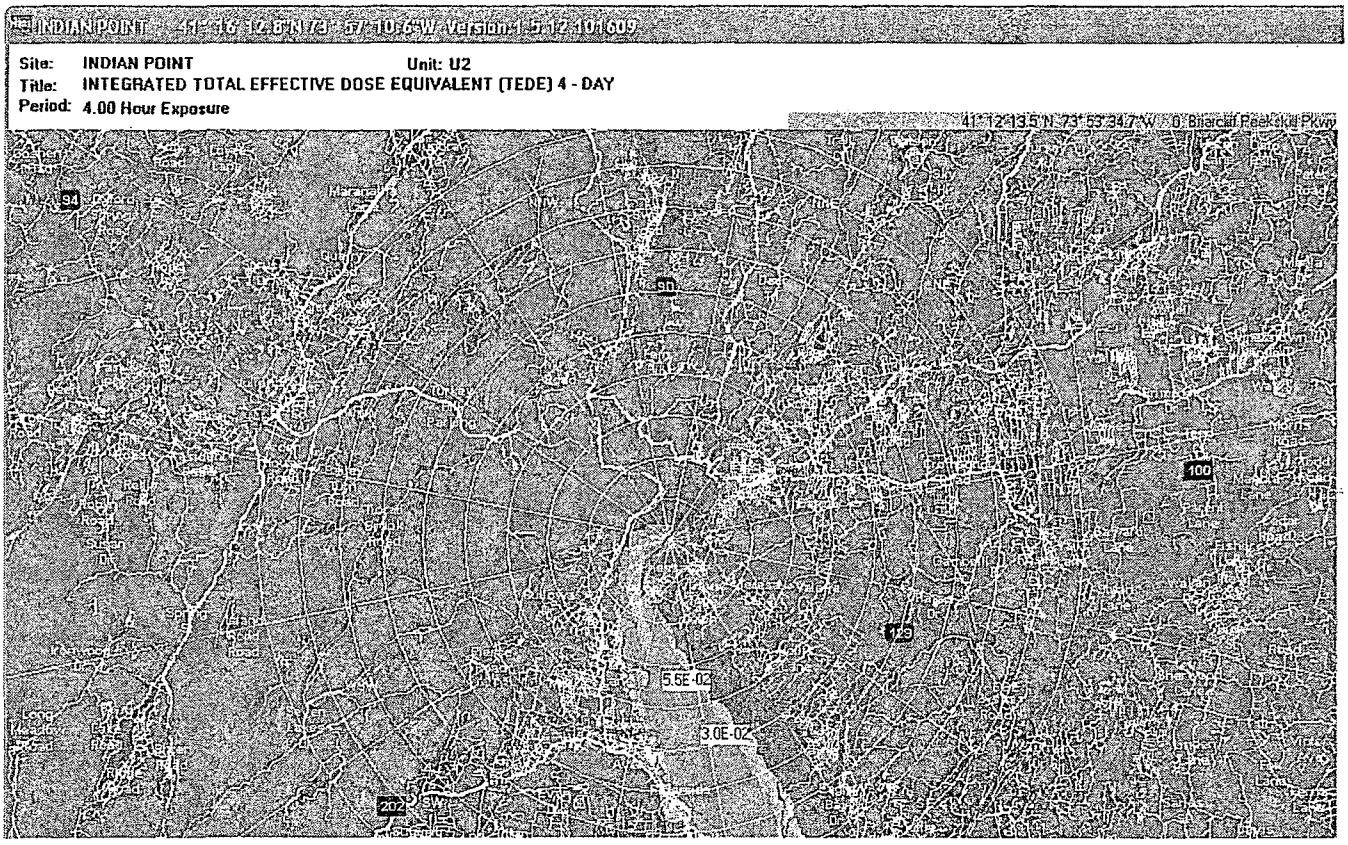
5.11.14 Calculations may take several seconds and are not complete until the text displays are shown on the right side of the screen view.

5.11.15 MIDAS will complete calculations and show the default results page, a plume plot of the integrated TEDE dose at 4 hours.

5.12 MIDAS Output

5.12.1 MIDAS will display various plume plots depending on user selected options as shown in Figure 14 below.

Figure 14 Example: MIDAS Plume Plot Output Display Page



NOTE:

MIDAS uses site-specific variable wind fields so the plume may not be linear.

NOTE:

MIDAS plot screen can be printed by clicking on the printer icon on the lower right

5.12.2 In addition to the plume plot, various input and calculated parameters are displayed on the right side of the output page.

5.12.3 Numerous plume display options are available by selecting the buttons at the bottom of the frame. Clicking on these buttons activates additional features or toggles display options

NOTE:

Most of the plume display option buttons require clicking on the CONFIRM button on the lower right to redraw the display. The CONFIRM button will blink when required.

5.12.4 POI activates a Point of Interest pointer. Selecting POI and clicking on any point on the active plot will cause a point specific value to be shown on the plume plot.

NOTE:

Changing the plume display by selecting a different plume or zooming the display will clear the points of interest. Two points of interest are shown in the plume plot in Figure 14 above

5.12.5 TEDE will display various options for the Total Effective Dose Equivalent calculation based on the yellow buttons below (see Sections 5.12.6 through 5.12.8)

5.12.6 Integrated dose button toggles between integrated dose and dose rate display

5.12.7 Exposure 4 hr toggles between the four calculation display times previously input in the second section of the input page

5.12.8 Graphic toggles between graphic on tabular display. Generally the graphic display is more useful for emergency response; tabular reports are available elsewhere (see below)

5.12.9 Child Thyroid CDE (previously referred to as TODE) will display various options for the thyroid specific organ dose calculation based on the yellow buttons above (see Sections 5.12.6 through 5.12.8)

5.12.10 EDE will display various options for the external photon dose based on the yellow buttons above (see Sections 5.12.6 through 5.12.8)

5.12.11 Field Monitors will display various options for external photon dose rates with overlay projected photon dose and measured dose (or dose rate) at the Reuter Stokes monitors and field monitoring points as shown in Figure 15 below (view zoomed in compared to the view above)

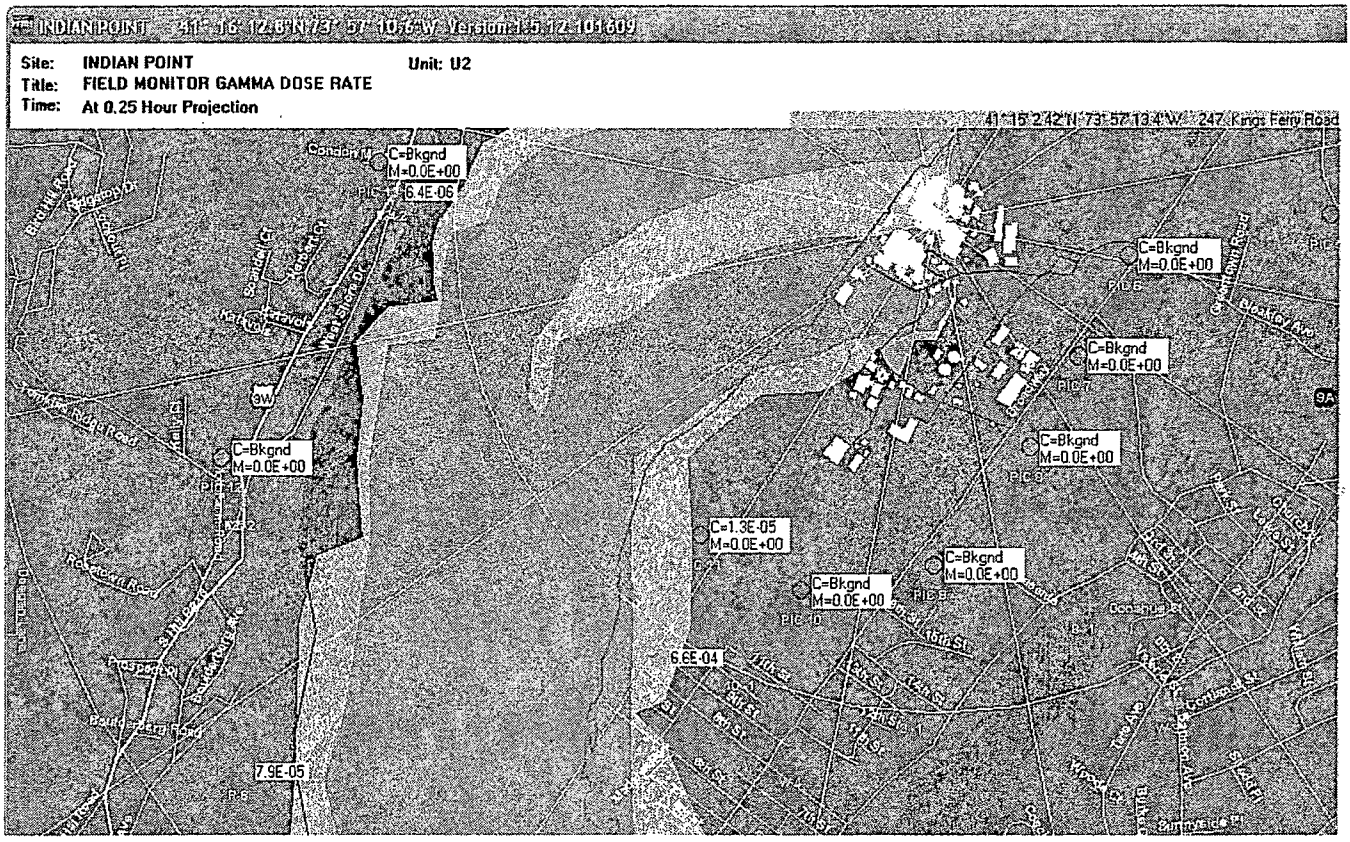
5.12.12 Points with two values are Reuter Stokes locations

a. C – MIDAS calculated value

b. M – Reuter Stokes monitor reported value (in this case M values are zero because the data was not being collected)

c. Calculated values (dose or dose rate) for predefined field monitoring points are shown at the 'circle and plus' crosshairs

Figure 15 Example: MIDAS Plume Display with Reuter Stokes and Monitoring Location Data



5.12.13 Population Dose will display a plot of integrated population dose

5.12.14 Plume Tracks is a simplified display of the plume. This is useful to highlight the possible meander of the plume. Lateral contours are not shown.

5.12.15 Special Reports will generate text reports of input and output parameters which can be printed and will start the Form 1 input process

5.12.16 Dose Summary provides the simplified dose and release summary including affected sector and affected ERPAs in a single page. This is probably the most useful report and is shown in Figure 16 below.

Figure 16 Example: MIDAS Dose Summary Report

Dose Assessment and PAR Summary

1 /1 85%

Dose Assessment Summary — Indian Point Station

Name: Run Time: 08:07 AM Date: 13-

Current Meteorological Data

Wind Direction (from):	321 °
Wind Speed (m/s):	5.6
Stability Class:	A

Current Active Release Locations

X	Release From Plant Vent
	Release From the Air Ejectors
	Release From the Main Steam
	Release From the Containmer

Remaining Release Duration (hours

Current Release Rates

Noble Gases (Ci/sec):	Particulates (Ci/sec):	Radioiodines (Ci/
1.0E+03	1.0E-01	1.0E-01

		Peak Values — PAG Exceeded			
		Site Bndry	2 Miles	5 Miles	10
Integrated Dose @ 4 hours (mrem)	TEDE :	1.6E+03	6.9E+01	2.8E+01	1.
	Thy CDE :	3.5E+02	1.7E+01	7.1E+00	3.
Current Dose Rate (mrem/hr)	TEDE:	6.6E+02	2.4E+01	*	
	ThyCDE :	6.1E+01	3.0E+00	*	
	* Plume may not have arrived yet or has already pa				
Dispersion (sec/m^3)	X/Q:	1.4E-06	7.0E-08	3.2E-08	1.

5.12.17 Ingestion Summary provides information on the dose and concentrations through the ingestion pathways the longer term response.

5.12.18 Met/Rad Summary provides a summary page of the meteorological conditions used and the readings from any radiation or effluent monitors used for the projection

5.12.19 RMP provides a summary report for the calculated values at offsite radiation monitoring points

5.12.20 Projection Summary provides a summary of the dose compared to PAG and dose broken out by pathway

5.12.21 Plume Arrival provides a tabular estimate of the arrival time of the plume at various distances based on assumption of last meteorological data persists

5.12.22 Ingestion Pathway displays a plume of the ingestion pathway concentrations for based on the isotopes and pathways selected using the yellow buttons below

5.12.23 X/Q (chi over Q) displays various dispersion parameter plots based on the selection from the yellow button below.

5.12.24 XX Miles activates an input box to change the downwind distance limit of the calculation.

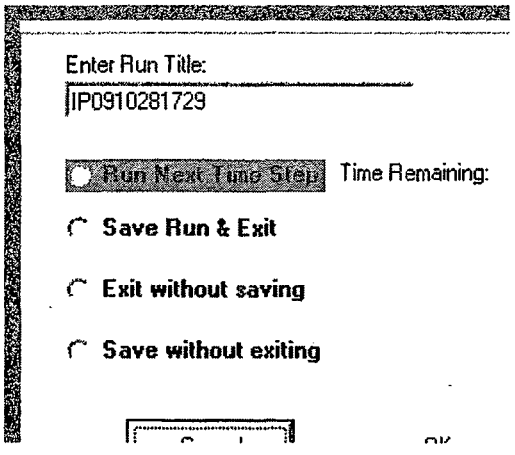
a. This actually recalculates the plume, not just resizes the display.

b. This can be useful to improve the display precision for close in to the plant.

c. End Run will exit the current calculation.

d. An exit option menu will appear as shown in Figure 17 below

Figure 17 Example: MIDAS Exit Option Menu



NOTE:

Depending on the initial menu choice, not all of these four exit menu choices will be available.

e. Run Next Time Step will rerun the current calculation with new data for a new 15 minute average. If the next 15 minute interval is not yet available, the choice will be red with a count down timer

f. Save run and exit will save all of the parameters for the current run to the computer hard drive in a file based on the name the user enters in the box at the top and then terminate MIDAS.

NOTE:

In order for 'RECAP' in the main startup screen to redisplay runs, the runs MUST have been saved using this process

g. Exit without saving will terminate MIDAS and not save a RECAP file

h. Save without exit will save the RECAP file and return to the main startup menu

5.13 Using MIDAS results

NOTE:

If more than one location is experiencing a release, select New Multiple Accident Run radial button on the initial MIDAS Startup / Menu Screen (described in Section 5.14) and use the combined, Multi-Accident Dose Summary Report to obtain the combined doses before comparing results. (Use the manual Dose Assessment Worksheet as a backup method if needed).

5.13.1 MIDAS results should be compared to existing limits and protective action guidelines to determine appropriate response.

5.13.2 Use EP-410 to determine protective action recommendations based on MIDAS dose assessment results

5.13.3 Use the PART1 communication system to complete notifications

5.13.4 Release rates calculated by MIDAS that exceed technical specification limits need to be identified in the notifications.

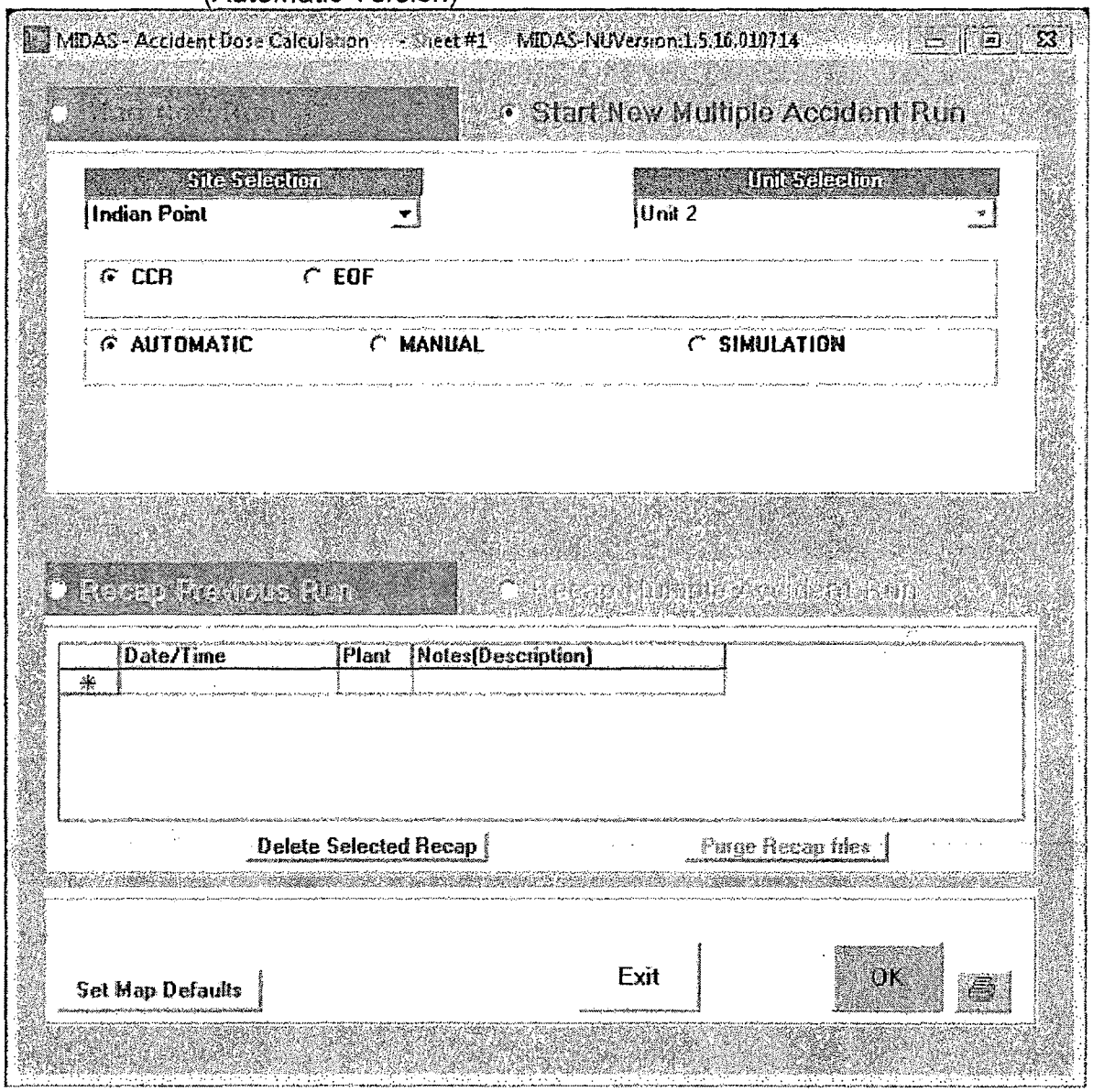
5.14 Multiple Accident Run (Simultaneous Release Point Dose Projection from CCR or EOF)

NOTE:
If more than one location is experiencing a release, select New Multiple Accident Run radial button on the initial MIDAS Startup / Menu Screen. This function of MIDAS will allow entry of up to 5 different accident releases occurring simultaneously from Unit 2 and Unit 3.

NOTE:
The Multiple Accident feature of MIDAS can be run from either the CCR or from the EOF in the AUTO or MANUAL mode.

NOTE:
First select either the CCR or the EOF and the AUTO mode. Then select Start New Multiple Accident Run radial button as shown in Figure 18. The instructions which follow are for calculations performed using the AUTO Mode.

Figure 18 Example: MIDAS Startup/Menu Screen Showing Multiple Accident Run selection (Automatic Version)



5.14.1 Select CCR or EOF and then Automatic radial button, then Start NEW Multiple Accident Run radial button. Then press GREEN "OK" button.

5.14.2 Enter brief run title in GREEN box (22 characters, maximum).

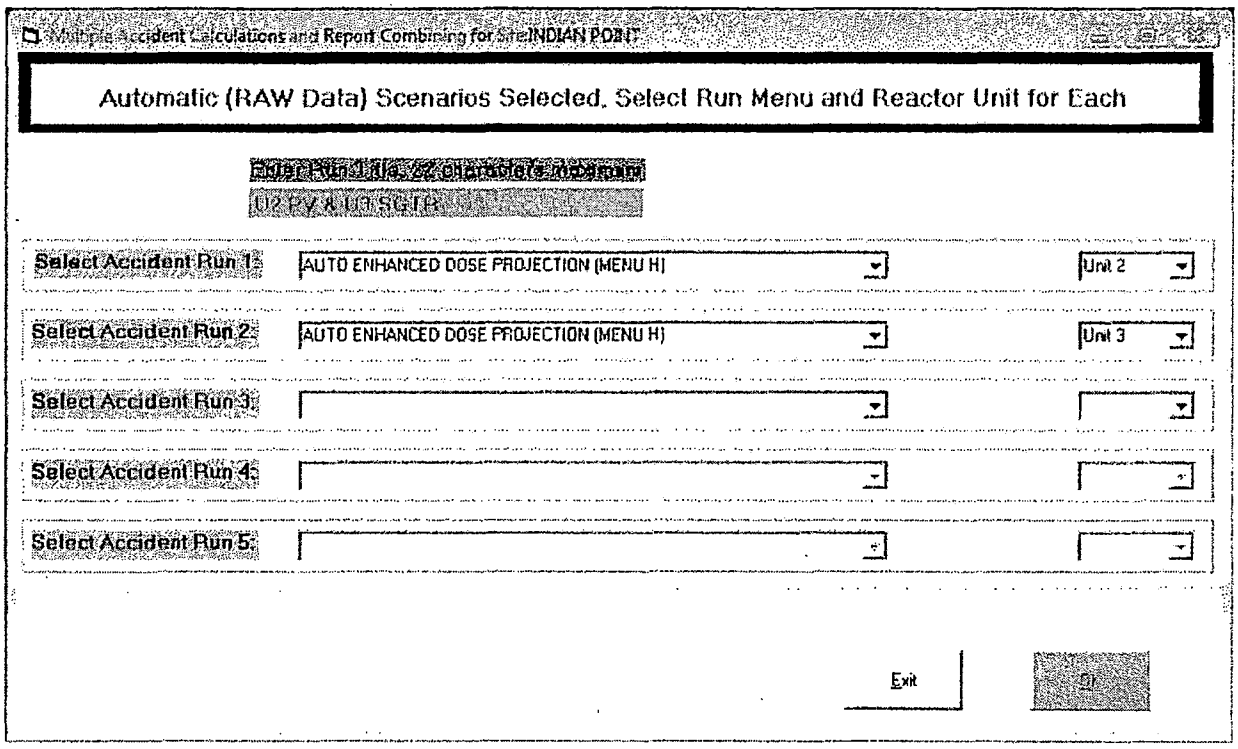
5.14.3 Begin with "Select Accident Run 1" and enter type of calculation to be performed from pull-down selection list and corresponding Unit number. (The example in Figure 19 is Menu H – Auto Enhanced dose projection).

5.14.4 Proceed to "Select Accident Run 2" and again enter type of calculation from pull-down selection list and corresponding Unit number (see Figure 19)

5.14.5 Enter up to 3 other release locations, type of calculation and corresponding Unit number.

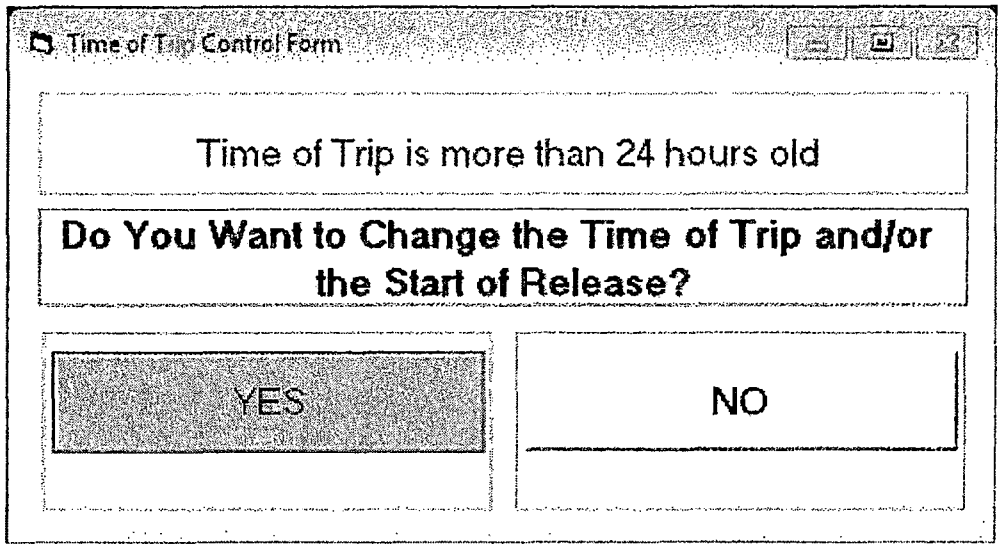
5.14.6 When entries are complete, press the GREEN "OK" button.

Figure 19 Example: MIDAS Multiple Accident Scenario Selection (Automatic Version)



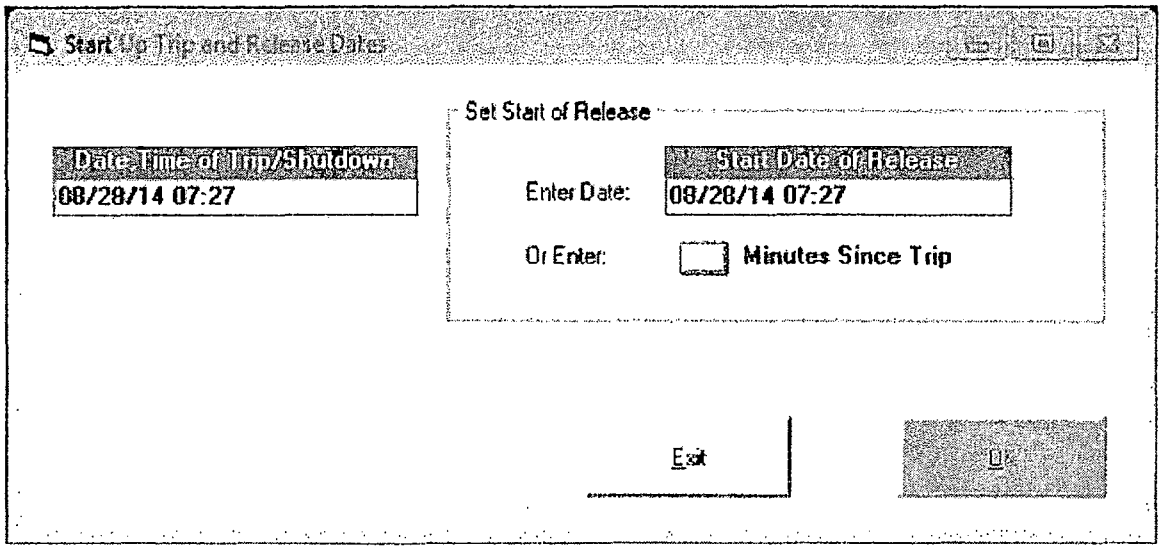
5.14.7 If the message in Figure 20 is displayed, press "YES". (Click GREEN Box).

Figure 20 Example: MIDAS Multiple Accident - Setting Times for First Release Point (Automatic Version)



5.14.8 Enter the time of reactor trip and start of release for the unit corresponding to Accident Run 1 (Unit 2 or Unit 3) and press "OK". (See Figure 21, which is for the first release point calculation).

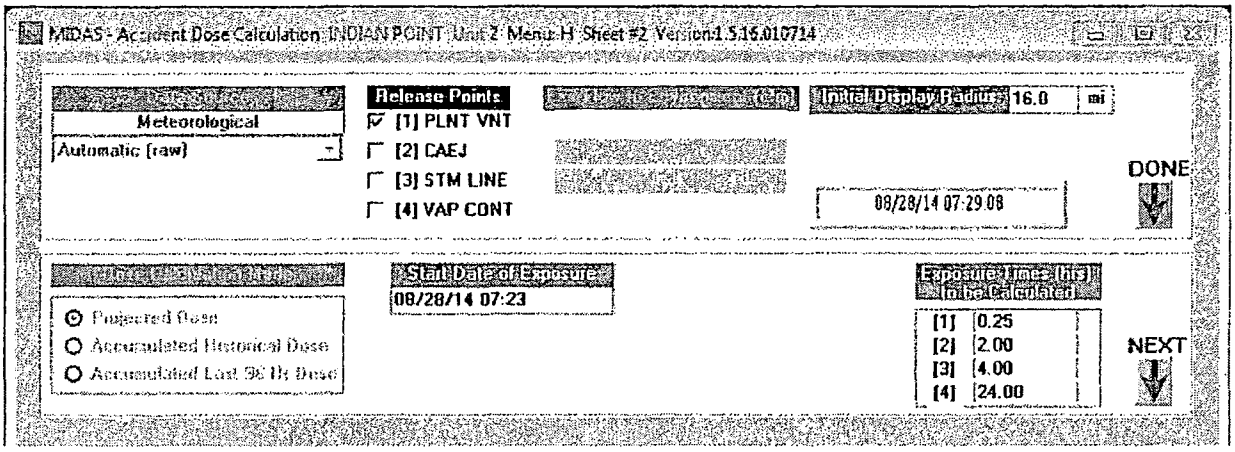
Figure 21 Example: MIDAS Multiple Accident - Setting Times (Automatic Version)



5.14.9 Enter time for start of exposure (See Figure 22 which assumes the current time).

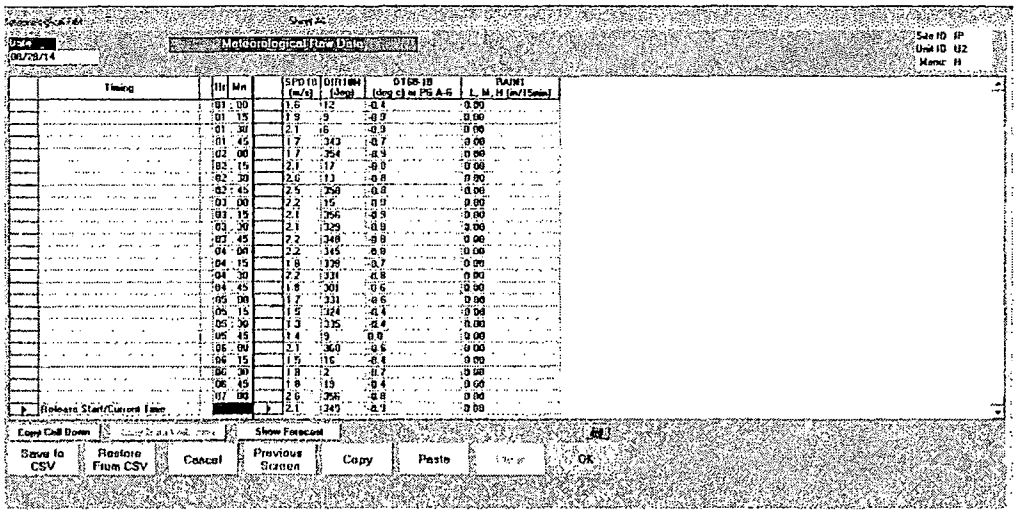
5.14.10 Press "NEXT" down arrow

Figure 22 Example: MIDAS Multiple Accident Scenario Selection (Automatic Version)



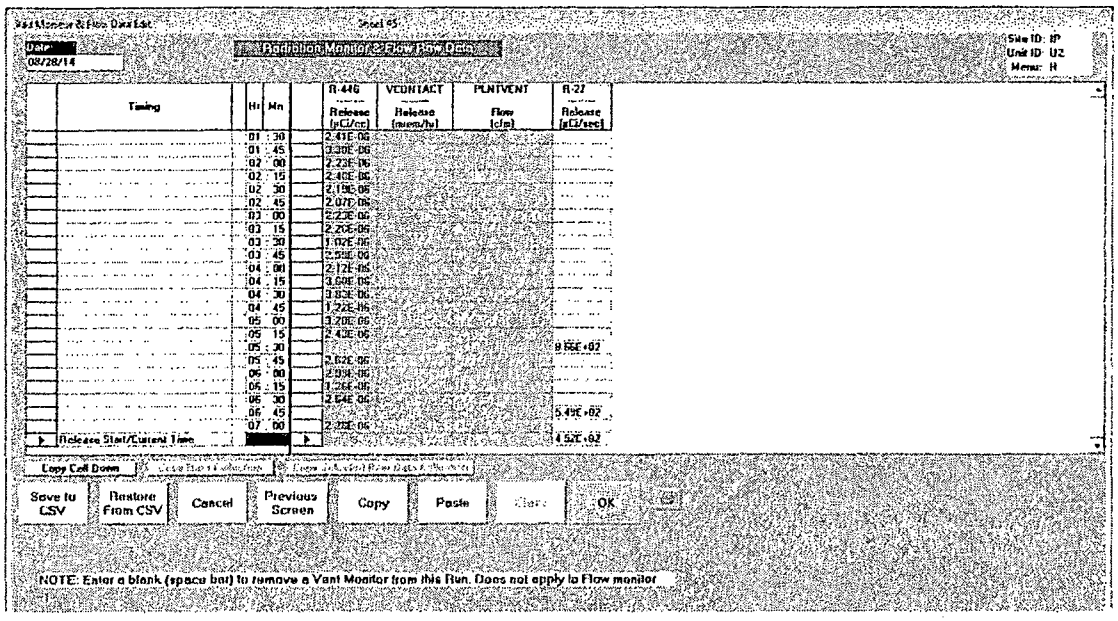
5.14.11 Verify that current live met data is being displayed on the Meteorological spreadsheet and press "OK" (see Figure 23).

Figure 23 Example: MIDAS Meteorological Data spreadsheet (Automatic Version)



5.14.12 On Radiation Monitor & Flow spreadsheet, verify appropriate monitor reading is displayed. Enter flow rate data if required. (In this case R-27 release rate is from the release point of interest – see Figure 24).

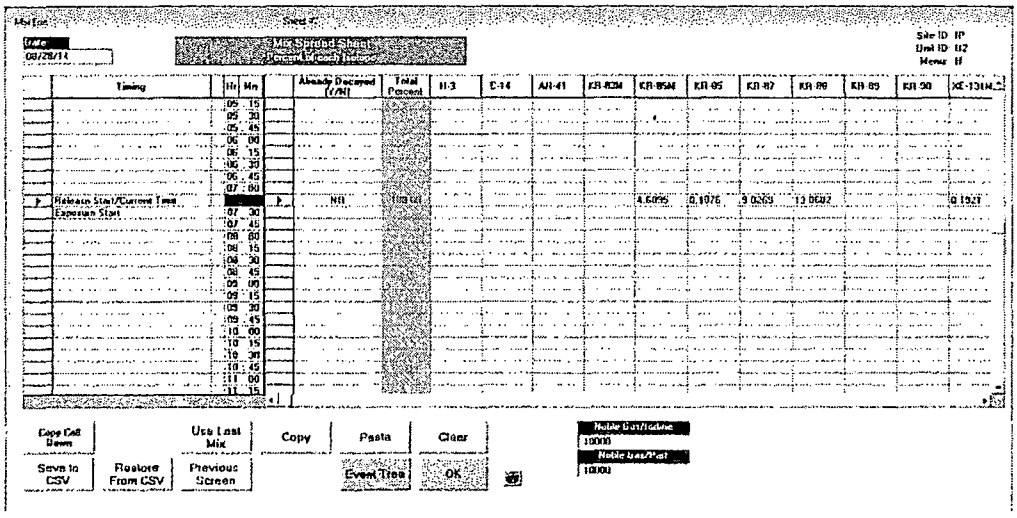
Figure 24 Example: MIDAS Rad Monitor & Flow Data spreadsheet (Automatic Version)



5.14.13 On the release mix spreadsheet, select "EVENT TREE", followed by selection of Accident Type and Core Condition from pull-down selection lists.

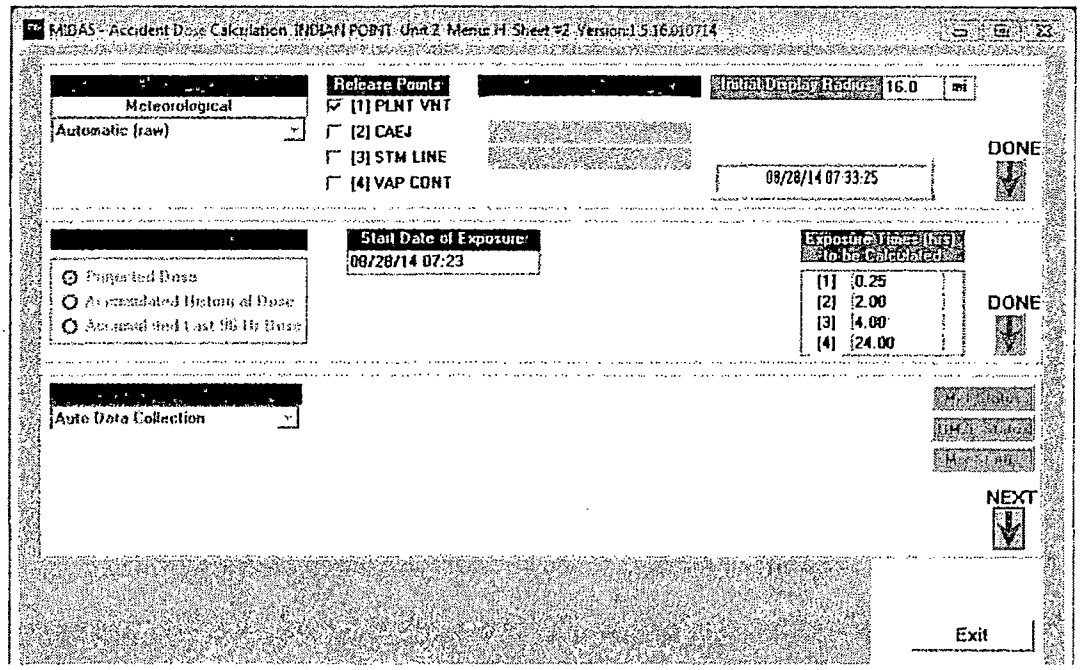
5.14.14 Press "OK" (see Figure 25).

Figure 25 Example: MIDAS Mix spreadsheet (Automatic Version)



5.14.15 Press "NEXT" down arrow (see Figure 26)

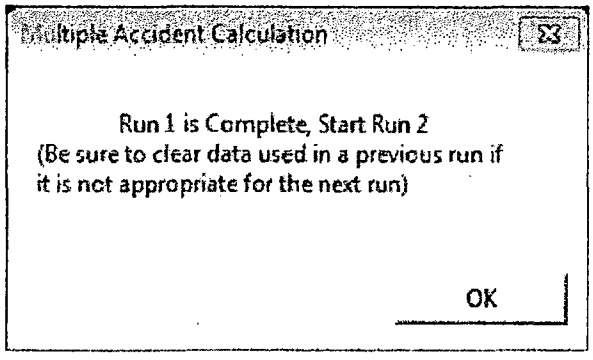
Figure 26 MIDAS Entry Status Display (Automatic Version)



5.14.16 If all boxes are green, then select GREEN "Start Calculation" button. MIDAS will then compute the doses for Accident Run 1

5.14.17 MIDAS will then display a message as shown in Figure 27

Figure 27 Example: Multiple Accident calculation status message



5.14.18 After pressing "OK", then MIDAS will prompt for release and mix input for Accident Run 2 as was done for the previous Accident Run.

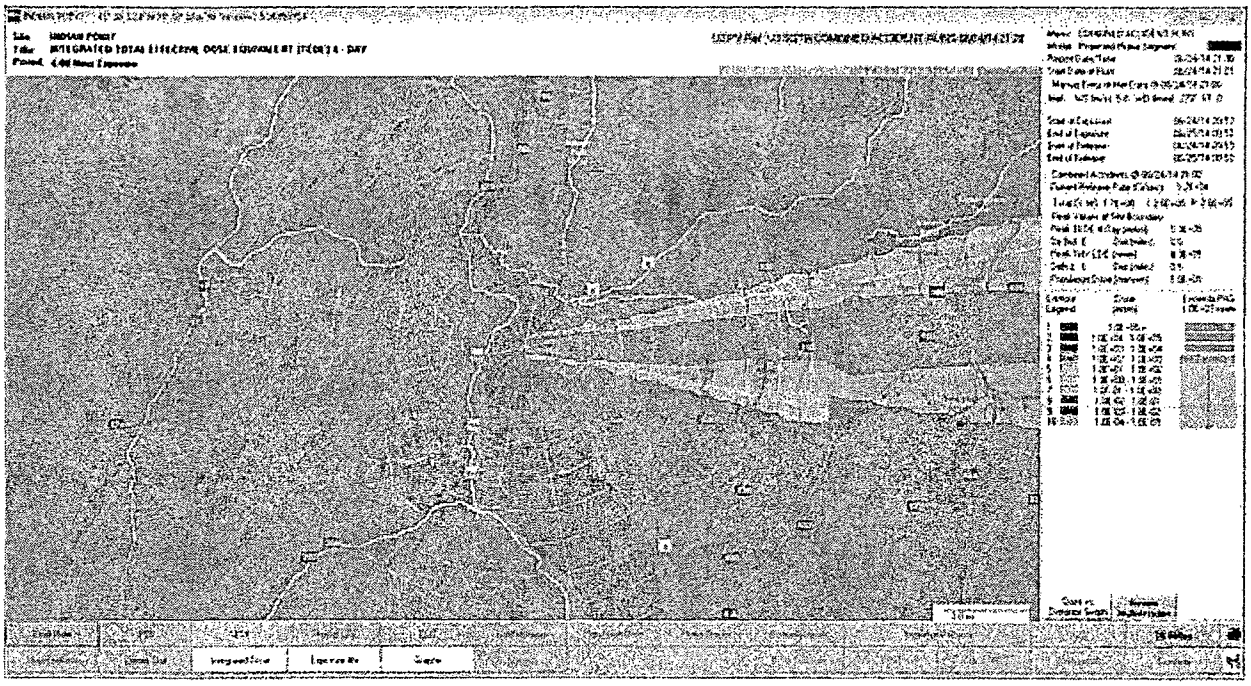
5.14.19 Enter appropriate rad monitor/flow and nuclide mix inputs.

5.14.20 Enter the appropriate time of shutdown and start of release for the affected unit if different for the previous Accident Run.

5.14.21 If all boxes are green, then select GREEN "Start Calculation" button. MIDAS will then compute the doses for Accident Run 2

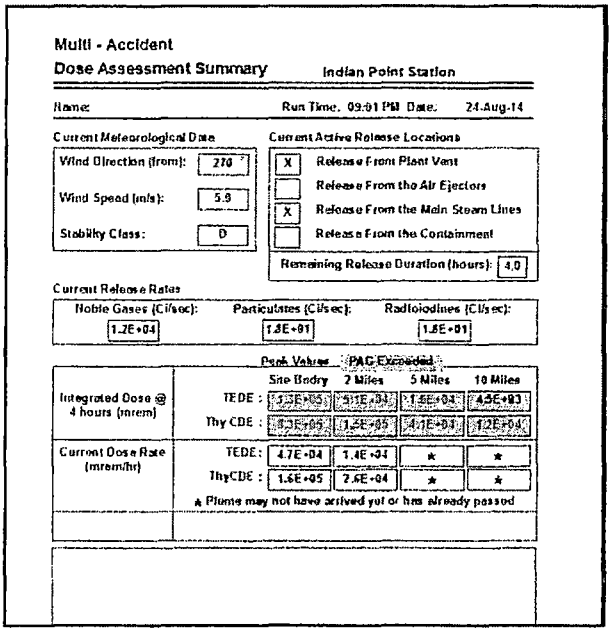
5.14.22 MIDAS will then generate a combined plume map for the multiple releases as shown in Figure 28

Figure 28 Example: Multiple Accident Combined Plume Map



5.14.23 To obtain the combined NYS Part 2 Form and Dose Summary Report, select "Special Reports", "Dose Summary" and then press "Confirm". The combined Dose Summary Report is shown in Figure 29.

Figure 29 Example: Multiple Accident Combined Dose Summary Report
(Unit 2 Plant Vent and Unit 3 SGTR)



Multi - Accident

Dose Assessment Summary — Indian Point Station

Name: — Run Time: 09:01 PM Date: 24-Aug-14

Current Meteorological Data

Wind Direction (from):	270 °
Wind Speed (m/s):	5.8
Stability Class:	D

Current Active Release Locations

X	Release From Plant Vent
	Release From the Air Ejectors
X	Release From the Main Steam Lines
	Release From the Containment

Remaining Release Duration (hours): 4.0

Current Release Rates

Noble Gases (Ci/sec):	Particulates (Ci/sec):	Radioiodines (Ci/sec):
1.2E+04	1.8E+01	1.8E+01

Peak Values — PAG Exceeded

		Site Bndry	2 Miles	5 Miles	10 Miles
Integrated Dose @ 4 hours (mrem)	TEDE :	1.3E+03	9.1E+01	1.6E+01	4.5E+00
	Thy CDE :	8.2E+03	1.5E+03	4.1E+01	1.2E+01
Current Dose Rate (mrem/hr)	TEDE:	4.7E+04	1.4E+04	*	*
	ThyCDE :	1.6E+05	2.6E+04	*	*

* Plume may not have arrived yet or has already passed

5.14.24 Results of the combined Dose Summary Report can be manually transferred to a blank NYS RECS Part 2 report, if required.

5.14.25 To review computed doses from individual release points, press the ORANGE "Review Multi Accident" button and select each release location (Accident Run) of interest. A plume map will be generated, and a separate Dose Summary Report may be selected for display. (See Figures 30 and 31).

Figure 30 Example: Multiple Accident Combined Map
(Unit 2 Plant Vent and Unit 3 SGTR)

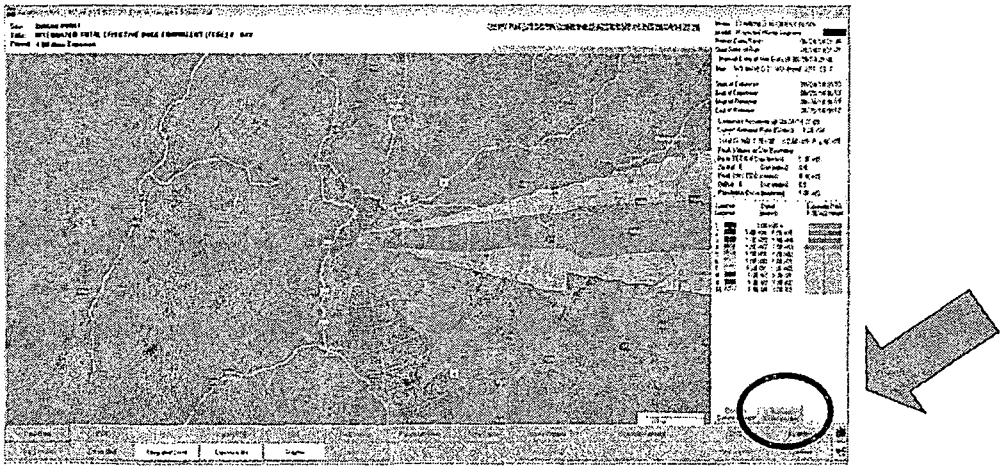
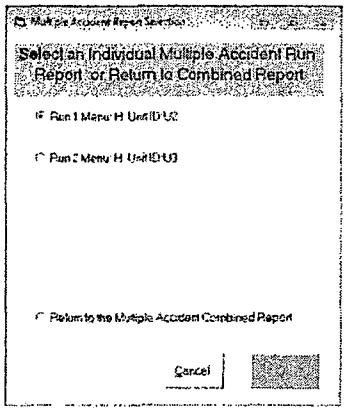


Figure 31 Example: Multiple Accident Combined Map
(Unit 2 Plant Vent and Unit 3 SGTR)



NOTE:
The computed TEDE and Child Thyroid CDE results from individual accident release points from Unit 2 and Unit 3 will be differ slightly from combined results since the release points are physically separated. This difference becomes smaller at longer distances from the site.

6.0 INTERFACES

6.1 IP-EP-310, Dose Assessment

6.2 IP-EP-240, Security

6.3 IP-EP-410, Protective Action Recommendations

7.0 RECORDS

All logs, completed forms, and other records generated during an actual emergency **SHALL** be considered quality records and maintained for the life of the plant.

8.0 REQUIREMENTS AND COMMITMENT CROSS-REFERENCE

None

9.0 ATTACHMENTS

9.1 Event trees

9.2 Plant and Site Specific Parameters

9.3 Quick Guide for MIDAS Operation – Auto H: Enhanced Dose Projection (EOF)

9.4 Quick Guide for MIDAS Operation – Auto H: Enhanced Dose Projection (offsite)

9.5 Quick Guide for MIDAS Operation – Manual B: Enhanced Dose Projection (EOF)

9.6 Quick Guide for MIDAS Operation – Multiple Accident (EOF)

9.7 Quick Guide for MIDAS Operation – Multiple Accident (CCR)

9.8 Quick Guide for MIDAS Operation – Part 1 Generator Guidance

Attachment 9.1

Event Trees

Page 1 of 1

1.0 Accident type – (one choice used post-defueling)

1.1 Spent Fuel Pool release

2.0 Core Condition –one set to spent fuel releases

2.1 For spent fuel pool releases:

2.1.1 Zircaloy Fire in one three month batch

2.1.2 Gap release from one three month batch

2.1.3 Gap release from a full pool

Attachment 9.2
Plant and Site Specific Parameters
Page 1 of 1

Radiation monitors, flow data, and conversion factors

Unit 2

Monitor	Units	Conversion	Range low	Range hi	Flow units	Flow lo	Flow hi
R-44G	uCi/cc	1	1.00E-06	1	CFM	0	200000
R-27	uCi/sec	1	1	1.00E+13	CFM	0	200000

Unit 3

Monitor	Units	Conversion	Range low	Range hi	Flow units	Flow lo	Flow hi
R-14G	uCi/cc	1	1.00E-06	0.1	CFM	0	150000
R-27	uCi/sec	1	1.10E+01	1.00E+13	CFM	0	150000

Met data

Data priority	Release point	Speed	Direction	Stability class	precipitation
Primary	Ground	SPD 10	DIR10	DT 60-10	Rain1

Release Points – both units

Point	Type
1 – station vent	Ground

Attachment 9.3
Quick Guides for MIDAS Operation
Page 1 of 3
EOF –Auto H

1) Start MIDAS by clicking on the "MIDAS Accident Calcs" ICON
2) MIDAS Accident Dose Calculation menu will display after a few seconds
3) Select/verify the correct UNIT, upper right
4) Select EOF
5) Select Automatic
6) Using the 'Accident Run Menu Selection' section Select: "AUTO ENHANCED DOSE PROJECTION (MENU H)"
7) Click green OK button, bottom right
8) **IF** the time of reactor trip is greater than 24 hours, **THEN** MIDAS will prompt the user to set the time of trip and time of release start. This is usually encountered on the initial run during an event.
9) MIDAS will begin to step through a four-part input panel, beginning with a release point prompt. Turn on or off release points by clicking in the check boxes.
10) Click the gray NEXT down arrow button. It will turn green.
11) The next section of the input panel will display the current met time as the start of exposure, and four time periods for displaying results. Unless there is a particular reason to change them, leave these values as MIDAS assigns them. Click the GRAY DOWN ARROW to continue. It will turn green.
12) The FIRST time a calculation is run for the event, there may be several 'initialization' prompts. Select YES to initialize the data collection sheets if prompted.
13) MIDAS will display a 'Meteorological Edit' Spreadsheet. DATA should be automatically populated. Click on green OK button.
14) **IF** data is NOT present, **THEN** type in current displayed data from met tower display. **IF** data was changed, **THEN** click green YES on 'data collection values control form'
15) If a warning message is displayed that there is at least one good monitor, but NO data is available for release a point, this is because there is data missing for EITHER the station vent or condenser offgas. Select OK to continue.
16) MIDAS will display a 'Rad Monitor & Flow Data Edit' sheet. DATA should be automatically populated. In Unit 2 enter station vent flow rate. This value is not automated. Click the green OK button.

Attachment 9.3
Quick Guides for MIDAS Operation
Page 2 of 3
EOF –Auto H

17) **IF** data is NOT present, **THEN** type in current displayed data from control room indications, MRPDAS or other data source. **IF** data was changed, **THEN** click green YES on 'data collection values control form'

18) MIDAS will display a 'Mix Edit' sheet. DATA in the mix sheet is not automatically populated.

19) Type in current available mix data or use the EVENT TREE button to define the mix. Click the green OK button

20) The third section of the input panel will display.

21) IF the 'MET STATUS', 'RM/F STATUS', and 'MIX STATUS' buttons are green, MIDAS has accepted all input as valid. Click on the gray NEXT arrow. It will turn green.

22) IF any of the 'MET STATUS', 'RM/F STATUS', and 'MIX STATUS' buttons are red, MIDAS has determined that there is incomplete or invalid data for that input. Click on the red button to review or modify the input. MIDAS will NOT proceed to dose calculation of any of these buttons are still red.

23) The fourth part of the input panel will display. Date Time of trip is normally set once at the beginning of the event to the actual trip time. Start date of release should be set to the time when actual plant release began. Remaining duration should default to 4, or should be changed if there is good information on the expected duration until termination of the release.

24) Click the green START CALC button.

25) A map of a plume plot will be displayed. There are many possible combinations of information that could be displayed. Check the YELLOW boxes at the bottom to verify what information is being displayed and click these buttons to change the display.

26) IF a different display is needed / desired, click purple CONFIRM button bottom right after changing yellow button selections

27) Click GRAY "SPECIAL REPORTS" button. It will turn green and the button below it will turn yellow.

28) Click the yellow button below SPECIAL REPORTS unless/until it reads "Dose Summary". Click purple CONFIRM button.

29) A Part 2 input form will be displayed. Fill in ALL yellow areas of the form and click OK.

30) Obtain the Emergency Director's approval of the Part 2.

31) The Part 2 can be emailed and/or faxed to locations by clicking the "Fax NYS Form" and "Email NYS Form" buttons at the top of the page. The forms can also be printed.

Attachment 9.3
Quick Guides for MIDAS Operation
Page 3 of 3
EOF –Auto H

32) Click on the window "X", upper right, the MIDAS dose summary will be shown. Click on the window "X" to close the summary.

33) On the MIDAS plume display page, click "END RUN" bottom left, to terminate this run. This will allow closing MIDAS or running another calculation.

Attachment 9.4
Quick Guides for MIDAS Operation
Page 1 of 2
Offsite users –Auto H

1) Log into the Entergy Citrix Server process and connect to the MIDAS server.
2) Start MIDAS by clicking on the "MIDAS Accident Calcs" ICON
3) MIDAS Accident Dose Calculation menu will display after a few seconds
4) Select/verify the correct UNIT, upper right
5) Select EOF
6) Select Automatic
7) Using the 'Accident Run Menu Selection' section Select: "AUTO ENHANCED DOSE PROJECTION (MENU H)"
8) Click green OK button, bottom right
9) MIDAS will begin to step through a four-part input panel, beginning with a release point prompt. Turn on or off release points by clicking in the check boxes.
10) Click the NEXT down arrow button. It will turn green.
11) The next section of the input panel will display the current met time as the start of exposure, and for time periods for displaying results. Unless there is a particular reason to, leave these values as MIDAS assigns them. Click the GRAY DOWN ARROW to continue. It will turn green.
12) The FIRST time a calculation is run for the event, there may be several 'initialization' prompts. Select YES to initialize the data collection sheets if prompted.
13) MIDAS will display a 'Meteorological Edit' Spreadsheet. DATA should be automatically populated. Click on green OK button.
14) If data is NOT present, type in current displayed data from met tower display. IF data was changed click green YES on 'data collection values control form'
15) MIDAS will display a 'Rad Monitor & Flow Data Edit' sheet. DATA should be automatically populated. In Unit 2 enter station vent flow rate. This value is not automated. Click on green OK button.
16) If data is NOT present, type in current displayed data from control room indications, MRPDAS or other data source. IF data was changed click green YES on 'data collection values control form'
17) IF a warning message is displayed that there is only good data for one release point, this is because there is data missing for at least ONE of the release points selected earlier. Select YES to continue, NO to review rad monitor and flow data.

Attachment 9.4
Quick Guides for MIDAS Operation
Page 2 of 2
Offsite users –Auto H

18) MIDAS will display a 'Mix Edit' sheet. DATA in the mix sheet is not automatically populated.

19) Type in current available mix data or use the EVENT TREE button to define the mix. Press the green OK button

20) The third section of the input panel will display.

21) IF the 'MET STATUS', 'RM/F STATUS', and 'MIX STATUS' buttons are green, MIDAS has accepted all input as valid. Click on the gray NEXT arrow.

22) IF any of the 'MET STATUS', 'RM/F STATUS', and 'MIX STATUS' buttons are red, MIDAS has determined that there is incomplete or invalid data for that input. Click on the red button to review or modify the input. MIDAS will not proceed to dose projection if any of these buttons are red.

23) The fourth part of the input panel will display. Date Time of trip is normally set once at the beginning of the event to the actual trip time. Start date of release should be set to the time when actual plant release began. Remaining duratiojn should default to 4, or should be changed if there is good information on the expected duration until termination of the release.

24) Click the green START CALC button.

25) A map of a plume plot will be displayed. There are many possible combinations of information that could be displayed. Check the YELLOW boxes at the bottom to verify what information is being displayed and click these buttons to change the display.

26) IF a different display is needed / desired, click purple CONFIRM button bottom right after changing yellow button selections

27) Click GRAY "SPECIAL REPORTS" button. It will turn green and the button below it will turn yellow.

28) Click the yellow button below SPECIAL REPORTS unless/until it reads "Dose Summary". Click purple CONFIRM button.

29) The MIDAS dose summary will be shown. Click on the window "X" to close the summary.

30) On the MIDAS plume display page, click "END RUN" bottom left, to terminate this run. This will allow closing MIDAS or running another calculation.

Attachment 9.5
Quick Guides for MIDAS Operation
Page 1 of 2
MANUAL B – no automated data

1) IF connecting from Offsite, Log into the Entergy Citrix Server process and connect to the MIDAS server.
2) Start MIDAS by clicking on the "MIDAS Accident Calcs" ICON
3) MIDAS Accident Dose Calculation menu will display after a few seconds
4) Select/verify the correct UNIT, upper right
5) Select EOF
6) Select MANUAL
7) Using the 'Accident Run Menu Selection' section Select: "MANUAL ENHANCED DOSE PROJECTION (MENU B)"
8) Click green OK button, bottom right
9) MIDAS will begin to step through a four-part input panel, beginning with a release point prompt. Turn on or off release points by clicking in the check boxes.
10) Click the NEXT down arrow button
11) The next section of the input panel will display the current met time as the start of exposure, and for time periods for displaying results. Unless there is a particular reason to, leave these values as MIDAS assigns them. Click the GRAY DOWN ARROW to continue.
12) The FIRST time a calculation is run for the event, there may be several 'initialization' prompts. Select YES to initialize the data collection sheets if prompted.
13) MIDAS will display a 'Meteorological Edit' Spreadsheet. DATA WILL NOT be automatically populated. Enter met data and click on the green OK button.
14) MIDAS will display a 'Rad Monitor & Flow Data Edit' sheet. DATA WILL NOT be automatically populated.
15) Type in current displayed data from control room indications, MRPDAS or other data source and click on the green OK button
16) IF a warning message is displayed that there is only good data for one release point, this is because there is data missing for at least ONE of the release points selected earlier. Select YES to continue, NO to review rad monitor and flow data.
17) MIDAS will display a 'Mix Edit' sheet. DATA in the mix sheet is not automatically populated.
18) Type in current available mix data or use the EVENT TREE button to define the mix. Press the green OK button

Attachment 9.5
Quick Guides for MIDAS Operation
Page 2 of 2
Manual B – no automated data

19) The third section of the input panel will display.

20) IF the 'MET STATUS', 'RM/F STATUS', and 'MIX STATUS' buttons are green, MIDAS has accepted all input as valid. Click on the gray NEXT arrow.

21) IF any of the 'MET STATUS', 'RM/F STATUS', and 'MIX STATUS' buttons are red, MIDAS has determined that there is incomplete or invalid data for that input. Click on the red button to review or modify the input. MIDAS will not proceed to dose projection if any of these buttons are red.

22) The fourth part of the input panel will display. Date Time of trip is normally set once at the beginning of the event to the actual trip time. Start date of release should be set to the time when actual plant release began. Remaining duration should default to 4, or should be changed if there is good information on the expected duration until termination of the release.

23) Click the green START CALC button.

24) A map of a plume plot will be displayed. There are many possible combinations of information that could be displayed. Check the YELLOW boxes at the bottom to verify what information is being displayed and click these buttons to change the display.

25) IF a different display is needed / desired, click purple CONFIRM button bottom right after changing yellow button selections

26) Click GRAY "SPECIAL REPORTS" button. It will turn green and the button below it will turn yellow.

27) Click the yellow button below SPECIAL REPORTS unless/until it reads "Dose Summary". Click purple CONFIRM button.

28) IF connected to a MIDAS Server from OFFSITE, The MIDAS dose summary will be shown. Click on the window "X" to close the summary.

29) IF using an ENTERGY MIDAS computer, A Part 1 input from will be displayed. Fill In ALL yellow areas of the form and click OK

30) A part1 and part 2 form will be displayed. Click on the arrow buttons top left to toggle between the part 1 and part 2

31) The part1 and part 2 can be printed or faxed.

32) Click on the window "X", upper right, the MIDAS dose summary will be shown. Click on the window "X" to close the summary.

33) On the MIDAS plume display page, click "END RUN" bottom left, to terminate this run. This will allow closing MIDAS or running another calculation.

Attachment 9.6
Quick Guides for MIDAS Operation
Page 1 of 3
EOF Multiple-Accident – AUTO

NOTE:
If more than one location is experiencing a release, select New Multiple Accident Run radial button on the initial MIDAS Startup / Menu Screen. This function of MIDAS will allow entry of up to 5 different accident releases occurring simultaneously from Unit 2 and Unit 3.

NOTE:
This Multiple Accident feature of MIDAS can be run from either the CCR or from the EOF in the AUTO or MANUAL mode. The instructions which follow are for calculations performed using the AUTO Mode.

1) Select EOF
2) Select "AUTOMATIC" radial button.
3) Select "Start New Multiple Accident Run" radial button. (The Unit No. does not need to be selected at this point). Then press GREEN "OK" button.
4) When scenario selection screen is displayed, enter brief run title in GREEN box (22 characters, maximum).
5) Begin with "Select Accident Run 1" and enter type of calculation to be performed from pull-down selection list and corresponding Unit number . (e.g., Use Menu H – Auto Enhanced dose projection). The table below can be used to track the different runs.
6) Proceed to "Select Accident Run 2" and again enter type of calculation from pull-down selection list and corresponding Unit number.
7) Enter up to 3 other release locations, type of calculation and corresponding Unit number.

	Type of Release	Unit
Accident Run 1		
Accident Run 2		
Accident Run 3		
Accident Run 4		
Accident Run 5		

8) When entries are complete, press the GREEN "OK" button.
9) If message prompt for changing the time of trip and/or release is displayed, press "YES". (Click GREEN Box).

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Quick Guides for MIDAS Operation
Page 2 of 3
EOF Multiple-Accident – AUTO

10) Enter the time of reactor trip and start of release for the unit corresponding to Accident Run 1 (Unit 2 or Unit 3) and press "OK".

11) Press the "NEXT" down arrow.

12) Press the "NEXT" down arrow.

13) Verify that current live met data is being displayed on the Meteorological spreadsheet and press "OK".

14) On Radiation Monitor & Flow spreadsheet, verify appropriate monitor reading is displayed. Enter flow rate data if required. Press "OK"

15) **IF** this is the first run for this unit, **THEN** select "New" on the Spreadsheet Control popup.

16) **IF** this is a subsequent for the accident run, **THEN** select "Edit Last" on the Spreadsheet Control popup.

17) On Mix Edit spreadsheet, select "EVENT TREE", followed by selection of Accident Type **AND** Core Condition from pull-down selection lists.

18) Press "OK".

19) Press "NEXT" down arrow.

20) If all required boxes are green, then select GREEN "Start Calc" button. MIDAS will then compute the doses for Accident Run 1.

21) MIDAS will then display a message that the first run is complete, Start Run 2. Press "OK" .

NOTE:
For runs 2-5, within the initial assessment, the Spreadsheet Control popup that appears is for that specific run and new should be selected because this is the first run for the accident on the specific unit.

22) After pressing "OK", then MIDAS will prompt for release and mix input for Accident Run 2 as was done for the previous Accident Run.

23) Enter appropriate rad monitor/flow and nuclide mix inputs.

Attachment 9.6
Quick Guides for MIDAS Operation
Page 3 of 3
EOF Multiple-Accident – AUTO

24) Press "NEXT" down arrow.

25) **IF** the time of trip and start of release for this run is different from the previous run, **THEN** enter the appropriate time of shutdown and start of release for the affected unit

26) **IF** all boxes are green, **THEN** select GREEN "Start Calc" button. MIDAS will then compute the doses for Accident Run 2

27) MIDAS will then generate a combined plume map for the multiple releases.

28) Click gray "SPECIAL REPORTS" button. It will turn green and the button below it will turn yellow.

29) The default label for the yellow button is "Dose Summary". IF the button reads something different from Dose Summary, THEN click the yellow button below SPECIAL REPORTS until it reads "Dose Summary". Click purple CONFIRM button.

30) Select NYS RECS Part 2 report radial button, complete yellow areas and press "OK".

31) Check contents of generated Part 2 report, print out, have report approved and then send by fax and e-mail.

32) Press top "X" button in upper right-hand portion of screen to display combined Dose Summary Report.

33) Results of the combined Dose Summary Report should be manually transferred to a blank NYS RECS Part 2 report, if required.

NOTE:
The computed TEDE and Child Thyroid CDE results from individual accident release points from Unit 2 and Unit 3 will differ slightly from combined results since the release points are physically separated. This difference becomes smaller at longer distances from the site.

34) To review computed doses from individual release points, press the ORANGE "Review Multi Accident" button and select each release location (Accident Run) of interest. A plume map will be generated, and a separate Dose Summary Report may be selected for display.

35) To terminate Multiple Accident Run, press top "X" button in upper right-hand portion of screen and select "Terminate Multiple Accident Run". The run will be automatically saved.

Attachment 9.7
Quick Guides for MIDAS Operation
Page 1 of 3
CCR Multiple-Accident – AUTO

NOTE:
If more than one location is experiencing a release, Multiple Accident will allow entry of up to 5 different accident releases occurring simultaneously from Unit 2 and Unit 3.

NOTE:
The Multiple Accident feature of MIDAS can be run from either the CCR or from the EOF in the AUTO or MANUAL mode. The instructions which follow are for calculations performed using the AUTO Mode.

1) Open the MIDAS Software with the MIDAS Accident Calcs Icon.
2) Select CCR
3) Select "AUTOMATIC" radial button.
4) Select "Start New Multiple Accident Run" radial button. (The Unit No. does not need to be selected at this point).
5) Press GREEN "OK" button.
6) When the scenario selection screen(Multiple Accident Calculation Selections) is displayed, enter a brief run title in the GREEN box on the right (22 characters, maximum).
7) Begin with "Select Accident Run 1" and enter type of calculation to be performed from pull-down selection list and corresponding Unit number . (e.g., Use Menu G – Auto Quick Dose Plant Vent).
8) Proceed to "Select Accident Run 2" and again enter type of calculation from pull-down selection list and corresponding Unit number. Repeat this process for up to 3 other release locations. Use the table below to track calculations for each accident run:

	Type of Release	Unit
Accident Run 1		
Accident Run 2		
Accident Run 3		
Accident Run 4		
Accident Run 5		

9) When entries are complete, press the GREEN "OK" button.

Attachment 9.7
Quick Guides for MIDAS Operation
Page 2 of 3
CCR Multiple-Accident – AUTO

NOTE:

If you enter or change data in a spreadsheet, then a popup may appear asking if you would like to keep the changes that were made. Click the Green YES button to keep the data to be used in future calculations.

10) Verify that current live met data is being displayed on the Meteorological Edit spreadsheet OR **IF** data is not present **THEN**, enter current met data.

11) Press "OK".

NOTE:

A warning message may be displayed that there is at least one good monitor, but NO data is available for a release point, this is because there is data missing for EITHER the station vent or condenser offgas. **IF** this message is displayed, **THEN** select OK to continue.

12) On Radiation Monitor & Flow spreadsheet, verify appropriate monitor reading is displayed. Enter flow rate data if required. Press "OK"

13) A popup stating that the run is complete will appear. Click the green OK button to start the next accident run.

14) On Radiation Monitor & Flow spreadsheet, verify appropriate radiation monitor reading is displayed. Enter flow rate data if required. Press "OK"

15) Press the Gray "NEXT" button on the MIDAS screen.

16) Repeat steps 11-13 for Accident runs 3-5 as required. Once all data has been entered for all runs, MIDAS will then generate a combined plume map for the multiple releases.

17) Click GRAY "SPECIAL REPORTS" button. It will turn green and the button below it will turn yellow.

18) The default label for the yellow button is "Dose Summary". **IF** the button reads something different from Dose Summary, **THEN** click the yellow button below SPECIAL REPORTS until it reads "Dose Summary". Click purple CONFIRM button.

19) Select "Part 2 Form Only" report radio button

20) A Part 2 input form will be displayed. Fill in appropriate areas of the form. Yellow highlighted areas are REQUIRED.

Attachment 9.7
Quick Guides for MIDAS Operation
Page 3 of 3
CCR Multiple-Accident – AUTO

21) Click OK to generate a PDF for Emergency Director approval.

22) The Part 2 can be faxed and .or emailed to locations by clicking the "Fax NYS Form" and "Email NYS Form" buttons at the top of the pages as directed by the Emergency Director.

23) Press top "X" button in upper right-hand portion of screen to display combined Dose Summary Report. Press the "X" on the Dose Summary Report to return to the map.

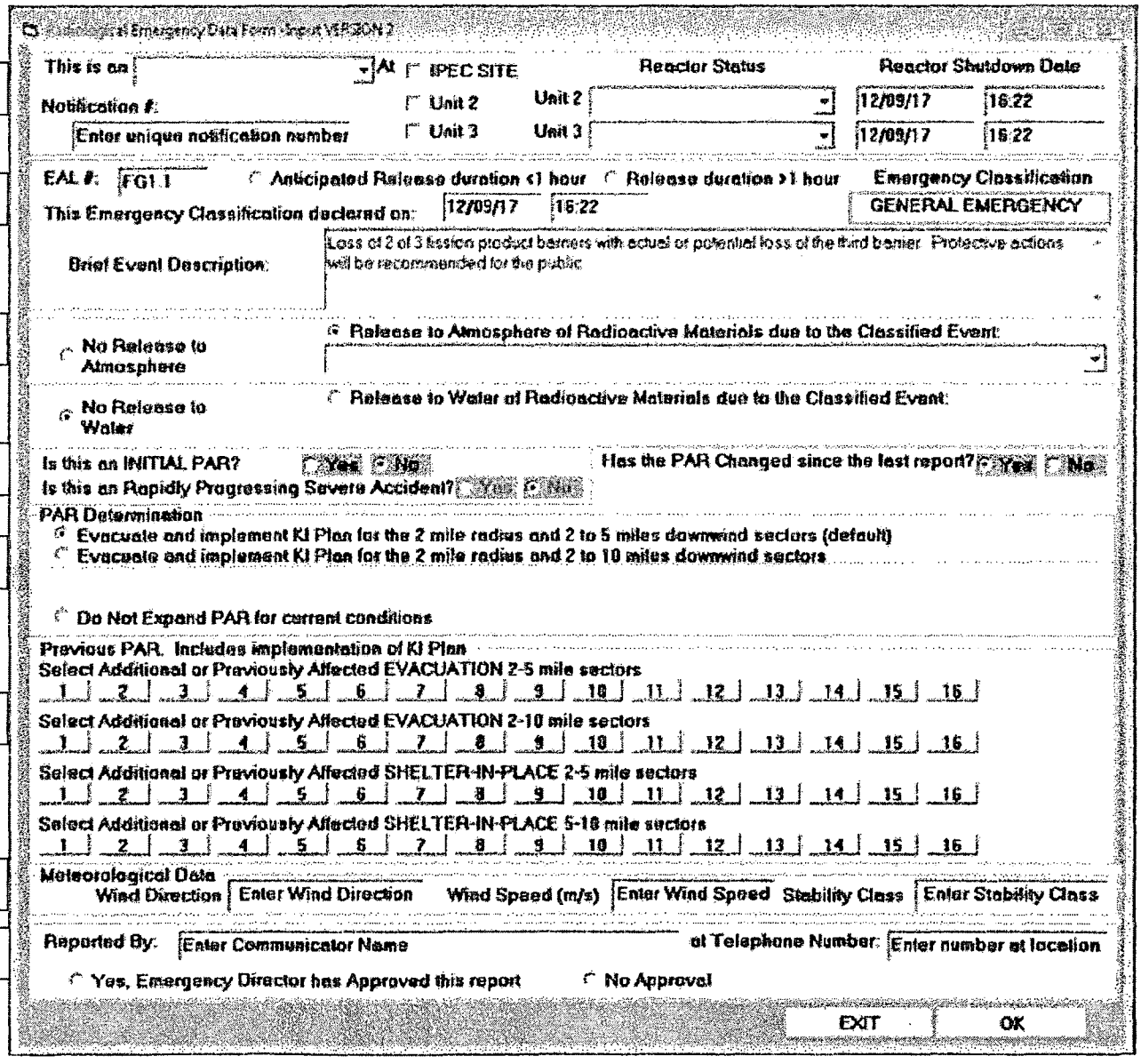
NOTE:
The computed TEDE and Child Thyroid CDE results from individual accident release points from Unit 2 and Unit 3 will differ slightly from combined results since the release points are physically separated. This difference becomes smaller at longer distances from the site.

24) To review computed doses from individual release points, press the ORANGE "Review Multi Accident" button and select each release location (Accident Run) of interest. A plume map will be generated, and a separate Dose Summary Report may be selected for display.

25) To terminate Multiple Accident Run, press top "X" button in upper right-hand portion of screen and select "Terminate Multiple Accident Run". The run will be automatically saved.

Attachment 9.8
Quick Guides for MIDAS Operation
Page 1 of 5
Part 1 Generator Guidance

NOTE:
This guide is intended to be used as needed when generating a NYS Part 1 Form. It does not need to be followed step by step, but referenced as needed to gain understanding of the operation of the Part 1 form generator.



Attachment 9.8
Quick Guides for MIDAS Operation
Page 2 of 5
Part 1 Generator Guidance

NOTE:

To the extent possible, the Part 1 form is intended to be filled out from top to bottom and left to right. Once the initial Part 1 form is generated, the form generator may be left open to complete subsequent Part 1 forms without filling out the entire form again. If the user has any questions in correctly revising an open Part 1 form, it is recommended that the user exit from the Part 1 form generator and begin a new form.

1. Block #1 Guidance:
    a. Enter whether the event is an:
        i. Actual Emergency
        ii. Exercise
        iii. Emergency Termination
            1. Selection of Emergency Termination will generate a popup with wording that will be added to the EAL description field of the form. This wording can be edited based on the event
    b. Enter the location that is affected by the event
    c. Enter the status of Unit 2 and Unit 3.
        i. If a unit is shutdown, enter the time of shutdown.
            1. This time will not change throughout the event.
            2. **IF** the Unit is shut down, **THEN** Inform the Dose Assessor of the time of shut down.
    d. Enter a number for the Notification #. The initial notification will be #1 and each follow-up notification will be a sequential whole number (1, 2, 3, etc.).
2. Block #2 Guidance:
    a. Enter the EAL number exactly as written on the EAL Chart.
        i. The Emergency Classification will automatically populate based on the EAL.
        ii. The Brief Event Description will populate with a generic pre-determined non-technical description for that EAL.
    b. Enter the Declaration Time.
        i. This time will not change on follow-up notifications.

Attachment 9.8
Quick Guides for MIDAS Operation
Page 3 of 5
Part 1 Generator Guidance

NOTE:

The Part 1 generator initially defaults to an assumed atmospheric release. If there is "No Release to Atmosphere" selected in Block 3, then the following selections for release duration do not apply and will not be displayed.

c. **IF** a General Emergency EAL has been entered, and **IF** a release to the atmosphere is occurring, **THEN** select whether the release is:

i. Anticipated Release duration <1 hour.

1. This selection should only be made if it is known that the release will be stopped within an hour of the release start time (e.g., controlled short-term VC purge related to or required by the event, or the source of the release is known and release termination is imminent).
2. This selection will ONLY enable a Shelter-in-Place Protective Action Recommendation (PAR) to be generated.

ii. Release duration >1 hour.

1. This selection should be made if the release duration is unknown.
2. This selection will enable evacuation PARs to be generated.

NOTE:

In Block 3 , **IF** a General Emergency is declared AND **IF** no release is selected, **THEN** the Part 1 generator will not prompt for a selection of any of the choices below.

3. Block #3 Guidance:

a. Select whether or not there is a release to atmosphere due to the classified event.

i. **IF** a release has been selected **THEN** the following options will be available:

1. Release ABOVE federally approved operating Limits
2. Release BELOW federally approved operating Limits
3. Unmonitored release requiring further evaluation

Attachment 9.8
Quick Guides for MIDAS Operation
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Part 1 Generator Guidance

b. Select whether or not there is a release to water due to the classified event.
   i. **IF** a release has been selected **THEN** the following options will be available:
      1. Release ABOVE federally approved operating Limits
      2. Release BELOW federally approved operating Limits
      3. Unmonitored release requiring further evaluation

4. Block #4 Guidance:
   a. Answer whether this is an INITIAL PAR
      i. An initial PAR is the first PAR of the event.
      ii. This option is the only time that a Rapidly Progressing Severe Accident (RPSA) selection is available.
   b. **IF** it is an INITIAL PAR, **THEN** answer whether the criteria for a Rapidly Progressing Severe Accident have been met. **NOTE: THIS WILL ALWAYS BE "NO".**
   c. If this is not the first PAR, select whether the PAR has changed since the last report.
      i. If the PAR has not changed, it will not allow additional sectors to be added based on new metrological data.
      ii. If the PAR has changed, it will automatically add new additional sectors based on new metrological data and the user will input previously affected sectors under Block 6.

5. Block #5 Guidance:
   a. Select the PAR based on IP-EP-410. Some selections will not be available based on the selections that were previously made.
   b. Sectors are automatically selected based on the Wind Speed, Direction, and Stability Class.
   c. The Selection "Do Not Expand PAR for current conditions" does not update the PAR selection with the new Met Conditions. Use only if met conditions have changed but new downwind sectors are not affected by PARs.

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Quick Guides for MIDAS Operation
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Part 1 Generator Guidance

6. Block #6 Guidance:
   a. For notifications that are not the first PAR of the event, select the sectors that previously had a protective action associated with them.

7. Block #7 Guidance:
   a. Enter Meteorological Data (i.e., Direction, Speed, Stability Class).

8. Block #8 Guidance:
   b. "Reported By" is the Communicator
   c. The telephone number is a number that Offsite Response Organizations (ORO) can call.
   d. "Yes, Emergency Director has Approved this report" must be selected to fax and email the Part 1 form to OROs.
   e. Enter the Emergency Director's (ED) name
   f. Select OK to generate a PDF of the Part 1 form

NOTE:

CAREFULLY CHECK the PDF printout to make sure that all times, event status, release status, new and previous PARs and affected sectors/distances and meteorological data are correct for current conditions. **IF** they are not, **THEN** exit from the Part 1 generator and begin a new Part 1 form.

9. Once approved by the ED, the form can be faxed and emailed to OROs by selecting the Fax and Email buttons.

ATTACHMENT 10.2 IPEC PROCEDURE REVIEW AND APPROVAL

(Page 1 of 1)

Procedure Title: Emergency Contamination Control

Procedure No. IP-EP-350 Existing Rev: 4 New Rev: 5 DRN/EC No: DRN-21-00129

Procedure Activity (MARK Applicable)	☐ Converted To IPEC, Replaces:	Temporary Procedure Change (MARK Applicable)
☐ NEW PROCEDURE ☐ GENERAL REVISION ☒ PARTIAL REVISION ☐ EDITORIAL REVISION ☐ VOID PROCEDURE ☐ SUPERSEDED	Unit 1 Procedure No. Unit 2 Procedure No: Unit 3 Procedure No:	☐ EDITORIAL Temporary Procedure Change ☐ ADVANCE Temporary Procedure Change ☐ CONDITIONAL Temporary Procedure Change Terminating Condition:
☐ RAPID REVISION	Document in Microsoft Word: ☐ Yes ☐ No	☐ VOID DRN/TPC No(s):

Revision Summary ☐ N/A – see Revision Summary page. – Procedure was revised to reflect Post U3 Shutdown Eplan.

Implementation Requirements

Implementation Plan? ☐ Yes ☒ No Formal Training? ☐ Yes ☒No Special Handling? ☐ Yes ☒No

Quality Related? ☐ Yes ☒ No **If Yes, then ensure the procedure cover page is marked "Quality Related"**

RPO Dept: Emergency Planning Writer: **(Print Name/Ext/Sign):** Rebecca Martin x7106/ Rebecca A Martin

Review and Approval (Per Attachment 10.1, IPEC Review And Approval Requirements)

1. ☐ Technical Reviewer: Craig Delamater / CD / 4/15/2021
   (Print Name/ Signature/ Date)

2. ☐ Cross-Disciplinary Reviewers:

   Dept: _____ Reviewer: _____
   Print Name/ Signature/ Date)

   Dept: _____ Reviewer: _____
   Print Name/ Signature/ Date)

3. ☒ RPO- Responsibilities/Checklist: Frank J Mitchell / F J Mitchell 4/15/21
   (Print Name/ Signature/ Date)

   ☐ PAD required and is complete (PAD Approver and Reviewer qualifications have been verified)
   ☒ Previous exclusion from further LI-100 Review is still valid
   ☐ PAD not required due to type of change as defined in 4.6

4. ☐ Non-Intent Determination Complete: _____
   (Print Name/ Signature/ Date)

   NO change of purpose or scope
   NO reduction in the level of nuclear safety
   NO voiding or canceling of a procedure, unless requirem are incorporated into another procedure or the need for t procedure was eliminated
   NO change to less restrictive acceptance criteria
   NO change to steps previously identified as commitment steps
   NO deviation from the Quality Assurance Program Manual
   NO change that may result in deviations from Technical Specifica FSAR, plant design requirements,

5. ☒ On-Shift Shift Manager/CRS: (RPO per SMM-AD-102) – Frank J. Mitchell/ F J Mitchell 4/15/21
   (Print Name/ Signature/ Date)

6. ☐ User Validation: User: _____ _____

7. ☐ Special Handling Requirements Understood: _____
   Print Name/ Signature/ Date)

10CFR50.54(Q)(2) Review

Procedure/Document Number: IP-EP-350	Revision: 5
Equipment/Facility/Other: Indian Point Energy Center	
Title: Emergency Contamination Control	

Part I. Description of Activity Being Reviewed (event or action, or series of actions that have the potential to affect the emergency plan or have the potential to affect the implementation of the emergency plan):

Procedure was revised to reflect the requirements in the Post Unit 3 Shutdown Eplan (PSEP), as submitted to the NRC per LAR, license #NL-19-001, Attachment 8 Emergency Response Organizaiton Task Analysis.

- **Replaced EOF Manager with Radiological Assessment Coordinator**
- **Replace OSC Rad/Chem Coordinator with Radiological Coordinator**
- **Removed Chem Techs (RP Techs were already performing same tasks)**
- **Replaced Work Control Coordinator with OSC Manager**

Procedure will be effective on May 17, 2021.

Part II. Emergency Plan Sections Reviewed (List all emergency plan sections that were reviewed for this activity by number and title. IF THE ACTIVITY IN ITS ENTIRETY IS AN EMERGENCY PLAN CHANGE, EAL CHANGE OR EAL BASIS CHANGE, ENTER THE SCREENING PROCESS. NO 10CFR50.54(q)(2) DOCUMENTATION IS REQUIRED.

Part 2 Planning Standards and Criteria:

Section A: Assignment of Responsibility

Section B: Station Emergency Response Organization

Section I: Accident Assessment

Section J: Protective Response

Section K: Radiological Exposure Control

Part III. Ability to Maintain the Emergency Plan (Answer the following questions related to impact on the ability to maintain the emergency plan):

1. Do any elements of the activity change information contained in the emergency plan (Section 3.0 Step 6)?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

2. Do any elements of the activity change an emergency classification Initiating Condition, Emergency Action Level (EAL), associated EAL note or associated EAL basis information or their underlying calculations or assumptions?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

3. Do any elements of the activity change the process or capability for alerting and notifying the public as described in the FEMA-approved Alert and Notification System design report?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

4. Do any elements of the activity change the Evacuation Time Estimate results or documentation?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

5. Do any elements of the activity change the Onshift Staffing Analysis results or documentation?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

10CFR50.54(Q)(2) Review

Procedure/Document Number: IP-EP-350	Revision: 5
Equipment/Facility/Other: Indian Point Energy Center	
Title: Emergency Contamination Control	

Part IV. Maintaining the Emergency Plan Conclusion The questions in Part III do not represent the sum total of all conditions that may cause a change to or impact the ability to maintain the emergency plan. Originator and reviewer signatures in Part V document that a review of all elements of the proposed change have been considered for their impact on the ability to maintain the emergency plan and their potential to change the emergency plan.

1. Provide a brief conclusion that describes how the conditions as described in the emergency plan are maintained with this activity.
2. Check the box below when the 10CFR50.54(q)(2) review completes all actions for all elements of the activity – no 10CFR50.54(q)(3) screening or evaluation is required for any element. Otherwise, leave the checkbox blank.

☒ I have completed a review of this activity in accordance with 10CFR50.54(q)(2) and determined that the effectiveness of the emergency plan is maintained. This activity does not make any changes to the emergency plan. No further actions are required to screen or evaluate this activity under 10CFR50.54(q)(3).

Per Post Shutdown Emergency Plan (PSEP), both Unit 3 and Unit 2 will be at shut down. The changes made to this procedure reflects this requirement of the Post Unit 3 Shutdown Eplan, as submitted to the NRC (license # NL-19-001) and ERO positions and tasks were adjusted to reflect Attachment 8, ERO Task Analysis. This activity does not make any changes to personnel or facility monitoring or decontamination as required by the IPEC Emergency Plan. The NRC has approved the PSEP per RA-20-040.

A review of this activity in accordance with 10 CFR 50.54(q)(2) has been completed and determined that the effectiveness of the PSEP is maintained. This revision aligns the procedure with the protocols of the post Unit 3 shutdown. None of the changes affect the ability to perform classifications, notifications, or PARs, it does not affect activation or staffing of the ERO as described in the Unit 3 PSEP, and all planning standard requirements are maintained. The changes made do not require a change to the Emergency Action Level scheme, On-shift Staffing study or the PSEP.

No further actions are required to screen or evaluate this activity under 10 CFR 50.54(q)(3).

Part V. Signatures:

Preparer Name (Print) Rebecca A. Martin	Preparer Signature Rebecca A Martin	Date: 11/11/2020
(Optional) Reviewer Name (Print)	Reviewer Signature	Date:
Reviewer Name (Print) Timothy Garvey Nuclear EP Project Manager	Reviewer Signature Rebecca A Martin for Tim Garvey Approved via Telecom	Date: 4/14/21
Approver Name (Print) Frank Mitchell Emergency Planning Manager or designee	Approver Signature F L Mitchell	Date: 4/15/21

Attachment 9.1

Emergency Planning Document Change Checklist Form

(All sections must be completed, N/A or place a check on the line where applicable)

Section 1

Doc/Procedure Type:	Administrative ☐ Implementing ☒ EPLAN ☐ N/A ☐
Doc/Procedure No:	IP-EP-350
Doc/Procedure Title:	Emergency Contamination Control
New revision number:	5
Corrective Action:	Yes ☒ No ☐ N/A ☐ CR#: OL-OLI-2018-00090 CA 19
Effective date:	May 17, 2021

Section 2

Change Description

1. Ensure the following are completed, or are not applicable and are so marked:

   a. 50.54q ☒ N/A ☐
   b. EN-FAP-OM-023 ☐ N/A ☒
   c. IP-SMM- AD-102 ☒ N/A ☐
   d. OSRC ☐ N/A ☒
   e. NRC Transmittal (within 30 days) ☐ N/A ☒

2. List any other documents affected by this change: N/A
3. Transmittals are completed: ☒ N/A ☐ Date: 4/29/21
4. Ensure the proper revision is active in eB Ref. Lib.: ☒ N/A ☐
5. Approved doc/procedure delivered to Doc. Control for distribution: ☒ N/A ☐ Date: 4/29/21
6. Position Binders updated: ☒ N/A ☐ Date: 4/29/21
7. Copy of EPDCC placed in EP file: ☒ N/A ☐ Date: 4/29/21
8. Supporting documentation is submitted as a general record in eB Ref. Lib.: ☒ N/A ☐ Date: 4/29/21
9. Word files are moved from working drafts folder to current revision folder in the EP drive: ☐ N/A ☒ Date: 5/17/21

CONTROLLED

Emergency Contamination Control

Prepared by:	Rebecca A. Martin Print Name	Rebecca A Martin Signature	4/15/21 Date
Approval:	Frank J. Mitchell Print Name	FJ Mitchell Signature	4/15/21 Date

Effective Date: May 17, 2021

Table of Contents

Emergency Contamination Control

1.0 PURPOSE

To describe the methods used for the control of radiological contamination, decontamination activities and the release of vehicles, equipment and personnel during a declared emergency.

2.0 REFERENCES

2.1 10CFR20.2003, "Limits for Discharge into a Sanitary Sewage System"

2.2 EN-RP-104, "Personnel Contamination Events"

3.0 DEFINITIONS

3.1 **Clean** - Contamination levels are LESS THAN 100 CPM above background

3.2 **Low Level Contamination** - Contamination levels are GREATER THAN 100 CPM above background and less than 10,000 CPM

3.3 **High Level Contamination** - Contamination levels are GREATER THAN 10,000 CPM above background

4.0 RESPONSIBILITIES

4.1 The Radiological Assessment Coordinator is responsible for the decision to release radiologically contaminated personnel, equipment and/or vehicles from the Owner Controlled Area without being radiologically monitored when otherwise required.

4.2 The Radiation Protection personnel are responsible for the determination of personnel contamination levels, supervise and assist with decontamination and release of personnel as described in Attachments 9.3 and 9.5.

4.3 The Radiological Assessment Coordinator is responsible for ensuring that this procedure is followed to ensure contamination controls are established for the EOF and Security personnel working outside the Protected Area. Additional Rad Protection (OSC, other plants) may be requested to support surveying the site and the monitoring of personnel and vehicles.

4.4 The Radiological Coordinator is responsible for the actions as described in Attachment 9.4.

4.5 The EOF Dose Assessor is responsible for the actions as described in Attachment 9.6.

5.0 DETAILS

5.1 MONITOR personnel for contamination at the following intervals:

5.1.1 When leaving areas of the plant that are suspected to be contaminated;

5.1.2 When leaving the Protected Area and portal monitors alarm;

5.1.3 When in assembly areas (if suspected to be contaminated);

5.2 Using a frisker with a HP-210 G.M. tube or equivalent to check the individuals, determine the contamination category:

5.2.1 When contamination levels are LESS THAN 100 CPM above background, the person is considered clean

5.2.2 When contamination levels are GREATER THAN 100 CPM above background and less than 10,000 CPM, it is considered Low-Level Contamination

5.2.3 When contamination levels are GREATER THAN 10,000 CPM above background, it is considered High-Level Contamination.

5.3 **MAINTAIN** records of personnel monitoring on Form EP-61, Decontamination Survey Sheet if contaminated personnel are discovered.

5.3.1 Use Attachment 9.1 for Personnel Decontamination

5.4 **MAINTAIN** records of vehicle monitoring on Form EP-62, Vehicle Contamination Check if contaminated vehicles or equipment is discovered.

5.4.1 Use Attachment 9.2 for vehicle and equipment decontamination outside the protected area.

6.0 INTERFACES

6.1 EN-EP-609-DP, Emergency Operations Facility

7.0 RECORDS

7.1 All forms and logs generated during the process of identification of contamination or the decontamination of personnel, vehicles or equipment shall be maintained.

8.0 REQUIREMENTS AND COMMITMENT CROSS-REFERENCE

NL081-157-C35

9.0 ATTACHMENTS

9.1 Personnel Decontamination

9.2 Decontamination of Vehicle and Equipment Outside the Protected Area

9.3 OSC RAD Protection Technician Checklist

9.0 ATTACHMENTS (cont.)

9.4 TSC Radiological Coordinator Checklist

9.5 EOF Rad Protection Monitor Checklist

9.6 EOF Dose Assessor Checklist

Attachment 9.1

Personnel Decontamination

Sheet 1 of 2

1.0 While in the Protected Area **PERFORM** decontamination in accordance with Radiation Protection Section Procedure for "Personnel Decontamination"

1.1 Report any positive indications to the Radiological Coordinator in the Technical Support Center.

2.0 While outside of the Protected Area conduct decontamination at the EOF

2.1 For Low-level contamination, set up the EOF shower area in accordance with the EOF Decontamination Diagram. For High-level contamination use the decontamination equipment inside the kit located in the Offsite Monitoring Equipment closet in the EOF. Follow the instructions inside the kit. It may become necessary to get additional water or fluid to flush during decontamination. The bottle inside the kit is limited in size.

2.2 Segregate the contaminated individual to an area that has been designated with signs, barricades as needed and Step-Off Pads

2.3 Check each piece of clothing as it is removed and segregate as to whether it is contaminated or not contaminated. Contaminated clothing should be placed in plastic bags that may be obtained from the storeroom stock.

2.4 Recheck individual after clothing is removed. **IF** contamination is detected record readings on Form EP-61, **THEN** have the individual shower and record as-found data.

2.5 Repeat if necessary to reduce contamination to less than 100 CPM above background.

2.6 **IF** any individuals are exposed to contamination or airborne activities, **THEN** consult with the Radiological Assessment Coordinator the need for radiological evaluations and monitoring (Bioassay, whole body counts, etc.)

2.7 If the individual remains contaminated after 3 showers, consult with the Radiological Assessment Coordinator.

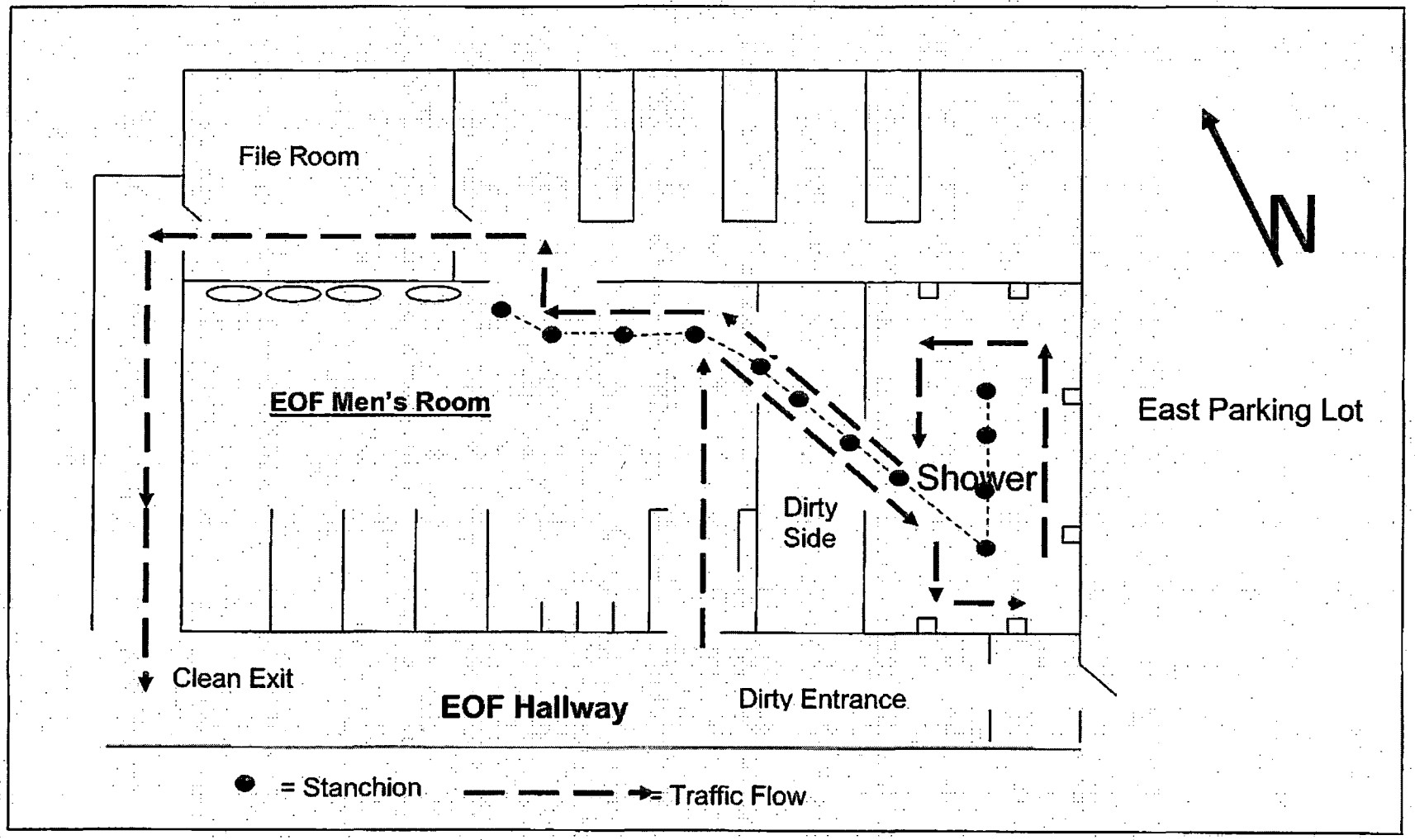
2.8 Provide individual with coveralls if clothing was contaminated

2.9 Report the results of decontamination to the Radiological Assessment Coordinator.

2.10 Provide all records to the Radiological Assessment Coordinator upon completion of personnel decontamination effort.

Attachment 9.1
Personnel Decontamination
Sheet 2 of 2

EOF Decontamination Diagram



Attachment 9.2

Decontamination of Vehicle and Equipment Outside the Protected Area

Sheet 1 of 3

1.0 **CHECK** for removable (loose) contamination. Use survey instrument WITH either a gauze pad OR paper disks.

1.1 **ESTABLISH** background in the area to be less then 300 counts per minute.

1.2 **USING** a gauze pad, wipe the major accessible surface areas of an item. Read background, the pad AND background again WITH the survey instrument. The contamination is LESS THAN detectable IF the reading for the pad is equal OR LESS THAN both background readings AND 300 cpm. Record the results for loose contamination on FORM EP-62.

1.3 **USING** a paper disk, wipe 100 cm^2 of EACH representative accessible surface of an item. Read background, the disks AND background again WITH the survey instrument. Subtract the lowest background reading from the reading for the disk. Record results GREATER THAN 100 cpm on FORM EP-62.

2.0 **CHECK** for fixed contamination by moving the survey instrument closely AND slowly over the accessible surfaces. Record the results for fixed contamination on FORM EP-62.

3.0 Items which DO NOT satisfy ALL the following criteria may leave the site only WITH the approved of the EOF Manager.

3.1 Loose contamination is LESS THAN detectable as described in Section 1.0 in a background limited to 300 cpm.

3.2 Fixed contamination is LESS THAN 100 cpm as described in Section 2.0 in a background limited to 300 cpm.

4.0 **POSITION** the vehicle close to the corner water run-off opening. This shall allow the contamination to run off into a small depression where it shall be contained AND concentrated by the land contour.

5.0 **USING** hoses hooked up to the nearest water outlet, fire hydrant OR utilizing a Fire Department pumper, wash the vehicle with detergent AND water. The detergent may be obtained from the Warehouse. Some minor scrubbing may enhance the decontamination effort. Precautions should also be taken to prevent any cross contamination of vehicles, equipment or people.

Attachment 9.2

Decontamination of Vehicle and Equipment Outside the Protected Area

Sheet 2 of 3

5.1 **IF** the vehicle is still contaminated, **THEN** rewash AND recheck UNTIL vehicle satisfies criteria of Section 3. Any contamination checks should be done a dry surfaces.

5.2 **RECORD** ALL contamination checks AND washes along with the vehicle license plate number on FORM EP-62.

Vehicles that DO NOT satisfy the criteria of Section 3 are NOT allowed to leave the site without approval of the EOF Manager.

REPORT results of vehicle checks AND decontamination to the Radiological Assessment Coordinator upon completion.

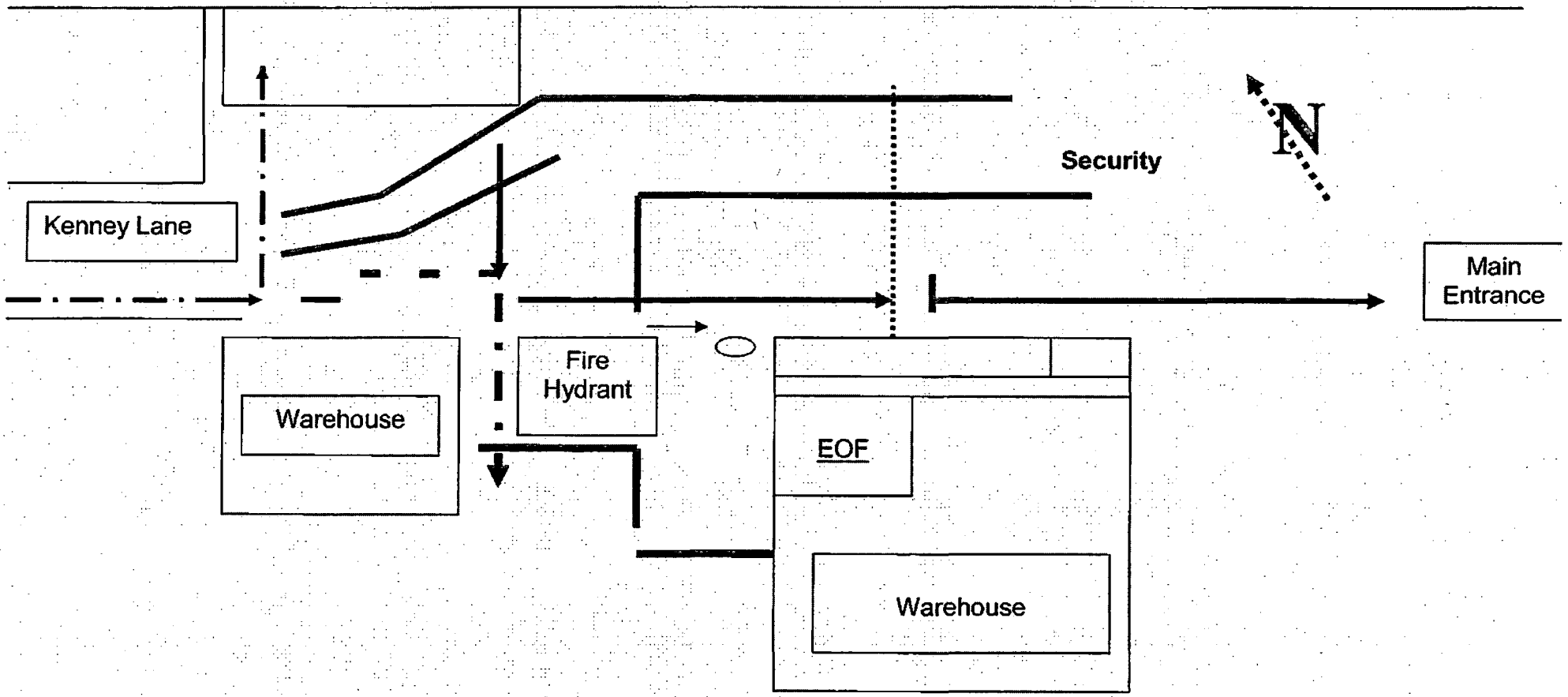
TURN-IN ALL completed FORMS to the Radiological Assessment Coordinator for filing.

Attachment 9.2

Decontamination of Vehicle and Equipment Outside the Protected Area

Vehicle Decontamination Area Diagram

Sheet 3 of 3



Attachment 9.3
OSC Rad Protection Technician Checklist
Page 1 of 4

1.0 Initial Responsibility/Activity **NOTES**

1.1 Assume the position of OSC Rad Protection Technician

A. Enter the OSC using one of the proximity Accountability Card Readers.

B. Sign in at the facility organization chart.

C. Report to and receive direction from the TSC Radiological Coordinator.

D. Verify Equipment is in calibration.

E. As directed by the TSC Radiological Coordinator:

1. Perform a habitability survey of the TSC/OSC and CCR's and set up radiological controls for the TSC/OSC as shown on sheet 6 of this Checklist.
2. Establish the capability for monitoring of Iodine, should it become necessary.
3. Verify Survey Meter operability by getting a > 1 mr/hr reading with the open window using a 5μ Ci Cs -137. source

NOTE:

AMS **SHALL** be started during TSC/OSC activation

F. Set up and operate the AMS-4 utilizing skill of the craft and procedure EN-RP-310

G. Periodically check readings of AMS-4 and ensure proper instrument operation.

1. IF there is a release, THEN monitor the AMS-4 to identify any increase in the radiological levels in the TSC/OSC.

Attachment 9.3
OSC Rad Protection Technician Checklist
Page 2 of 4

Initial Responsibility/Activity (cont.) **NOTES**

2. Follow directions in Section F of this checklist to maintain AMS-4 operations.

H. Sample Count Using the MS-2/SPA-3 utilizing skill of the craft and procedure HP-9.021.

I. Sample Count Using the E-140N **OR** RM-14/HP-210 utilizing skill of the craft and procedure EN-RP-302 and record results on form EP-16.

J. Perform background and source checks approximately every hour **OR** as specified by the TSC Radiological Coordinator (frequency may be adjusted, either more or less often, in consideration of current radiological conditions).

K. Using the readings from the AMS-4 Monitor and the noble gas-to-iodine ratio from Chemistry, determine the iodine activity.

1. **IF** iodine activity is determined to be greater than $1X10^{-7}$ micro curies/cubic centimeter by any of the above methods, **THEN** notify the TSC Radiological Coordinator.

L. Establish contamination controls for the TSC/OSC if necessary.

2.0 Continuous Responsibility/Activity

2.1 Establish and Maintain radiological controls

A. As directed by the TSC Radiological Coordinator, perform periodic radiological monitoring particularly when a release of radioactive material into plant environments is in progress or suspected.

Attachment 9.3
OSC Rad Protection Technician Checklist
Page 3 of 4

Continuous Responsibility/Activity (cont.) **NOTES**

B. This should be done approximately once every 60 minutes or when conditions have likely worsened or when directed to by the TSC Radiological Coordinator.

2.2 Inform the TSC Radiological Coordinator or another coordinator when temporarily leaving the work area.

A. **IF** you are leaving the TSC/OSC Complex (the restroom is within complex) **THEN:**

1. Inform the Security Coordinator (for accountability purposes)
2. Inform the Security Coordinator when you return.

B. Upon return, obtain a briefing from the TSC Radiological Coordinator on any events, which have occurred while away.

2.3 Escort as directed, any team being sent into an area where any of the following conditions exist:

A. Radiological conditions are unknown. Surveys or ARMs may be used to predict radiological conditions.

B. Radiation fields in excess of 1 R/hr are expected.

C. In the event of any release of radioactivity to the environment.

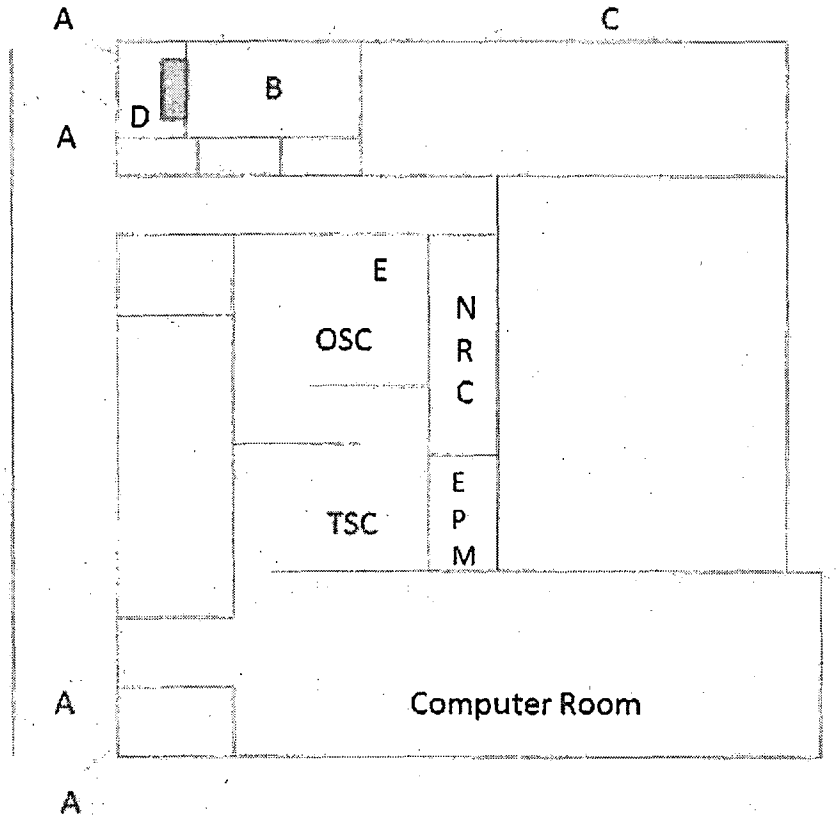
2.4 Assist with the decontamination efforts of personnel, equipment, and onsite areas as appropriate.

3.0 Closeout Responsibility/Activity

3.1 IF radiological conditions allow, THEN as directed by the Radiological Coordinator:

A. Return emergency equipment to proper storage areas and restock supplies as needed.

Attachment 9.3
OSC Rad Protection Technician Checklist
Page 4 of 4



TSC/OSC Access Points to be posted:

If Hallway Contamination < 1000 dpm/ 100 sq. cm

A. Entry/Exit
B. No Entry/No Exit

C. No Entry/No Exit
D. Equipment cabinets. Place sign at top of stairway No Entry/No Exit without permission from RAD Coordinator.
E. Air Monitoring Equipment

If Hallway Contamination > 1000 dpm/ 100 sq. cm

A. No Entry. Exit Only
B. Entry to TSC/OSC. No Exit. White Step Off Pad and Frisk Shoes before stepping here
C. No Entry/No Exit
D. Equipment cabinets. Place sign at top of stairway. No Entry/No Exit without permission from RAD Coordinator
E. Air Monitoring Equipment

Attachment 9.4
TSC Radiological Coordinator Checklist
Page 1 of 6

1.0 Initial Responsibility/Activity **NOTES**

A. Determine if any personnel are currently in the field as follows:

- Entergy-IPEC web site
- Applications drop down menu
- Sentinel
- Fleet Production Reports
- Indian Point
- RCA Currently Logged In
- If not in Crystal Report printable PDF format, then convert to such and **PRINT**

B. Obtain a copy of current employee exposure for use in ALARA considerations when assigning OSC team members as follows:

- Use Item 2 instructions above for Sentinel access
- Select Daily Margin List by Department
- Select the key departments needed (e.g., Operations, RP, Rad-waste, Chem., FIN, MNTS, Mech-1, Security)
- Drop Down Menu
- Select Last Name, OK
- If not in Crystal Report printable PDF format, convert to such and **PRINT**

C. Request the Control Room to align the OSC/TSC ventilation system for incident operation per procedure, if required.

D. **IF** necessary **THEN** direct a Rad Protection Technician to perform a habitability survey of the OSC/TSC and Control Rooms and verify that radiological controls are set up as shown on Sheet 6 of this Checklist for the TSC/OSC.

Attachment 9.4
TSC Radiological Coordinator Checklist
Page 2 of 6

Initial Responsibility/Activity (cont.)

NOTES

E. Establish the capability for monitoring of Iodine, should it become necessary. Have a Rad Protection Tech set up the AMS-4.

F. Establish Habitability and Contamination controls for the CR if necessary. At a minimum verify habitability in the Control Rooms and TSC/OSC and re-verify approximately every 60 minutes or when conditions have likely worsened.

> **NOTE:**
>
> Ensure Habitability and Contamination Controls are implemented when a Radiological Release occurs

G. **IF** dosimetry is necessary and individuals have not been previously issued dosimetry **THEN** assign a person(s) to go to HP-1 or HP-3 as appropriate to obtain dosimetry (DRD's/DLR's) to be issued to them,

H. Assign Personnel to the following positions:

1. OSC/TSC Rad Protection Monitor
2. Protected Area Monitoring Team, **IF** requested by the EOF,
3. EOF RP Monitor, as soon as RP tech minimum staffing has been satisfied.
4. Rad Waste Personnel to report to the EOF to support any decontamination efforts, **IF** requested by the EOF.
5. RP Monitor to Assembly Areas to verify habitability if a radiological release has occurred. Monitor will need to bring frisker and survey meter.
6. Technicians to take samples and report results as requested.

I. Obtain keys from Unit 2 control point for the lock box on the side of the OSC radiological equipment supply lockers. Check all instruments for operability and inventory any locker which has a broken seal.

Attachment 9.4
TSC Radiological Coordinator Checklist
Page 3 of 6

Initial Responsibility/Activity (cont.) **NOTES**

J. Obtain requested Chemistry sample, and report the results to the OSC Manager.

2.0 Continuous Responsibility/Activity

2.1 Direct Radiation Protection Technicians in the following activities:

A. Assign qualified RP Technicians to conduct emergency response support activities.

B. Use Emergency Team Briefing Form (EP-38) to prepare and document team assignments. Ensure each team dispatched has a copy of the Emergency Team Briefing Form.

C. Assign personnel to conduct in-plant radiological surveys and take chemistry samples as required supporting ERO activities.

D. Assign RP Technicians to accompany Teams requiring radiological support.

E. Prepare or have prepared the ERWP (EP-40). Review and approve the prepared form and then use or have it used.

F. Participate in Team briefings to ensure team members properly understand the assigned task. Briefings **SHOULD** be clear, concise, accurate, and prompt based upon the hazard(s) to be encountered.

G. Use the ERWP (Form EP-40) to discuss dose limits, surveys to be performed, expected and maximum dose rates and stay times. Advise team members to immediately contact or return to the OSC when dose rates or stay times approach the established limits.

H. Discuss dosimetry requirements. Coordinate with EPM any radiation exposure limit extensions necessary.

Attachment 9.4
TSC Radiological Coordinator Checklist
Page 4 of 6

Continuous Responsibility/Activity (cont.)

NOTES

I. Discuss protective clothing and respiratory protection requirements.

J. Discuss travel route requirements and if there are any releases in progress.

K. Advise team members on monitoring and decontamination procedures following mission completion.

L. Advise team how they will be notified of changing conditions or classifications. Direct radiological control personnel to read dosimetry for personnel whose exposure limits are approached

M. Participate in OSC team post job debriefings, if needed.

N. Maintain communication capability (i.e. phone, radio) and work with the OSC Manager while the team is in the field to answer any questions that may arise concerning the task.

O. Assist the OSC Manager in planning and preparing for any Radiological or Chemistry work activities needed to return the plant to a safe condition.

P. Verify the OSC Manager is tracking individual exposure data in WebEOC or Individual Exposure Tracking Log (Form EP-29).

Q. RP Tech escorts are required for any team being sent into an area where any of the following conditions exist:

1. Radiological conditions are unknown. Surveys or ARMs may be used to predict radiological conditions.
2. Radiation field in excess of 1 R/hr are expected.
3. In the event of any release of radioactivity to the environment.

Attachment 9.4
TSC Radiological Coordinator Checklist
Page 5 of 6

Continuous Responsibility/Activity (cont.)

R. Coordinate with the OSC Manager for tasks involving injured personnel or search and rescue activities.

1. **IF** potentially contaminated or highly exposed personnel require offsite medical facility attention, **THEN** support transport with Operations and Security.

S. Frequently brief the OSC Manager on assigned task status and the results reported by RP Technicians

T. Maintain an adequate reserve of personnel in the OSC RP pool by requesting additional resources from the OSC Manager as necessary.

U. Coordinate with the EOF Technical Advisor to obtain equipment and materials not available onsite or through previously arranged agreements.

V. Direct decontamination of personnel, equipment and areas inside the Protected Area.

W. If respirators are needed they can be obtained at the normal issue point location.

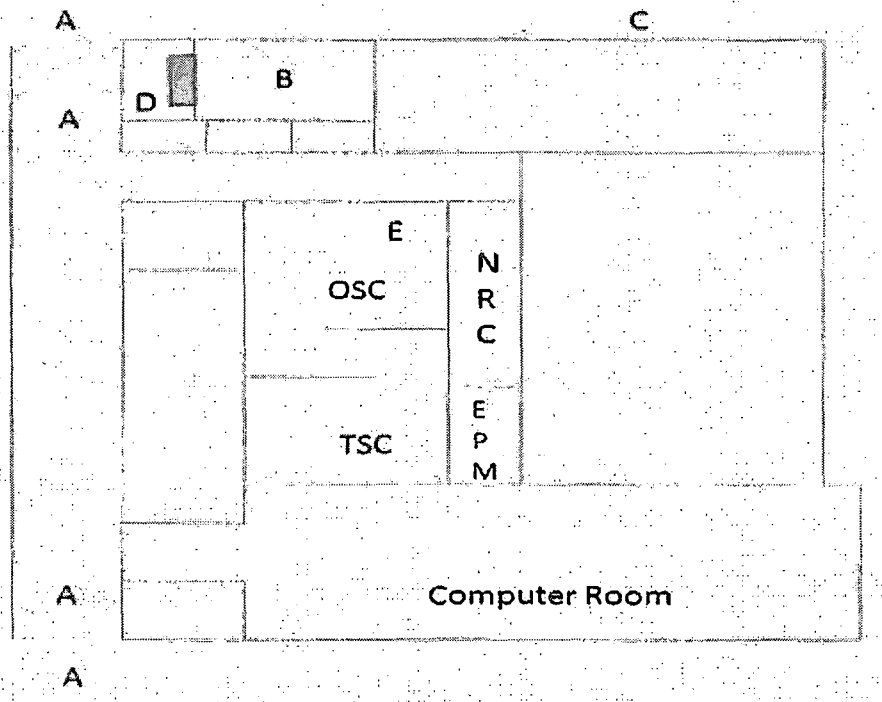
2.2 IF there are contaminated injured personnel THEN perform the following:

A. Provide radiological support for the assessment, treatment, and transportation of contaminated injured personnel.

B. Monitor patients on-site for contamination and decontaminate as appropriate.

NOTES

Attachment 9.4
TSC Radiological Coordinator Checklist
Page 6 of 6



TSC/OSC Access Points to be posted:

If Hallway Contamination < 1000 dpm/ 100 sq. cm cm

A. Entry/Exit
B. No Entry/No Exit

C. No Entry/No Exit
D. Equipment cabinets. Place sign at top of stairway No Entry/No Exit without permission from RAD Coordinator.
E. Air Monitoring Equipment

If Hallway Contamination > 1000 dpm/ 100 sq.

A. No Entry. Exit Only
B. Entry to TSC/OSC. No Exit. White Step Off Pad and Frisk Shoes before stepping here
C. No Entry/No Exit
D. Equipment cabinets. Place sign at top of stairway. No Entry/No Exit without permission from RAD Coordinator
E. Air Monitoring Equipment

Attachment 9.5
EOF Rad Protection Monitor Checklist
Page 1 of 4

1.0 Initial Responsibility/Activity **NOTES**

1.1 Assume the position of EOF Rad Protection Monitor

A. Sign in on the EOF Check Point Sign-In Log (Form EP-7-ALL).

B. Report to and receive direction from the EOF Radiological Assessment Coordinator.

C. Verify Equipment is in calibration.

D. As directed by the EOF Dose assessor or the EOF Radiological Assessment Coordinator.

1. Perform a habitability survey of the EOF and ICP and set up radiological controls as shown on sheet 4 of this Checklist.
2. Establish the capability for monitoring of Iodine, should it become necessary.

NOTE

AMS **SHALL** be started during EOF activation

E. Set up and operate the AMS-4 utilizing skill of the craft and procedure EN-RP-310.

F. Periodically check readings of AMS-4 and ensure proper instrument operation.

1. IF there is a release, THEN monitor the AMS-4 to identify any increase in the radiological levels in the EOF.
2. Follow directions in Section E of this checklist to maintain AMS-4 operations.

G. Sample Count Using the MS-2/SPA-3 utilizing skill of the craft and procedure HP-9.021.

H. Sample Count Using the Model 177 **OR** RM-14/HP-210 utilizing skill of the craft and procedure EN-RP-302 and record results on form EP-16.

Attachment 9.5
EOF Rad Protection Monitor Checklist
Page 2 of 4

Initial Responsibility/Activity (cont.) **NOTES**

I. Perform background and source checks approximately every hour OR as specified by the Radiological Assessment Coordinator or Dose Assessor (frequency may be adjusted, either more or less often, in consideration of current radiological conditions).

J. Using the readings from the AMS-4 Monitor and the noble gas-to-iodine ratio from Chemistry, determine the iodine activity.

1. **IF** iodine activity is determined to be greater than $1X10^{-7}$ micro curies/cubic centimeter by any of the above methods, **THEN** notify the EOF Dose Assessor or the EOF Radiological Assessment Coordinator.

K. If directed by the EOF Radiological Assessment Coordinator or Dose Assessor then conduct decontamination of vehicles and personnel using IP-EP-350.

2.0 Continuous Responsibility/Activity

2.1 Establish and Maintain radiological habitability

A. As directed by the EOF Dose Assessor or the EOF Radiological Assessment Coordinator, perform periodic radiological monitoring particularly when a release of radioactive material into plant environments is in progress or suspected

Attachment 9.5
EOF Rad Protection Monitor Checklist
Page 3 of 4

Continuous Responsibility/Activity (cont.) **NOTES**

1. If there has been a Radiological Release outside of the Protected Area then set up the EOF as follows when directed by the Dose Assessor:

   a. Set up stanchions, rope barricades and friskers at both ends of the main hallway.

   b. Set Frisker alarm to (2) times background.

   c. Set up SOP's at both entrances.

   d. Place a waste receptacle near the SOP location.

   e. Post door to warehouse, exterior door (from NEM offices) and Equipment Room door as No Entry, No Exit, as appropriate.

B. Periodically verify habitability in the EOF. This should be done approximately once every 60 minutes or when conditions have likely worsened or when directed to by the EOF Dose Assessor or the EOF Radiological Assessment Coordinator.

2.2 Inform the EOF Radiological Assessment Coordinator when temporarily leaving the work area.

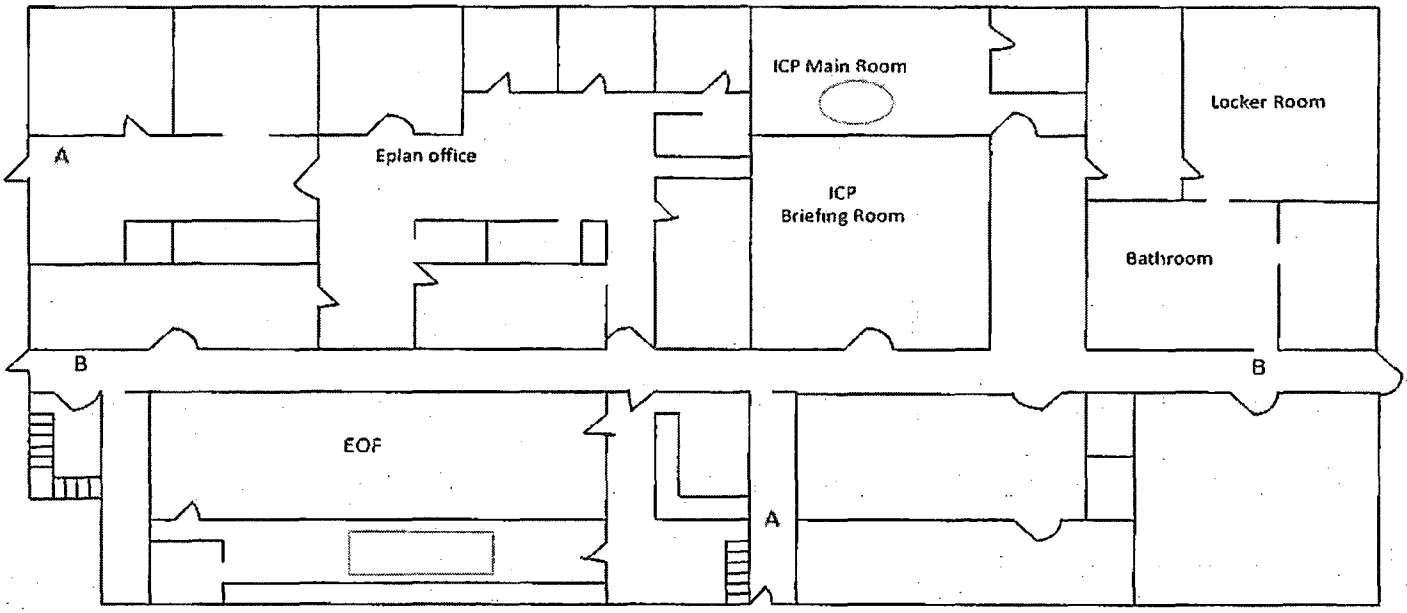
A. **IF** you are leaving the EOF Complex (the restroom is within complex) **THEN**:

   1. Inform the EOF Radiological Assessment Coordinator (for accountability purposes)
   2. Inform the EOF Radiological Assessment Coordinator when you return.

B. Upon return, obtain a briefing from the EOF Dose Assessor or the EOF Radiological Assessment Coordinator on any events, which have occurred while away.

2.3 Assist with the decontamination efforts of personnel, equipment and onsite areas as appropriate.

Attachment 9.5
EOF Rad Protection Monitor Checklist
Page 4 of 4



If there is indication of contamination outside of the PA then the EOF Complex may be set up to restrict access as outlined above:

If Hallway contamination <1000 dpm/100cm2

A – No Entry/ No Exit. Note: this may also include one or two doors to the EOF Equipment Room, as appropriate.

B - Entry/ Exit to EOF Complex. Set up white SOP, with Frisker and trash receptacle available.

NOTE: Depending on placement of SOP, may also need to post the door to the Equipment Room as No Entry/No Exit.

Attachment 9.6
EOF Dose Assessor Checklist
Page 1 of 1

1.0	Initial Responsibility/Activity	NOTES
1.1	**Confer with the Radiological Assessment Coordinator on the need to set up EOF Radiological Controls. If needed request a Radiation Protection Technician from the OSC. Have the Radiation Protection Tech set up the EOF hallway as follows:** A. Set up stanchions, rope barricades, and friskers at both ends of the main hallway. B. Set frisker alarm to two (2) times background. C. Set up Step off Pads (SOPs) at both entrances. D. Place a waste receptacle near the SOP location. E. Post door to warehouse & exterior doors (from NEM offices and Equipment Room) as **NO ENTRY, NO EXIT**.	

ATTACHMENT 10.2 IPEC PROCEDURE REVIEW AND APPROVAL

(Page 1 of 1)

Procedure Title: Protective Action Recommendations

Procedure No: IP-EP-410 Existing Rev: 15 New Rev: 16 DRN/EC No: 21-00119

Procedure Activity (MARK Applicable)	☐ Converted To IPEC, Replaces:	Temporary Procedure Change (MARK Applicable)
☐ NEW PROCEDURE ☐ GENERAL REVISION ☑ PARTIAL REVISION ☐ EDITORIAL REVISION ☐ VOID PROCEDURE ☐ SUPERSEDED	Unit 1 Procedure No: _____ Unit 2 Procedure No: _____ Unit 3 Procedure No: _____	☐ EDITORIAL Temporary Procedure Change ☐ ADVANCE Temporary Procedure Change ☐ CONDITIONAL Temporary Procedure Change Terminating Condition: _____
☐ RAPID REVISION	Document in Microsoft Word: ☐ Yes ☐ No	☐ VOID DRN/TPC No(s): _____

Revision Summary ☑ N/A - See Revision Summary page.

Implementation Requirements

Implementation Plan? ☐ Yes ☑ No Formal Training? ☐ Yes ☑ No Special Handling? ☐ Yes ☑ No
Quality Related? ☐ Yes ☑ No. **If Yes, then ensure the procedure cover page is marked "Quality Related"**

RPO Dept: Emergency Planning Writer **(Print Name/ Ext/ Sign)**: Dara Gray/8414 D Gray for R. Watts

Review and Approval (Per Attachment 10.1 IPEC Review and Approval Requirements)

1. ☑ Technical Reviewer: Craig Delamater/ CD 4/19/2021
   (Print Name/ Signature/ Date)
2. ☐ Cross-Disciplinary Reviewers:
   Dept: _____ Reviewer: _____
   (Print Name/ Signature/ Date)
   Dept: _____ Reviewer: _____
   (Print Name/ Signature/ Date)
3. ☑ **RPO- Responsibilities/Checklist**: Frank Mitchell/ FM Mitchell 4/19/21
   (Print Name/ Signature/ Date)
   - ☐ PAD required and is complete (PAD Approver and Reviewer qualifications have been verified)
   - ☑ Previous exclusion from further LI-100 Review is still valid
   - ☐ PAD not required due to type of change as defined in 4.6
4. ☐ Non-Intent Determination Complete: _____
   (Print Name/ Signature/ Date)

   NO change of purpose or scope
   NO reduction in the level of nuclear safety
   NO voiding or canceling of a procedure, unless requirements are incorporated into another procedure or the need for the procedure was eliminated via an alternate process.
   NO change to less restrictive acceptance criteria
   NO change to steps previously identified as commitment steps
   NO deviation from the Quality Assurance Program Manual
   NO change that may result in deviations from Technical Specifications, FSAR, plant design requirements or previously made commitments.
5. ☐ On-Shift Shift Manager/CRS: Frank Mitchell - RPO FM Mitchell 4/19/21
   (Print Name/ Signature/ Date)
6. ☐ User Validation: User: _____ _____
7. ☐ Special Handling Requirements Understood: _____

10CFR50.54(Q)(2) Review

Procedure/Document Number: IP-EP-410	Revision: 16
Equipment/Facility/Other: Indian Point Energy Center	
Title: Protective Action Recommendations	

Part I. Description of Activity Being Reviewed (event or action, or series of actions that have the potential to affect the emergency plan or have the potential to affect the implementation of the emergency plan):

This procedure was revised to reflect the condition of the facility to meet the requirement in the Post Unit 3 Shutdown E-Plan (PSEP) as submitted to the NRC per LAR, license #NL-19-001. Please see the attached matrix for the changes that have been made. This procedure will be effective May 17th, 2021.

Part II. Emergency Plan Sections Reviewed (List all emergency plan sections that were reviewed for this activity by number and title. IF THE ACTIVITY IN ITS ENTIRETY IS AN EMERGENCY PLAN CHANGE, EAL CHANGE OR EAL BASIS CHANGE, ENTER THE SCREENING PROCESS. NO 10CFR50.54(q)(2) DOCUMENTATION IS REQUIRED.

Part 1 Introduction:

Section A: Purpose

Part 2 Planning Standards and Criteria:

Section A: Assignment of Responsibility

Section B: Station Emergency Response Organization

Section D: Emergency Classification System

Section H: Emergency Facilities and Equipment

Section I: Accident Assessment

Section J: Protective Response

Part III. Ability to Maintain the Emergency Plan (Answer the following questions related to impact on the ability to maintain the emergency plan):

1. Do any elements of the activity change information contained in the emergency plan (Section 3.0 Step 6)?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

2. Do any elements of the activity change an emergency classification Initiating Condition, Emergency Action Level (EAL), associated EAL note or associated EAL basis information or their underlying calculations or assumptions?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

3. Do any elements of the activity change the process or capability for alerting and notifying the public as described in the FEMA-approved Alert and Notification System design report?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

4. Do any elements of the activity change the Evacuation Time Estimate results or documentation?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

5. Do any elements of the activity change the Onshift Staffing Analysis results or documentation?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

10CFR50.54(Q)(2) Review

Procedure/Document Number: IP-EP-410	Revision: 16
Equipment/Facility/Other: Indian Point Energy Center	
Title: Protective Action Recommendations	

Part IV. Maintaining the Emergency Plan Conclusion The questions in Part III do not represent the sum total of all conditions that may cause a change to or impact the ability to maintain the emergency plan. Originator and reviewer signatures in Part V document that a review of all elements of the proposed change have been considered for their impact on the ability to maintain the emergency plan and their potential to change the emergency plan.

1. Provide a brief conclusion that describes how the conditions as described in the emergency plan are maintained with this activity.
2. Check the box below when the 10CFR50.54(q)(2) review completes all actions for all elements of the activity – no 10CFR50.54(q)(3) screening or evaluation is required for any element. Otherwise, leave the checkbox blank.

☒ I have completed a review of this activity in accordance with 10CFR50.54(q)(2) and determined that the effectiveness of the emergency plan is maintained. This activity does not make any changes to the emergency plan. No further actions are required to screen or evaluate this activity under 10CFR50.54(q)(3).

Per Post Shutdown Emergency Plan (PSEP), both Unit 2 and Unit 3 will be defueled and will no longer operate. The changes made to this procedure (specifically, deletion of the Rapidly Progressing Severe Accident - see attached matrix) reflects the changes made to the document submitted to the NRC (license # NL-19-001) as well as some minor or editorial changes. The NRC has approved the Unit 3 PSEP per RA-20-040.

A review of this activity in accordance with 10CFR50.54(q)(2) has been completed and has determined that the effectiveness of the PSEP is maintained. This revision aligns the procedure with the protocols of the post Unit 3 shutdown. None of the changes affect the ability to perform classifications, notifications or PARS. Additionally, it does not affect the activation of the Emergency Response Organization and the planning standard requirements are maintained. The changes made do not require a change to the Emergency Action Level scheme, On-Shift Staffing Study or the PSEP.

No further actions are required to screen or evaluate this activity under 10CFR50.54(q)(3).

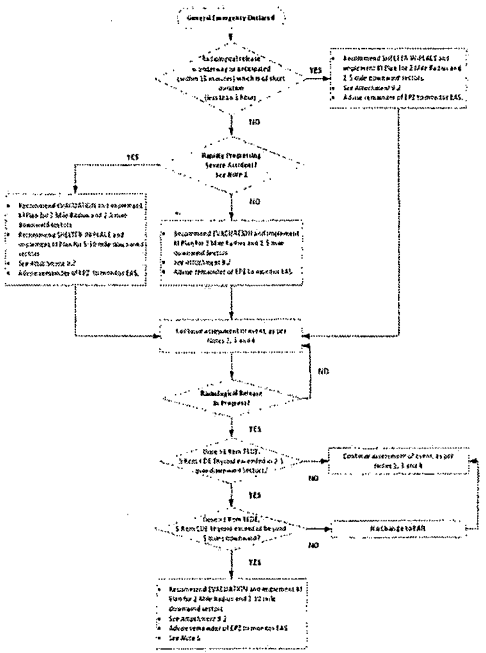
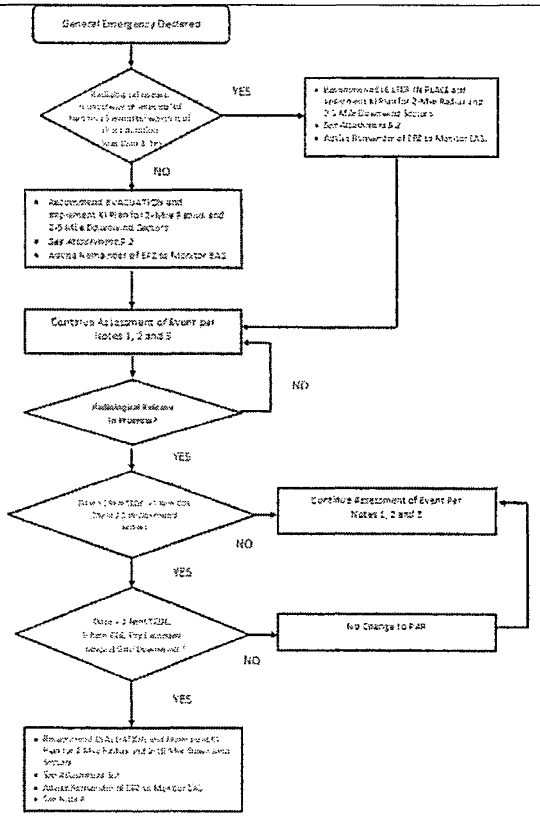
Part V. Signatures:

Preparer Name (Print) Dara Gray	Preparer Signature Dara Gray	Date: 3/29/2021
(Optional) Reviewer Name (Print)	Reviewer Signature	Date:
Reviewer Name (Print) Timothy Garvey Nuclear EP Project Manager	Reviewer Signature Dara Gray for Tim Garvey	Date: 3/29/2021
Approver Name (Print) Emergency Planning Manager or designee	Approver Signature	Date: 4/6/2021

IP-EP-410, Protective Action Recommendations
(Revision 16) Revision Matrix

Change No.	Page/Section	Previous Version	New Version	Editorial Change	Effect on 10 CFR 50.47(b) Planning Standards or NUREG-0654 program elements? Justify if NO.
1.	Cover Page	Rev 15	Rev 16	Yes	No- This is an editorial change to the Revision number and effective date. The meaning or intent of description in the emergency plan, facilities or equipment described in the approved Post-Shutdown Emergency Plan (PSEP) or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

IP-EP-410, Protective Action Recommendations (Revision 16) Revision Matrix

Change No.	Page/Section	Previous Version	New Version	Editorial Change	Effect on 10 CFR 50.47(b) Planning Standards or NUREG-0654 program elements? Justify if NO.
2.	FLOWCHART FOR GENERAL EMERGENCY PROTECTIVE ACTION RECOMMENDA-TIONS Attachment 9.1 Sheet 1 of 2			No	No- The Rapidly Progressing Severe Accident (RPSA) decision leg of the PAR flowchart (on left side) was removed. The RPSA sequence in a General Emergency is not applicable to a plant in which the reactor has been defueled. Per NUREG-0654-REP-1, Rev. 1, Supplement 3, an RPSA potential exists when a large radioactive source term is released into containment, containment loss conditions exist and there is a potential for a rapid release resulting in site boundary doses exceeding EPA Protective Action Guides. (Ref. Supplement 3, page A-3: *"A rapidly progressing severe incident is a General Emergency (GE) with rapid loss of containment integrity (emergency action levels indicate containment barrier loss) and loss of ability to cool the core. This path is used for scenarios in which containment integrity can be determined as bypassed or immediately lost during a GE with core damage. If this scenario cannot be immediately confirmed, assume it is not taking place and answer "no" to this decision block".* These conditions can no longer exist after a reactor has been defueled. Any protective actions (shelter-in-place or evacuation) that could be required for a GE would be addressed by other applicable portions of the

IP-EP-410, Protective Action Recommendations
(Revision 16) Revision Matrix

Change No.	Page/Section	Previous Version	New Version	Editorial Change	Effect on 10 CFR 50.47(b) Planning Standards or NUREG-0654 program elements? Justify if NO.
					procedure flowchart for protection of the general public. The meaning or intent of description in the emergency plan, facilities or equipment described in the approved Post-Shutdown Emergency Plan (PSEP) or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.
3.	FLOWCHART FOR GENERAL EMERGENCY PROTECTIVE ACTION RECOMMENDA-TIONS Attachment 9.1 Sheet 2 of 2	NOTE 1: Rapidly Progressing Severe Accident IF: • First PAR after GE declared AND, • Containment Loss Conditions (Table F-1) AND EITHER: • Containment Rad Monitors R-25 or R-26 > 68 R/hr OR, • Conditions for EALs AG1.1, AG1.2 or AG1.3 have been met. • If these criteria cannot be immediately confirmed, assume a RPSA is NOT occurring.	Previous NOTE 1 removed.	No	No - See Change #2 above. RPSA conditions no longer apply after defueling. The meaning or intent of description in the emergency plan, facilities or equipment described in the approved Post-Shutdown Emergency Plan (PSEP) or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

IP-EP-410, Protective Action Recommendations (Revision 16) Revision Matrix

Change No.	Page/Section	Previous Version	New Version	Editorial Change	Effect on 10 CFR 50.47(b) Planning Standards or NUREG-0654 program elements? Justify if NO.
4.	FLOWCHART FOR GENERAL EMERGENCY PROTECTIVE ACTION RECOMMENDA-TIONS Attachment 9.1 Sheet 2 of 2	Previous Notes 2,3,4 and 5	Previous Notes 2, 3, 4 and 5 now renumbered as Notes 1,2,3 and 4	Yes	No – The previous notes 2-5 were renumbered as Notes 1-4 due to the removal or previous Note 1 (describing the RPSA). No other wording changes were made in the remaining notes. The meaning or intent of description in the emergency plan, facilities or equipment described in the approved Post-Shutdown Emergency Plan (PSEP) or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.
5.	FLOWCHART FOR GENERAL EMERGENCY PROTECTIVE ACTION RECOMMENDA-TIONS Attachment 9.1 Sheet 1 of 2	Two blocks in flow chart state: "Continue assessment of event as per Attachment 9.1 Notes 2, 3 and 4" Bottom block states: "See Note 5"	Wording in same blocks now state: "Continue assessment of event per Notes 1, 2 and 3" Bottom block states: "See Note 4"	Yes	No – This is an editorial change made to conform to the revised notes numbering. The meaning or intent of description in the emergency plan, facilities or equipment described in the approved Post-Shutdown Emergency Plan (PSEP) or a process described in the PSEP are not affected by this change. No further evaluation is required for this change.

Attachment 9.1

Emergency Planning Document Change Checklist Form

(All sections must be completed, N/A or place a check on the line where applicable)

Section 1

Doc/Procedure Type:	Administrative ☐ Implementing ☒ EPLAN ☐ N/A ☐
Doc/Procedure No:	IP-EP-410
Doc/Procedure Title:	Protective Action Recommendations
New revision number:	16
Corrective Action:	Yes ☒ No ☐ N/A ☐ CR#: OL-OLI-2018-00090 CA 19
Effective date:	May 17, 2021

Section 2

Change Description

1. Ensure the following are completed, or are not applicable and are so marked:
   a. 50.54q ☒ N/A ☐
   b. EN-FAP-OM-023 ☐ N/A ☒
   c. IP-SMM- AD-102 ☒ N/A ☐
   d. OSRC ☐ N/A ☒
   e. NRC Transmittal (within 30 days) ☐ N/A ☒
2. List any other documents affected by this change: N/A
3. Transmittals are completed: ☒ N/A ☐ Date: 4/29/21
4. Ensure the proper revision is active in eB Ref. Lib.: ☒ N/A ☐
5. Approved doc/procedure delivered to Doc. Control for distribution: ☒ N/A ☐ Date: 4/29/21
6. Position Binders updated: ☒ N/A ☐ Date: 4/29/21
7. Copy of EPDCC placed in EP file: ☒ N/A ☐ Date: 4/29/21
8. Supporting documentation is submitted as a general record in eB Ref. Lib.: ☒ N/A ☐ Date: 4/29/21
9. Word files are moved from working drafts folder to current revision folder in the EP drive: ☐ N/A ☒ Date: 5/17/21

CONTROLLED

Protective Action Recommendations

Prepared by:	Dara Gray Print Name	 Signature	4/6/2021 Date
Approval:	Frank J. Mitchell Print Name	 Signature	4/6/2021 Date

Effective Date: May 17, 2021

This procedure excluded from further LI-100 review

Table of Contents

PROTECTIVE ACTION RECOMMENDATIONS

1.0 PURPOSE

To prescribe the responsibilities and methods for determining recommended protective actions for New York State and County authorities.

2.0 REFERENCES

EPA Protective Action Guidelines

3.0 DEFINITIONS

Protective Action Recommendations (PARs) – Specific recommendations made by the Emergency Director to offsite authorities in accordance with Emergency Plan procedures based on Protection Action Guidelines.

4.0 RESPONSIBILITIES

4.1 The Shift Manager is responsible for evaluating accident conditions, classifying the accident, and recommending protective actions to offsite authorities during the initial phases of the accident. The Emergency Director assumes these responsibilities when he takes control of the emergency response from the Shift Manager. The Radiological Assessment Coordinator will assist the Emergency Director with protective action recommendations.

4.2 The decision to initiate any protective actions is solely the responsibility of offsite authorities.

5.0 DETAILS

5.1 NUE, Alert, Site Area Emergency:

5.1.1 Do not recommend protective actions be taken.

5.2 General Emergency

5.2.1 The initial protective action recommendation should be made within 15 minutes of the GENERAL EMERGENCY declaration.

5.2.2 Protective Action Recommendations (PARs) shall be made in accordance with Attachment 9.1. Downwind Sectors are identified on Attachment 9.2. The MIDAS dose assessment program uses the logic from Attachment 9.1 and 9.2 to determine PARs and affected downwind sectors. Impacted sectors include both land and water areas out to the distances included in the PAR.

5.2.3 The Acetate Isopleth Overlays may be used with the map table to visualize the plume. If the Isopleth Overlays are used, then use Attachment 9.4 to support isopleth selection and placement on the map table.

5.2.4 The initial PAR shall be made in the first GENERAL EMERGENCY notification to the State/Counties. All subsequent, Part I notifications shall include the latest PAR.

5.2.5 Re-evaluate the PARs based on the following:

- Changes in Wind Direction or Speed
- Dose Calculations
- Field Team Data
- EPA PAGs – Attachment 9.3
- Plant Conditions

5.2.6 **IF** conditions are present that require a revision to the current PAR, **THEN** the revised PAR must be determined within 15 minutes of those conditions being apparent.

5.2.7 **IF** a decision to revise the PAR has been made, **THEN** offsite notification shall be completed within 15 minutes of the revised PAR determination.

5.2.8 As protective action recommendations change, ensure appropriate steps are taken to protect the onsite population.

5.2.9 **IF** an EPA PAG is exceeded or expected to be exceeded beyond 10 miles **THEN** consider the need for PARs beyond 10 miles and discuss possible actions with State/Counties. Send Field Teams to confirm projections.

6.0 INTERFACES

6.1 Evacuation Time Estimates
6.2 IP-EP-310, Dose Assessment
6.3 State of New York KI Policy Paper
6.4 IP-EP-420, Use of Potassium Iodide by Indian Point Personnel during an Emergency

7.0 RECORDS

NONE

8.0 REQUIREMENTS AND COMMITMENT CROSS-REFERENCE

NONE

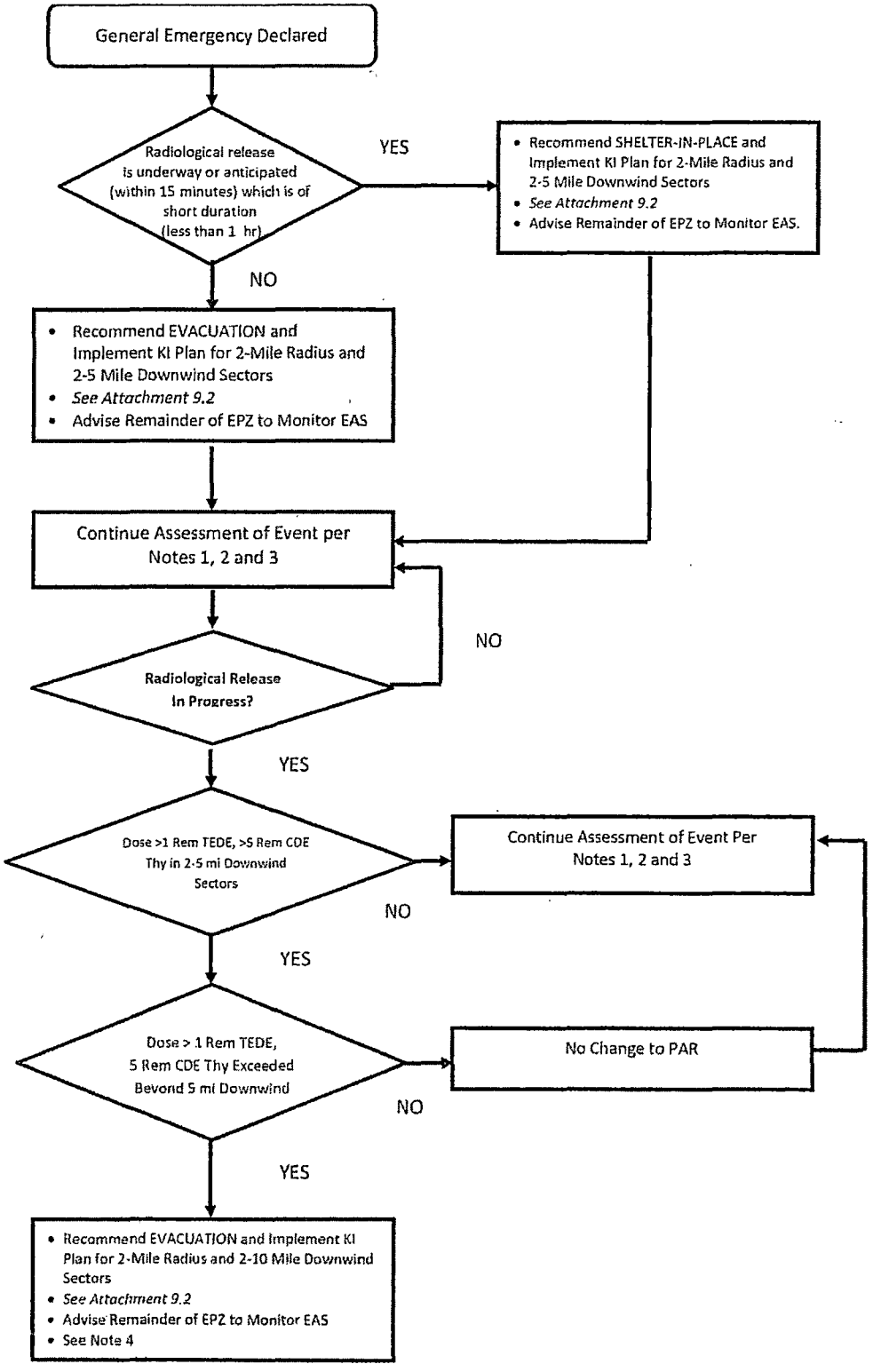
9.0 ATTACHMENTS

9.1 Flowchart for General Emergency Protective Action Recommendations
9.2 MIDAS Stability Category – Downwind Keyhole Sector Correlation Table
9.3 EPA Protective Action Guidelines
9.4 Overlay Selection Flow Chart (For Manual Plume Visualization)
9.5 Wind Field Orientation – MIDAS vs. Plume Overlays

Attachment 9.1

FLOWCHART FOR GENERAL EMERGENCY PROTECTIVE ACTION RECOMMENDATIONS

(Sheet 1 of 2)



Attachment 9.1

FLOWCHART FOR GENERAL EMERGENCY PROTECTIVE ACTION RECOMMENDATIONS

Sheet 2 of 2

NOTE 1: Event Assessment Criteria:

- Wind Direction/Speed
- Dose Calculations
- Field Team Data
- EPA PAGs (Attachment 9.3)
- Plant Conditions

NOTE 2: PAR Expansion Criteria:

- IF meteorological conditions change and result in other sector(s)/area(s) being impacted after initial PAR, expand the initial PAR to include new sector(s)/area(s) ONLY IF:
- Plant conditions are unknown or continue to be unstable (mitigating actions not started or not successful) or degrading OR,
- EPA PAGs are projected or measured to be exceeded in the new sector(s)/area(s).

For Wind Shifts:

- Only expand the PAR to include the sector(s)/area(s) impacted by the in-transit wind shift if dose assessment projects the EPA PAGs will be exceeded in the in-transit sector(s)/area(s).

NOTE 3: IF Recommended Sectors Change, THEN:

- Add new sectors to new PAR.
- DO NOT subtract any sector in which actions have been previously recommended.

NOTE 4: IF PAGs Exceeded > 10 Miles:

IF an EPA PAG is exceeded or expected to be exceeded beyond 10 miles THEN consider the need for PARs beyond 10 miles and discuss possible actions with State/Counties.

Attachment 9.2

MIDAS STABILITY CATEGORY DOWNWIND KEYHOLE SECTOR CORRELATION TABLE

Sheet 1 of 1

TABLE I – MIDAS Up-Valley Plumes

Up-Valley Plumes (wind speed ≤ 4 m/sec and wind direction from 102°-209°)

Pasquill Stability Categories	Sectors affected
A, B	16, 1, 2, 3, 4
C, D, E, F, G	16, 1, 2, 3

TABLE II – MIDAS Down-Valley Plumes

Down-Valley Plumes (wind speed ≤ 4 m/sec and wind direction from 349°-101°)

Pasquill Stability Categories	Sectors affected
A, B	7, 8, 9, 10, 11
C, D, E, F, G	7, 8, 9, 10

TABLE III – MIDAS Cross-Valley Plumes

Cross-Valley (wind speed > 4 m/sec OR wind direction from 210°-348°)

Wind Direction From (deg)	Center Sector No.	Pasquill Stability Categories A & B Sectors affected	Pasquill Stability Categories C-G Sectors affected
169 - 190	1 N	15, 16, 1, 2, 3	16, 1, 2
191 - 213	2 NNE	16, 1, 2, 3, 4	1, 2, 3
214 - 235	3 NE	1, 2, 3, 4, 5	2, 3, 4
236 - 258	4 ENE	2, 3, 4, 5, 6	3, 4, 5
259 - 280	5 E	3, 4, 5, 6, 7	4, 5, 6
281 - 303	6 ESE	4, 5, 6, 7, 8	5, 6, 7
304 - 325	7 SE	5, 6, 7, 8, 9	6, 7, 8
326 - 348	8 SSE	6, 7, 8, 9, 10	7, 8, 9
349 - 010	9 S	7, 8, 9, 10, 11	8, 9, 10
011 - 033	10 SSW	8, 9, 10, 11, 12	9, 10, 11
034 - 055	11 SW	9, 10, 11, 12, 13	10, 11, 12
056 - 078	12 WSW	10, 11, 12, 13, 14	11, 12, 13
079 - 100	13 W	11, 12, 13, 14, 15	12, 13, 14
101 - 123	14 WNW	12, 13, 14, 15, 16	13, 14, 15
124 - 145	15 NW	13, 14, 15, 16, 1	14, 15, 16
146 - 168	16 NNW	14, 15, 16, 1, 2	15, 16, 1

Attachment 9.3

EPA PROTECTIVE ACTION GUIDELINES

Sheet 1 of 1

Recommended protective actions to reduce whole body and thyroid dose from exposure to a gaseous plume.

PROJECTED DOSE (REM) TO THE POPULATION		RECOMMENDED ACTIONS (a)	COMMENTS
Whole Body (TEDE) Thyroid (CDE)	< 1 <5	No planned actions. (b) State may issue an advisory to seek shelter and await further instructions. Monitor environmental radiation levels	Previously recommended protective actions may be reconsidered or terminated.
Whole Body (TEDE) Thyroid (CDE)	≥ 1 ≥ 5	Evacuate unless constraints make it impractical; then shelter. Monitor environmental radiation levels. Control access.	If constraints exist, special consideration should be given for evacuation of children and pregnant women.

GUIDANCE ON DOSE LIMITS FOR WORKERS PERFORMING EMERGENCY SERVICES (REM)

Whole Body (TEDE):		
10	Protecting valuable property	Lower dose not practicable.
25	Lifesaving or protection of large populations	Lower dose not practicable.
> 25	Lifesaving or protection of large population	Only on a voluntary basis to persons fully aware of the risks involved.

TEDE- Total Effective Dose Equivalent: Sum of external effective dose equivalent and committed effective dose equivalent to non-pregnant adults from exposure and intake during an emergency situation. Workers performing services during emergencies should limit dose to the lens of the eye to three times the listed value and doses to any organ (including skin and body extremities) to ten times the listed value.

CDE- Committed dose equivalent (to the Thyroid).

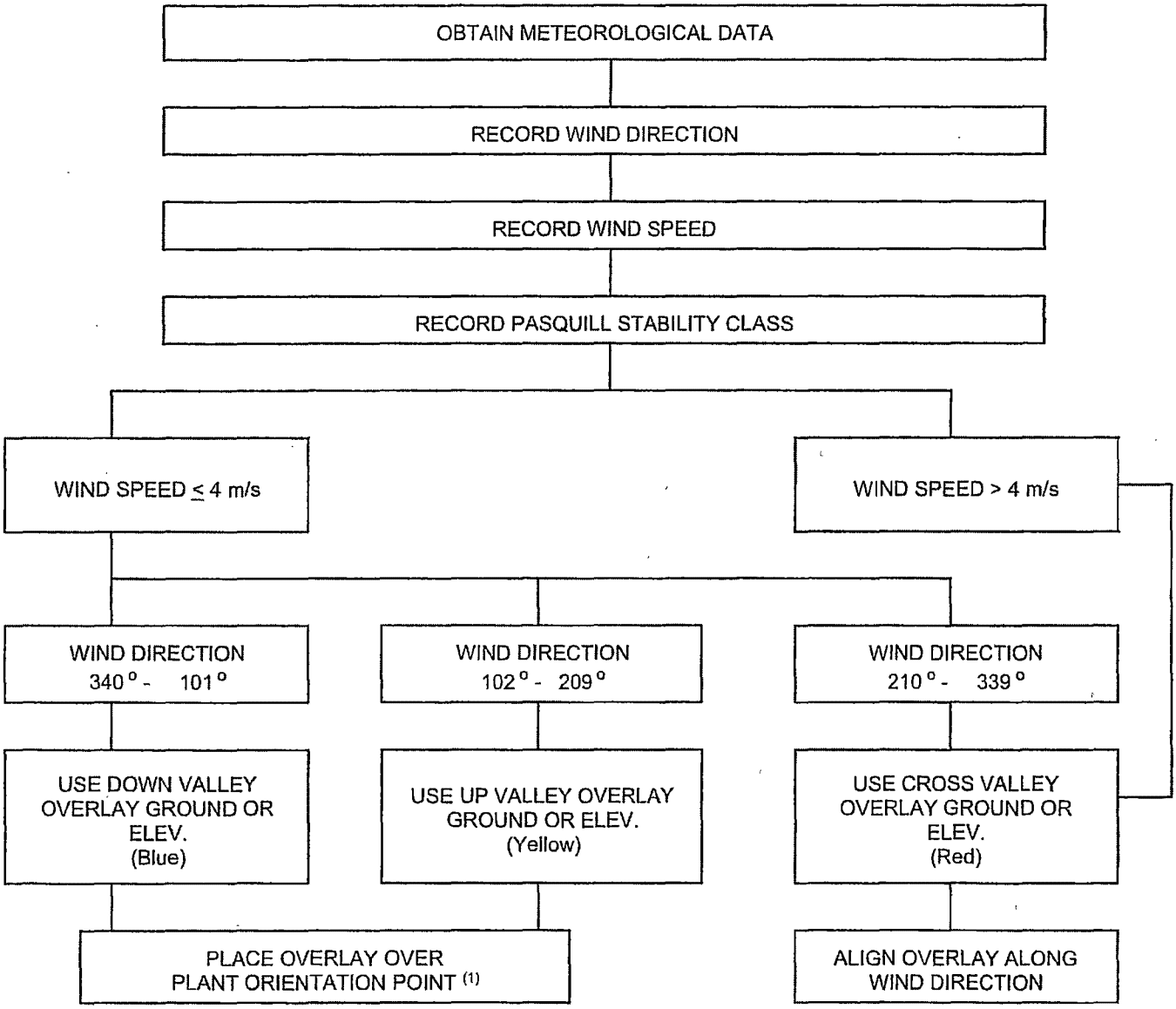
(a) These actions are recommended for planning purposes. Protective action decisions at the time of the incident must take existing conditions into consideration.

(b) At the time of the incident, officials may implement low-impact protective actions in keeping with the principle of maintaining radiation exposures as low as reasonably achievable (ALARA)

Attachment 9.4

OVERLAY SELECTION FLOW CHART (FOR MANUAL PLUME VISUALIZATION)

Sheet 1 of 1



1. Plant Orientation Point:

   a. Using down valley overlay (Blue) align horizontal axis on 90° - 270° line with plume extending south.

   b. Using up valley overlay (Yellow) align horizontal axis on 90° - 270° line with plume extending north.

Attachment 9.5

WIND FIELD ORIENTATION MIDAS vs. PLUME OVERLAYS

Sheet 1 of 1

NOTE:

The wind field orientation differs between MIDAS (Att. 9.2) and the Plume Overlays (Att. 9.4) at certain wind speeds.

Based on the recommendations of consulting meteorologists, the origin of the up and down valley flow for low wind speeds (≤ 4 m/s) was changed to the center of the Hudson River (the plume overlays isopleth's origin was the super heater stack.) This is more representative of the true met expectations.

The origin change results in the down-valley plume range going from 340° - 101° to 349° - 101° for MIDAS.

As a result, the cross valley plume goes from 210° - 339° to 210° - 348° for MIDAS.

ATTACHMENT 10.2 — IPEC PROCEDURE REVIEW AND APPROVAL

(Page 1 of 1)

Procedure Title: Site Assembly, Accountability & Relocation Of Personnel Offsite

Procedure No. IP-EP-430 Existing Rev: 16 New Rev: 17 DRN/EC No: DRN-21-00127

Procedure Activity (MARK Applicable)	☐ Converted To IPEC, Replaces:	Temporary Procedure Change (MARK Applicable)
☐ NEW PROCEDURE ☐ GENERAL REVISION ☒ PARTIAL REVISION ☐ EDITORIAL REVISION ☐ VOID PROCEDURE ☐ SUPERSEDED	Unit 1 Procedure No. Unit 2 Procedure No: Unit 3 Procedure No:	☐ EDITORIAL Temporary Procedure Change ☐ ADVANCE Temporary Procedure Change ☐ CONDITIONAL Temporary Procedure Change Terminating Condition:
☐ RAPID REVISION	Document in Microsoft Word: ☐ Yes ☐ No	☐ VOID DRN/TPC No(s):

Revision Summary ☐ N/A – see Revision Summary page. – Procedure was revised to reflect Post U3 Shutdown Eplan.

Implementation Requirements

Implementation Plan? ☐ Yes ☒ No Formal Training? ☐ Yes ☒No Special Handling? ☐ Yes ☒No

Quality Related? ☐ Yes ☒ No **If Yes, then ensure the procedure cover page is marked "Quality Related"**

RPO Dept: Emergency Planning Writer: **(Print Name/Ext/Sign):** Rebecca Martin x7106/

Review and Approval (Per Attachment 10.1, IPEC Review And Approval Requirements)

1. ☐ Technical Reviewer: Craig Delamater /CD/ 4/15/2021
   (Print Name/ Signature/ Date)

2. ☐ Cross-Disciplinary Reviewers:

   Dept: _____ Reviewer: _____
   Print Name/ Signature/ Date)

   Dept: _____ Reviewer: _____
   Print Name/ Signature/ Date)

3. ☒ RPO- Responsibilities/Checklist: Frank J Mitchell / FJM 4/15/21
   (Print Name/ Signature/ Date)

   ☐ PAD required and is complete (PAD Approver and Reviewer qualifications have been verified)
   ☒ Previous exclusion from further LI-100 Review is still valid
   ☐ PAD not required due to type of change as defined in 4.6

4. ☐ Non-Intent Determination Complete: _____
   (Print Name/ Signature/ Date)

   NO change of purpose or scope
   NO reduction in the level of nuclear safety
   NO voiding or canceling of a procedure, unless requirem are incorporated into another procedure or the need for t procedure was eliminated
   NO change to less restrictive acceptance criteria
   NO change to steps previously identified as commitment steps
   NO deviation from the Quality Assurance Program Manual
   NO change that may result in deviations from Technical Specifica FSAR, plant design requirements,

5. ☒ On-Shift Shift Manager/CRS: (RPO per SMM-AD-102) – Frank J. Mitchell/ FJM 4/15/21
   (Print Name/ Signature/ Date)

6. ☐ User Validation: User: _____ _____

7. ☐ Special Handling Requirements Understood: _____
   Print Name/ Signature/ Date)

10CFR50.54(Q)(2) Review

Procedure/Document Number: IP-EP-430	Revision: 17
Equipment/Facility/Other: Indian Point Energy Center	
Title: Site Assembly, Accountability & Relocation of Personnel Offsite	

Part I. Description of Activity Being Reviewed (event or action, or series of actions that have the potential to affect the emergency plan or have the potential to affect the implementation of the emergency plan):

Replaced TSC Manager with EPM, EOF Manager with EOF Tech Advisor, and POM with Shift Manager and removed references to any facility support staff as reflected in the requirements in the Post Unit 3 Shutdown Eplan (PSEP), as submitted to the NRC per LAR, license #NL-19-001, Attachment 8 Emergency Response Organizaiton Task Analysis.

Procedure will be effective on May 17, 2021.

Part II. Emergency Plan Sections Reviewed (List all emergency plan sections that were reviewed for this activity by number and title. IF THE ACTIVITY IN ITS ENTIRETY IS AN EMERGENCY PLAN CHANGE, EAL CHANGE OR EAL BASIS CHANGE, ENTER THE SCREENING PROCESS. NO 10CFR50.54(q)(2) DOCUMENTATION IS REQUIRED.

Part 2 Planning Standards and Criteria:

Section A: Assignment of Responsibility

Section B: Station Emergency Response Organization

Section H: Emergency Facilities and Equipment

Section J: Protective Response

Section K: Radiological Exposure Control

Part III. Ability to Maintain the Emergency Plan (Answer the following questions related to impact on the ability to maintain the emergency plan):

1. Do any elements of the activity change information contained in the emergency plan (Section 3.0 Step 6)?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

2. Do any elements of the activity change an emergency classification Initiating Condition, Emergency Action Level (EAL), associated EAL note or associated EAL basis information or their underlying calculations or assumptions?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

3. Do any elements of the activity change the process or capability for alerting and notifying the public as described in the FEMA-approved Alert and Notification System design report?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

4. Do any elements of the activity change the Evacuation Time Estimate results or documentation?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

5. Do any elements of the activity change the Onshift Staffing Analysis results or documentation?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

10CFR50.54(Q)(2) Review

Procedure/Document Number: IP-EP-430	Revision: 17
Equipment/Facility/Other: Indian Point Energy Center	
Title: Site Assembly, Accountability & Relocation of Personnel Offsite	

Part IV. Maintaining the Emergency Plan Conclusion The questions in Part III do not represent the sum total of all conditions that may cause a change to or impact the ability to maintain the emergency plan. Originator and reviewer signatures in Part V document that a review of all elements of the proposed change have been considered for their impact on the ability to maintain the emergency plan and their potential to change the emergency plan.

1. Provide a brief conclusion that describes how the conditions as described in the emergency plan are maintained with this activity.
2. Check the box below when the 10CFR50.54(q)(2) review completes all actions for all elements of the activity – no 10CFR50.54(q)(3) screening or evaluation is required for any element. Otherwise, leave the checkbox blank.

☒ I have completed a review of this activity in accordance with 10CFR50.54(q)(2) and determined that the effectiveness of the emergency plan is maintained. This activity does not make any changes to the emergency plan. No further actions are required to screen or evaluate this activity under 10CFR50.54(q)(3).

Per Post Shutdown Emergency Plan (PSEP), both Unit 3 and Unit 2 will be at shut down. The changes made to this procedure reflects this requirement of the Post Unit 3 Shutdown Eplan, as submitted to the NRC (license # NL-19-001) and ERO task for the TSC Manager was re-assigned to the EPM, POM was re-assigned to the Shift Manager, and EOF Manager was re-assigned to the EOF Technical Advisor to reflect Attachment 8, ERO Task Analysis. The NRC has approved the PSEP per RA-20-040.

A review of this activity in accordance with 10 CFR 50.54(q)(2) has been completed and determined that the effectiveness of the PSEP is maintained. This revision aligns the procedure with the protocols of the post Unit 3 shutdown. None of the changes affect the ability to perform accountability, assembly or relocation of personnel, it does not affect activation or staffing of the ERO as described in the Unit 3 PSEP, and all planning standard requirements are maintained. The changes made do not require a change to the Emergency Action Level scheme, On-shift Staffing study or the PSEP.

No further actions are required to screen or evaluate this activity under 10 CFR 50.54(q)(3).

Part V. Signatures:

Preparer Name (Print) Rebecca A. Martin	Preparer Signature Rebecca A Martin	Date: 10/26/2020
(Optional) Reviewer Name (Print)	Reviewer Signature	Date:
Reviewer Name (Print) Timothy Garvey Nuclear EP Project Manager	Reviewer Signature Rebecca A Martin for Tim Garvey Approved per Telecom	Date: 10/26/2020
Approver Name (Print) Frank Mitchell Emergency Planning Manager or designee	Approver Signature	Date: 4/15/21

Attachment 9.1

Emergency Planning Document Change Checklist Form

(All sections must be completed, N/A or place a check on the line where applicable)

Section 1

Doc/Procedure Type:	Administrative ☐ Implementing ☒ EPLAN ☐ N/A ☐
Doc/Procedure No:	IP-EP-430
Doc/Procedure Title:	Site Assembly, Accountability & Relocation of Personnel Offsite
New revision number:	17
Corrective Action:	Yes ☒ No ☐ N/A ☐ CR#: OL-OLI-2018-00090 CA 19
Effective date:	May 17, 2021

Section 2

Change Description

1. Ensure the following are completed, or are not applicable and are so marked:
   a. 50.54q ☒ N/A ☐
   b. EN-FAP-OM-023 ☐ N/A ☒
   c. IP-SMM- AD-102 ☒ N/A ☐
   d. OSRC ☐ N/A ☒
   e. NRC Transmittal (within 30 days) ☐ N/A ☒
2. List any other documents affected by this change: N/A
3. Transmittals are completed: ☒ N/A ☐ Date: 4/29/21
4. Ensure the proper revision is active in eB Ref. Lib.: ☒ N/A ☐
5. Approved doc/procedure delivered to Doc. Control for distribution: ☒ N/A ☐ Date: 4/29/21
6. Position Binders updated: ☒ N/A ☐ Date: 4/29/21
7. Copy of EPDCC placed in EP file: ☒ N/A ☐ Date: 4/29/21
8. Supporting documentation is submitted as a general record in eB Ref. Lib.: ☒ N/A ☐ Date: 4/29/21
9. Word files are moved from working drafts folder to current revision folder in the EP drive: ☐ N/A ☒ Date: 5/17/21

CONTROLLED

Site Assembly, Accountability & Relocation of Personnel Offsite

Prepared by:	Rebecca A. Martin (Print Name)	Rebecca A Martin (Signature)	4/15/21 (Date)
Approval:	Frank J. Mitchell (Print Name)	(Signature)	4/15/21 (Date)

Effective Date: May 17, 2021

This procedure excluded from further LI-100 reviews

Table of Contents

Site Assembly, Accountability & Relocation of Personnel Offsite

1.0 PURPOSE

1.1 To provide the method and procedures used to initially account for individuals within the Protected Area when accountability is required or called for and for maintaining personnel accountability throughout the event.

1.2 To provide guidance for Search and Rescue.

2.0 REFERENCES

2.1 Indian Point Energy Center Emergency Plan

3.0 DEFINITIONS

3.1 Accountability – accounting for (knowing the location of) all personnel within the Protected Area OR knowing they are within the Protected Area but missing.

3.2 Assembly - relocation of all personnel, in the owner controlled area (OCA), to pre-designated locations (assembly areas). Essential personnel report to their assigned Emergency Response Facilities (ERF) and non-essential personnel report to either Generation Support Building (GSB) or Energy Education Center (EEC).

3.3 Assembly Areas - designated areas where all personnel will assemble when requested. These areas include the TSC/OSC Complex, the Central Control Room (CCR - Unit 2 or Unit 3) and the Emergency Operations Facility for essential personnel and the EEC and the GSB for non-essentials. (The Indian Point Training Center (IPTC) will be used for overflow of non-essentials during outages.)

3.4 Continuing Accountability - maintaining accountability within the Protected Area, after initial accountability is complete

3.5 Essential Personnel - individuals assigned to the Emergency Response Organization (ERO) and/or NRC personnel. This includes:

3.5.1 All members of the on-shift watch
3.5.2 All CCR ERO staff members
3.5.3 All members of the Security Force
3.5.4 All EOF/TSC/OSC ERO staff members
3.5.5 All Entergy Mechanics, Electricians, I&C Technicians, Chemistry Technicians, Rad Protection Technicians and Non-Shift Operators within the Protected Area.

3.6 Initial Accountability – the determination of who is accounted for within 30 minutes for events classified at the Site Area Emergency, General Emergency or when Accountability is requested.

3.7 Non-essential personnel - all other personnel not assigned responsibilities in the ERO. This includes all supplemental personnel, visitors and OCA badged personnel

3.8 Relocation of Personnel Offsite - releasing of all non-essential personnel from the site.

3.9 Search and Rescue - activities undertaken immediately after personnel are deemed "missing" in order to determine their location.

4.0 RESPONSIBILITIES

4.1 Each Unit's Control Room is responsible for sounding the Site Assembly Alarm, to initiate the accountability process, at the Site Area Emergency, General Emergency, or at the discretion of the Shift Manager or, if in place, the Emergency Plant Manager (EPM).

4.2 Security Shift Supervisor or designee are the initial Lead Accountability Officers responsible for conducting the personnel accountability process and reporting the results to the Shift Manager or, if in place, the TSC Security Coordinator. The TSC Security Coordinator designates an LAO if not previously designated.

4.3 Assembly Area Coordinators and TSC Security Coordinator(s) are responsible for communicating with the LAO regarding the status of personnel in the Assembly Area, maintaining assembled personnel within the Assembly Area and providing information to personnel assembled regarding the event.

4.4 Security is responsible for accounting for Security personnel, and unlocking the Indian Point Training Center (IPTC) when needed, during off-hours.

4.5 Non-Essential personnel and Contractors, who are inside the protected area, are responsible for reporting to the GSB or EEC, when an Alert has been declared or when Emergency Response Facilities (ERFs) have been activated.

4.6 Emergency Response Organization (ERO) is responsible for using proximity card readers and/or reporting to the ERF individual assigned the responsibility for accountability upon arrival at the ERF.

5.0 DETAILS

5.1 At the ALERT Emergency, or higher, or when directed, REPORT to your Emergency Response Facility, the Generation Support Building or the Energy Education Center.

5.2 Accountability will be initiated at the Site Area or General Emergency or it may be directed at any other time deemed necessary, at the direction of the Shift Manager (SM), Emergency Plant Manager (EPM) or Emergency Director (ED).

5.3 Accountability may be suspended or delayed by the SM, EPM, or ED if the movement of large numbers of personnel to an Assembly Area potentially places them in more danger than leaving them in place. Examples include:

5.3.1 Severe weather conditions onsite

5.3.2 Toxic gases in Protected Area egress areas

5.3.3 A Security event is in progress

5.3.4 A radiological release which would place non-essential personnel in danger in route to OR while at the EEC and/or GSB.

5.3.5 Armed intruders are present within the Protected Area, near the Security Command Post, the EEC or the GSB.

5.4 The SM (Emergency Director) shall follow the instructions outlined in Attachment 9.1, "Shift Manager (ED) Accountability Checklist".

5.5 Lead Accountability Officer (LAO) shall follow the instructions outlined in Attachment 9.2, "Lead Accountability Officer Checklist" and Attachment 9.3, "Manual Accountability" (if required).

5.6 Assigned Facility Accountability personnel shall follow the instructions outlined in their facility position specific checklists.

6.0 INTERFACES

6.1 IP-EP-115, Emergency Planning Forms

6.2 IP-EP-210, Central Control Room

6.3 IP-EP-240, Security

6.4 IP-EP-350, Emergency Contamination Control

7.0 RECORDS

Any logs or forms completed by members of the ERO during an actual declared emergency are permanent quality records.

8.0 REQUIREMENTS AND COMMITMENT CROSS-REFERENCE

8.1 NUREG 0654 section J.5

9.0 ATTACHMENTS

9.1 Shift Manager (ED) Accountability/Personnel Relocation Checklist

9.2 Lead Accountability Officer Checklist

9.3 Manual Accountability Checklist

9.4 EOF Technical Advisor Checklist

9.5 TSC Security Coordinator Checklist

9.6 OSC Manager Checklist

9.7 IPEC Assembly Area & Relocation Routes

9.8 Directions to Westchester County Fire Training Center

Attachment 9.1
Shift Manager (ED) Accountability/Personnel Relocation Checklist
Sheet 1 of 5

1.0 Initial Assembly and Accountability — **Notes**

1.1 **IF** there is a potential threat to personnel safety while conducting initial assembly and accountability due to severe weather, toxic gas, radiological release or security event **THEN** proceed to Step 3.0, "Suspension of Initial Assembly and Accountability"

1.2 Personnel Assembly and Accountability

A. Upon declaration of an Alert classification, the Site Assembly Alarms (Unit 2 and Unit 3) are sounded and an announcement is made over the PA directing assembly of non-essential personnel per Form EP-3A, Control Room Shift Manager/Emergency Director Checklist(s). This is done for personnel assembly **ONLY**.

B. Upon declaration of a Site Area Emergency, General Emergency or if a decision is made to initiate accountability, the Site Assembly Alarms (Unit 2 and Unit 3) are sounded and an announcement is made over the PA directing assembly of non-essential personnel per Form EP-3S or 3G, Control Room Shift Manager/Emergency Director Checklist(s). This is done for personnel assembly **AND** accountability.

C. In either case, Control Room personnel (CCR Staff, NPO's, Watch Rad Protection and Chemistry Technicians) SHOULD assemble in the CCR.

D. All off-watch qualified operators are to report to the OSC.

1.3 Account for Control Room Personnel

A. Once accountability has been called for, all Control Room staff must be accounted for.

B. Use Form EP-47, Accountability Roster and develop a list of all watch individuals assigned to tasks in the field that have not reported to the CCR.

C. Deliver the Accountability Roster to the Lead Accountability Officer.

Attachment 9.1
Shift Manager (ED) Accountability/Personnel Relocation Checklist
Sheet 2 of 5

		Notes
1.4	**Identify and Locate Missing Personnel**	
	A. **IF** the OSC has not yet been activated **AND** the LAO reports that individuals are missing **THEN** direct the LAO to initiate search and rescue activities to locate missing persons within the Protected Area in accordance with Attachment 9.2, LAO Checklist.	
	B. **IF** the OSC is activated, direct the OSC Manager to initiate search and rescue activities.	
2.0	**Continuing Accountability**	
	Unless otherwise directed by the Emergency Director, continuing accountability shall be maintained once initial accountability is completed.	
3.0	**Suspension of Initial Assembly and Accountability**	
3.1	**Consider suspending initial assembly and accountability if any of the following conditions are met:**	
	A. Severe weather conditions are present onsite.	
	B. A large amount of toxic gas has been released within or near the Protected Area.	
	C. A radiological release which would place non-essential personnel in danger in route to OR while at the Energy Education Center (EEC) and/or the Generation Support Building (GSB). (Indian Point Training Center (IPTC) if used).	
	D. Armed intruders are present within the Protected Area, near the Protected Area Access Facility (PAAF) or in or near the EEC and/or GSB. (IPTC if used.)	
	E. Any other condition which in the opinion of the Shift Manager (Emergency Director) would be a threat to the movement of personnel to the EEC and/or GSB. (IPTC if used.)	

Attachment 9.1
Shift Manager (ED) Accountability/Personnel Relocation Checklist
Sheet 3 of 5

3.2 IF initial personnel assembly and accountability is suspended THEN:

Notes

A. Instruct **NOT** to sound the Assembly Alarm or make an announcement for non-essential personnel to report to the EEC/GSB.

B. **IF** there is a condition identified that places onsite personnel in danger **THEN** take immediate actions to warn and protect personnel:

1. Send Security, Operations and/or Rad Pro personnel to evacuate areas of most risk.
2. Call for outside rescue assistance. (Fire, Hazmat Teams etc.)
3. Choose an Assembly Area within the Protected Area and have non-essential personnel assemble at chosen location. PA announcement and teams dispatched to alert personnel to assemble should be used to notify personnel.

   a. For potential airborne attacks

   - Evacuation of personnel from target buildings (including security personnel)
   - Site evacuation by opening (while continuing to defend) security gates
   - Dispersal of operators
   - Sheltering of personnel in structures away from potential site targets
   - Arrangements for accounting for personnel after the attack

4. Return to step 1.2 when conditions allow full accountability to be performed.

4.0 Suspension of Continuing Accountability

4.1 **IF** it is determined that plant conditions warrant suspension of continuing accountability **THEN** the Emergency Director shall confer with the Shift Manager to ensure plant conditions will not degrade to a point that accountability would be required again.

4.2 The Emergency Director shall notify the LAO and EPM of the decision and the reasons supporting that decision.

Attachment 9.1
Shift Manager (ED) Accountability/Personnel Relocation Checklist
Sheet 4 of 5

Notes

4.3 Ensure a formal announcement is made to both Unit 2 and Unit 3 that accountability is no longer required. Log the time decision is made.

5.0 Relocation of Personnel Offsite (Site Evacuation)

5.1 The Emergency Director shall direct the EOF Technical Advisor to review the current and second shift staffing requirements for ERO positions stationed within the Protected Area.

A. Contact the EPM to assess current and future staffing requirements.

B. Determine if additional personnel should be added to the ERO **BEFORE** personnel are dismissed from the site.

C. Once initial accountability is complete and EITHER: Second shift staffing requirements have been identified OR there are habitability concerns with the EEC or GSB (IPTC if used) **THEN** consider releasing all non-essential personnel from the site.

5.2 Contact the Westchester County EOC and inform them of the impending release of non-essential personnel from the site.

5.3 Release all non-essential personnel from the site by directing the LAO to contact the EEC and GSB Assembly Areas and coordinate the release of personnel from the site. (Have LAO contact IPTC if used.)

5.4 Direct the Security Shift Supervisor/LAO to initiate a security sweep of the Owner Controlled Area per IP-EP-240, Security.

5.5 **IF** there has been a radiological release of a magnitude that requires declaration of a SAE or GE, **THEN,**

A. Direct the Radiological Assessment Coordinator to have a random survey of personal vehicles onsite performed to determine if they are contaminated

Attachment 9.1
Shift Manager (ED) Accountability/Personnel Relocation Checklist
Sheet 5 of 5

Notes

B. **IF** vehicles are found to be contaminated, **THEN** make arrangements for other vehicles to evacuate personnel from the site

C. Direct Security to do a sweep of site areas inside the Owner Controlled Area and inform personnel to report to the Emergency Operation Facility (EOF).

D. Relocate personnel from EEC and GSB (IPTC if used) to the EOF to be checked for contamination prior to release.

Attachment 9.2
Lead Accountability Officer (LAO) Checklist
Sheet 1 of 4

Notes

1.0 Personnel Assembly

Upon notification of an Alert or higher emergency classification, or upon hearing the Site Assembly Alarm, perform the following actions:

A. **VERIFY** there are no alarms associated with any Accountability Card Readers. **IF** any Accountability Card Reader is in alarm, **THEN** notify the TSC and OSC and request manual accountability to be completed per Attachment 9.3, Manual Accountability and obtain copy of current visitor log.

B. Active Emergency Accountability in the ARINC security computer.

- Select "Controls"
- Select "Initiate Emergency"
- Select "OK" to Activate Emergency Accountability.
- Acknowledge Alarm by selecting clear

C. **VERIFY** the phones and fax machines are functional.

D. **ENSURE** personnel staffing the EOF are permitted to exit the Protected Area without delay.

E. Contact the Assembly Area Coordinator in both the EEC and GSB (IPTC if used). Provide updates regarding personnel status, plant status and radiological conditions.

2.0 Perform Accountability

NOTE:

Within **30 minutes** of SAE or GE declaration **OR** Accountability being requested, the list of missing persons **SHALL** be communicated (faxed if a large list) to the Shift Manager (Control Room) if the TSC is NOT operational **OR** communicated (faxed if a large list) to the TSC Security Coordinator if the TSC IS operational.

A. At a Site Area Emergency or higher classification, or when accountability is called for, accountability will be performed by generating a report of individuals inside the protected area that are "Not in Account" within 30 minutes of the declaration of the event or when requested.

B. Use Checklist below to complete Accountability.

Attachment 9.2
Lead Accountability Officer (LAO) Checklist
Sheet 2 of 4

Accountability Completed by (LAO):	Action Completed
IF NOT already completed, **THEN** VERIFY there are no alarms associated with any Accountability Card Readers. IF any Accountability Card Reader is in alarm, THEN notify the TSC and OSC and request manual accountability to be completed per Attachment 9.3, Manual Accountability and obtain copy of current visitor log.	☐
Active Emergency Accountability in the ARINC security computer.	
• Select "Controls" • Select "Initiate Emergency" • Select "OK" to Activate Emergency Accountability. • Acknowledge Alarm by selecting clear	☐ ☐ ☐ ☐
Record the time an SAE or GE was declared **OR** Accountability was requested.	(_____)
View CAM-PAAF-03 and/or CAM-PAAF-02 and observe activity for exiting personnel.	☐
When activity level at PAAF exit turnstiles has decreased, but no later than 15 minutes after an SAE or GE was declared OR Accountability was requested, GENERATE an "All Personnel Not in Account" report.	
• Select "Reports" • Select "Report Interface" • Select "Auto Reports" (double click) • Select "Emergency Accountability" (double click) • Select print icon	☐ ☐ ☐ ☐ ☐
Using the list, account for Security force members by crossing them off the list. The remaining names are considered to be missing persons.	☐
IF there are any persons not accounted for in the protected area, THEN communicate the names of missing persons (fax if a large list) to the TSC Security Coordinator during on-hours or the Shift Managers (Control Room) during off-hours.	☐
Log the time accountability is complete	(_____)
Suspension/Deactivation of Accountability	
When notified that accountability will be suspended, deactivate emergency accountability in the ARINC system.	
• Select "Controls" • Select "Initiate Emergency" • Select "OK" to deactivate Emergency Accountability • Acknowledge Alarm by selecting clear	☐ ☐ ☐ ☐

Attachment 9.2
Lead Accountability Officer (LAO) Checklist
Sheet 3 of 4

3.0 Perform Search and Rescue for Missing Personnel

Notes

A. Attempt to contact missing individuals via the following methods in parallel:

1. Public Address System - If there are several individuals missing use more than one call back number
2. Call assembly areas (EEC, GSB and IPTC) to see if individual is present.
3. Call Emergency Response Facilities to see if individual is present
4. Review security records for individual's last known location
5. Contact Supervisors and/or Co-Workers for individual's last known location
6. Try calling office and home phone numbers. Telephone numbers for all ERO personnel are located in the Emergency Telephone Directory.
7. Run a new report of individuals within the Protected Area and verify unaccounted for individuals have not left the Protected Area.

B. **IF** the individual(s) is not located through the above methods, **THEN** determine the number of Search and Rescue teams needed to conduct a search of the Protected Area. Send security officers to the OSC to be dispatched, as part of the team.

1. Contact the EPM and request that the OSC dispatch Search and Rescue teams.
2. Provide the names and last known location of the missing individuals.
3. **INFORM** the Emergency Plant Manager (EPM) (via the TSC Security Coordinator) during on-hours or the Shift Managers (Control Room) during off-hours when/if the missing person(s) has/have been found.

Attachment 9.2
Lead Accountability Officer (LAO) Checklist
Sheet 4 of 4

Notes

4.0 Release of Non-Essential Personnel Offsite

4.1 When directed by the EOF Technical Advisor or Emergency Director support the release of non-essential personnel from the Site:

A. Advise Security and the Assembly Area Coordinators of the impending release of non-essential personnel.

B. Provide Security and the Assembly Area Coordinators route(s) to take when leaving the Site.

NOTE:

Personnel will be released based upon the decision and priorities of the Emergency Director. The Westchester County Emergency Operations Center will be contacted and informed of the release of site personnel prior to commencing that activity, if at all possible.

4.2 Inform the EPM of the decision to release non-essential personnel to ensure that the TSC and OSC are staffed.

4.3 Coordinate the release of personnel with the Emergency Director.

4.4 Monitor the progress for the personnel released from the Station through communications with Security personnel at the Station exits.

4.5 Inform the Emergency Director when it is apparent that all released individuals have left the Site.

Attachment 9.3
Manual Accountability Checklist
Sheet 1 of 1

Notes

The following steps **SHALL** be followed only if the Accountability Card readers are inoperable and manual accountability has been called for.

1.0 Assigned Facility Accountability Personnel or Designee:

1.1 Using Form EP-47, Accountability Roster, generate a list of individuals that are in your facility. Include any individuals that may be out in the field as long as their location is known. (i.e., repair and corrective action team members).

1.2 Provide the list generated in section 1.1 to the LAO. This can be completed by either faxing (if 2 pages or less) or hand deliver the lists (if 3 or more pages) to assist the LAO in removing the names from the Onsite Accountability Report.

2.0 Lead Accountability Officer (LAO)

2.1 Print a report of all personnel not in account from the ARINC system.

2.2 Obtain the Accountability Roster from each facility, when they are completed.

2.3 If the PAAF exit turnstiles are not working, obtain a list from Security of all personnel that have exited the protected area access facility (PAAF).

2.4 Using the report from step 2.1, account for all individuals that are provided on the Accountability Rosters from each facility and the PAAF (from step 2.3). If assistance is needed please inform OSC Manager.

2.5 Determine who is still on that list by name and accountability is completed.

2.6 Log the time accountability is complete

2.7 Return to Attachment 9.2, LAO Checklist and continue from step 3.0 to locate missing individuals.

Attachment 9.4
EOF Technical Advisor Checklist
Sheet 1 of 5

Notes

1.0 Personnel Accountability:

1.1 Evaluate the need to release all Non- Essential Personnel and recommend release to ED if conditions warrant.

A. Check with the EPM on conditions within the Protected Area and the Radiological Assessment Coordinator on conditions outside the Protected Area.

B. Check with ICP for any security conditions.

C. Release of non-essential personnel should occur at an ALERT, if radiological plume direction does not preclude.

NOTE

IF the emergency is classified as a Site Area Emergency or higher verify accountability is completed within 30 minutes of the declaration of the event. Authorize search & rescue for any missing persons. Consider having Security establish security controls for the EOF.

D. **IF** additional personnel are required to staff the EOF, **THEN**:

1. **IF** it is during normal working hours, **THEN** call or assign someone to call the Assembly Coordinator in the Energy Education Center or the Generation Support Building for additional personnel.
2. **IF** the needed individuals are **NOT** available onsite, **THEN** call or assign someone to call individuals at home using the Emergency Telephone Directory.

E. **IF** conditions exist at a Site Area Emergency **OR** General Emergency that could warrant release **THEN** consider release of non-essential personnel from site.

Attachment 9.4
EOF Technical Advisor Checklist
Sheet 2 of 5

Notes

F. Ensure Westchester EOC is notified via the Offsite Communicator.

G. Discuss the release of non-essential personnel with ICP and State Police to verify there is no restriction for releasing personnel.

1.2 Relocation of the EOF to the AEOF

A. **IF** plant or radiological conditions warrant **THEN** perform an organized relocation of the EOF to the AEOF.

1. Discuss relocation with the Radiological Assessment Coordinator.
2. Discuss relocation with the ICP.
3. Consider radiological exposures listed in the Radiological Assessment Coordinator checklist, actual and forecasted meteorological conditions.

NOTE
Relocation may be performed at rates below those listed in the Radiological Assessment Coordinator Checklist based on plant conditions and response needs.

B. **IF** time permits **THEN** have a relief shift report to the AEOF and perform turnover prior to evacuation of EOF. Have the relief team begin set up of the AEOF. Direct them to set up the facility in accordance with procedure IP-EP-251, Attachment 9.4, AEOF Setup Checklist.

C. Determine the speed at which the relocation of personnel should occur giving consideration to the following items:

1. The impact of immediate relocation vs. projects in progress.
2. Current radiological conditions within the EOF and the Plant.
3. Radiological conditions en route.
4. The adequacy of response from the alternate location.

Attachment 9.4
EOF Technical Advisor Checklist
Sheet 3 of 5

Notes

D. With the assistance of the Radiological Assessment Coordinator, determine if contamination controls are needed when leaving the EOF. Items to consider:
   1. Are personnel going to become contaminated reaching their vehicles?
   2. Are personnel going to become contaminated in route to the AEOF?
   3. What steps are needed to prevent contamination of the AEOF?
   4. **IF** time allows **THEN** consider arranging for a bus to relocate personnel. (this will minimize movement of potentially contaminated vehicles outside the Emergency Planning Zone).

E. Direct the Radiological Assessment Coordinator to:
   1. Determine radiological controls needed to safely transfer personnel to the AEOF.
   2. Consider contamination control measures needed to prevent contamination of AEOF.
   3. **IF** EOF Staff members are or will be potentially contaminated **THEN**:
      a. Send personnel to the Westchester County Fire Training Center for monitoring and decontamination. (Attachment 9.8 of this procedure contains directions to the Fire Training Center.)
      b. Inform Westchester County of decision to have Indian Point ERO members decontaminated at Training Center and arrange for expeditious processing of personnel.
   4. Individuals should be decontaminated prior to arrival at AEOF.

Attachment 9.4
EOF Technical Advisor Checklist
Sheet 4 of 5

Notes

5. Transfer offsite radiological assessment responsibilities:
   a. To a qualified Radiological Assessment Coordinator located at the AEOF

   OR

   b. Back to the Control Room

F. Direct the EOF staff to relocate to the AEOF as follows:
   1. Make and distribute copies of Attachment 9.5 of procedure IP-EP-251, Directions to the AEOF, to EOF Staff members, Federal, State and Local representatives in the EOF, as necessary.
   2. Direct EOF Staff to wear their ID badges enroute to the AEOF and show them to authorities if necessary to transit through evacuated areas.
   3. **IF** it was determined that contamination controls are needed, **THEN** brief EOF Staff members to go to the Westchester Fire Training Center for decontamination **AND** inform the AEOF staff of the required actions.
   4. **IF** between 7 a.m. to 5 p.m., Monday through Friday, **THEN** responding emergency personnel should enter through the main entrance to 60 Merritt Blvd, Fishkill, NY.
   5. **IF** it is during non-working hours **THEN** responding emergency personnel should enter through the side door.

Attachment 9.4
EOF Technical Advisor Checklist
Sheet 5 of 5

Notes

G. **IF** communications systems are still functional **THEN** notify the following locations that the EOF is being relocated to the AEOF:

1. Offsite authorities verifying they have the telephone numbers they can use to maintain communications.
2. The Joint Information Center
3. The Technical Support Center
4. The Operational Support Center
5. The Control Room
6. The Corporate Duty Manager
7. The ICP

H. Coordinate evacuation of the EOF with the ED and the EPM transferring ED responsibilities back to the Shift Manager if another ED cannot assume responsibilities at the AEOF.

I. Request that the EPM and Shift Manager announce the decision to evacuate and ensure relief shift is made aware of re-location.

1. Inform the Shift Manager, EPM and OSC Manager of the relief time and direct to inform ERO members prior to their release.
2. Have their staffs contact relief personnel who are not currently onsite.

Attachment 9.5
TSC Security Coordinator Checklist
Sheet 1 of 2

Notes

1.0 Personnel Accountability:

A. The Lead Accountability Officer (LAO) will generate the list of missing persons. This list will be provided to the Emergency Plant Manager, Shift Manager, and/or TSC Security Coordinator.

NOTE
During plant shutdowns, when there may be large numbers of workers onsite and within the radiological control areas, a Radiation Protection computer printout may be used to assist in locating missing personnel within the radiological control area after accountability is completed.

1. **IF** there are individuals who are missing **THEN:**
   (a) Review Accountability Rosters (Form EP-47) used to identify ERO members experiencing difficulty using the proximity card readers and remove them from the Missing Persons List.
   (b) Obtain the Radiation Protection Computer Printout of individuals within the Radiological Control Area.
   (c) Check off names of possible missing individuals who have left the Protected Area to narrow the list of actual missing persons and review RP computer printout for any missing individuals within the Radiological Control Area.
   (d) Inform the EPM immediately of any personnel discovered missing during accountability process.
2. Assist OSC Staff in maintaining accountability of all OSC personnel through the use of status boards, team assignments, Individual Exposure Tracking Log (Form EP-6-ALL) and ERO Tracking Log (Form EP-42).

Attachment 9.5
TSC Security Coordinator Checklist
Sheet 2 of 2

Notes

1.1 Maintain Continuing Accountability

A. Use Onsite ERO Shift Rosters (Form EP-43) to list individuals currently on the first shift in the TSC and OSC.

B. Request EOF TA to identify the current EOF personnel.

C. Work with the EPM and OSC Manager to identify personnel to fill second shift and ensure all needed positions are identified and establish time second shift is to be called in.

D. Use ETD to identify and contact individuals to fill positions on second shift. Use additional staff to assist in notifications.

E. Inform the EPM and OSC Manager when notifications are completed and if there are any problems filling required positions.

Attachment 9.6
OSC Manager Checklist
Sheet 1 of 2

Notes

1.0 Initial Accountability

CAUTION:

IF an emergency classification is entered due to a security condition, THEN evacuation and accountability may put personnel at risk. Therefore, in these situations, evacuation and accountability will be suspended until directed by Security and cleared through the Incident Commander.

A. **IF** the event has been classified as a Site Area Emergency or General Emergency AND initial accountability has not been performed THEN direct accountability to be performed in accordance with Section 2.3 of this checklist.

B. Verify that the following core staffing is available before declaring OSC staffed:

   (a) OSC Manager

C. Staff the OSC using Form EP-10-ALL, "Filling an ERO Vacancy During Facility Activation/Operation".
   IF additional personnel are required **THEN:**

   1. **IF** it is during normal working hours **THEN** call or assign someone to call the Assembly Area for needed personnel.

   2. **IF** needed individuals are not available onsite **THEN** assign someone to call individuals at home using the Emergency Telephone Directory (ETD).

Attachment 9.6
OSC Manager Checklist
Sheet 2 of 2

Notes

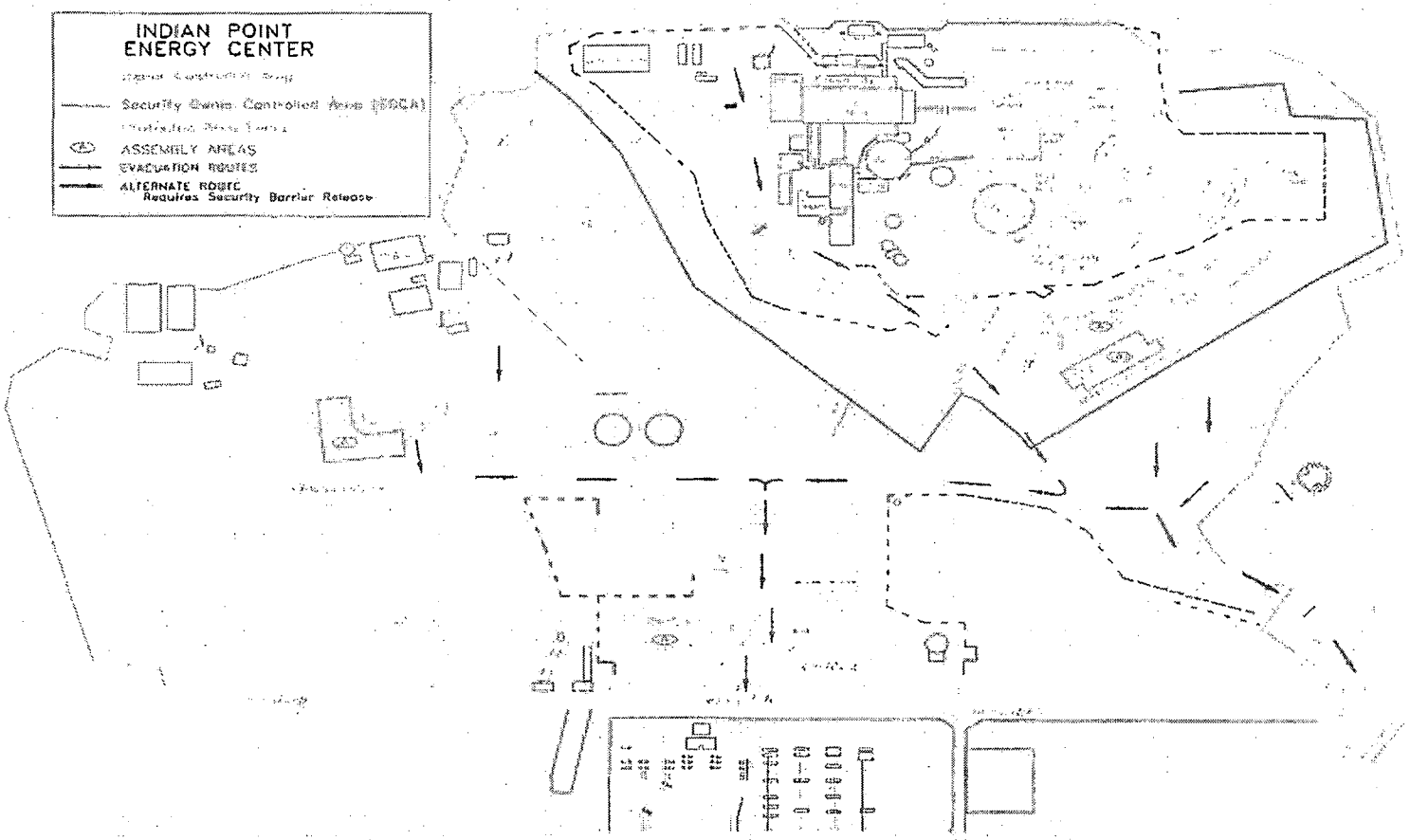
D. Designate two individuals to act as Assembly Area Coordinators (AAC). Assign one to report to the Energy Education Center (EEC) the other one to the Generation Support Building (GSB) and have them follow guidance provided on the Assembly Area Coordinator Instructions (Form EP-45), if necessary.

E. **IF** addition personnel are onsite, **THEN** assess the need to staff the back-up assembly area at the Indian Point Training Center (IPTC). Designate an individual to report to the IPTC and have them follow guidance provided on Assembly Area Coordinator Instructions (Form EP-45).

   1. Inform other AACs that the IPTC is being utilized and to direct overflow of non-essentials to the IPTC.

   2. **IF** additional personnel are required to meet staffing needs (Normal staffing per Form EP-43, or special requirements as needed) **THEN** call or assign someone to call the Assembly Areas or individuals at home (using the Emergency Telephone Directory) for additional personnel.

ATTACHMENT 9.7
IPEC Assembly Area & Relocation Routes
Sheet 1 of 1



Attachment 9.8
Directions to Westchester County Fire Training Center
Sheet 1 of 1

Route 9 South to Route 9A South

Take 9A South approximately 12 miles – past Westchester County Police Headquarters.

Stay on 9A to Dana Road (road past "Topps")

Make a LEFT onto Dana Road.

Fire Training Center is 2nd driveway on RIGHT.

ATTACHMENT 10.2 IPEC PROCEDURE REVIEW AND APPROVAL

(Page 1 of 1)

Procedure Title: Meteorological, Radiological & Plant Data Acquisition System

Procedure No. IP-EP-510 Existing Rev: 8 New Rev: 9 DRN/EC No: DRN-21-00130

Procedure Activity (MARK Applicable)	☐ Converted To IPEC, Replaces:	Temporary Procedure Change (MARK Applicable)
☐ NEW PROCEDURE ☐ GENERAL REVISION ☒ PARTIAL REVISION ☐ EDITORIAL REVISION ☐ VOID PROCEDURE ☐ SUPERSEDED	Unit 1 Procedure No. Unit 2 Procedure No: Unit 3 Procedure No:	☐ EDITORIAL Temporary Procedure Change ☐ ADVANCE Temporary Procedure Change ☐ CONDITIONAL Temporary Procedure Change Terminating Condition:
☐ RAPID REVISION	Document in Microsoft Word: ☐ Yes ☐ No	☐ VOID DRN/TPC No(s):

Revision Summary ☐ N/A – see Revision Summary page. – Procedure was revised to reflect Post U3 Shutdown Eplan. See attached matrix for changes

Implementation Requirements

Implementation Plan? ☐ Yes ☒ No Formal Training? ☐ Yes ☒No Special Handling? ☐ Yes ☒No

Quality Related? ☐ Yes ☒ No **If Yes, then ensure the procedure cover page is marked "Quality Related"**

RPO Dept: Emergency Planning Writer: **(Print Name/Ext/Sign):** Rebecca Martin x7106/ Rebecca A Martin

Review and Approval (Per Attachment 10.1, IPEC Review And Approval Requirements)

1. ☐ Technical Reviewer: Craig Delaunter /CD / 4/15/2021
   (Print Name/ Signature/ Date)

2. ☐ Cross-Disciplinary Reviewers:

   Dept: _____ Reviewer: _____
   Print Name/ Signature/ Date)

   Dept: _____ Reviewer: _____
   Print Name/ Signature/ Date)

3. ☒ RPO- Responsibilities/Checklist: Frank J Mitchell / [signature] 4/15/21
   (Print Name/ Signature/ Date)

   ☐ PAD required and is complete (PAD Approver and Reviewer qualifications have been verified)
   ☒ Previous exclusion from further LI-100 Review is still valid
   ☐ PAD not required due to type of change as defined in 4.6

4. ☐ Non-Intent Determination Complete: _____
   (Print Name/ Signature/ Date)

   NO change of purpose or scope
   NO reduction in the level of nuclear safety
   NO voiding or canceling of a procedure, unless requirem are incorporated into another procedure or the need for t procedure was eliminated
   NO change to less restrictive acceptance criteria
   NO change to steps previously identified as commitment steps
   NO deviation from the Quality Assurance Program Manual
   NO change that may result in deviations from Technical Specifica FSAR, plant design requirements

5. ☒ On-Shift Shift Manager/CRS: (RPO per SMM-AD-102) – Frank J. Mitchell/ [signature] 4/15/21
   (Print Name/ Signature/ Date)

6. ☐ User Validation: User: _____ _____

7. ☐ Special Handling Requirements Understood: _____
   Print Name/ Signature/ Date)

10CFR50.54(Q)(2) Review

Procedure/Document Number: IP-EP-510	Revision: 9
Equipment/Facility/Other: Indian Point Energy Center	
Title: Meteorological, Radiological, & Plant Data Acquisition System	

Part I. Description of Activity Being Reviewed (event or action, or series of actions that have the potential to affect the emergency plan or have the potential to affect the implementation of the emergency plan):

Procedure was revised, to reflect the requirement in the Post Unit 3 Shutdown Eplan (PSEP), as submitted to the NRC per LAR, license #NL-19-001. See attached matrix for changes made. Procedure will be effective on May 17, 2021.

Part II. Emergency Plan Sections Reviewed (List all emergency plan sections that were reviewed for this activity by number and title. IF THE ACTIVITY IN ITS ENTIRETY IS AN EMERGENCY PLAN CHANGE, EAL CHANGE OR EAL BASIS CHANGE, ENTER THE SCREENING PROCESS. NO 10CFR50.54(q)(2) DOCUMENTATION IS REQUIRED.

Part 1 Introduction:

Section A: Purpose

Part 2 Planning Standards and Criteria:

Section A: Assignment of Responsibility

Section B: Station Emergency Response Organization

Section H: Emergency Facilities and Equipment

Section I: Accident Assessment

Section J: Protective Response

Part III. Ability to Maintain the Emergency Plan (Answer the following questions related to impact on the ability to maintain the emergency plan):

1. Do any elements of the activity change information contained in the emergency plan (Section 3.0 Step 6)?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

2. Do any elements of the activity change an emergency classification Initiating Condition, Emergency Action Level (EAL), associated EAL note or associated EAL basis information or their underlying calculations or assumptions?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

3. Do any elements of the activity change the process or capability for alerting and notifying the public as described in the FEMA-approved Alert and Notification System design report?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

4. Do any elements of the activity change the Evacuation Time Estimate results or documentation?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

5. Do any elements of the activity change the Onshift Staffing Analysis results or documentation?
   YES ☐ NO ☒ **IF YES, enter screening process for that element**

10CFR50.54(Q)(2) Review

Procedure/Document Number: IP-EP-510	Revision: ~~Document~~ 9
Equipment/Facility/Other: Indian Point Energy Center	
Title: Meteorological, Radiological, & Plant Data Acquisition System	

Part IV. Maintaining the Emergency Plan Conclusion The questions in Part III do not represent the sum total of all conditions that may cause a change to or impact the ability to maintain the emergency plan. Originator and reviewer signatures in Part V document that a review of all elements of the proposed change have been considered for their impact on the ability to maintain the emergency plan and their potential to change the emergency plan.

1. Provide a brief conclusion that describes how the conditions as described in the emergency plan are maintained with this activity.
2. Check the box below when the 10CFR50.54(q)(2) review completes all actions for all elements of the activity – no 10CFR50.54(q)(3) screening or evaluation is required for any element. Otherwise, leave the checkbox blank.

☒ I have completed a review of this activity in accordance with 10CFR50.54(q)(2) and determined that the effectiveness of the emergency plan is maintained. This activity does not make any changes to the emergency plan. No further actions are required to screen or evaluate this activity under 10CFR50.54(q)(3).

Per Post Shutdown Emergency Plan (PSEP), both Unit 2 and Unit 3 will be at shut down. The changes made to this procedure (see attached matrix) reflects this requirement of the Post Unit 3 Shutdown Eplan, as submitted to the NRC (license # NL-19-001). The NRC has approved the PSEP per RA-20-040.

A review of this activity in accordance with 10 CFR 50.54(q)(2) has been completed and determined that the effectiveness of the PSEP is maintained. This revision aligns the procedure with the protocols of the post Unit 2 shutdown. None of the changes affect the ability to perform classifications, notifications, or PARs, it does not affect activation or staffing of the ERO, and all planning standard requirements are maintained. The changes made do not require a change to the Emergency Action Level scheme, On-shift Staffing study or the PSEP.

No further actions are required to screen or evaluate this activity under 10 CFR 50.54(q)(3).

Part V. Signatures:

Preparer Name (Print) Rebecca A. Martin	Preparer Signature Rebecca A Martin	Date: 10/7/2020
(Optional) Reviewer Name (Print)	Reviewer Signature	Date:
Reviewer Name (Print) Timothy Garvey Nuclear EP Project Manager	Reviewer Signature Tim Garvey	Date: 10/13/20
Approver Name (Print) Frank Mitchell Emergency Planning Manager or designee	Approver Signature F Mitchell	Date: 4/15/21

IP-EP-510 Revision Decom X
REVISION MATRIX

Change No.	Page/Section	Previous Version	New Version	Editorial Change	Effect on 10 CFR 50.47(b) Planning Standards or NUREG-0654 program elements? Justify if NO.
1.	Page 3 Section 3.0	Meteorological, Radiological & Plant Data Acquisition System (MRPDAS) – system that provides meteorological, radiological and certain plant parameter data i.e.: R-27, R25/26, VC Pressure and VC Temperature	Meteorological, Radiological & Plant Data Acquisition System (MRPDAS) – system that provides meteorological, radiological and certain plant parameter data i.e.: R-27	N	N – this section discusses definition of MRPDAS. Removed R25/26, VC Pressure and VC Temperature from examples since they will not be needed after post shut down. Definition was not changed, Intent was not changed.
2.	Page 5 Section 5.1.2	5.1.2.1 EOF/AEOF: Call Unit 3 CR, identify yourself and ask for the 10m met tower elevation wind speed, wind direction and Pasquill Category. Unit 2 CR may also be called; however, they may not be readily available.	5.1.2.1 EOF/AEOF: Call either Unit 3 or Unit 2 CR, identify yourself and ask for the 10m met tower elevation wind speed, wind direction and Pasquill Category. CCRs may not be readily available.	N	N - this section discusses a back-up method to the primary system to obtain 10m MET data. No changes are made other than if they try to contact Unit 2 or Unit 3 CCR for data, they may not be available with limit resources as per Post Shutdown Emergency Plan, which was approved by the NRC per RA-20-040.
3.	Page 5 Section 5.1.2	CR: Obtain data from MRPDAS using a personal computer (see 5.1.1.2) or call the other unit's Control Room for MET data. Unit 2 may not be readily available.	5.1.2.2 CR: Obtain data from MRPDAS using a personal computer (see 5.1.1.2) or call the other unit's Control Room for MET data. CCR may not be readily available.	N	N - this section discusses a back-up method to the primary system to obtain 10m MET data. No changes are made other than if they try to contact the opposite Unit for data, they may not be available with limit resources as per Post Shutdown Emergency Plan, which was approved by the NRC per RA-20-040.

Attachment 9.1

Emergency Planning Document Change Checklist Form

(All sections must be completed, N/A or place a check on the line where applicable)

Section 1

Doc/Procedure Type:	Administrative ☐ Implementing ☒ EPLAN ☐ N/A ☐
Doc/Procedure No:	IP-EP-510
Doc/Procedure Title:	Meteorological, Radiological & Plant Data Acquisition System
New revision number:	9
Corrective Action:	Yes ☒ No ☐ N/A ☐ CR#: OL-OLI-2018-00090 CA 19
Effective date:	May 17, 2021

Section 2

Change Description

1. Ensure the following are completed, or are not applicable and are so marked:

   a. 50.54q ☒ N/A ☐
   b. EN-FAP-OM-023 ☐ N/A ☒
   c. IP-SMM- AD-102 ☒ N/A ☐
   d. OSRC ☐ N/A ☒
   e. NRC Transmittal (within 30 days) ☐ N/A ☒

2. List any other documents affected by this change: N/A
3. Transmittals are completed: ☒ N/A ☐ Date: 4/29/21
4. Ensure the proper revision is active in eB Ref. Lib.: ☒ N/A ☐
5. Approved doc/procedure delivered to Doc. Control for distribution: ☒ N/A ☐ Date: 4/29/21
6. Position Binders updated: ☒ N/A ☐ Date: 4/29/21
7. Copy of EPDCC placed in EP file: ☒ N/A ☐ Date: 4/29/21
8. Supporting documentation is submitted as a general record in eB Ref. Lib.: ☒ N/A ☐ Date: 4/29/21
9. Word files are moved from working drafts folder to current revision folder in the EP drive: ☐ N/A ☒ Date: 5/17/21

CONTROLLED

Meteorological, Radiological & Plant Data Acquisition System

Prepared by:	Rebecca A. Martin	Rebecca A Martin	4/15/21
	Print Name	Signature	Date
Approval:	Frank J. Mitchell		4/15/21
	Print Name	Signature	Date

Effective Date: May 17, 2021

This procedure excluded from further 10 CFR 50.59 reviews.

Table of Contents

Meteorological, Radiological & Plant Data Acquisition System

1.0 PURPOSE

1.1 This procedure describes the methods available to obtain meteorological, Reuter Stokes and selected plant parameter data in the Control Rooms (CRs), the Emergency Operating Facility (EOF) and/or the Alternate Emergency Operating Facility (AEOF).

2.0 REFERENCES

NONE

3.0 DEFINITIONS

Meteorological, Radiological & Plant Data Acquisition System (MRPDAS) – system that provides meteorological, radiological and certain plant parameter data i.e.: R-27.

4.0 RESPONSIBILITIES

The Unit 2 and Unit 3 Control Room, and the EOF Radiological Assessors are responsible for the implementation of this procedure.

5.0 DETAILS

5.1 Obtaining Meteorological Data:

5.1.1 Primary Methods:

5.1.1.1 Control Room (CR):

a. Use the 10m elevation meteorological tower display panel to obtain wind speed, wind direction and Pasquill Category.

5.1.1.2 Emergency Operations Facility (EOF)/Alternate EOF (AEOF):

a. Use MRPDAS to access the information from the 10m met tower elevation - wind speed, wind direction and Pasquill Category.

b. From the IPEC Sharepoint Website, pull down the Applications menu.

c. Click the MRPDAS icon to access the MRPDAS program (Plant screen appears).

d. Select one of the following from left column under "Entergy IPEC": "Drill Data" or "Live Data"

e. Select – "Common" - "Meteorological Data"
Select – "Primary MET Display"

f. Read the reports from the display; or click the printer icon displayed in the top left corner of the Primary MET Display screen. Click "Print" button in the "Print" window.

g. Obtain the latest measured MET data every 15 min. and obtain weather forecast from MRPDAS and/or Weather Bureau.

1. Update the MET Data Status Board to display the correct data.

2. Notify the Radiological Assessment Coordinator of any significant changes to the MET data.

h. To exit MRPDAS, click on the x on the browser.

5.1.2 Back–up methods:

5.1.2.1 EOF/AEOF: Call either Unit 3 or Unit 2 CR, identify yourself and ask for the 10m met tower elevation wind speed, wind direction and Pasquill Category. CCRs may not be readily available.

5.1.2.2 CR: Obtain data from MRPDAS using a personal computer (see 5.1.1.2) or call the other unit's Control Room for MET data. CCR may not be readily available.

5.1.2.3 Obtain data from Offsite Weather Services

a. Use the Emergency Telephone Directory to locate the offsite weather services phone numbers.

b. AccuWeather - use personal computer to log on to offsite weather services web. Select AccuWeather: www.accuweather.com and enter "Buchanan, NY" or "10511" in Search Bar and click "ENTER".

c. National Weather Service (NWS) - select National Weather Service: www.weather.gov and enter "Buchanan, NY" or "10511" for "Local Forecast, City, St". Click "GO".

5.1.2.4 Use Attachment 9.2 to estimate Pasquill Category by using the temperature change between 60 m and 10 m.

5.1.2.5 Use Attachment 9.3 to estimate Pasquill categories based on weather conditions in case the met tower data is unavailable.

5.2 Obtaining Reuter Stokes and Selected Plant Parameter Data

5.2.1 From the IPEC Sharepoint Website, pull down the Applications menu.

5.2.2 Double-click the MRPDAS icon to access the MRPDAS program (Plant screen appears).

5.2.3 Select one of the following from left column under "Entergy IPEC": "Drill Data" or "Live Data".

5.2.4 Select "Common".

5.2.5 Select "Reuter Stokes Data" and "5 Mile Radius Map".

5.2.6 Select "Data Summary Report" (see Attachment 9.1 for example report) under "Common" or other Plant Parameter reports under "Unit 2" or "Unit 3".

6.0 INTERFACES

IP-EP-310, Dose Assessment

7.0 RECORDS

NONE

8.0 REQUIREMENTS AND COMMITMENT CROSS-REFERENCE

NONE

9.0 ATTACHMENTS

9.1 EXAMPLE: MRPDAS METEOROLOGICAL DATA REPORT

9.2 PASQUILL CATEGORY VS TEMPERATURE CHANGE BETWEEN 60m AND 10m

9.3 ESTIMATION OF PASQUILL CATEGORY

Attachment 9.1

EXAMPLE: MRPDAS METEOROLOGICAL DATA REPORT

Sheet 1 of 1

NOTE:
All "9s" in a data field indicates the data was not collected.

*** DAILY SUMMARY REPORT ***
*** DATE: 05/29/2002 07:10 ***

*** MET TOWER DATA (M/S,DEG FROM,F) ***

TIME HRMN (EST)	SPD10M	SPD60M	DIR10M	DIR60M	DT60	DT122	PC
0700	2.2	3.3	2	15	-1.2	-2.1	D

*** UNIT #2 PLANT PARAMETER DATA ***

VC P948A (PSIG)	VC P948B (PSIG)	VC T1203 (F)	VC R-25 (R/HR)	VC R-26 (R/HR)	VENT R-27 (UCI/SEC)
-.2	.0	1.02E+02	<=1.00E+00	<=1.00E+00	2.53E+02

*** UNIT #3 PLANT PARAMETER DATA ***

CONT (PSIG)	CONT (F)	DOME (R/HR)	RAD VENT (UCI/SEC)
-.1	94	<=1.0E+00	1.0E+01

*** ATMOSPHERIC DISPERSION ***

SITE BOUNDARY DIST= .6 MILES XU/Q (1/M2)	2 MILES XU/Q (1/M2)	5 MILES XU/Q (1/M2)	10 MILES XU/Q (1/M2)
1.0E-04	1.9E-05	5.1E-06	2.1E-06

*** OFFSITE MONITOR DATA ***

MON NO	1	2	3	4	5	6	7	8
SECTOR	N	NNE	NE	ENE	E	ESE	SE	SSE
RAD (MR/HR)	3.4E-03	6.9E-03	6.8E-03	7.0E-03	6.3E-03	7.3E-03	7.9E-03	7.4E-03

MON NO	9	10	11	12	13	14	15	16
SECTOR	S	SSW	SW	WSW	W	WNW	NW	NNW
RAD (MRHR)	8.5E-03	6.0E-03	5.9E-03	8.5E-03	1.1E-02	6.5E-03	7.0E-03	8.4E-03

*** METEOROLOGICAL FORECAST ***

HOUR	SPEED (MPH)	DIRECTION (FROM)	RAIN	STABILITY
17 0	5.8	130	YES	D
18 0	4.9	50	YES	D
19 0	4.5	30	YES	D
20 0	4.0	0	YES	D
21 0	3.6	350	NO	D
22 0	3.6	340	NO	D

Attachment 9.2

PASQUILL CATEGORY
VS
TEMPERATURE CHANGE BETWEEN 60m AND 10m

Sheet 1 of 1

PASQUILL CATEGORY	TEMPERATURE CHANGE (°F)
A	<-1.74
B	-1.74 to <-1.56
C	-1.56 to < -1.37
D	-1.37 to <-0.46
E	-0.46 to <+1.37
F	+1.37 to ≤+3.66
G	>+3.66

Attachment 9.3

ESTIMATION OF PASQUILL CATEGORY

Sheet 1 of 1

Use this attachment to determine the Pasquill Category in the absence of both measured vertical temperature differences AND the standard deviation (sigma theta) for horizontal wind direction.

DEFINITION OF PASQUILL STABILITY CATEGORY	
PASQUILL CATEGORY	**STABILITY CONDITIONS**
A	Extremely unstable
B	Moderately unstable
C	Slightly unstable
D	Neutral
E	Slightly stable
F	Moderately stable
G	Extremely stable

Pasquill category can be estimated by observing or estimating the time of day, solar radiation, cloudiness, and wind speed.

KEY TO STABILITY CATEGORIES					
Surface Wind Speed (m/s)	**DAYTIME**			**NIGHT**	
	Incoming Solar Radiation (Insolation)			**Cloudiness**	
	Clear Sky	**Partly Cloudy**	**Overcast**	**Thinly Overcast or >4/8 Low Cloud**	**Clear to Partly Cloudy**
<2	A	A-B	B	E-F	G
2-3	A-B	B	C	E	F
4-5	B	B-C	C	D	E
5-6	C	C-D	D	D	D
>6	C	D	D	D	D

General Definitions

1. Daytime is considered as one hour after sunrise to one hour before sunset.
2. (a) Clear sky - less than 20 percent cloud cover.
   (b) Partly cloudy - 20 to 80 percent cloud cover.
   (c) Overcast - 80 to 100 percent cloud cover.