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AFFECTED DOCUMENT: IPEC EMERGENCY PLAN PROCEDURES

DOC #	REV #	TITLE	INSTRUCTIONS
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THE FOLLOWING PROCEDURE(S), DRAWING(S), GRAPHS ARE BEING REVISED, PLEASE REMOVE YOUR CURRENT COPY AND REPLACE WITH ATTACHED UPDATED ONE:

IP-EP-340 REV.6



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Procedure/Document Number: IP-EP-340

Revision: 6

Equipment/Facility/Other: Indian Point Energy Center (IPEC)

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):

See attached revision matrix.

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 OR EAL OR EAL BASIS CHANGE, ENTER THE SCREENING PROCESS. NO 10 CFR 50.54(q)(2) DOCUMENTATION IS REQUIRED.

Part 2 Section E: Notification Methods and Procedures

Part 2 Section H: Emergency Facilities and Equipment

Part 2 Section I: Accident Assessment

Part 2 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 (procedure section 3.0[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

Procedure/Document Number: IP-EP-340	Revision: 6
Equipment/Facility/Other: Indian Point Energy Center (IPEC)	
Title: Meteorological Information and Dose Assessment System (MIDAS)	


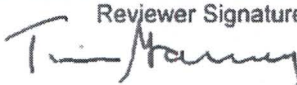
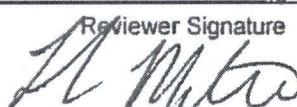
Part IV. Maintaining the Emergency Plan Conclusion The questions in Part II do not represent the sum total of all conditions that may cause a change to or impact the ability to maintain the emergency plan. Originator and reviewer signatures in Part IV document that a review of all elements of the proposed 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 10 CFR 50.54(q)(2) review completes all actions for all elements of the activity – no 10 CFR 50.54(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 10 CFR 50.54(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 10 CFR 50.54(q)(3).

The proposed changes to IP-EP-340, Meteorological Information and Dose Assessment System (MIDAS), correct formatting inconsistencies throughout the procedure, break attachment 9.4 into individual attachments based on the MIDAS operation being performed, add clarifying information to steps in the procedure and add additional guidance for MIDAS users. These changes improve the usability of the procedure.

A review of this activity in accordance with 10 CFR 50.54(q)(2) has been completed and determined that the effectiveness of the emergency plan is maintained. This activity does not make any changes to the requirements for performing dose assessment or offsite notifications. The changes made to IP-EP-340 do not require a change to the Emergency Action Level scheme, On shift staffing study, or the IPEC Emergency Plan. No further actions are required to screen or evaluate this activity under 10 CFR 50.54(q)(3).

Part V. Signatures:

Preparer Name (Print) Casey Karsten Sr. Emergency Planner	Preparer Signature 	Date: 5/9/18
(Optional) Reviewer Name (Print)	Reviewer Signature	Date:
Reviewer Name (Print) Timothy F. Garvey Nuclear EP Project Manager	Reviewer Signature 	Date: 5/9/18
Reviewer Name (Print) Frank J. Mitchell Manager, Emergency Planning or designee	Reviewer Signature 	Date: 5/17/18

IPEC IMPLEMENTING PROCEDURE PREPARATION, REVIEW, AND APPROVAL

IP-SMM-AD-102 Rev: 15

Page 35 of 43

ATTACHMENT 10.2

IPEC PROCEDURE REVIEW AND APPROVAL

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


Procedure No. IP-EP-340 Existing Rev: 5 New Rev: 6 DRN/EC No: DRN-17-01883

Procedure Activity (MARK Applicable)	<input type="checkbox"/> Converted To IPEC, Replaces:	Temporary Procedure Change (MARK Applicable)
<input type="checkbox"/> NEW PROCEDURE <input checked="" type="checkbox"/> GENERAL REVISION <input type="checkbox"/> PARTIAL REVISION <input type="checkbox"/> EDITORIAL REVISION <input type="checkbox"/> VOID PROCEDURE <input type="checkbox"/> SUPERSEDED	Unit 1 Procedure No. _____ Unit 2 Procedure No: _____ Unit 3 Procedure No: _____	<input type="checkbox"/> EDITORIAL Temporary Procedure Change <input type="checkbox"/> ADVANCE Temporary Procedure Change <input type="checkbox"/> CONDITIONAL Temporary Procedure Change Terminating Condition: _____ _____
<input type="checkbox"/> RAPID REVISION	Document in Microsoft Word: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> VOID DRN/TPC No(s): _____


Revision Summary See 50.54q revision matrix.

Implementation Requirements

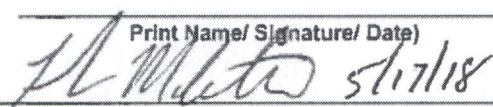
Implementation Plan? ☒ Yes ☐ No Formal Training? ☐ Yes ☒ No Special Handling? ☐ Yes ☒ No

RPO Dept: Emergency Planning Writer: (Print Name/Ext/Sign): Casey Karsten / 7789 / 

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

1. ☒ Technical Reviewer: Richard Watts /  / May 8, 2018
(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 /  5/17/18
(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

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,

5. ☐ On-Shift Shift Manager/CRS: _____
(Print Name/ Signature/ Date)

6. ☐ User Validation: User: _____ Validator: _____

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



IPEC
EMERGENCY PLAN
ADMINISTRATIVE
PROCEDURES

NON-QUALITY RELATED
PROCEDURE

IP-EP-AD2

Revision 10

REFERENCE USE

Page 1 of 1

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 <input type="checkbox"/> Implementing <input checked="" type="checkbox"/> EPLAN <input type="checkbox"/> N/A <input type="checkbox"/>
Doc/Procedure No:	IP-EP-340
Doc/Procedure Title:	Meteorological Information and Dose Assessment System (MIDAS)
Corrective Action:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/> CR#: _____

Section 2

Change Description

1. Ensure the following are completed, or are not applicable and are so marked:
 - a. 50.54g ☒ N/A ☐
 - b. EN-FAP-OM-023 ☒ N/A ☐
 - c. IP-SMM- AD-102 ☒ N/A ☐
 - d. OSRC ☐ N/A ☒
2. Transmittals are completed: ☐ N/A ☐ Date: _____
3. Ensure the proper revision is active in Merlin: ☐ N/A ☐
4. Approved doc/procedure delivered to Doc. Control for distribution: ☐ N/A ☐ Date: _____
5. Position Binders updated: ☐ N/A ☐ Date: _____
6. Copy of EPDCC placed in EP file: ☐ N/A ☐ Date: _____
7. Supporting documentation is submitted as a general record in MERLIN: ☐ N/A ☐ Date: _____
8. Word files are moved from working drafts folder to current revision folder in the EP drive:
☐ N/A ☐ Date: _____

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	1 of 84

Meteorological Information and Dose Assessment System (MIDAS)

Prepared by:

Casey Karsten

Print Name



Signature


5/15/18

Date

Approval:

Frank Mitchell

Print Name



Signature

5/17/18

Date

Effective Date: May 30, 2018

This procedure excluded from further LI-100 review

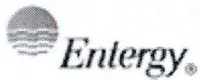



Table of Contents

1.0	Purpose	3
2.0	References	3
3.0	Definitions	3
4.0	Responsibilities	4
5.0	Details	4
6.0	Interfaces	39
7.0	Records	39
8.0	Requirements & Commitment Cross-References	39
9.0	Attachments	40
9.1	Event Trees.....	41
9.2	Flow Charts	42
9.3	Plant & Site Specific Parameters	58
9.4	Quick Guide for MIDAS Operation (Plant Vent Quick Dose)	59
9.5	Quick Guide for MIDAS Operation (S/G Tube Rupture Quick Dose)	61
9.6	Quick Guide for MIDAS Operation (S/G Tube Rupture).....	63
9.7	Quick Guide for MIDAS Operation (EOF – Auto H).....	67
9.8	Quick Guide for MIDAS Operation (Offsite Users – Auto H)	70
9.9	Quick Guide for MIDAS Operation (Manual B – no automated data).....	72
9.10	Quick Guide for MIDAS Operation – Multiple Accident (EOF).....	74
9.11	Quick Guide for MIDAS Operation – Multiple Accident (CCR)	77
9.12	Quick Guide for MIDAS Part 1 Form Generator	80

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	3 of 84

1.0 PURPOSE

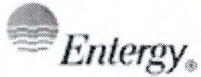
To describe the methods of estimating the whole body and thyroid doses to onsite and offsite persons in the event of potential or actual accidental release of radioactivity to the environment

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

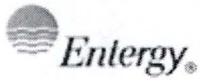
NOTE:

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

MIDAS - Accident Dose Calculation - Sheet #1 MIDAS-NUVersion:1.5.16.010714

☒ Start New Run ☐ Start New Multiple Accident Run

Site Selection
Indian Point

Unit Selection
Unit 2

☒ CCR ☐ EOF

☒ AUTOMATIC ☐ MANUAL ☐ SIMULATION

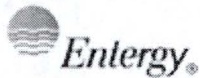
☐ Recap Previous Run ☐ Recap Multiple Accident Run

	Date/Time	Plant	Notes(Description)
*			

Delete Selected Recap Purge Recap files

Set Map Defaults Exit OK

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).
- 'Recap Previous Run' near the bottom left is the alternate button selection for 'Start New Run'
 - 'Recap Previous Run' allows display of previously saved runs from the list at the bottom of the page
 - '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
- 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, Manual, or Simulation

NOTE:

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

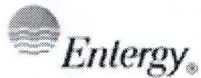
NOTE:

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:

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 (Simulator) / Manual the list of available choices in the 'Accident Run Menu Selection' will change



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'.

- 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 '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.
- 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 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



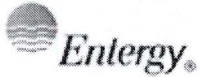
- i. Multiple Accident Run - Allows for dose calculations for accidents occurring simultaneously at both units. (See Section 5.14).

NOTE:

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

5.5.13 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 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).



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

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

Figure 2 Example: MIDAS Meteorological Data Input Sheet

Meteorological Edit Sheet #4

Date: 10/28/03

Meteorological Spreadsheet

Site ID: IP
Unit ID: U2
Menu: B

Timing	Hr	Mn	SPD10 (m/s)	DIR10M (deg)	DT60-10 (deg c) or PG A G	RAIN1 L, M, H (in/15min)
	14	15				
	14	30				
	14	45				
	15	00				
	15	15				
	15	30				
	15	45				
	16	00				
Exposure Start/Rel Start/Current	16	15	2	123	d	0
	16	30				
	16	45				
	17	00				
	17	15				
	17	30				
	17	45				
	18	00				
	18	15				
	18	30				
	18	45				
	19	00				
	19	15				
	19	30				
	19	45				
	20	00				
	20	15				
	20	30				

Copy Cell Down Copy Data Collection

Save to Excel Restore From Excel Cancel Previous Screen Copy Paste Clear OK



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.

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

Rad Monitor & Flow Data Edit Sheet #5

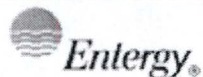
Date: 10/28/09 Radiation Monitor & Flow Spreadsheet Site ID: IP Unit ID: U2 Menu: B

Timing	Hr	Mn	R-44G Release (μ Ci/cc)	VCONTACT Release (mrem/hr)	PLNTVENT Flow (cfm)	R-27 Release (μ Ci/sec)	R-45 Release (μ Ci/cc)	CAEJ Flow (cfm)	R-28 Release (cpm)	R-28 Flow (lbs/hr)	R-29 Release (cpm)	R-29 Flow (lbs/hr)	R-30 Release (cpm)	R-30 Flow (lbs/hr)	R-31 Release (cpm)	R-31 Flow (lbs/hr)
	14	15														
	14	30														
	14	45														
	15	00														
	15	15														
	15	30														
	15	45														
	16	00														
Exposure Start/Rel Start/Current	16	15	1.00E-06		6.20E+04	1.10E+01	1.00E-06	8.00E+00	1.70E+01	0.00E+00						
	16	30														
	16	45														
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	19	45														
	20	00														
	20	15														

Copy Cell Down Copy Data Collection Copy Selected Row Data Collection

Save to Excel Restore From Excel Cancel Previous Screen Copy Paste Clear OK

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.



IPEC
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PLAN
IMPLEMENTING
PROCEDURES

NON-QUALITY RELATED
PROCEDURE

IP-EP- 340

Revision 6

REFERENCE USE

Page 11 of 84

Figure 4 Example: MIDAS Effluent Isotopic Mix Data Input Sheet

Mix Edit Sheet #7

Date: 07/06/16

Mix Spread Sheet
Percent of each Isotope

Timing	Hr	Min	Already Decayed (Y/N)	Total Percent	H-3	C-14	AR-41	KR-83M	KR-85M	KR-85	KR-87	KR-88	KR-89	KR-90	XE-131M	XE-133M	XE-133	XE-135M	XE-135
	12	15																	
	12	30																	
	12	45																	
	13	00																	
	13	15																	
	13	30																	
	13	45																	
	14	00																	
Release Start/Current Time	14	15																	
Exposure Start	14	30																	
	14	45																	
	15	00																	
	15	15																	
	15	30																	
	15	45																	
	16	00																	
	16	15																	
	16	30																	
	16	45																	
	17	00																	
	17	15																	
	17	30																	
	17	45																	
	18	00																	
	18	15																	

Copy Cell Down Copy Row Down Use Last Mix Copy Paste Clear

Save to CSV Restore From CSV Previous Screen Event Tree OK

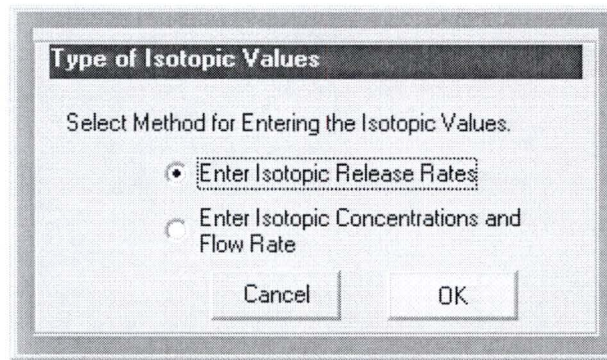
Noble Gas/Iodine
0

Noble Gas/Pat
0

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.

5.6.5.1 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



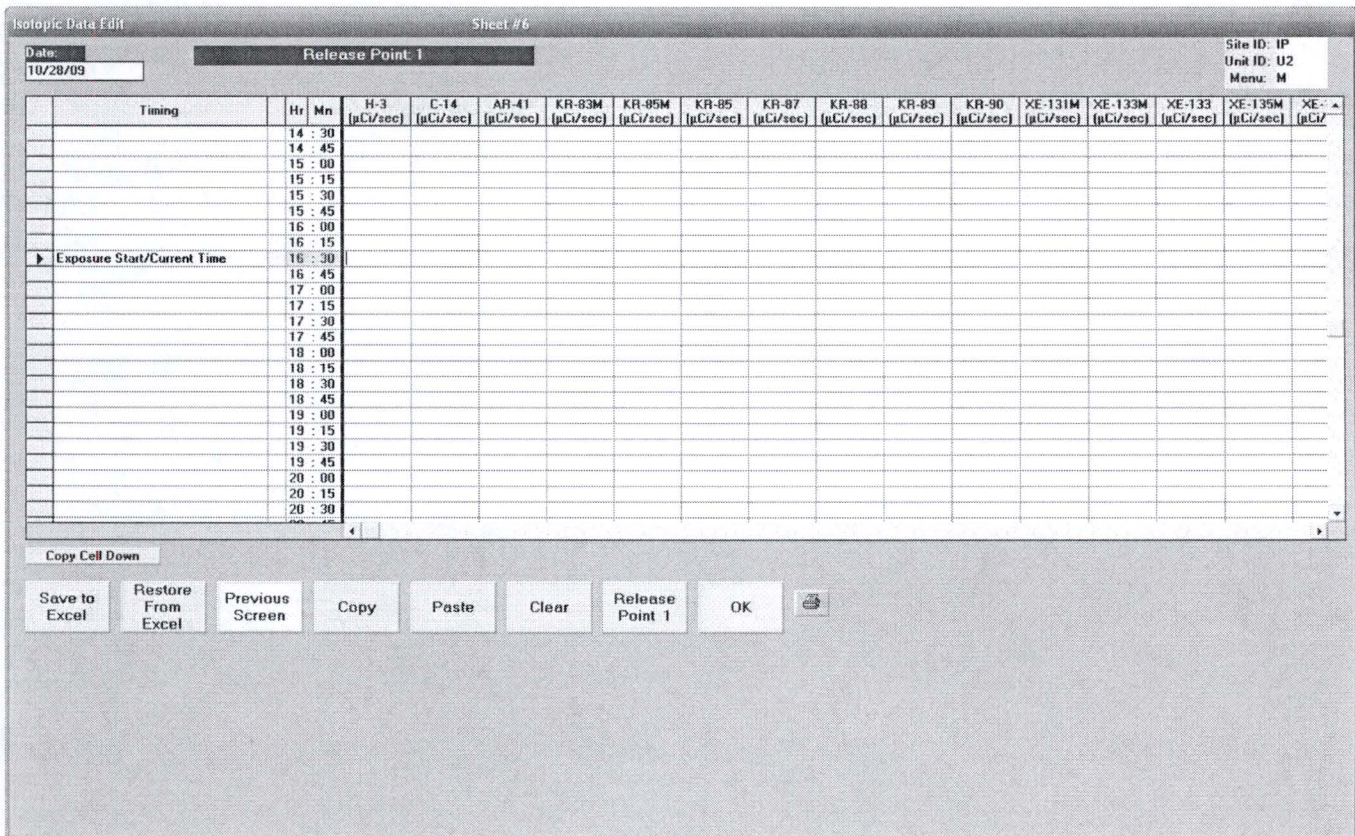
Type of Isotopic Values

Select Method for Entering the Isotopic Values.

☒ Enter Isotopic Release Rates
☐ Enter Isotopic Concentrations and Flow Rate

- 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



Isotopic Data Edit Sheet #6

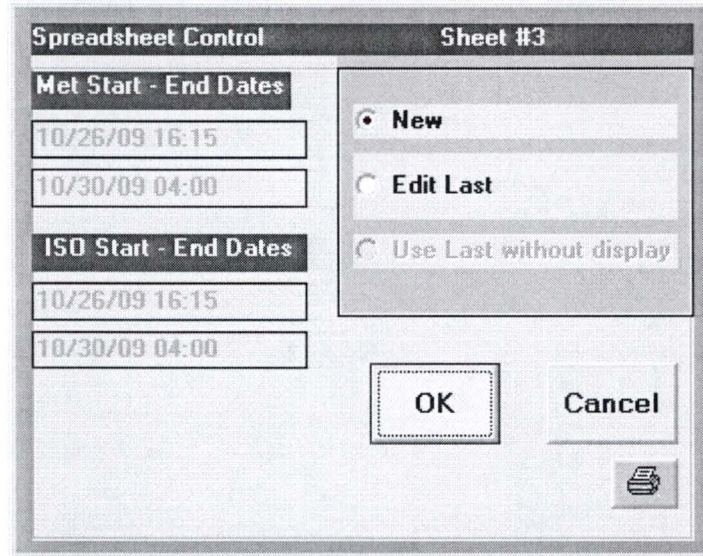
Date: 10/28/09 Release Point: 1 Site ID: IP Unit ID: U2 Menu: M

Timing	Hr	Mn	H-3 (uCi/sec)	C-14 (uCi/sec)	AR-41 (uCi/sec)	KR-83M (uCi/sec)	KR-95M (uCi/sec)	KR-95 (uCi/sec)	KR-87 (uCi/sec)	KR-88 (uCi/sec)	KR-89 (uCi/sec)	KR-90 (uCi/sec)	XE-131M (uCi/sec)	XE-133M (uCi/sec)	XE-133 (uCi/sec)	XE-135M (uCi/sec)	XE-135 (uCi/sec)
	14	: 30															
	14	: 45															
	15	: 00															
	15	: 15															
	15	: 30															
	15	: 45															
	16	: 00															
	16	: 15															
► Exposure Start/Current Time	16	: 30															
	16	: 45															
	17	: 00															
	17	: 15															
	17	: 30															
	17	: 45															
	18	: 00															
	18	: 15															
	18	: 30															
	18	: 45															
	19	: 00															
	19	: 15															
	19	: 30															
	19	: 45															
	20	: 00															
	20	: 15															
	20	: 30															

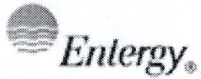
Copy Cell Down

- 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 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)

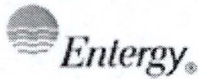
- a. represents releases from the condenser air ejectors / vacuum system
- b. R-45 (Unit-2)
- c. R-15 (Unit 3)
- d. offgas flow rate required

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
 - 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



5.7.5 All four 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
- b. application of ground level release point model for the condenser off-gas release is probably the best reasonable model
- c. application of a ground level release to the atmospheric steam relief release may significantly underestimate the offsite mixing DURING THE FIRST SEVERAL MINUTES of a release and will overestimate offsite dose consequences. After the steam system is substantially depressurized, the ground level release model is more appropriate
- d. application of the ground level release for vapor containment building leakage is likely the most appropriate model given uncertainty in flow, height above the ground, and other relevant parameters.

5.8 **Times and timing in MIDAS**

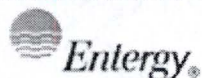
5.8.1 There are several timing concepts important to successful MIDAS dose projections

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

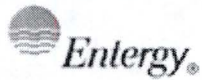
- a. Represents the approximate remaining duration of significant releases
- b. Used to 'persist' releases into the future
- c. Four hours is the typical default.

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

Selections	
Accident Type	CONTAINMENT RELEASE
Core Condition	GAP RELEASE UNCOVERED 15 - 30 MIN

Same As Last for this Menu Cancel Clear OK

- 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

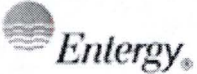
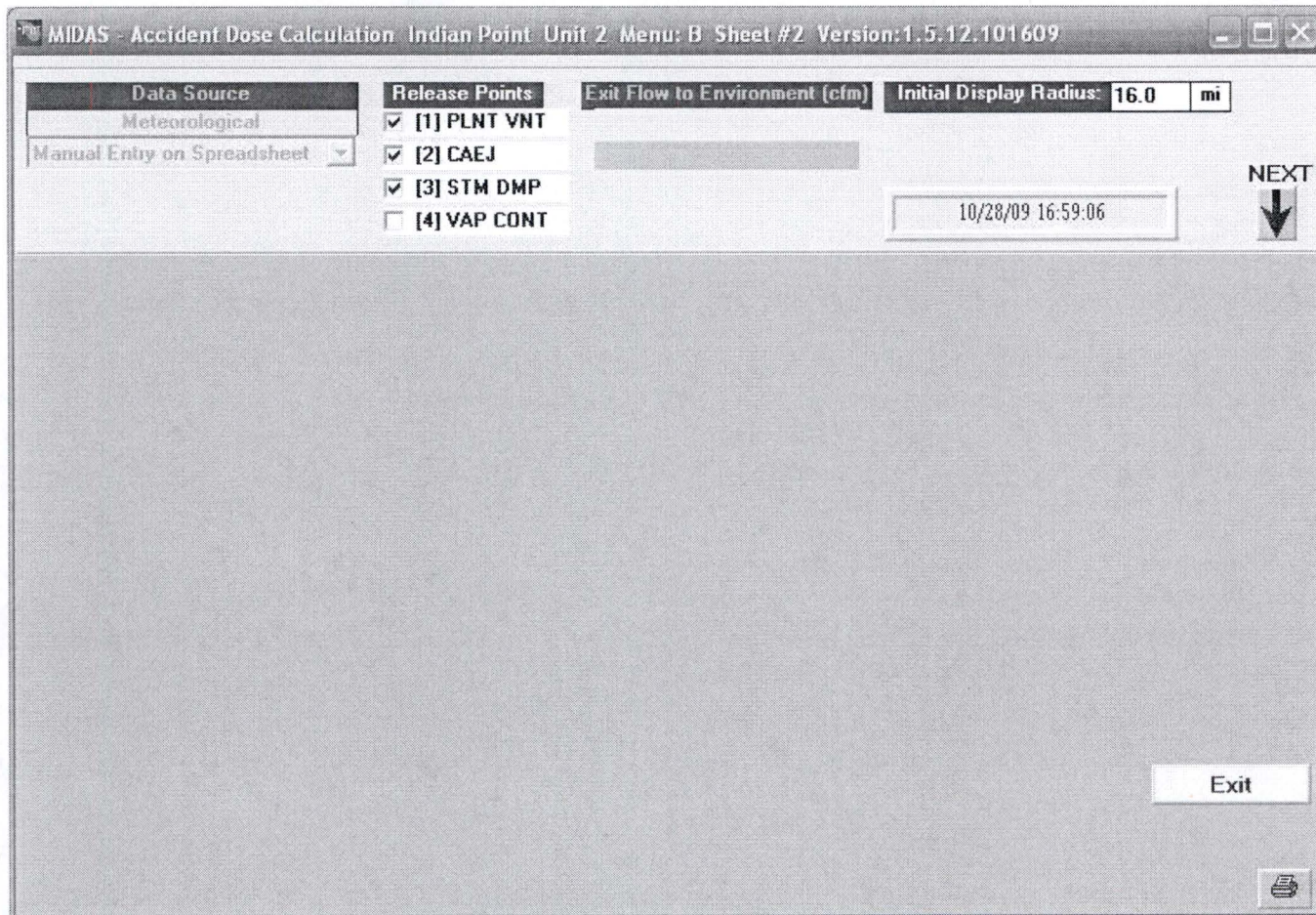
 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	<u>20</u> of <u>84</u>

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

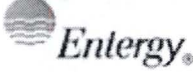
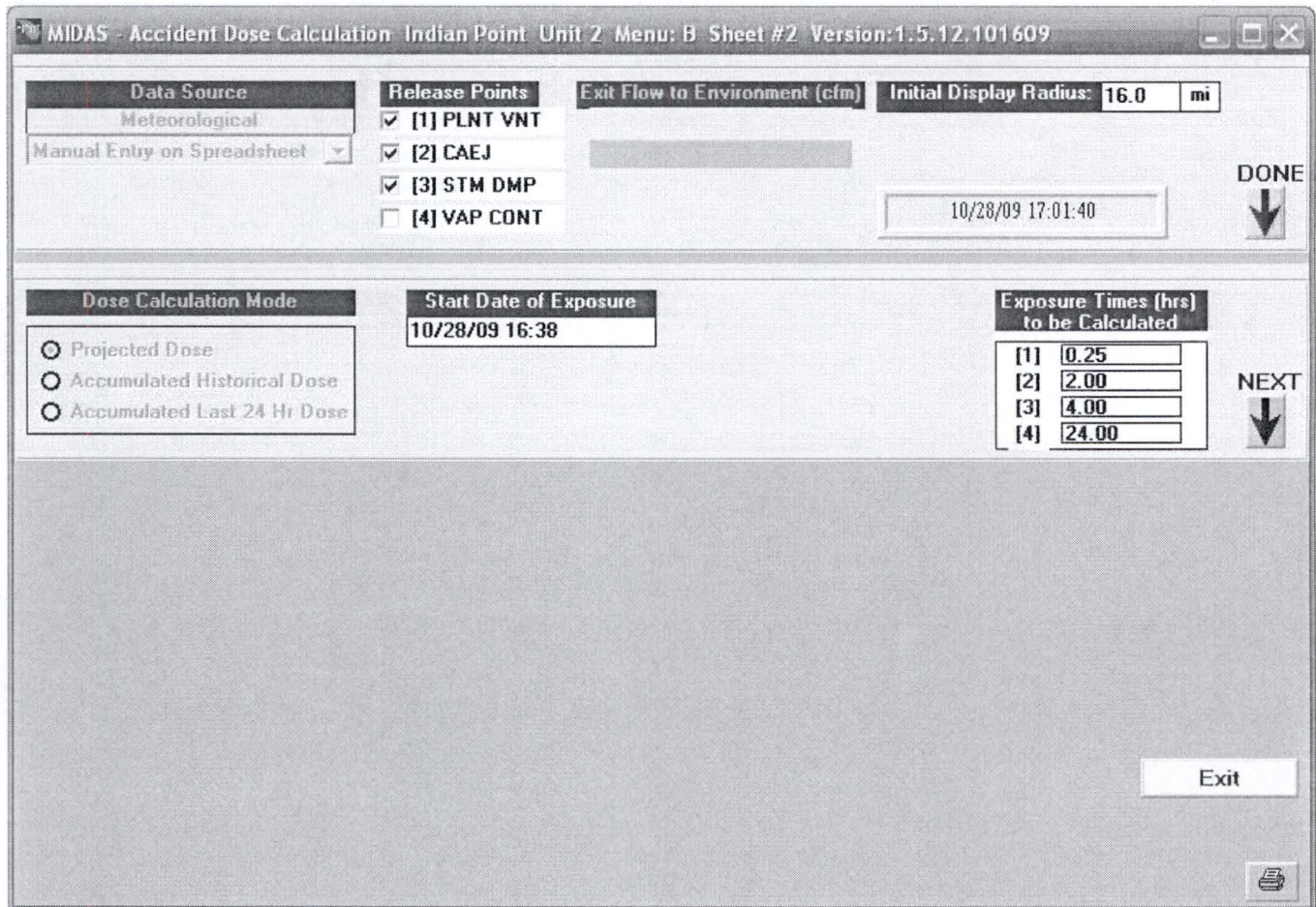
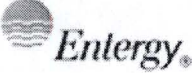
 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	21 of 84

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

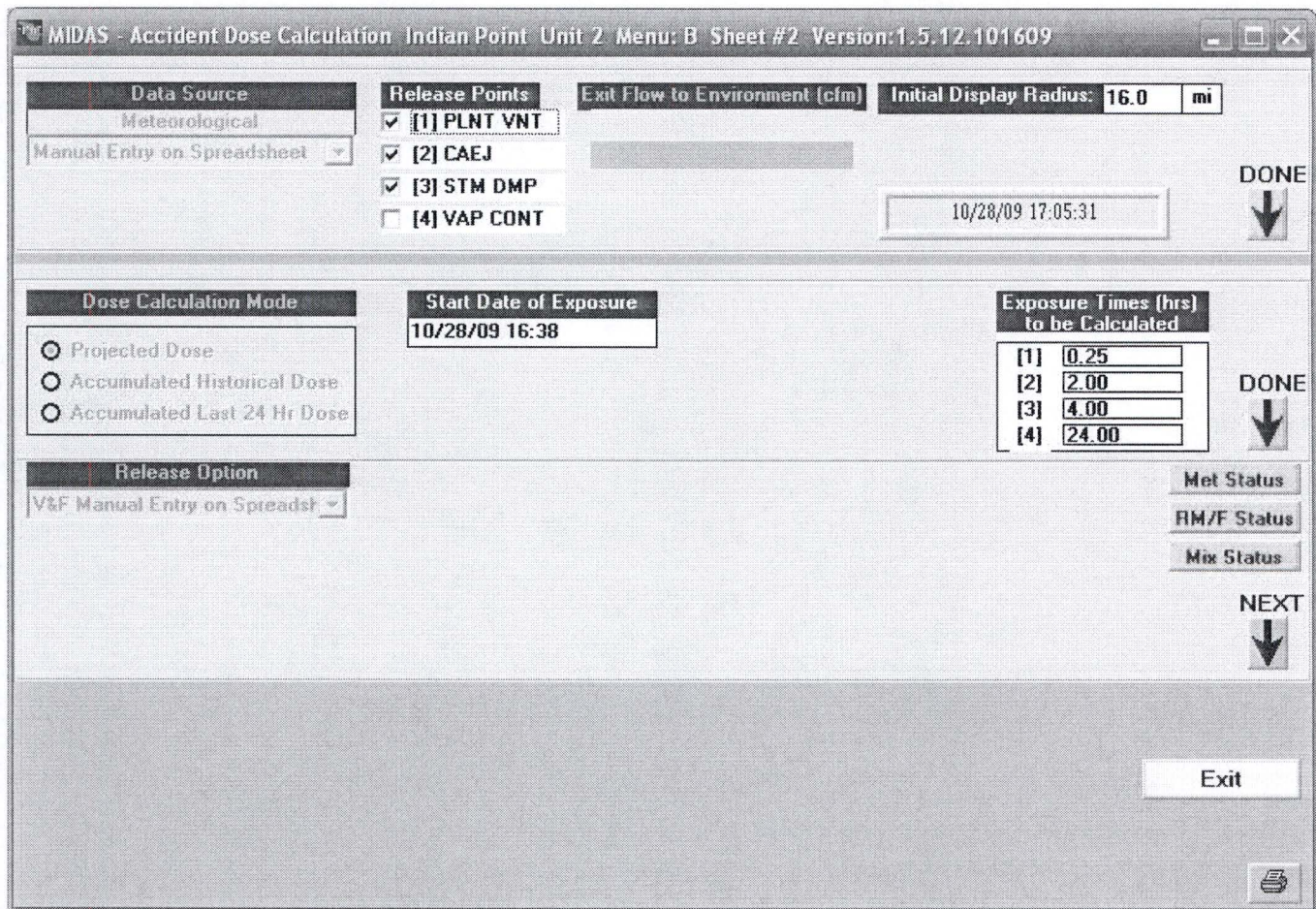


- 5.11.7 CLICK on the NEXT down arrow to continue
- 5.11.8 DEPENDING on the initial menu selection, the manual input spreadsheets or the event tree will now be displayed
- 5.11.9 After completing the spreadsheets or event tree, or if automated data is available, the previous Next down arrow will turn 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

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE		IP-EP- 340	Revision 6
	REFERENCE USE		Page	<u>22</u> of <u>84</u>

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



MIDAS - Accident Dose Calculation Indian Point Unit 2 Menu: B Sheet #2 Version:1.5.12.101609

Data Source
 Meteorological
 Manual Entry on Spreadsheet

Release Points
☒ [1] PLNT VNT
☒ [2] CAEJ
☒ [3] STM DMP
☐ [4] VAP CONT

Exit Flow to Environment (cfm)

Initial Display Radius: 16.0 mi

10/28/09 17:05:31

Dose Calculation Mode
☐ Projected Dose
☐ Accumulated Historical Dose
☐ Accumulated Last 24 Hr Dose

Start Date of Exposure
 10/28/09 16:38

Exposure Times (hrs) to be Calculated
 [1] 0.25
 [2] 2.00
 [3] 4.00
 [4] 24.00

Release Option
 V&F Manual Entry on Spreadsh

Met Status
RM/F Status
Mix Status

NEXT

Exit

Printer icon

- 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.

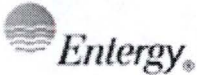




 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6	
	REFERENCE USE	Page	23	of

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

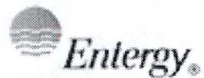
MIDAS - Accident Dose Calculation Indian Point Unit 2 Menu: B Sheet #2 Version: 1.5.12.101609

Data Source Meteorological Manual Entry on Spreadsheet	Release Points <input checked="" type="checkbox"/> [1] PLNT VNT <input checked="" type="checkbox"/> [2] CAEJ <input checked="" type="checkbox"/> [3] STM DMP <input type="checkbox"/> [4] VAP CONT	Exit Flow to Environment (cfm) Initial Display Radius: 16.0 mi 10/28/09 17:07:10	DONE 
Dose Calculation Mode <input type="radio"/> Projected Dose <input type="radio"/> Accumulated Historical Dose <input type="radio"/> Accumulated Last 24 Hr Dose	Start Date of Exposure 10/28/09 16:38	Exposure Times (hrs) to be Calculated [1] 0.25 [2] 2.00 [3] 4.00 [4] 24.00	DONE 
Release Option V&F Manual Entry on Spreadst	Met Status RM/F Status Mix Status		DONE 
Date, Time of Trip/Shutdown 10/28/09 16:08 <input type="checkbox"/> at Current Time <input checked="" type="checkbox"/> at Start of Release	Start Date of Release 10/28/09 16:08 <input type="checkbox"/> Trip Date <input type="checkbox"/> Minutes Since Trip	Remaining Duration (hrs) 4.00 Remaining Release Duration from Current Time	Exit Start Calc 

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.

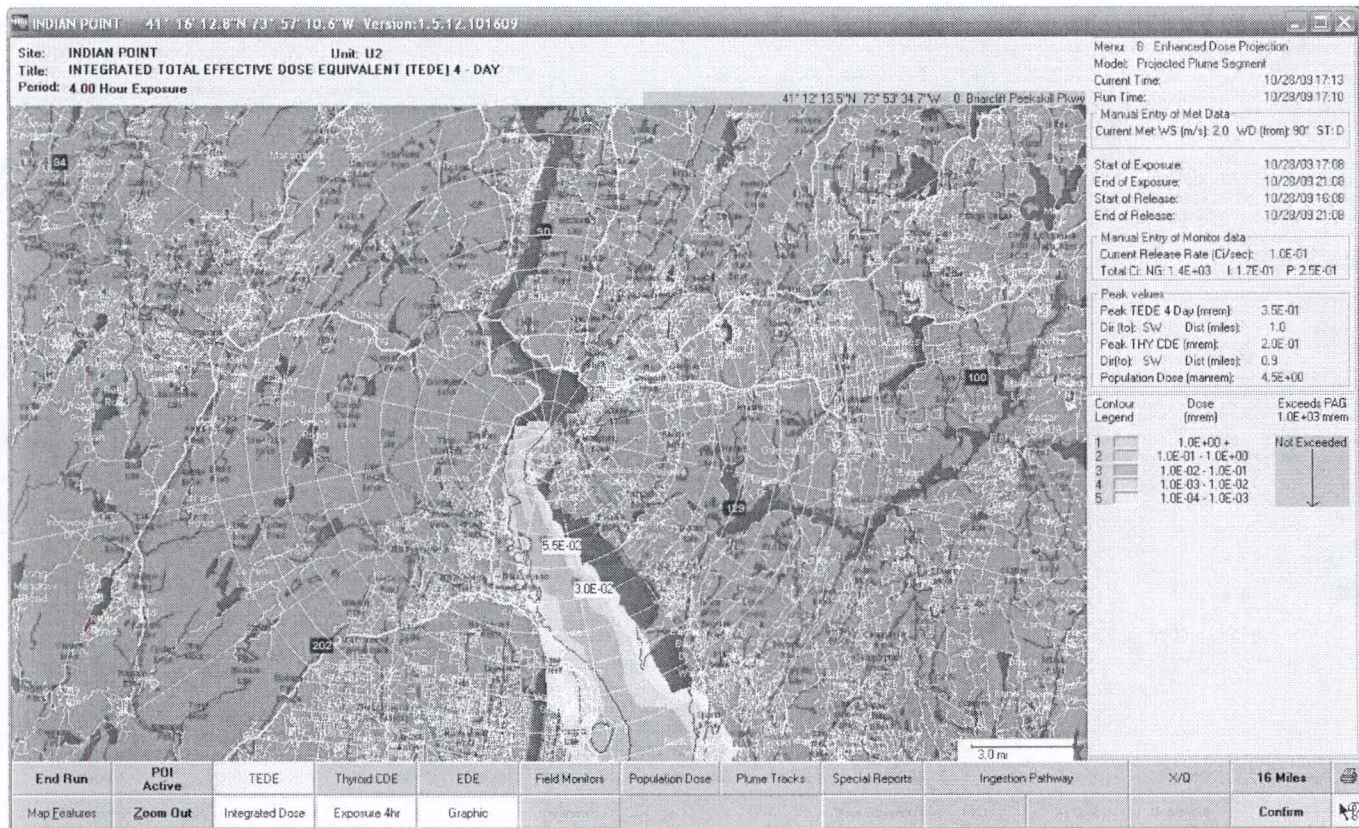
5.11.15 MIDAS will complete calculations and show the default results page, a plume plot of the integrated TEDE dose at 4 hours.



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:

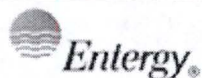
MIDAS uses site-specific variable wind fields so the plume may not be linear.

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
- C – MIDAS calculated value
 - M – Reuter Stokes monitor reported value (in this case M values are zero because the data was not being collected)
 - Calculated values (dose or dose rate) for predefined field monitoring points are shown at the 'circle and plus' crosshairs



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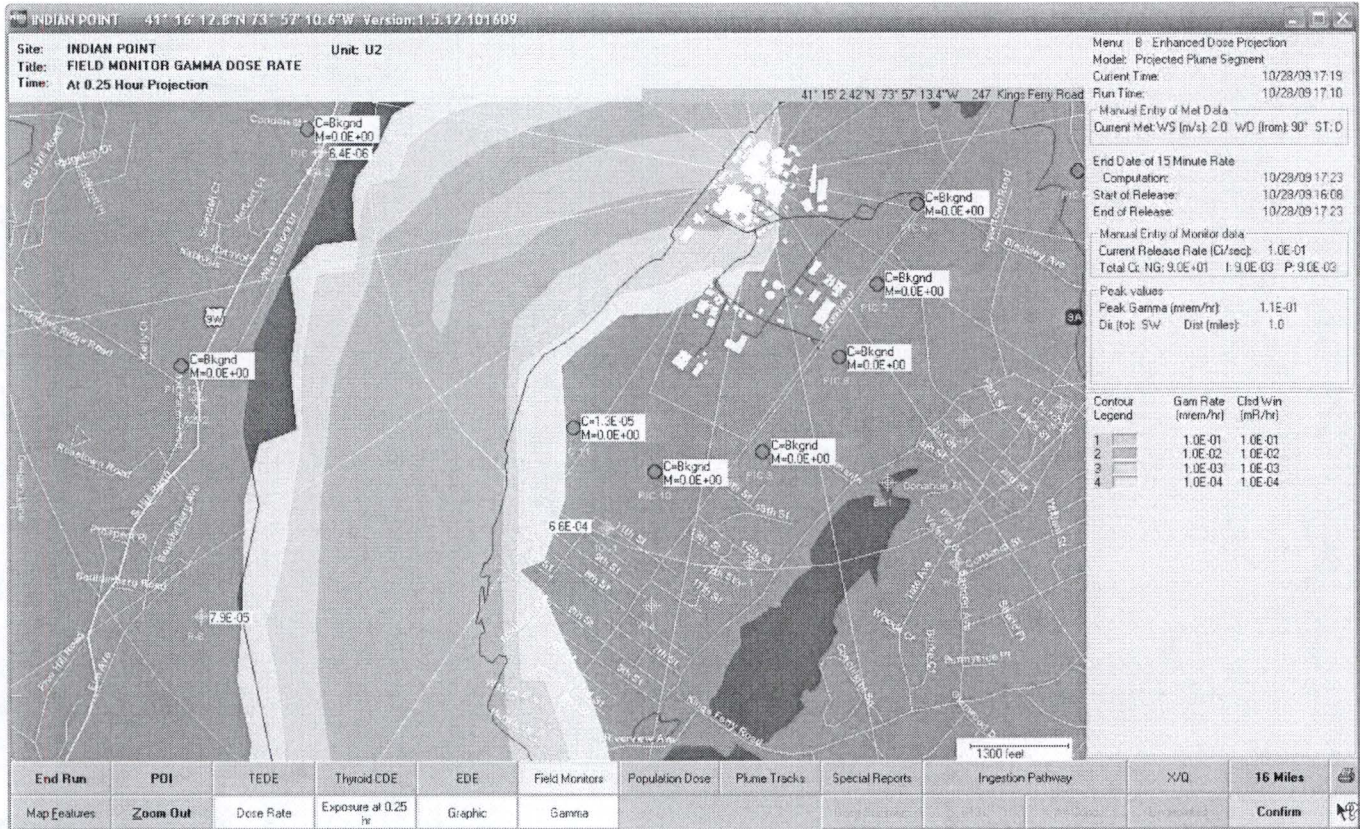
IP-EP- 340

Revision 6

REFERENCE USE

Page 26 of 84

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.

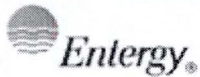


Figure 16 Example: MIDAS Dose Summary Report

Dose Assessment and PAR Summary

1 / 1 85% BusinessObjects

Dose Assessment Summary

Indian Point Station Unit 2

Name: Run Time: 08:07 AM Date: 13-Apr-17

Current Meteorological Data

Wind Direction (from): 321 °

Wind Speed (m/s): 5.6

Stability Class: A

Current Active Release Locations

☒ Release From Plant Vent

☐ Release From the Air Ejectors

☐ Release From the Main Steam Lines

☐ Release From the Containment

Remaining Release Duration (hours): 4.0

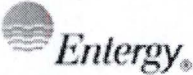
Current Release Rates

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

Peak Values PAG Exceeded

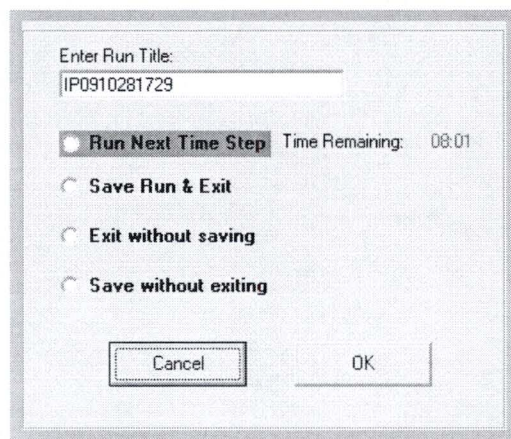
	Site Bndry	2 Miles	5 Miles	10 Miles
Integrated Dose @ 4 hours (mrem)	TEDE : 1.6E+03	6.9E+01	2.8E+01	1.3E+01
	Thy CDE : 3.5E+02	1.7E+01	7.1E+00	3.4E+00
Current Dose Rate (mrem/hr)	TEDE : 6.6E+02	2.4E+01	*	*
	ThyCDE : 6.1E+01	3.0E+00	*	*
* Plume may not have arrived yet or has already passed				
Dispersion (sec/m ³)	X/Q: 1.4E-06	7.0E-08	3.2E-08	1.7E-08


Page 1 of 1 4/13/2017 8:08:43AM

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	<u>28</u> of <u>84</u>

- 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 PGA 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



 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	<u>29</u> of <u>84</u>

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

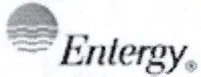
- g. Exit without saving will terminate MIDAS and not save a RECAP file
- h. Save without exit will save the RECAP file and return to the main startup menu

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.

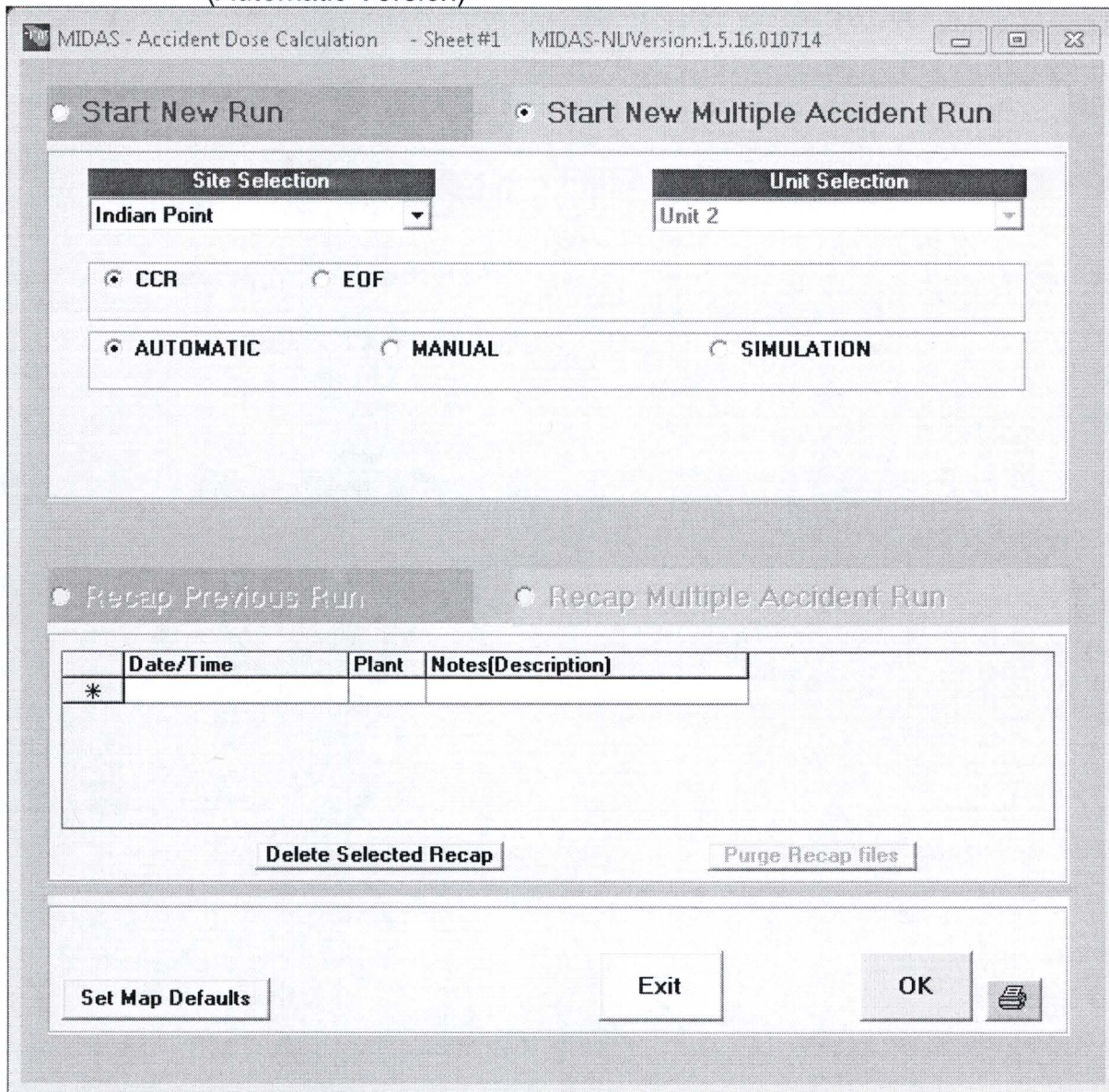
NOTE:

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)



MIDAS - Accident Dose Calculation - Sheet #1 MIDAS-NUVersion:1.5.16.010714

☐ Start New Run ☒ Start New Multiple Accident Run

Site Selection
Indian Point

Unit Selection
Unit 2


☒ CCR ☐ EOF

☒ AUTOMATIC ☐ MANUAL ☐ SIMULATION

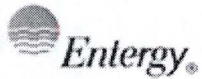
☐ Recap Previous Run ☐ Recap Multiple Accident Run

	Date/Time	Plant	Notes(Description)
*			

Delete Selected Recap Purge Recap files

Set Map Defaults Exit OK 

- 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)

Multiple Accident Calculations and Report Combining for Site: INDIAN POINT

Automatic (RAW Data) Scenarios Selected, Select Run Menu and Reactor Unit for Each

Enter Run Title, 22 characters maximum
U2 PV & U3 SGTR

Select Accident Run 1: AUTO ENHANCED DOSE PROJECTION (MENU H) Unit 2

Select Accident Run 2: AUTO ENHANCED DOSE PROJECTION (MENU H) Unit 3

Select Accident Run 3: Unit 4

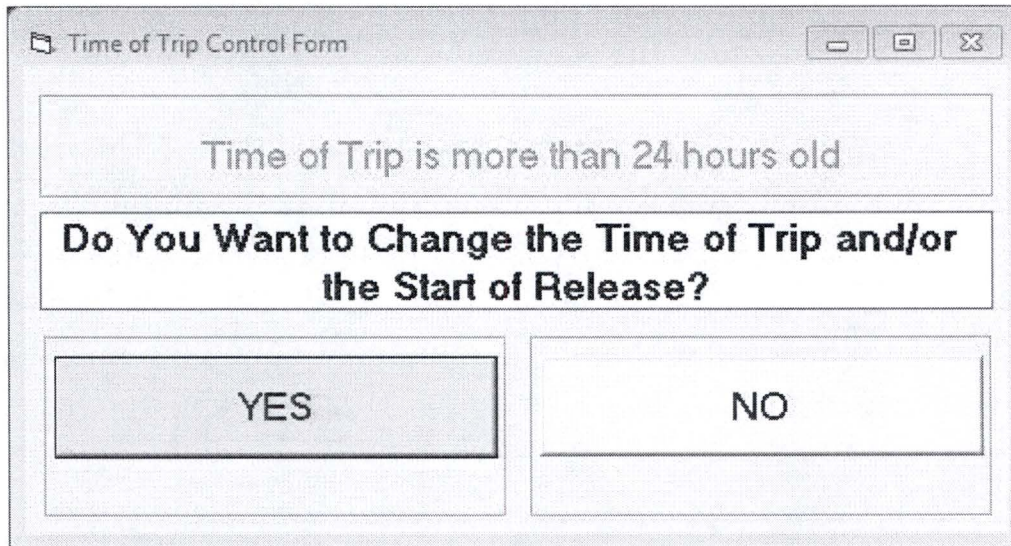
Select Accident Run 4: Unit 5

Select Accident Run 5: Unit 6

Exit OK

- 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)



Time of Trip Control Form

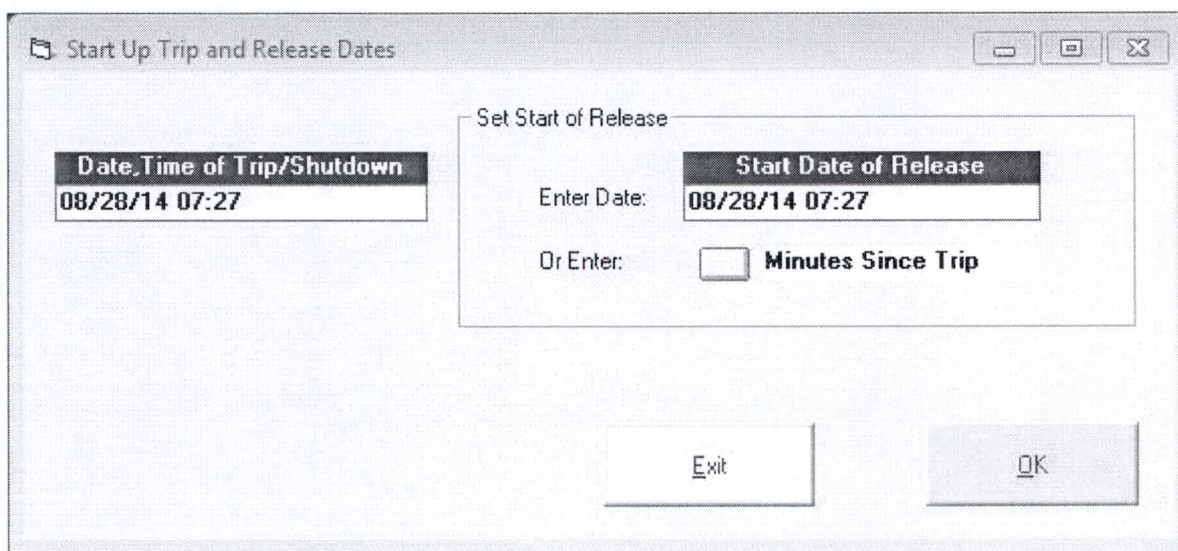
Time of Trip is more than 24 hours old

Do You Want to Change the Time of Trip and/or the Start of Release?

YES NO

- 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)



Start Up Trip and Release Dates

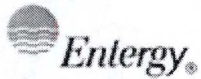
Date, Time of Trip/Shutdown
08/28/14 07:27

Set Start of Release

Start Date of Release
Enter Date: 08/28/14 07:27

Or Enter: ☐ Minutes Since Trip

Exit OK



**IPEC
EMERGENCY
PLAN
IMPLEMENTING
PROCEDURES**

**NON-QUALITY RELATED
PROCEDURE**

IP-EP- 340

Revision 6

REFERENCE USE

Page 34 of 84

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)

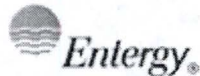
Release Points
<input checked="" type="checkbox"/> [1] PLNT VNT
<input type="checkbox"/> [2] CAEJ
<input type="checkbox"/> [3] STM LINE
<input type="checkbox"/> [4] VAP CONT

Exposure Times (hrs) to be Calculated
[1] 0.25
[2] 2.00
[3] 4.00
[4] 24.00

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)

Timing	Hr	Mn	SPD10 (m/s)	DIR10M (deg)	DTSD10 (deg c) or PG A-G	L M H (m/15min)	RAINF (m/15min)
01:00	01	00	1.6	12	-0.4	0.00	
01:15	01	15	1.9	9	-0.9	0.00	
01:30	01	30	2.1	6	-0.9	0.00	
01:45	01	45	1.7	343	-0.7	0.00	
02:00	02	00	1.7	354	-0.9	0.00	
02:15	02	15	2.1	17	-0.8	0.00	
02:30	02	30	2.6	13	-0.8	0.00	
02:45	02	45	2.5	350	-0.8	0.00	
03:00	03	00	2.2	15	-0.9	0.00	
03:15	03	15	2.1	356	-0.9	0.00	
03:30	03	30	2.1	329	-0.8	0.00	
03:45	03	45	2.2	348	-0.8	0.00	
04:00	04	00	2.2	345	-0.8	0.00	
04:15	04	15	1.8	338	-0.7	0.00	
04:30	04	30	2.2	331	-0.8	0.00	
04:45	04	45	1.8	301	-0.5	0.00	
05:00	05	00	1.7	331	-0.5	0.00	
05:15	05	15	1.5	324	-0.4	0.00	
05:30	05	30	1.3	335	-0.4	0.00	
05:45	05	45	1.4	9	0.0	0.00	
06:00	06	00	2.1	360	-0.5	0.00	
06:15	06	15	1.5	16	-0.4	0.00	
06:30	06	30	1.8	2	-0.7	0.00	
06:45	06	45	1.8	19	-0.4	0.00	
07:00	07	00	2.6	356	-0.8	0.00	
07:15	07	15	2.1	349	-0.9	0.00	



**IPEC
EMERGENCY
PLAN
IMPLEMENTING
PROCEDURES**

**NON-QUALITY RELATED
PROCEDURE**

IP-EP- 340

Revision 6

REFERENCE USE

Page 35 of 84

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)

Rad Monitor & Flow Data Edit Sheet #5

Date: 08/28/14

Site ID: IP
Unit ID: U2
Menu: H

Timing	Hr	Mn	R-44G Release (pCi/cc)	VCONTACT Release (mrem/hr)	PLNTVENT Flow (cfm)	R-27 Release (pCi/sec)
	01	: 30	2.41E-06			
	01	: 45	2.38E-06			
	02	: 00	2.23E-06			
	02	: 15	2.48E-06			
	02	: 30	2.19E-06			
	02	: 45	2.07E-06			
	03	: 00	2.23E-06			
	03	: 15	2.20E-06			
	03	: 30	1.02E-06			
	03	: 45	2.59E-06			
	04	: 00	2.12E-06			
	04	: 15	3.68E-06			
	04	: 30	3.93E-06			
	04	: 45	1.22E-06			
	05	: 00	3.20E-06			
	05	: 15	2.43E-06			
	05	: 30				8.65E+02
	05	: 45	2.62E-06			
	06	: 00	2.99E-06			
	06	: 15	1.26E-06			
	06	: 30	2.64E-06			
	06	: 45				5.49E+02
Release Start/Current Time	07	: 00	2.20E-06			4.52E+02
	07	: 15				

Copy Cell Down Copy Data Collection Copy Selected Row Data Collection

Save to CSV Restore From CSV Cancel Previous Screen Copy Paste Clear OK

NOTE: Enter a blank (space bar) to remove a Vent Monitor from this Run. Does not apply to Flow monitor.

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)

Mix Edit Sheet #7

Date: 08/28/14

Site ID: IP
Unit ID: U2
Menu: H

Mix Spread Sheet
Percent of each Isotope

Timing	Hr	Mn	Already Discarded (Y/N)	Total Percent	H-3	C-14	AR-41	KR-83M	KR-85M	KR-85	KR-87	KR-88	KR-89	KR-90	XE-131M
	05	: 15													
	05	: 30													
	05	: 45													
	06	: 00													
	06	: 15													
	06	: 30													
	06	: 45													
Release Start/Current Time	07	: 00													
Exposure Start	07	: 15	NO	100.00					4.6095	0.1076	9.0263	13.0602			0.1921
	07	: 30													
	07	: 45													
	08	: 00													
	08	: 15													
	08	: 30													
	08	: 45													
	09	: 00													
	09	: 15													
	09	: 30													
	09	: 45													
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	10	: 30													
	10	: 45													
	11	: 00													
	11	: 15													

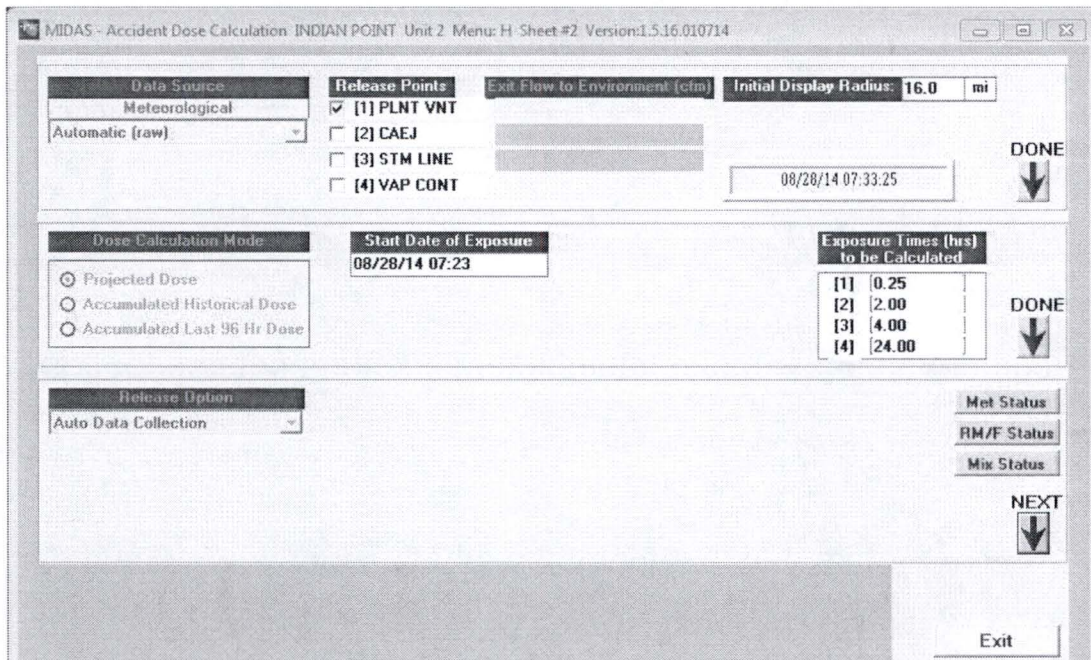
Copy Cell Down Use Last Mix Copy Paste Clear

Save to CSV Restore From CSV Previous Screen Event Tree OK

Noble Gas/Iodine
10000
Noble Gas/Put
10000

5.14.15 Press “NEXT” down arrow (see Figure 26)

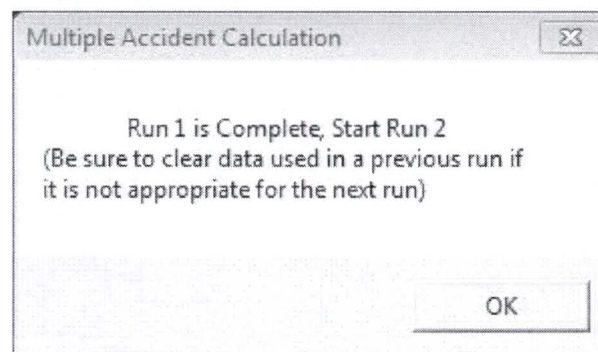
Figure 26 MIDAS Entry Status Display (Automatic Version)

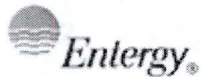


5.14.16 If all boxes are green, then select GREEN “Start Calculation” button. MIDAS will then compute the doses for Accident Run 1

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

Figure 27 Example: Multiple Accident calculation status message





**IPEC
EMERGENCY
PLAN
IMPLEMENTING
PROCEDURES**

**NON-QUALITY RELATED
PROCEDURE**

IP-EP- 340

Revision 6

REFERENCE USE

Page 37 of 84

- 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





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): 5.0
Stability Class: D

Current Active Release Locations

☒ Release From Plant Vent
☐ Release From the Air Ejectors
☒ Release From the Main Steam Lines
☐ Release From the Containment

Remaining Release Duration (hours): 4.0

Current Release Rates

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

Peak Values - PAG Exceeded

	Site Bndry	2 Miles	5 Miles	10 Miles
Integrated Dose @ 4 hours (mrem)				
TEDE :	1.3E+05	5.1E+04	1.6E+04	4.5E+03
Thy CDE :	8.3E+05	1.5E+05	4.1E+04	1.2E+04
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)



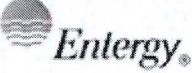
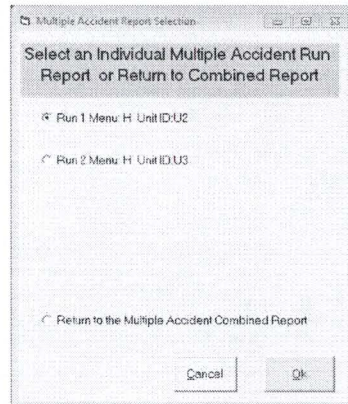
 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	<u>39</u> of <u>84</u>

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

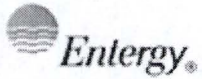
- 6.1 IP-EP-310, Dose Assessment
- 6.2 IP-EP-240, Security
- 6.3 IP-EP-410, Protective Action Recommendations

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.

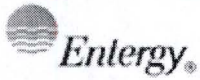
8.0 REQUIREMENTS AND COMMITMENT CROSS-REFERENCE

None



9.0 ATTACHMENTS

- 9.1 Event trees
- 9.2 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

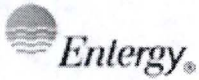


Attachment 9.1

Event Trees

Page 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
- 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



**IPEC
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PLAN
IMPLEMENTING
PROCEDURES**

**NON-QUALITY RELATED
PROCEDURE**

IP-EP- 340

Revision 6

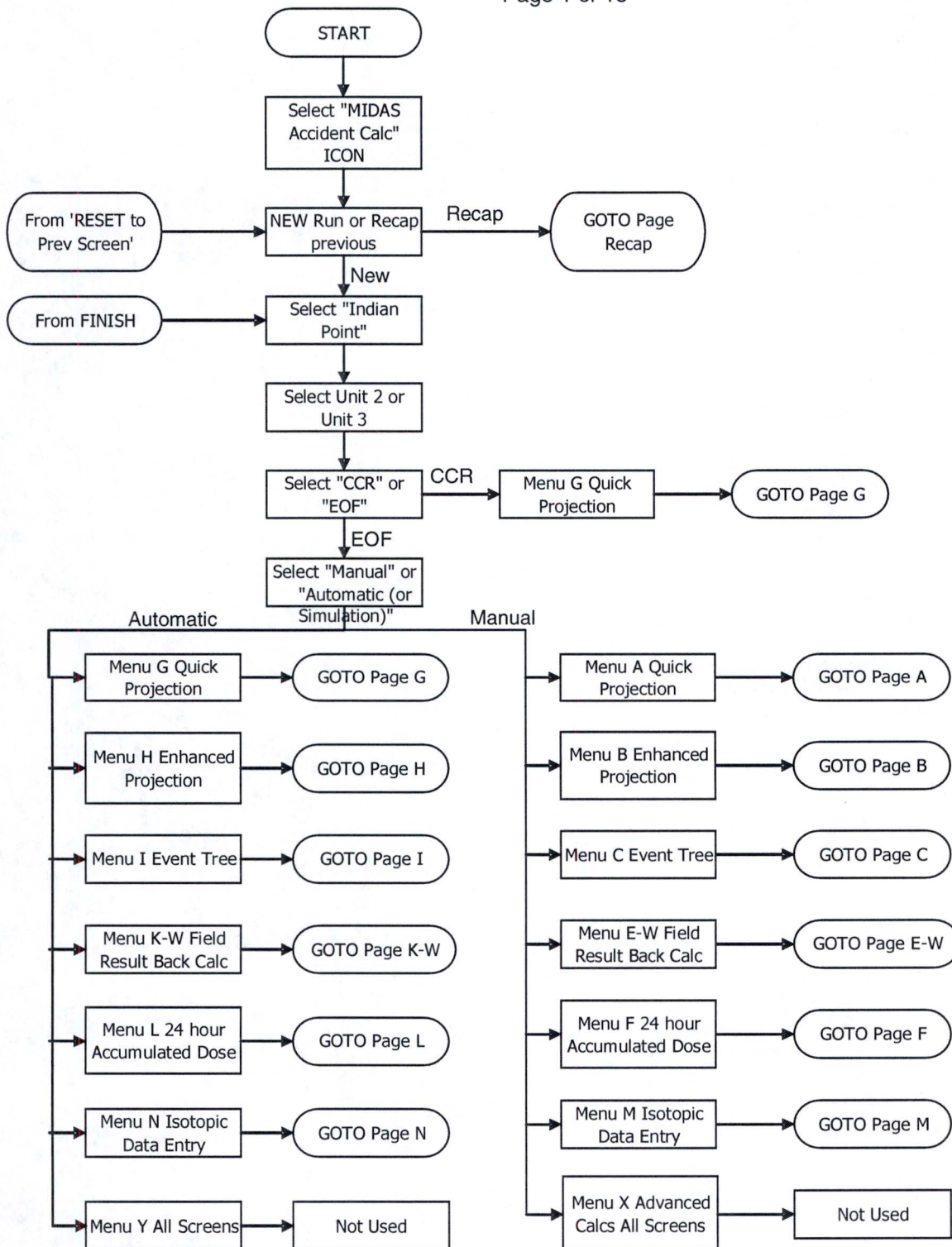
REFERENCE USE

Page 42 of 84

Attachment 9.2

Flow Charts

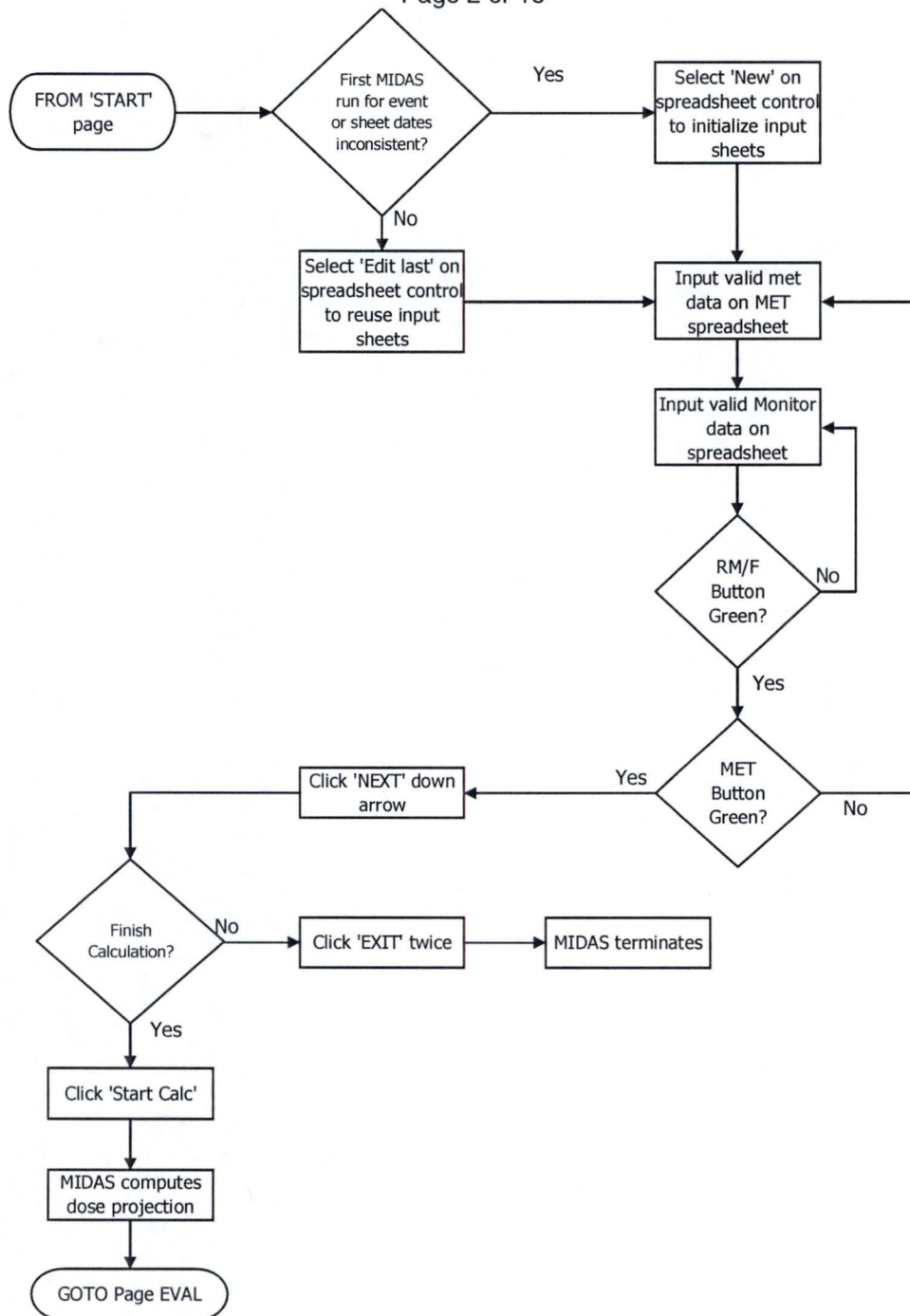
Page 1 of 16

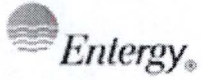




Attachment 9.2
Flow Charts Menu A

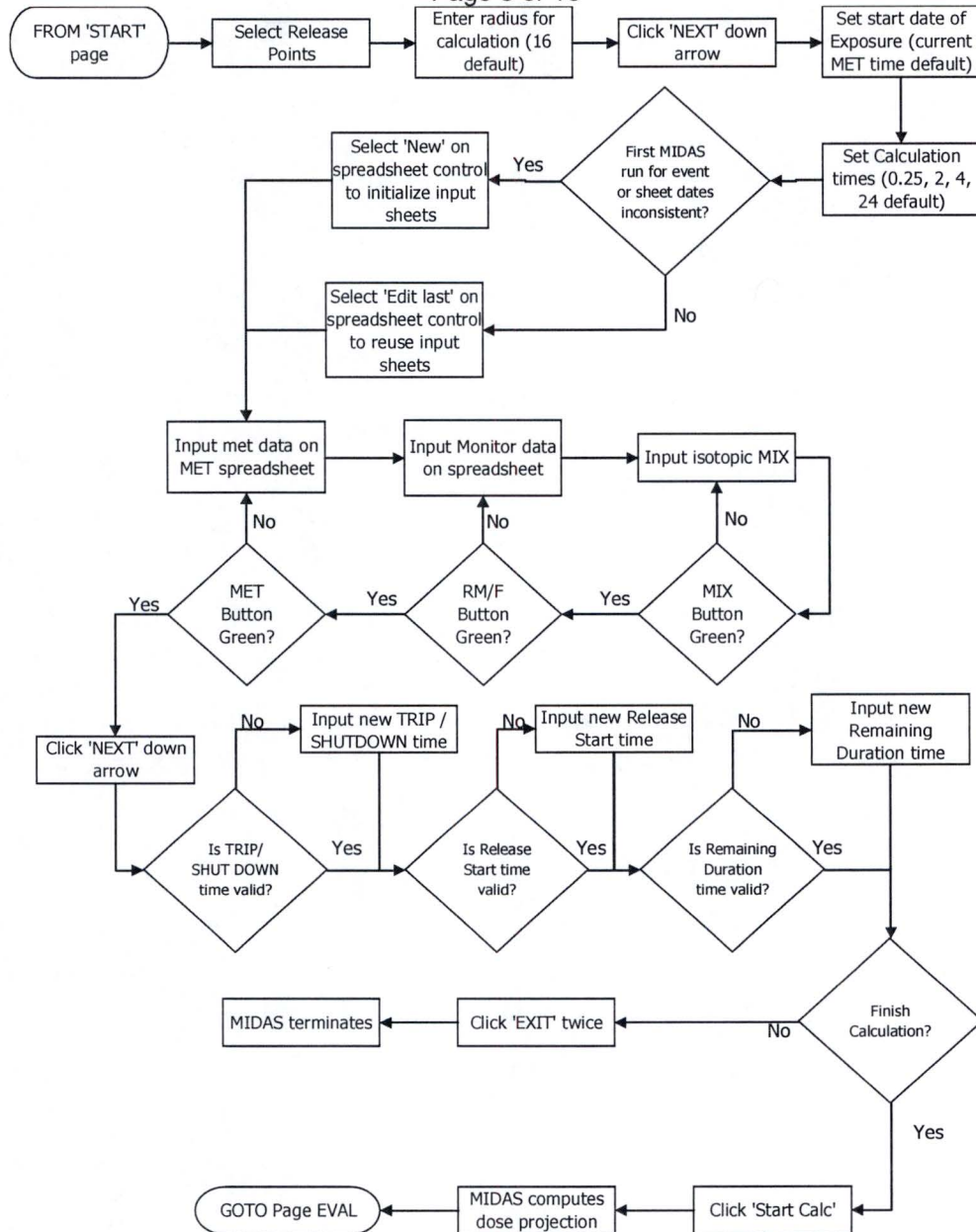
Page 2 of 16

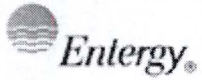




Attachment 9.2
Flow Charts Menu B

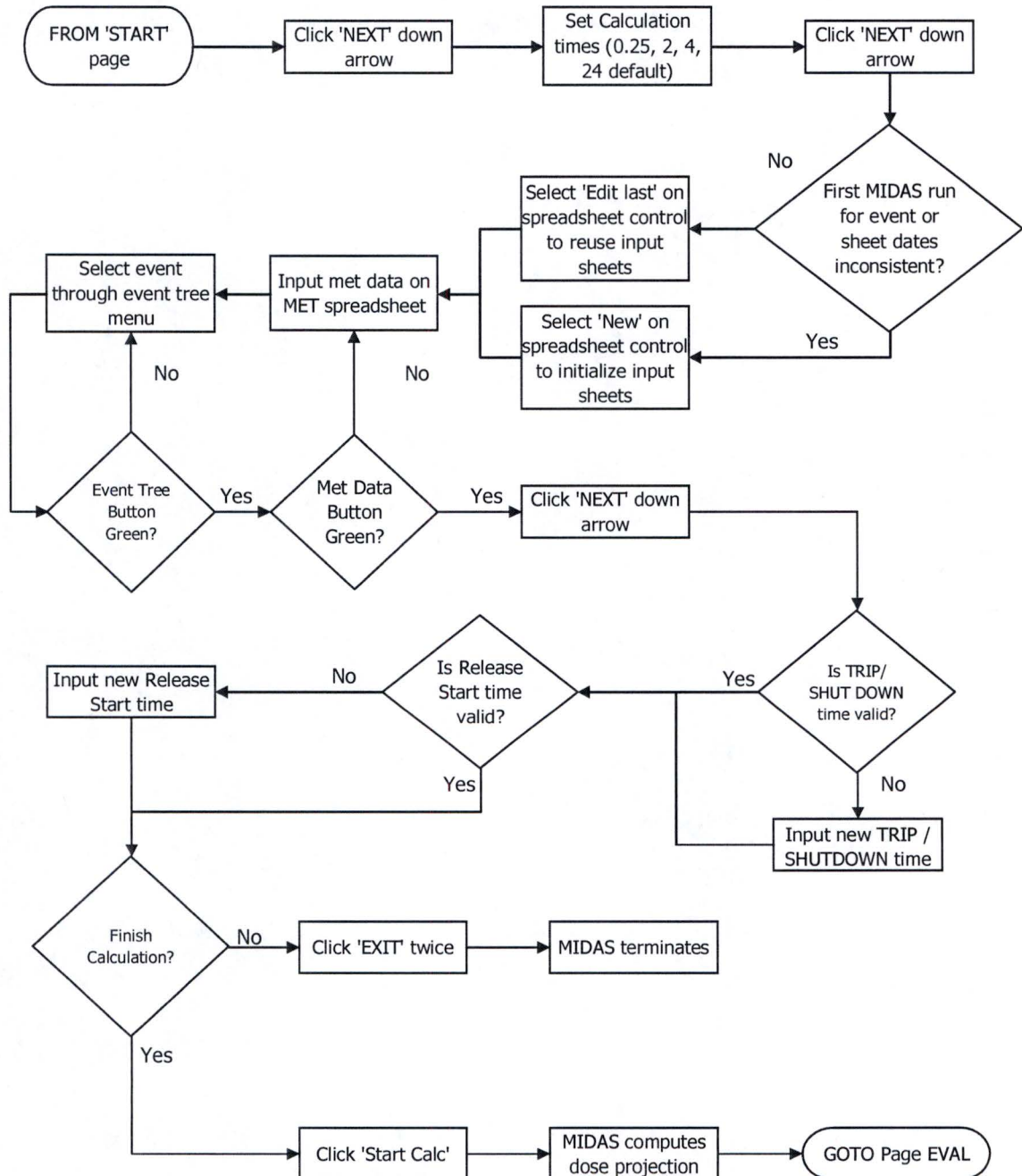
Page 3 of 16

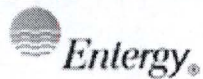




Attachment 9.2
Flow Charts Menu C

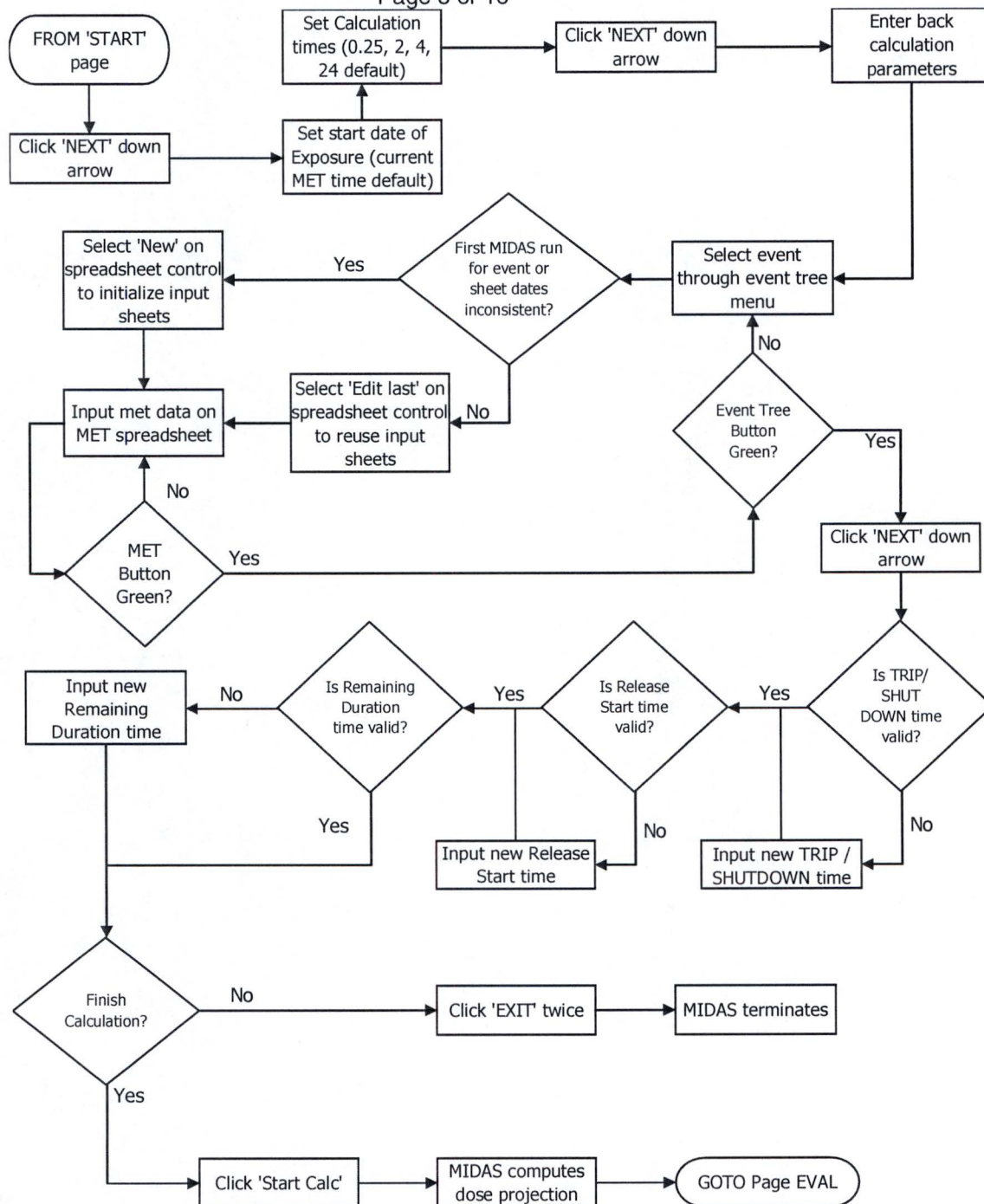
Page 4 of 16

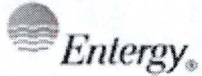




Attachment 9.2
Flow Charts Menu E – W

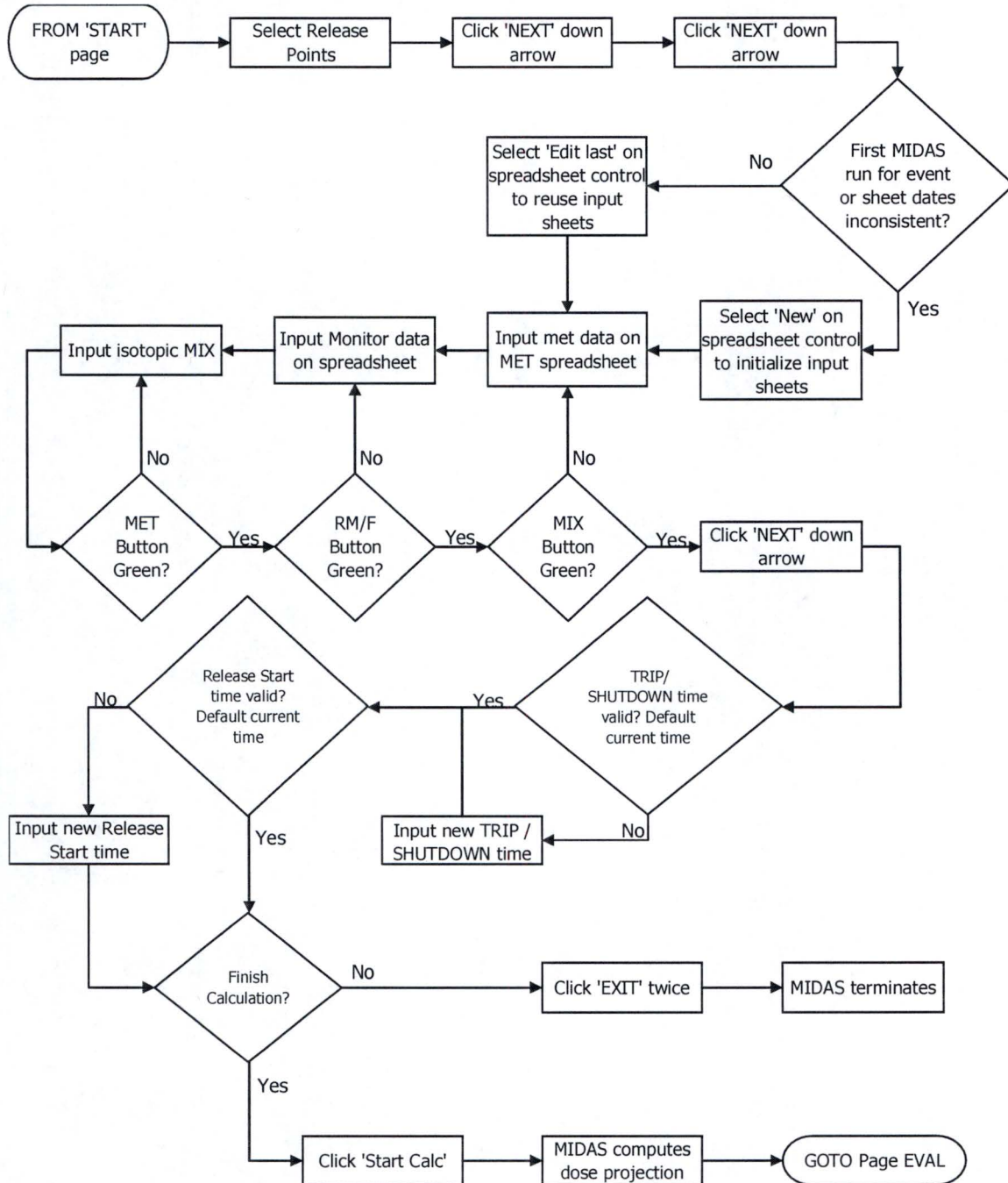
Page 5 of 16

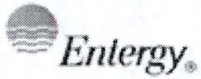




Attachment 9.2
Flow Charts Menu F

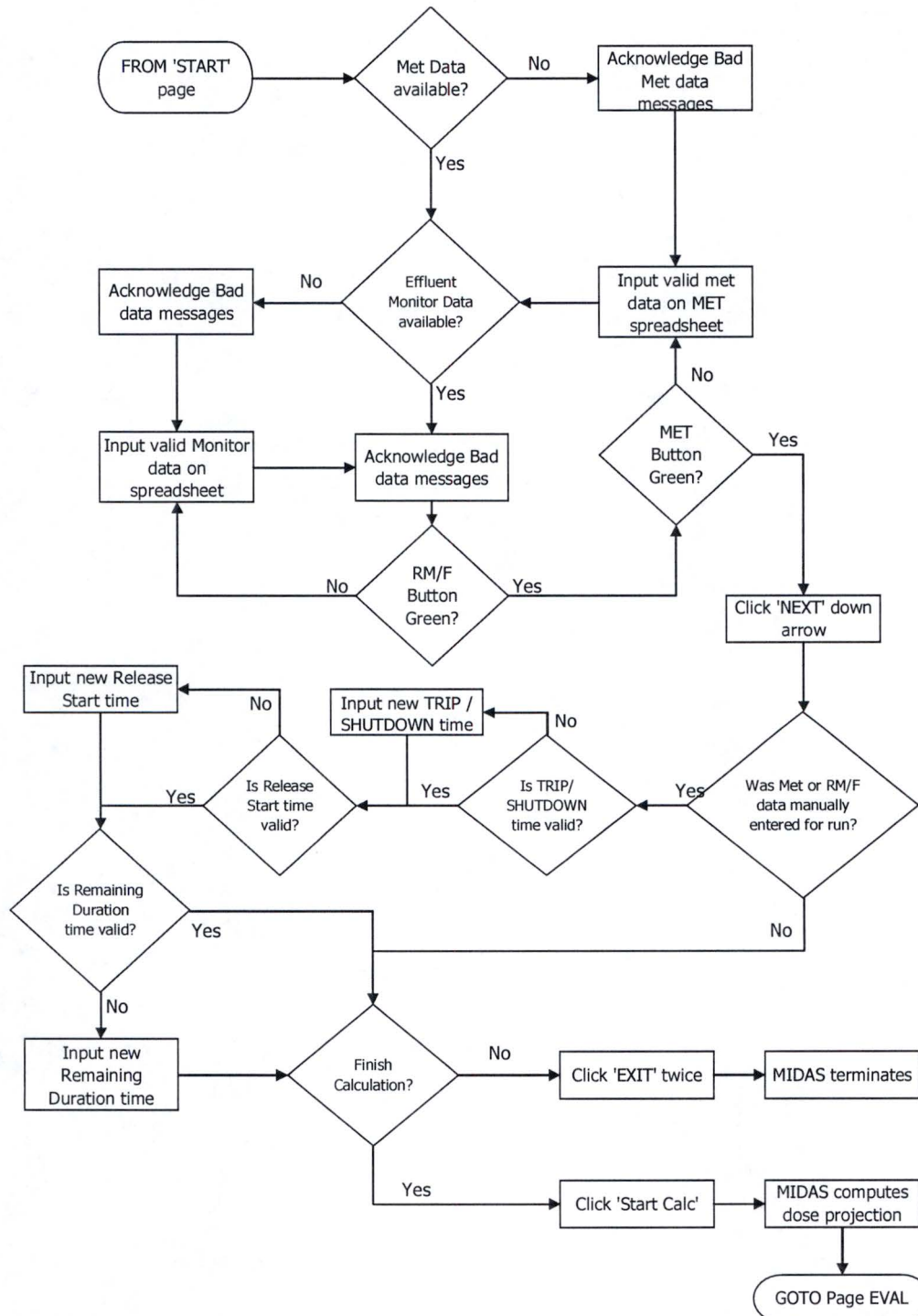
Page 6 of 16

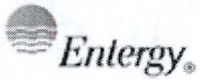




Attachment 9.2
Flow Charts Menu G

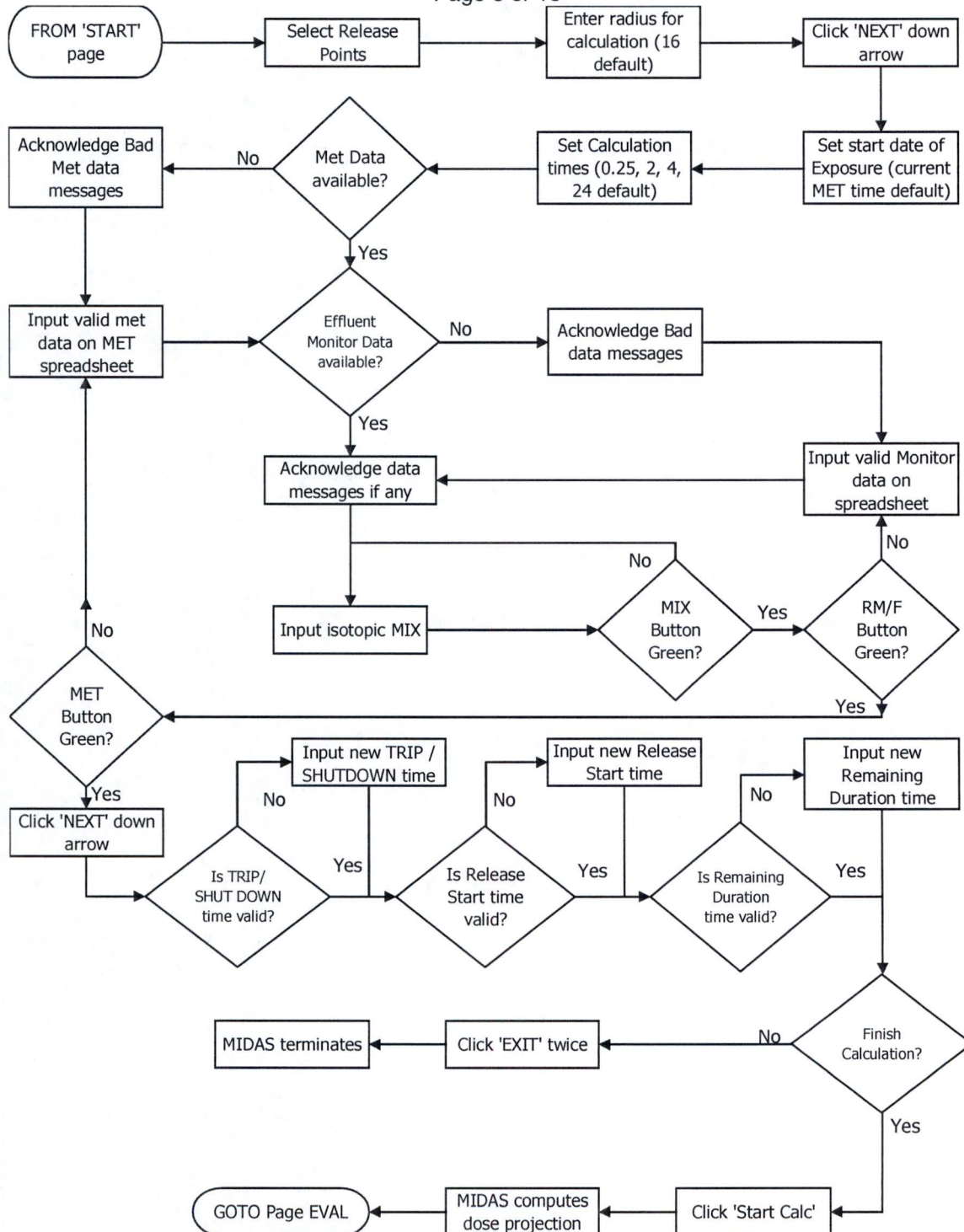
Page 7 of 16

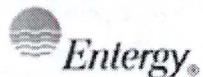




Attachment 9.2
Flow Charts Menu H

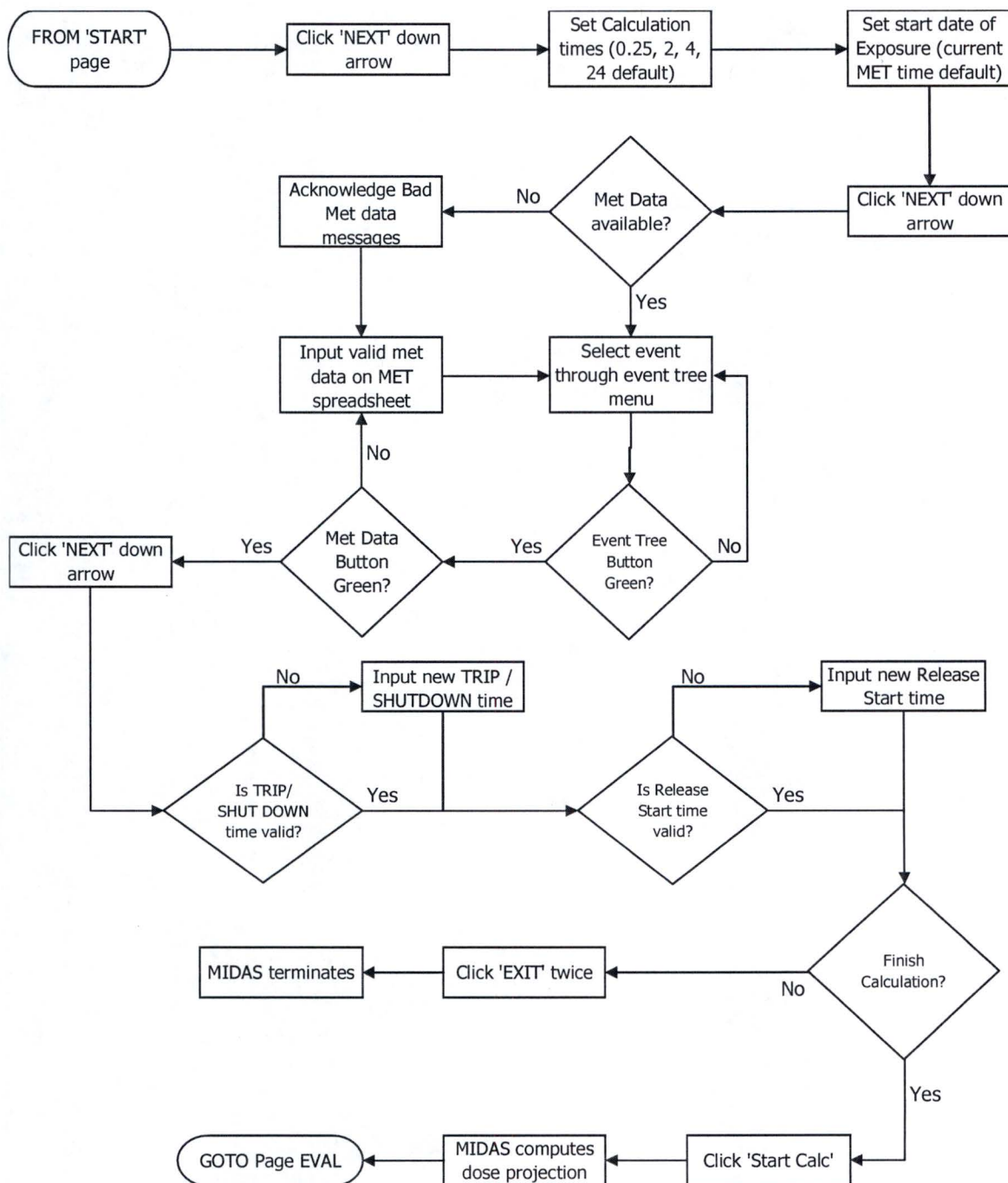
Page 8 of 16

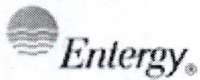




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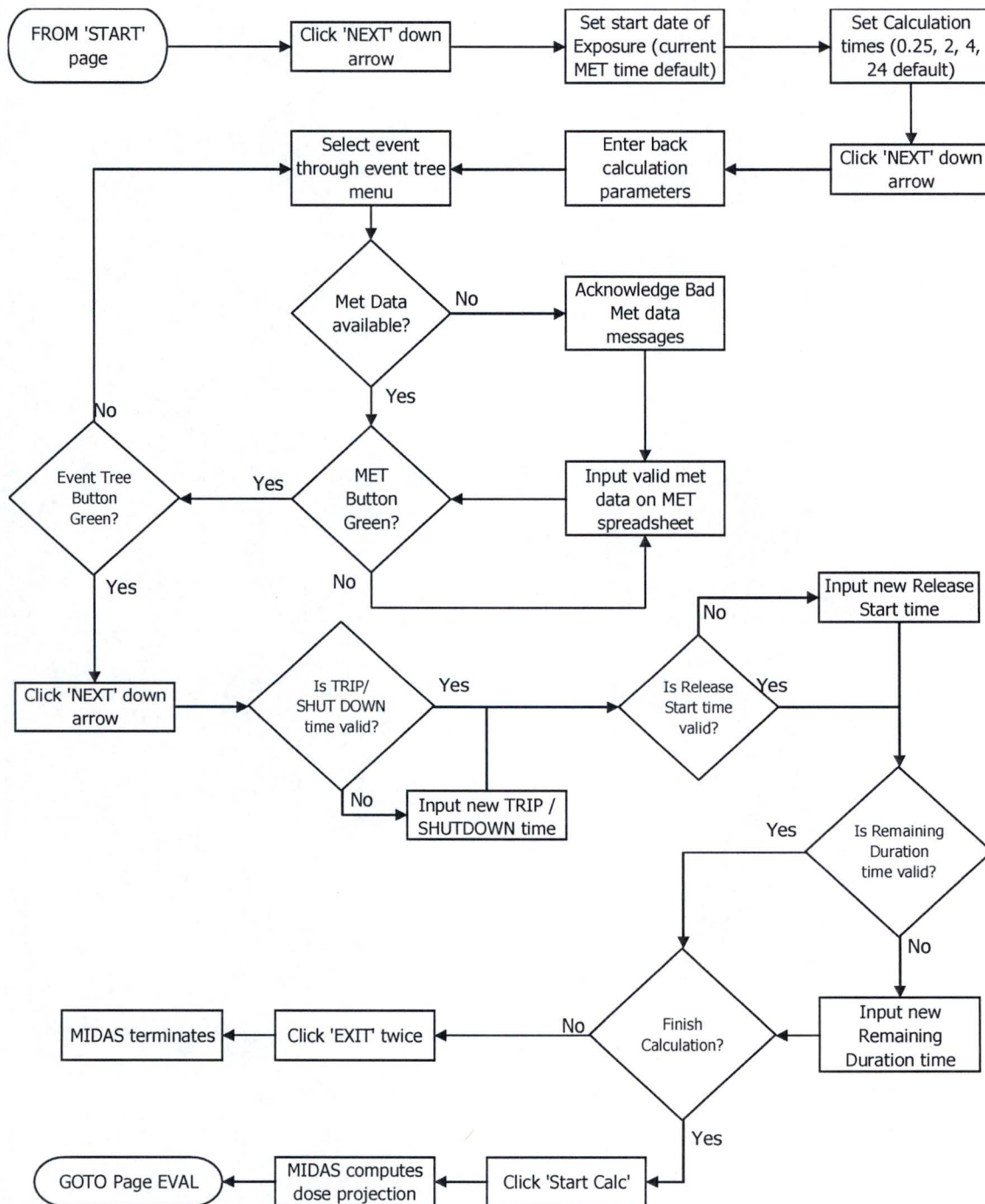
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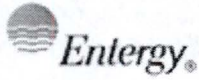




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Flow Charts Menu K – W

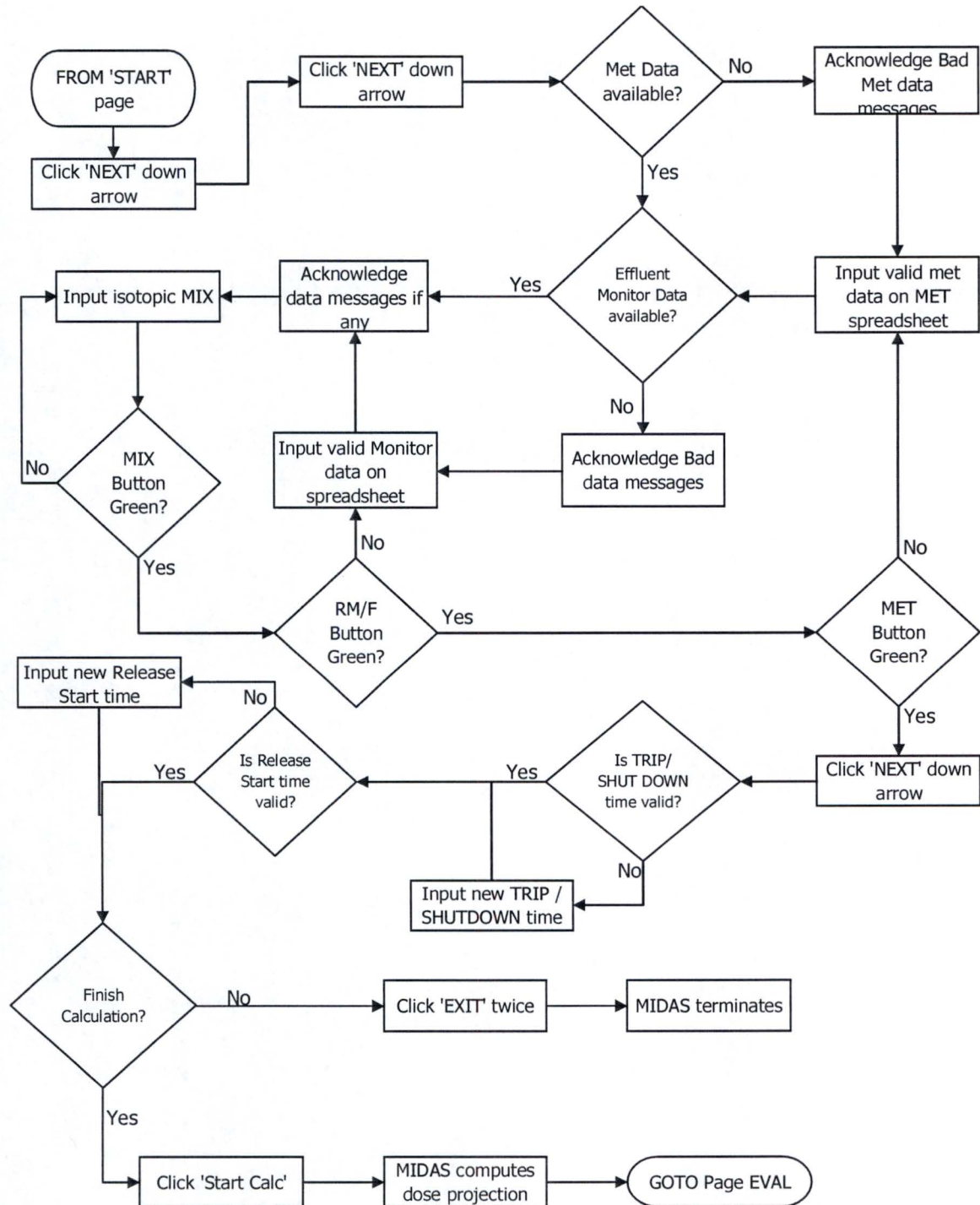
Page 10 of 16

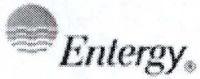




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Flow Charts Menu L

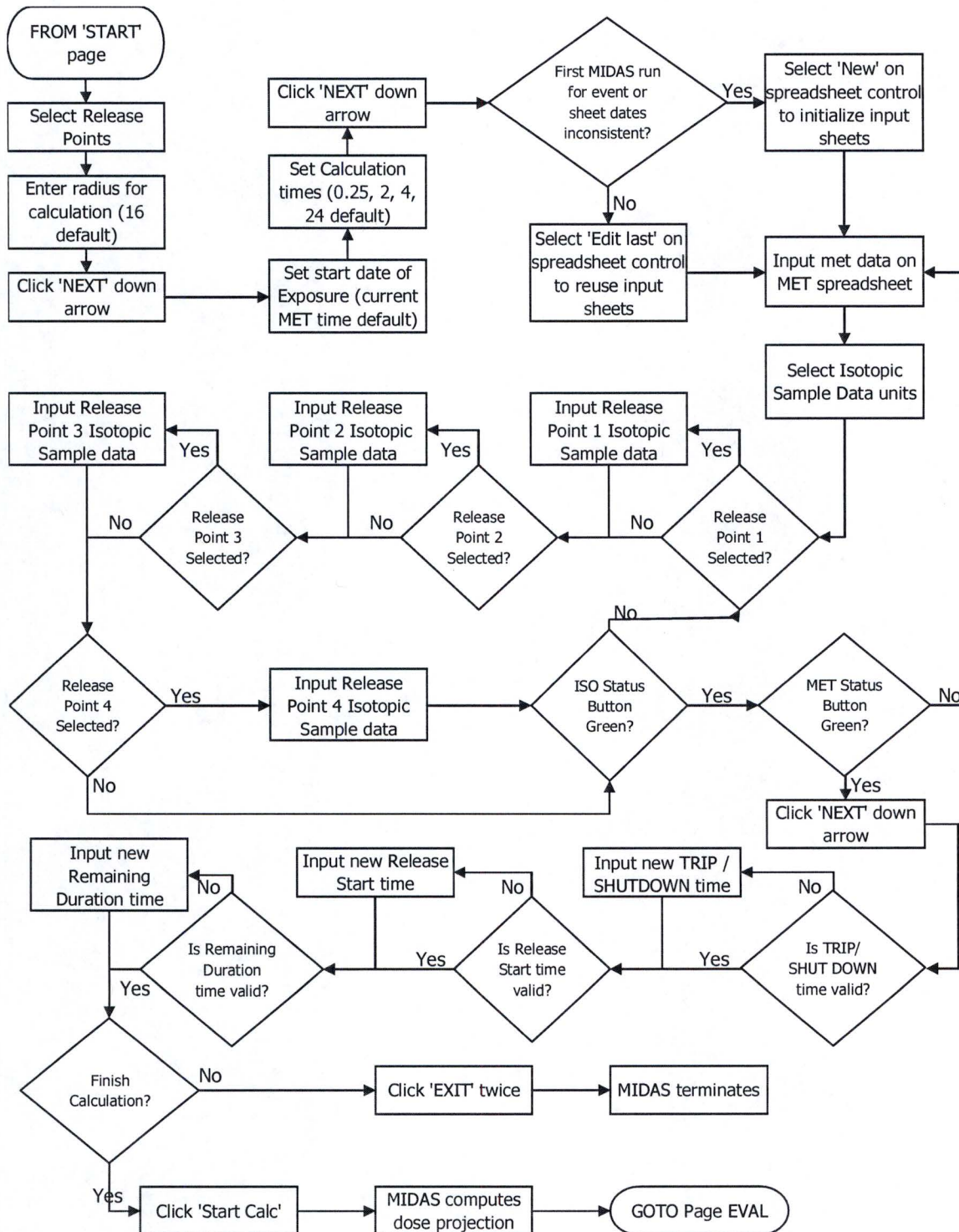
Page 11 of 16

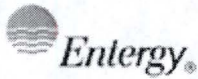




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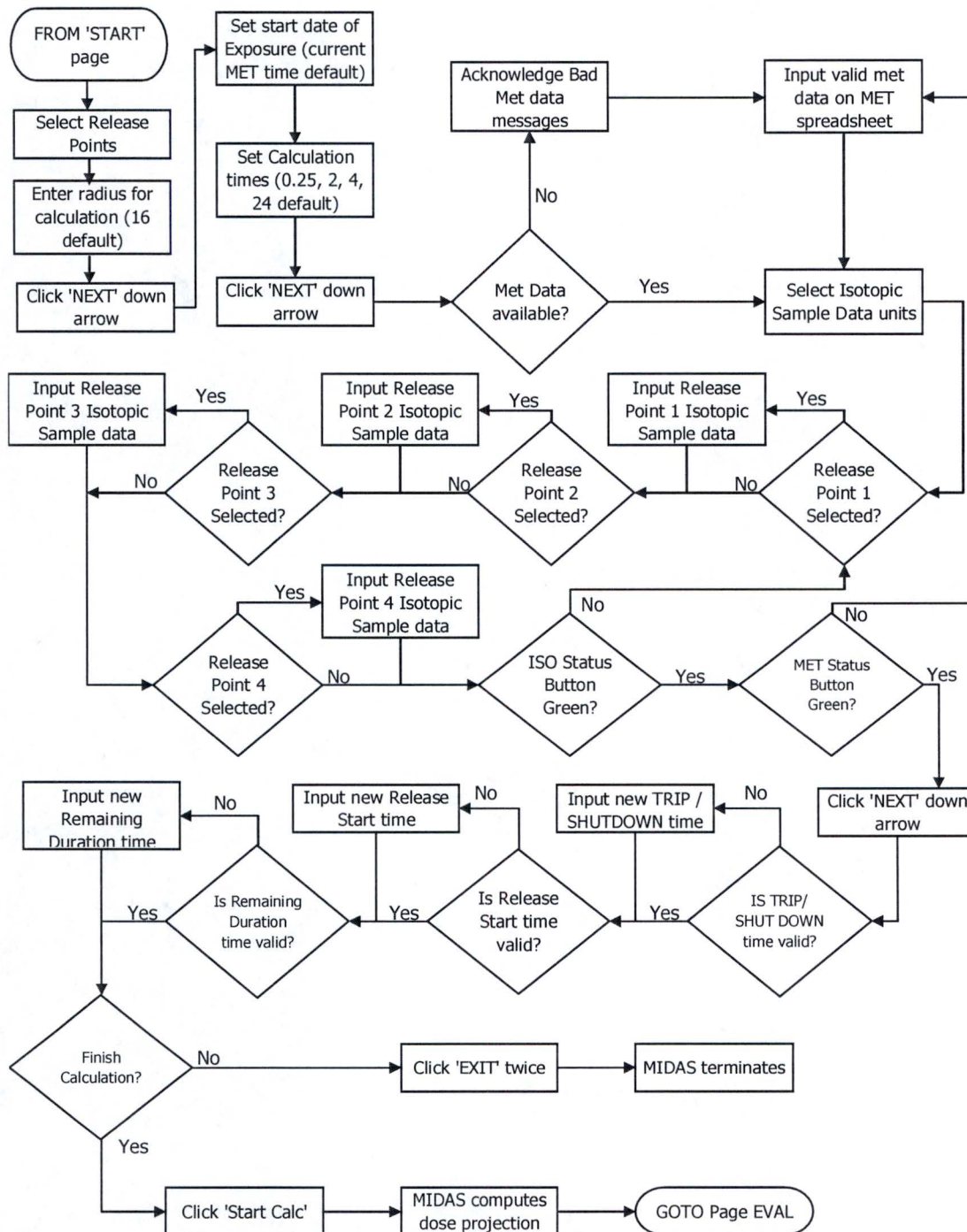
Page 12 of 16

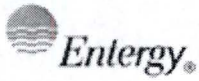




Attachment 9.2
Flow Charts Menu N

Page 13 of 16

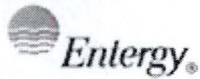




Attachment 9.2
Flow Charts Recap

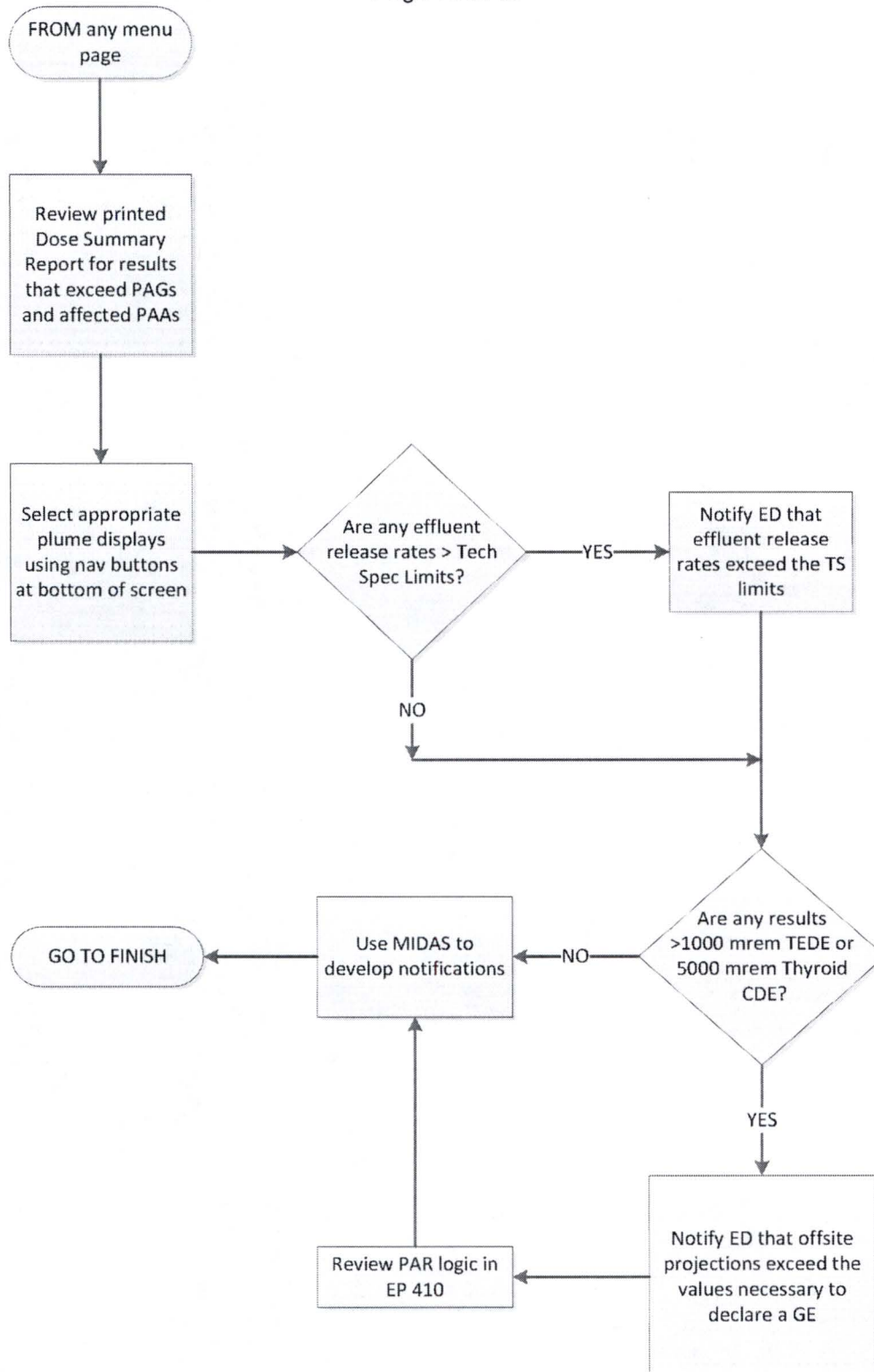
Page 14 of 16





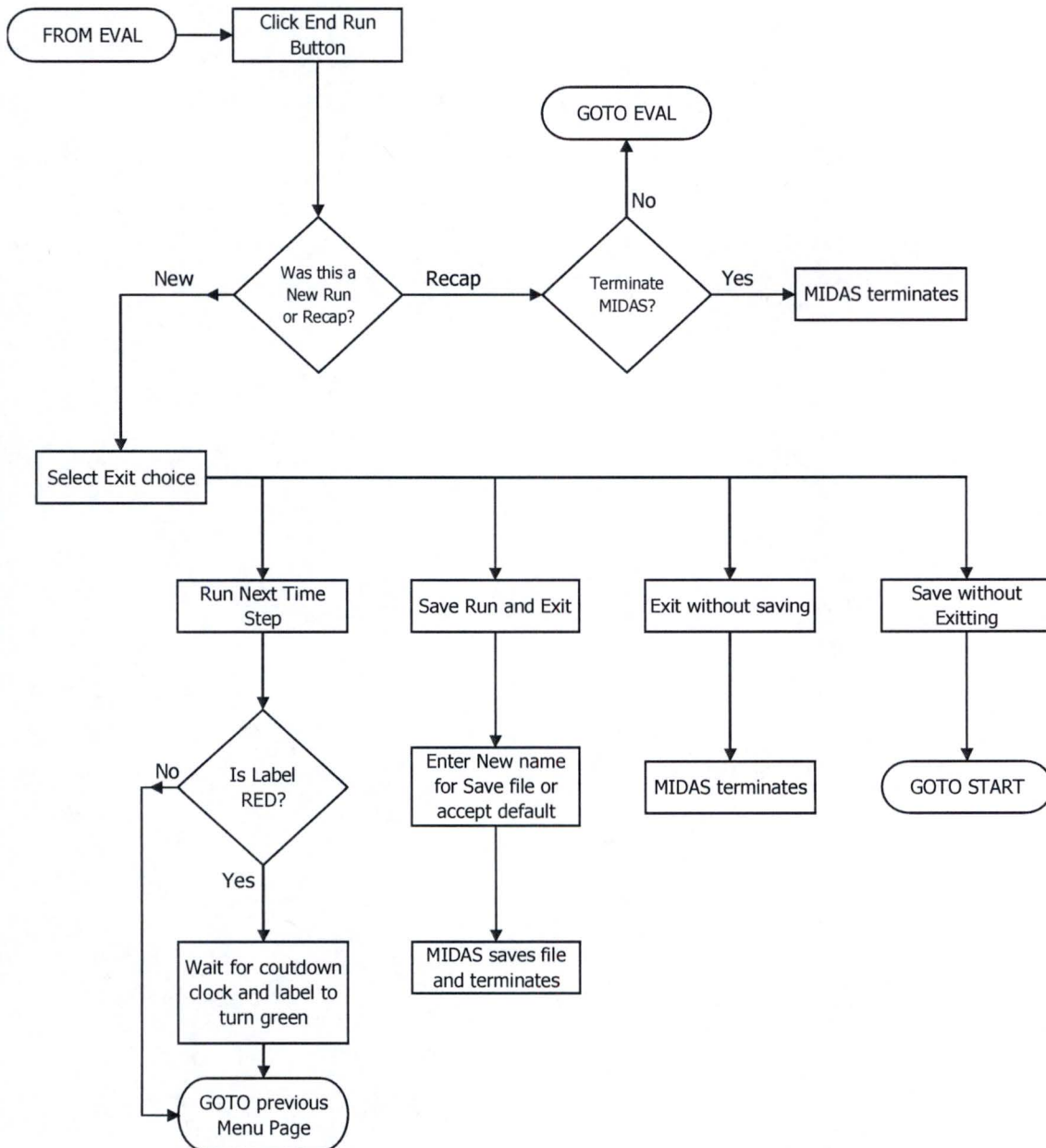
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Flow Charts Eval

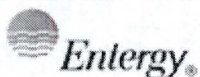
Page 15 of 16





Attachment 9.2
Flow Charts Finish
Page 16 of 16





**Attachment 9.3
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
R-45	uCi/cc	1	1.00E-07	1	CFM	0	100
R-25	R/hr	0	1.00E+01	1.00E+07	CFM	0	2000
R-26	R/hr	0	1.00E+01	1.00E+07	CFM	0	2000
R-28	Cpm	2.70E-03	1.00E+00	5.00E+06	MLB/HR	50	1.00E+06
R-29	Cpm	2.70E-03	1.00E+00	5.00E+06	MLB/HR	50	1.00E+06
R-30	Cpm	2.70E-03	1.00E+00	5.00E+06	MLB/HR	50	1.00E+06
R-31	Cpm	2.70E-03	1.00E+00	5.00E+06	MLB/HR	50	1.00E+06

Unit 3

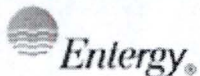
Monitor	Units	Conversion	Range low	Range hi	Flow units	Flow lo	Flow hi
R-14G	uCi/cc	1	1.00E-06	0.1	CFM	0	150000
R-27	uCi/sec	1	1.10E+01	1.00E+13	CFM	0	150000
R-15	uCi/cc	1	1.00E-06	1.00E+00	CFM	0	100
R-25	R/hr	0	1.00E+01	1.00E+08	CFM	0	2000
R-26	R/hr	0	1.00E+01	1.00E+08	CFM	0	2000
R62A	uCi/cc	1	1.00E-03	1.00E+03	MLB/HR	50	5.00E+06
R62B	uCi/cc	1	1.00E-03	1.00E+03	MLB/HR	50	5.00E+06
R62C	uCi/cc	1	1.00E-03	1.00E+03	MLB/HR	50	5.00E+06
R62D	uCi/cc	1	1.00E-03	1.00E+03	MLB/HR	50	5.00E+06

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
2 – condenser offgas	Ground
3 – steam dumps	Ground
4 – containment leakage	Ground



Attachment 9.4
Quick Guides for MIDAS Operation

Page 1 of 2
CCR –Auto G
(Used for Plant Vent Quick Dose)

- 1) Start MIDAS by double 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 CCR
- 5) Select Automatic
- 6) In the ‘Accident Run Menu Selection’ select: “AUTO QUICK DOSE PLANT VENT PROJECTION (MENU G)”
- 7) Click green OK button, bottom right

NOTE:

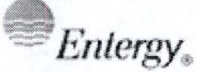
A warning message may be displayed that there is at least one good monitor, but NO data is available for a release point, this is because there is data missing for EITHER the station vent or condenser offgas. **IF** this message is displayed, **THEN** select OK to continue.

- 8) MIDAS will display a ‘Meteorological Edit’ Spreadsheet. DATA should be automatically populated. **IF** data is NOT present, **THEN** type in current displayed data from met tower display or other source. Click on green OK button.
- 9) **IF** data was changed, **THEN** click green YES on ‘data collection values control form’.

NOTE:

In Unit 2 plant vent flow rate must be manually entered as it is not automatically populated in the Rad Monitor & Flow Data Edit sheet. Data can be obtained from control room indications, MRPDAS, or other data source.

- 10) MIDAS will display a ‘Rad Monitor & Flow Data Edit’ sheet. DATA should be automatically populated. **IF** data is NOT present, **THEN** type in current displayed data from control room indications, MRPDAS or other data source. Click the green OK button.
- 11) **IF** data was changed **THEN** click the green YES on ‘data collection values control form’
- 12) A map of a plume plot will be displayed. There are many possible combinations of information that could be displayed. **IF** a different display is needed / desired, **THEN** use the toggle buttons at the bottom of the map to get the desired configuration. Click the purple CONFIRM button bottom to bring up the appropriate display.

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	<u>60</u> of <u>84</u>

Attachment 9.4
Quick Guides for MIDAS Operation

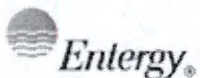
Page 2 of 2
CCR –Auto G
(Used for Plant Vent Quick Dose)

- 13) Click GRAY “SPECIAL REPORTS” button. It will turn green and the button below it will turn yellow.
- 14) 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”.
- 15) Click purple CONFIRM button.
- 16) Select “Part 2 Form Only” radio button.

NOTE:

Selecting “Yes, Emergency Director has Approved this report” indicates the Part 2 form will be approved by the Emergency Director. This allows population of the Part 2 form with the Emergency Director’s name to allow for electronic distribution.

- 17) A Part 2 input form will be displayed. Fill in appropriate areas of the form. Yellow highlighted areas are REQUIRED. Ensure time of trip matches the NYS Part 1 Form.
- 18) Click OK to generate a PDF for Emergency Director approval.
- 19) Obtain the Emergency Director’s approval of the Part 2. The form can be printed if required.
- 20) 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 page as directed by the Emergency Director.
- 21) Click on the window “X”, upper right, the MIDAS dose summary will be shown. Click on the window “X” to close the summary.
- 22) 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

CCR –Auto J

(Used for Steam Generator Tube Rupture Quick Dose)

- 1) Start MIDAS by double 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 CCR
- 5) Select Automatic
- 6) In the ‘Accident Run Menu Selection’ select: “AUTO QUICK DOSE SGTR (MENU J)”
- 7) Click green OK button, bottom right

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.

- 8) MIDAS will display a ‘Meteorological Edit’ Spreadsheet. DATA should be automatically populated. **IF** data is NOT present, **THEN** type in current displayed data from met tower display or other source.
- 9) Click on green OK button.
- 10) **IF** data was changed, **THEN** click green YES on ‘data collection values control form’.
- 11) MIDAS will display a ‘Rad Monitor & Flow Data Edit’ sheet. DATA should be automatically populated. **IF** radiation monitor (steam line) data is NOT present, **THEN** type in current displayed data from control room indications, MRPDAS or other data source.
- 12) Click on the flow box for corresponding (steam line) radiation monitor.

NOTE:

Safeties and Relief valves must be entered in whole numbers.

- 13) Click on the dropdown menu to receive a pop-up to determine steam flow.
 - a. Enter the appropriate number of safeties AND relief valves that are lifting.
 - b. Select whether the steam driven Aux Feed Pump is “ON” or “OFF” by clicking the OFF/ON toggle button.
 - c. Click OK
- 14) Ensure a steam release flow value is entered for the current time corresponding to the radiation monitor of interest.

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	62 of 84

Attachment 9.5
Quick Guides for MIDAS Operation

Page 2 of 2

CCR –Auto J

(Used for Steam Generator Tube Rupture Quick Dose)

NOTE:

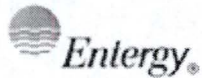
A warning message will be displayed if a steam flow value is not entered for the current time. IF this message is displayed, enter the appropriate steam flow inputs on the dropdown menu.

- 15) Click OK on the Rad Monitor & Flow Data Edit Spreadsheet
- 16) A map of a plume plot will be displayed. There are many possible combinations of information that could be displayed. **IF** a different display is needed / desired, **THEN** use the toggle buttons at the bottom of the map to get the desired configuration **AND** click the purple CONFIRM button bottom to bring up the appropriate display.
- 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”
- 19) Click the purple CONFIRM button.
- 20) Select “Part 2 Form Only” radio button.

NOTE:

Selecting “Yes, Emergency Director has Approved this report” indicates the Part 2 form will be approved by the Emergency Director. This allows population of the Part 2 form with the Emergency Director’s name to allow for electronic distribution.

- 21) A Part 2 input form will be displayed. Fill in appropriate areas of the form. Yellow highlighted areas are REQUIRED. Ensure time of trip matches the NYS Part 1 Form.
- 22) Click OK to generate a PDF for Emergency Director approval.
- 23) Obtain the Emergency Director’s approval of the Part 2. The form can be printed if required.
- 24) 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 page as directed by the Emergency Director.
- 25) Click on the window “X”, upper right, the MIDAS dose summary will be shown. Click on the window “X” to close the summary.
- 26) 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 4

EOF –Auto H

(For Steam Generator Tube Rupture)

- 1) Start MIDAS by double 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) In the 'Accident Run Menu Selection' select: "AUTO ENHANCED DOSE PROJECTION (MENU H)"
- 7) Click green OK button, bottom right
- 8) **IF** a popup appears asking "Do You Want to Change the Time of Trip and/or the Start of Release", **THEN**:
 - a. select "YES".
 - b. Click on the date and time in the 'Date, Time of Trip/Shutdown' box
 - c. Set time of Trip. Click OK
 - d. Click OK on the 'Start Up Trip and Release Dates' menu.
- 9) Un check Release Points 1 (Plant Vent) and 2 (CAEJ). STM Line should be the only release point selected
- 10) Click the gray "NEXT" button
- 11) Click the gray "NEXT" button

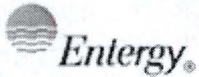
NOTE:

During the initial MIDAS Run, a warning message may be displayed stating "Warning – Mix Scenario File Must Be Initialized, Current Time Plus 24 hour dates are not in the file, Proceed with Initialization?" select "Yes" to continue.

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. Click OK to continue.

- 12) MIDAS will display a 'Meteorological Edit' Spreadsheet. Data should be automatically populated. **IF** data is NOT present, **THEN** type in current displayed data from met tower display or other source. Click on green OK button.



Attachment 9.6
Quick Guides for MIDAS Operation

Page 2 of 4

EOF –Auto H

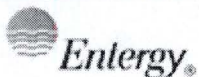
(For Steam Generator Tube Rupture)

- 13) **IF** data was changed, **THEN** click green YES on 'data collection values control form'.
- 14) MIDAS will display a 'Rad Monitor & Flow Data Edit' sheet. DATA should be automatically populated. **IF** radiation monitor data is NOT present, **THEN** type in current displayed data from control room indications, MRPDAS or other data source.
- 15) Click on the flow box for corresponding radiation monitor.

NOTE:

Safeties and Relief valves must be entered in whole numbers.

- 16) Click on the dropdown menu to receive a pop-up to determine steam flow.
 - a. Enter the appropriate number of Safeties and relief valves that are lifting.
 - b. Select whether the Aux Feed Pump is "ON" or "OFF" by clicking the OFF/ON toggle button.
 - c. Click OK
- 17) **IF** Release Start (Red Highlighted Time) is prior to Current Time (Blue Highlighted Time), **THEN** repeat step 16 until steam flow is populated for all times from release start to current time.
- 18) Click OK on the Rad Monitor & Flow Data Edit Spreadsheet
- 19) **IF** radiation monitor data was changed **THEN** click the green YES on 'data collection values control form'
- 20) 'Spreadsheet Control' pop-up will appear.
 - a. **IF** it is the first MIDAS calculation for the event, **THEN** select "New"
 - b. **IF** it is a subsequent run, **THEN** select "Edit Last"
 - c. Click OK
 - d. **IF** "New" was selected, **THEN** a popup will appear saying "You are about to Destroy Previously Entered Data!" Select OK
- 21) MIDAS will display a 'Mix Edit' spreadsheet. The data will **NOT** be automatically populated.
 - a. Select the pink event tree button to display a pop-up.
 - b. From the Accident Type dropdown menu, select "Steam Generator Tube Rupture"
 - c. From the Core Condition drop down menu select a core condition.
 - d. Click OK



Attachment 9.6
Quick Guides for MIDAS Operation

Page 3 of 4
EOF –Auto H

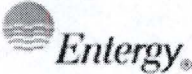
(For Steam Generator Tube Rupture)

- 22) **IF** Release Start (Red Highlighted Time) is prior to Current Time (Blue Highlighted Time), **THEN** use the Copy and Paste buttons to populate the Mix in all rows from release start to current time.
- 23) Select OK on the 'Mix Edit' spreadsheet
- 24) Click the gray "NEXT" button.
- 25) Verify the Date and Time of Shutdown and Start Date of Release are correct
 - a. **IF** the time of Release Start is incorrect, **THEN**:
 - i. Click on the date in the 'Start Date of Release box'
 - ii. Set to correct Date and Time
 - iii. Click OK
 - iv. A popup will appear saying "You have changed the Start of Release. You MUST ensure that applicable data exist for all time steps beginning with the new Start of Release by reviewing Met Status, RM/F Status, Mix Status, Time of Trip." Click OK.
 - b. **IF** the time of Shutdown is incorrect, **THEN**:
 - i. Click on the Date in the 'Date, Time of Trip/Shutdown' box
 - ii. Set the correct Date and Time
 - iii. Select OK
- 26) Select the "Start Calc" button.

NOTE:

IF data was collected since the start of the MIDAS run, **THEN** a popup will appear asking if you would like to continue with Current Data (Preferred Selection) or Restart with new data. Make a selection to continue.

- 27) A map of a plume plot will be displayed. There are many possible combinations of information that could be displayed. **IF** a different display is needed / desired, **THEN** use the toggle buttons at the bottom of the map to bring up the appropriate display and click the purple CONFIRM button bottom.
- 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".
- 30) Click purple CONFIRM button.
- 31) To complete ONLY a Part 2, select "Part 2 Only".

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	<u>66</u> of <u>84</u>

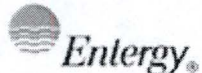
Attachment 9.6
Quick Guides for MIDAS Operation

Page 4 of 4
 EOF –Auto H
 (For Steam Generator Tube Rupture)

NOTE:

Selecting “Yes, Emergency Director has Approved this report” indicates the Part 2 form will be approved by the Emergency Director. This allows population of the Part 2 form with the Emergency Director’s name.

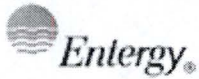
- 32) A Part 2 input form will be displayed. Fill in appropriate areas of the form. Yellow highlighted areas are REQUIRED.
- 33) Click OK to generate a PDF for Emergency Director approval.
- 34) Obtain the Emergency Director’s approval of the Part 2. The form can be printed if required.
- 35) The Part 2 can be emailed and/or faxed to locations, as directed by the Emergency Director, by clicking the “Fax NYS Form” and “Email NYS Form” buttons at the top of the page.
- 36) Click on the window “X”, upper right, the MIDAS dose summary will be shown. Click on the window “X” to close the summary.
- 37) 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 9.7
Quick Guides for MIDAS Operation

Page 1 of 3
EOF –Auto H

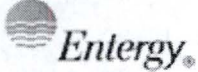
- 1) Start MIDAS by clicking on the “MIDAS Accident Calcs” ICON
- 2) MIDAS Accident Dose Calculation menu will display after a few seconds
- 3) Select/verify the correct UNIT, upper right
- 4) Select EOF
- 5) Select Automatic
- 6) Using the ‘Accident Run Menu Selection’ section Select: “AUTO ENHANCED 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 9.7
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.

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	<u>69</u> of <u>84</u>

Attachment 9.7
Quick Guides for MIDAS Operation

Page 3 of 3
 EOF –Auto H

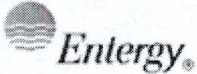
- 32) Click on the window "X", upper right, the MIDAS dose summary will be shown. Click on the window "X" to close the summary.
- 33) On the MIDAS plume display page, click "END RUN" bottom left, to terminate this run. This will allow closing MIDAS or running another calculation.



Attachment 9.8
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.

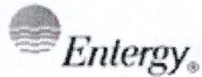
 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	<u>71</u> of <u>84</u>

Attachment 9.8
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 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) 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.

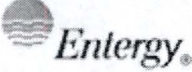


Attachment 9.9
Quick Guides for MIDAS Operation

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

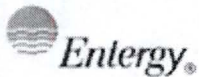
 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	73 of 84

Attachment 9.9
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 9.10
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).

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	<u>75</u> of <u>84</u>

Attachment 9.10
Quick Guides for MIDAS Operation

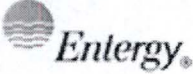
Page 2 of 3
EOF Multiple-Accident – AUTO

- 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.

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	76 of 84

Attachment 9.10
Quick Guides for MIDAS Operation

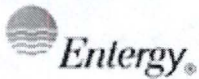
Page 3 of 3
EOF Multiple-Accident – AUTO

- 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 9.11
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.

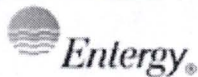
NOTE:

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 9.11
Quick Guides for MIDAS Operation

Page 2 of 3
CCR Multiple-Accident – AUTO

NOTE:

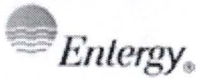
If you enter or change data in a spreadsheet, then a popup may appear asking if you would like to keep the changes that were made. Click the Green YES button to keep the data to be used in future calculations.

- 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.

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	<u>79</u> of <u>84</u>

Attachment 9.11
Quick Guides for MIDAS Operation

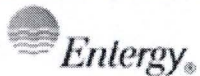
Page 3 of 3
CCR Multiple-Accident – AUTO

- 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.



**IPEC
EMERGENCY
PLAN
IMPLEMENTING
PROCEDURES**

**NON-QUALITY RELATED
PROCEDURE**

IP-EP- 340

Revision 6

REFERENCE USE

Page 80 of 84

**Attachment 9.12
Quick Guides for MIDAS Operation**

Page 1 of 5

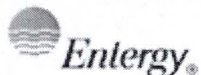
Part 1 Generator Guidance

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.

Radiological Emergency Data Form -Input VERSION 2

1	This is an <input type="text"/> At <input type="checkbox"/> IPEC SITE	Reactor Status	Reactor Shutdown Date
	Notification #: <input type="text"/>	<input type="checkbox"/> Unit 2 Unit 2 <input type="text"/>	12/09/17 16:22
	<input type="text"/> Enter unique notification number	<input type="checkbox"/> Unit 3 Unit 3 <input type="text"/>	12/09/17 16:22
2	EAL #: FG1.1	<input type="radio"/> Anticipated Release duration <1 hour	<input type="radio"/> Release duration >1 hour
	This Emergency Classification declared on: 12/09/17 16:22	Emergency Classification GENERAL EMERGENCY	
3	Brief Event Description:	Loss of 2 of 3 fission product barriers with actual or potential loss of the third barrier. Protective actions will be recommended for the public.	
4	<input type="radio"/> No Release to Atmosphere	<input checked="" type="radio"/> Release to Atmosphere of Radioactive Materials due to the Classified Event:	
	<input type="radio"/> No Release to Water	<input type="radio"/> Release to Water of Radioactive Materials due to the Classified Event:	
5	Is this an INITIAL PAR? <input type="radio"/> Yes <input checked="" type="radio"/> No	Has the PAR Changed since the last report? <input type="radio"/> Yes <input checked="" type="radio"/> No	
	Is this an Rapidly Progressing Severe Accident? <input type="radio"/> Yes <input checked="" type="radio"/> No		
6	PAR Determination		
	<input checked="" type="radio"/> Evacuate and implement KI Plan for the 2 mile radius and 2 to 5 miles downwind sectors (default)		
	<input type="radio"/> Evacuate and implement KI Plan for the 2 mile radius and 2 to 10 miles downwind sectors		
	<input type="radio"/> Do Not Expand PAR for current conditions		
	Previous PAR. Includes implementation of KI Plan		
	Select Additional or Previously Affected EVACUATION 2-5 mile sectors		
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
	Select Additional or Previously Affected EVACUATION 2-10 mile sectors		
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
	Select Additional or Previously Affected SHELTER-IN-PLACE 2-5 mile sectors		
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
	Select Additional or Previously Affected SHELTER-IN-PLACE 5-10 mile sectors		
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
7	Meteorological Data		
	Wind Direction <input type="text"/>	Wind Speed (m/s) <input type="text"/>	Stability Class <input type="text"/>
8	Reported By: <input type="text"/> at Telephone Number: <input type="text"/>		
	<input type="radio"/> Yes, Emergency Director has Approved this report <input type="radio"/> No Approval		
	EXIT OK		



Attachment 9.12
Quick Guides for MIDAS Operation

Page 2 of 5
Part 1 Generator Guidance

NOTE:

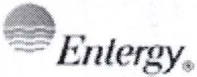
To the extent possible, the Part 1 form is intended to be filled out from top to bottom and left to right. Once the initial Part 1 form is generated, the form generator may be left open to complete subsequent Part 1 forms without filling out the entire form again. If the user has any questions in correctly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

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	82 of 84

Attachment 9.12
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 starting.
 - 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

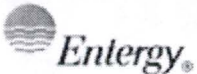
 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	<u>83</u> of <u>84</u>

Attachment 9.12
Quick Guides for MIDAS Operation

Page 4 of 5

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 RPSA have been met.
 - i. RPSA criteria are defined in IP-EP-410, Attachment 9.1.
 - 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.
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.

 IPEC EMERGENCY PLAN IMPLEMENTING PROCEDURES	NON-QUALITY RELATED PROCEDURE	IP-EP- 340	Revision 6
	REFERENCE USE	Page	<u>84</u> of <u>84</u>

Attachment 9.12
Quick Guides for MIDAS Operation

Page 5 of 5

Part 1 Generator Guidance

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.

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Page 1 of 2

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