

15992N

15992N

# CONTROLLED DOCUMENT TRANSMITTAL

Transmittal#: 15992N

Date: 01/15/2001

Initiator: RAYLEEN HART-WILSON

Page: 1

*50-315/316*

**Description:**

RE-ISSUE OF 1 PMP PROCEDURE, DUE TO TYPOGRAPHICAL ERROR ON ORIGINAL ISSUE. PROCEDURE IS BEING RE-ISSUED IN ITS ENTIRETY. PLEASE DISCARD COMPLETE DOCUMENT IN YOUR BOOKS AND REPLACE WITH ENTIRE DOCUMENT ATTACHED.

Distribution Group(s): **PMP-2080-EPP.108**

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TSC	1*	3C	Include 1C Index Only
Unit 1 Control Room	29*	2C	
Unit 2 Control Room	29*	2C	
Visitor Center	25	1C	

**Transmitted Controlled Document Listing: (1)**

Document	Revision	Status	Title
PMP-2080-EPP.108	003-CS1	Approved	INITIAL DOSE ASSESSMENT Comments: RE-ISSUE OF ENTIRE PROCEDURE ON 1/15/01, XMTL #15992N DUE TO TYPOGRAPHICAL ERROR.

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**REVIEW AND APPROVAL TRACKING FORM**

**Procedure Information:**  
 Number: PMP 2080 EPP.108 Revision: ~~3a~~ 3 Change: ~~OC~~ 1  
 Title: INITIAL DOSE ASSESSMENT 12/28/10  
R/G

**Category (Select One Only):**  
 Correction (Full Procedure)     Change (Full Procedure) with Review of Change Only  
 Correction (Page Substitution)     Change (Page Substitution) with Review of Change Only  
 Cancellation     New Procedure or Change with Full Review.  
 Superseded (list superseding procedures): \_\_\_\_\_

**Required Reviews:**

<b>Cross-Discipline Reviews:</b>		<b>Programmatic Reviews:</b>	
<input type="checkbox"/> Chemistry	<input type="checkbox"/> Training	<input type="checkbox"/> ALARA	<input type="checkbox"/> Performance Assurance
<input type="checkbox"/> Maintenance	<input type="checkbox"/> Work Control	<input type="checkbox"/> Bus. Services Proc Grp	<input type="checkbox"/> Reactivity Mgmt Team
<input type="checkbox"/> NDM	<input type="checkbox"/> _____	<input type="checkbox"/> Component Engineering	<input type="checkbox"/> Surveillance Section
<input type="checkbox"/> Operations	<input type="checkbox"/> _____	<input type="checkbox"/> Design Engineering	<input type="checkbox"/> System Engineering
<input type="checkbox"/> PA/PV	<input type="checkbox"/> _____	<input type="checkbox"/> Emerg Oper Proc Grp	<input type="checkbox"/> _____
<input type="checkbox"/> Reg Affairs	<input type="checkbox"/> _____	<input type="checkbox"/> Environmental	<input type="checkbox"/> _____
<input type="checkbox"/> RP	<input checked="" type="checkbox"/> None Required	<input type="checkbox"/> ISI/IST Coordinator	<input checked="" type="checkbox"/> None Required

Cognizant Org Review: \_\_\_\_\_ N/A \_\_\_\_\_ Date:   /  /    
 Technical Review: *Large Signature* Date: 1/2/01

**Concurrence:**  
 Ops Mgr Concurrence: \_\_\_\_\_ N/A \_\_\_\_\_ Date:   /  /    
 Owner Concurrence: \_\_\_\_\_ N/A \_\_\_\_\_ Date:   /  /  

**Package Check:**  
 Updated Revision Summary attached?  Yes  
 Safety Screening complete? SS/SE Tracking No.: \_\_\_\_\_  Yes  Exempt  N/A  
 Implementation Plan developed? (Ref. Step 3.4.16)  Yes  N/A  
 Package Complete: Jeff Smith *Jeff Smith* Date: 12/26/00

**Approvals:**  
 PORC Review Required:  Yes  No    Mtg. No.: \_\_\_\_\_  
 Administrative Hold Status:  Released  Reissued  N/A    CR No.: \_\_\_\_\_  
 Approval Authority Review/Approval: *Signature* Date: 1/3/01  
 Expiration Date/Ending Activity   N/A   Effective Date: 1/5/01

**Periodic Review:**  
 Periodic Review conducted? (Data Sheet 5 Complete)  Yes  No

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## REVISION SUMMARY

Number: PMP 2080 EPP.108 Revision: 3 Change: C1  
 Title: INITIAL DOSE ASSESSMENT

Section or Step	Change/Reason For Change
LOEP	Change: Correction; Added Revision number to LOEP <span style="float: right;">m</span> Reason: Procedure Correction
Attachment # 2 Page 1 of 3, Step: I A 1 a-c	Change: Updated telephone numbers to Murray & Trettle Meteorological Service. <span style="float: right;">m</span> Reason: New "Area Code" for their area
	Change: Reason:
	Change: Reason:

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**DONALD C. COOK NUCLEAR PLANT  
PLANT MANAGER PROCEDURE COVER SHEET**

**PROCEDURE USAGE LEVEL**

CONTINUOUS     REFERENCE     INFORMATION

Instruction No. PMP 2080 EPP.108
Revision No. 3

(✓ check one)

**TITLE**                      INITIAL DOSE ASSESSMENT

**SCOPE OF REVISION**

**REVISION 3:**

- Revised procedure to reflect the Plant Process Computer (PPC) upgrade in Unit 2.
- Added NOTE prior to Step 7.1.5
- Added Steps 7.1.16 and 7.1.17
- Deleted Section 7.2
- Revised Audinet Code in Att. #2 for calling Cook Plant.

SIGNATURES	REVISION NUMBER			
*****	REV. 3			
PREPARED BY	<i>Jeff Smith</i>			
QUALITY ASSURANCE SUPERINTENDENT APPROVAL	<i>Paul W. Weber</i>			
PLANT NUCLEAR SAFETY COMMITTEE	#2856			
PLANT MANAGER APPROVAL	<i>Alison</i>			
APPROVAL DATE	2-23-95			
EFFECTIVE DATE	2-28-95			

LIST OF EFFECTIVE PAGES

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Revision 3

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**ATTACHMENT NO. 1**

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**ATTACHMENT NO. 2**

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Revision 3

INDIANA MICHIGAN POWER COMPANY  
DONALD C. COOK NUCLEAR PLANT

INITIAL DOSE ASSESSMENT

1.0 OBJECTIVE

- 1.1 To provide the Site Emergency Coordinator with a method to initially assess potential off-site dose effects of unplanned radioactive releases.

2.0 REFERENCES

- 2.1 Letter from D. Fitzgerald-Stuart to M. A. Glissman dated October 1, 1984, Meteorological Data from Murray & Trettle.
- 2.2 Letter from L. M. Bounds to K. J. Toth dated March 10, 1989, PMP 2081 EPP.305, Protective Action Recommendation, Change Sheet No. 1 50.59 Review.
- 2.3 Letter from K. J. Toth to B. A. Svensson and R. S. Krieger, Jr. dated March 21, 1989, PMP 2081 EPP.305, Protective Action Recommendation, Change Sheet No. 1 50.59 Review.
- 2.4 American Electric Power Service Corporation User Manual for the PC version of Dose Assessment Program (DAP), Rev. 2, dated August, 1989.
- 2.5 PMP 2081 EPP.107, Alternate Release Level Determination.

3.0 RESPONSIBILITIES

- 3.1 The Shift Supervisor, acting as the Site Emergency Coordinator, is responsible for the implementation of this procedure upon an actual unplanned radioactive release. This includes determining release rates and carrying out initial off-site dose calculations.

4.0 LIMITATIONS/PRECAUTIONS

- 4.1 Dose calculations resulting from the implementation of this procedure are predictions and should be verified by actual field measurement if time permits.
- 4.2 Airborne dose projections are dependent upon weather conditions and source term. Therefore, a change in any parameter requires a review and probably recomputation of the dose projections.

## 5.0 INITIAL CONDITIONS

- 5.1 An unplanned release of radioactive material is occurring and the Technical Support Center (TSC) and Emergency Operations Facility (EOF) are not activated.
- 5.2 When working in MIDAS, the Caps Lock must be used (MIDAS only recognizes capital letters).

## 6.0 SUPPLEMENTALS

- 6.1 Attachment No. 1, Obtaining Access to the Dose Assessment Program (DAP Program) and Meteorological Data in the TSC.
- 6.2 Attachment No. 2, Obtaining Meteorological Data by Alternate Means When Not Available from MIDAS Terminal(s).

## 7.0 INSTRUCTIONS

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### NOTE

Dose assessment calculations may be made and meteorological data can be obtained from either Control Room. If neither are available, gain access to the DAP PC and MIDAS terminal in the TSC and perform Attachment No. 1.

---

## 7.1 DOSE ASSESSMENT OPERATION

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### NOTE

If Meteorological Data is not available from the PPC or the TSC MIDAS terminal, perform Attachment No. 2, to obtain data from alternate sources.

---

- 7.1.1 From PPC-5 or PPC-6, ensure Microsoft Windows is running. If not, type "WIN" at the DOS prompt.
- 7.1.2 From the Program Manager, open the Cook Operating Task Folder.
- 7.1.3 Double click the left mouse button on the "UNIT 1 PPC" or "UNIT 2 PPC" icon to start the PPC program.
- 7.1.4 Select ER from the Main Menu.

---

**NOTE**

Meteorological Instrumentation should be used in the following order of priority:

1. 10 Meter Main
2. 10 Meter Backup
3. 60 Meter Main

---

7.1.5 Select Dose Assessment from the Emergency Response (ER) menu.

7.1.6 Print out this screen by simultaneously depressing both "SHIFT" keys or write down the following data:

- Appropriate RMS Channel readings
- Release flow rate
- Wind speed
- Wind Direction
- Delta ( $\Delta$ ) Temperature
- Precipitation

7.1.7 Return to the Cook Operations Tasks window.

---

**NOTE**

DAP generated PAR determinations consider only radiological conditions and do not include reactor core or coolant system status considerations.

Additional information for the program data prompts is provided in the DAP Manual by finding the screen in question in the DAP manual. The screen identifier is located in the lower right hand corner of the screen. The DAP manual is located in the Control Room.

---

7.1.8 Double click the left mouse button on the DAP Icon, to start the Dose Assessment Program.



7.1.9 The following DAP entry screen or equivalent will appear:

```

                                WELCOME TO
                                AMERICAN ELECTRIC POWER SERVICE CORPORATION
                                NUCLEAR RADIOLOGICAL SUPPORT
                                DOSE ASSESSMENT PROGRAM

DDDDDDDD                      A                                P P P P P P P P
D      D                      A  A                            P      P
D      D                      A  A                            P      P
D      D                      A  A                            P      P
D      D                      A  A                            P P P P P P P
D      D                      A  A                            P
DDDDDDDD                      A                                P

ENTER-continue                revision 5.1
```

**NOTE**

The program is now ready for use. Since DAP is an interactive program, it provides the user with a series of requests for information in order to evaluate the effluent of interest.

If a gaseous release from the auxiliary building is indicated on the same channel of both unit vent monitors, use Attachment 3 to determine the combined monitor reading and flow for the DAP program.

7.1.10 Press "ENTER"

---

NOTE

To toggle between DAP and ER, click on the desired window to bring it to the foreground.

---

7.1.11 The following menu or equivalent will appear:

```
*----- DAP Main Menu -----*
Select a Function ===>

1. Gaseous Release                A. Input "Additional Data" for
2. Liquid Release                 Output Report
3. Field Data                     R. Review Previous Output Report
4. Spent Fuel Accident            P. Produce PAR Report
5. Containment Loss of Coolant    Q. Review Previous PAR Report
                                   X. End

Do you want PAR analysis? ===>

ENTER - continue
pf3 - end
```

---

NOTE

If Radiation Data cannot be obtained from the Eberline Control Terminal or Plant Process Computer (PPC), refer to PMP 2081 EPP.107.

---

7.1.12 Select "Release Type" from items 1 through 5

7.1.13 Enter "Y" after question "Do you want PAR analysis"

7.1.14 Press "ENTER".

---

**NOTE**

Data on meteorological conditions, radiation monitor readings, time of reactor shutdown, duration of release, effluent flow rates, and type of accident must be provided. This data will be used to calculate dose rates at the site boundary, 2 mile, 5 mile, and 10 mile distances downwind of the release. Integrated doses can also be calculated for the event.

---

- 7.1.15 Provide data requested by the program prompts.
- 7.1.16 Ensure the correct RMS Channel is used by comparing the reading to the RMS Channel Range on the Gas Monitor Menu.
- 7.1.17 If a release path exists through the same path in both Units, use the following formulas to determine monitor readings and release flow rates:

$$\frac{(\text{Monitor 1} \times \text{Flow 1}) + (\text{Monitor 2} \times \text{Flow 2})}{\text{Flow 1} + \text{Flow 2}} = \begin{array}{l} \text{Monitor Reading} \\ \text{For} \\ \text{DAP Program} \end{array}$$

$$\text{Flow 1} + \text{Flow 2} = \text{Flow for DAP Program}$$

**CAUTION**

MOST DAP DATA IS STORED FOR USE IN SUBSEQUENT REPORTS.  
GREAT CARE SHOULD BE TAKEN TO CHECK ALL DATA FOR CHANGES  
WHEN MAKING 15 MINUTE UPDATES.

- 7.1.18 When asked if additional information is to be provided, enter "Y" if desired and provide additional data as requested by the program prompts.

---

**NOTE**

Program results will be printed out at the end of each run as the State of Michigan Nuclear Plant Accident Notification Form.

---

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**NOTE**

The DAP Report will only print to the Control Room Laser Jet Printer if no one is logged onto the network at that terminal or if their default print queue is LPT1. It is advisable to print a hard copy of the PAR Report, due to the quick non-stop screen scroll action.

---

- 7.1.19 If a hard copy of the DAP output is desired, send the output to the PC printer.
  - 7.1.20 If additional calculations are required or conditions change, return to Step 7.1.11 to enter new information.
  - 7.1.21 When the program is no longer needed, exit by performing one of the following, as applicable:
    - Enter "X" from the DAP Main Menu.
- OR
- Press PF3 to exit from anywhere in the program.

**OBTAINING ACCESS TO THE DAP PROGRAM AND METEOROLOGICAL  
DATA IN THE TSC**

- 1.0 To access meteorological data from the MIDAS terminal in the TSC perform the following:
  - 1.1 Locate the Tektronics 4208 MIDAS terminal on the table against the north wall of the TSC Communication Room.
  - 1.2 If the power is off, press the power button located on the lower right hand corner of the terminal.
  - 1.3 Press the CAPS LOCK button and press the RETURN button.
  - 1.4 Type "CR1" or "TSC" and press the RETURN button.
  - 1.5 Type "RA" and press the RETURN button. Current meteorological data will then be displayed on the screen for subsequent use in the DAP program when prompted.
- 2.0 To access the DAP program on the DAP PC in the TSC, perform the following:
  - 2.1 Locate the DAP PC on the table against the north wall of the TSC Communication Room.
  - 2.2 Turn on the DAP personal computer by turning on the main computer switch. All other components will automatically turn on.
  - 2.3 If all components do not turn on, turn them on individually.

---

**NOTE**

If the screen shown in step 2.4 does not appear and the user is in DOS, type "DAP" and "ENTER" to call up the program.

---

- 2.4 The following screen or equivalent will automatically appear when the computer is turned on:

```

                                WELCOME TO
                                AMERICAN ELECTRIC POWER SERVICE CORPORATION
                                NUCLEAR RADIOLOGICAL SUPPORT
                                DOSE ASSESSMENT PROGRAM

DDDDDDDD                      A
D      D                      A  A
D      D      D              A  A  A
D      D      D      D      A  A  A
D      D      D      D      A  A  A
DDDDDDDD                      A

                                AAAAAAAAAAAAAA
                                A              A

PPPPPPPP                      P
P      P                      P  P
P      P      P              P  P
P      P      P      P      P  P
PPPPPPPP                      P
P
P

ENTER-continue                revision 5.1
```

- 2.5 Return to the "NOTE" prior to Step 7.1.10 in the body of the procedure.

OBTAINING METEOROLOGICAL DATA BY ALTERNATE MEANS WHEN NOT  
AVAILABLE FROM MIDAS TERMINAL(S)

METEOROLOGICAL DATA SOURCE	SECTION NO.
• Obtaining Meteorological Data from Murray & Trettle	I
• Pasquill Category Determination	II

**NOTE**

We are contracted with Murray and Trettle to obtain meteorological information only once per hour. Therefore they should only be used if meteorological computer data is not available and environmental conditions do not permit manually accessing meteorological tower data.

If using Murray and Trettle meteorological data, ensure you receive Pasquill Category from them since our Pasquill Category Tables are not applicable to theirs due to different tower heights.

**I. METEOROLOGICAL INFORMATION FROM MURRAY & TRETTLER**

- A. Real-Time Meteorological Data (e.g., wind speed, wind direction, precipitation and stability class).
1. Call the following phone number(s) (In the order listed) and request to speak to the "Nuclear Emergency Forecaster". The caller should identify him/herself as being from the Cook Nuclear Plant, then the specific data being requested.
    - a. 847/446-7800
    - b. 773/273-5600
    - c. 847/446-7834
  2. Wind speed, wind direction, Pasquill category, and delta t should be requested. It is important to verify that wind speed is in miles per hour, since it may be given in knots. Pasquill category should be requested by letter rather than number. Make sure delta t is given in degrees Fahrenheit.
  3. We are contracted to obtain information from Murray & Trettle only once per hour. They can be contacted for forecasted data during the course of an event, but for current data, our own meteorological tower should be used, if available.
- B. Forecasted Meteorological Data
1. Murray & Trettle can give forecasted data on wind speed, wind direction, precipitation and stability class. To obtain this information, follow the steps outlined in A, above.
  2. To obtain a generalized forecast from the National Oceanic and Atmosphere Administration (NOAA), dial the following phone numbers:
    - a. From the TSC, dial extension 1008.
    - b. From the EOF, dial extension 1008.
    - c. Use weather radio in EOF or TSC.

II. PASQUILL CATEGORY DETERMINATION

A. To determine the Pasquill Category using  $\Delta T$  information, use the following guidelines:

"DELTA T" AND ASSOCIATED PASQUILL CATEGORY

DELTA T (°F) (Z = 50M)	PASQUILL CATEGORY	DELTA T (°C) (Z = 50 M)
$\Delta T \leq -1.8$	A	$\Delta T \leq -1.0$
$-1.8 < \Delta T \leq -1.6$	B	$-1.0 < \Delta T \leq -.9$
$-1.6 < \Delta T \leq -1.4$	C	$-.9 < \Delta T \leq -.8$
$-1.4 < \Delta T \leq -0.5$	D	$-.8 < \Delta T \leq -.3$
$-0.5 < \Delta T \leq 1.3$	E	$-.3 < \Delta T \leq .7$
$1.3 < \Delta T \leq 3.6$	F	$.7 < \Delta T \leq 2.0$
$3.6 < \Delta T$	G	$2.0 < \Delta T$

B. If  $\Delta T$  data is unavailable from the meteorological computer or the main tower manually, the Pasquill Category may be found by using the standard deviation of the horizontal wind direction as displayed on the meteorological terminal (see Section I.B of this attachment) and the following guide:

STANDARD DEVIATION OF HORIZONTAL WIND DIRECTION (STD)	PASQUILL CATEGORY
$STD > 22.5$	A
$22.5 > STD > 17.5$	B
$17.5 > STD > 12.5$	C
$12.5 > STD > 7.5$	D
$7.5 > STD > 3.8$	E
$3.8 > STD > 2.1$	F
$2.1 > STD$	G

c. If  $\Delta T$  data or the horizontal wind direction standard deviation data are not available, the Pasquill Category may be estimated using the following guide.



The atmospheric stability is divided into seven categories, A through G, with A being the most unstable and G being the most stable. The proper category is selected from the table below by using the wind speed at a height of about 10 meters and, during the day, the incoming solar radiation or, during the night, the cloud cover. The neutral class, D, can be assumed for overcast conditions during day or night, regardless of wind speed.

SURFACE WIND SPEED (AT 10 METERS)		DAY			NIGHT (2) THINLY OVERCAST	
		INCOMING SOLAR RADIATION (1)			OR $\geq 4/8$	$\leq 3/8$
m/s	mph	Strong	Moderate	Slight	Low Cloud*	Cloud*
< 2	< 5	A	A - B	B	--	--
2 - 3	5 - 7	A - B	B	C	E	F
3 - 5	7 - 11	B	B - C	C	D	E
5 - 6	11 - 13	C	C - D	D	D	D
> 6	13	C	D	D	D	D

- (1) Strong solar radiation -- sun high in sky ( $> 60^\circ$  with horizontal) clear skies. Slight solar radiation -- sun low in sky between  $15^\circ$  and  $35^\circ$  clear skies. Strong radiation cut to moderate with  $5/8$  to  $7/8$  cloud cover of middle clouds and to slight with  $5/8$  to  $7/8$  cloud cover of low clouds.
- (2) Night refers to period from one hour before sunset to one hour after sunrise.
  - The degree of cloudiness is defined as that fraction of the sky above the local apparent horizon which is covered by clouds.

## REVIEW AND APPROVAL TRACKING FORM

<b>Procedure Information:</b>		
Number: <u>PMP 2080 EPP.108</u>	Revision: <u>3a-3</u>	Change: <u>OC1</u>
Title: <u>INITIAL DOSE ASSESSMENT</u>	<i>Disc 12/28/10</i>	<i>12/28/10 R/CW</i>

<b>Category (Select One Only):</b>	
<input type="checkbox"/> Correction (Full Procedure)	<input type="checkbox"/> Change (Full Procedure) with Review of Change Only
<input checked="" type="checkbox"/> Correction (Page Substitution)	<input type="checkbox"/> Change (Page Substitution) with Review of Change Only
<input type="checkbox"/> Cancellation	<input type="checkbox"/> New Procedure or Change with Full Review.
<input type="checkbox"/> Superseded (list superseding procedures): _____	

<b>Required Reviews:</b>			
<b>Cross-Discipline Reviews:</b>		<b>Programmatic Reviews:</b>	
<input type="checkbox"/> Chemistry	<input type="checkbox"/> Training	<input type="checkbox"/> ALARA	<input type="checkbox"/> Performance Assurance
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<input type="checkbox"/> Reg Affairs	<input type="checkbox"/> _____	<input type="checkbox"/> Environmental	<input type="checkbox"/> _____
<input type="checkbox"/> RP	<input checked="" type="checkbox"/> None Required	<input type="checkbox"/> ISI/IST Coordinator	<input checked="" type="checkbox"/> None Required
<input type="checkbox"/> Cognizant Org Review: _____ N/A _____ Date: ___/___/___		<input checked="" type="checkbox"/> Technical Review: <u>Larry Smith</u> Date: <u>1/2/01</u>	

<b>Concurrence:</b>			
<input type="checkbox"/> Ops Mgr Concurrence:	_____ N/A _____	Date:	___/___/___
<input type="checkbox"/> Owner Concurrence:	_____ N/A _____	Date:	___/___/___

<b>Package Check:</b>			
Updated Revision Summary attached?		<input checked="" type="checkbox"/> Yes	
Safety Screening complete?	SS/SE Tracking No.: _____	<input type="checkbox"/> Yes	<input type="checkbox"/> Exempt <input checked="" type="checkbox"/> N/A
Implementation Plan developed?	(Ref. Step 3.4.16)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> N/A
Package Complete:	<u>Jeff Smith</u> <u>Jeff Smith</u>	Date:	<u>12/26/00</u>

<b>Approvals:</b>			
PORC Review Required:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Mtg. No.: _____	
Administrative Hold Status:	<input type="checkbox"/> Released <input type="checkbox"/> Reissued <input checked="" type="checkbox"/> N/A	CR No.: _____	
Approval Authority Review/Approval:	<u>Sam Hill</u>	Date:	<u>1/3/01</u>
Expiration Date/Ending Activity	_____ N/A _____	Effective Date:	<u>1/5/01</u>

<b>Periodic Review:</b>			
Periodic Review conducted?	(Data Sheet 5 Complete)	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

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## REVISION SUMMARY

Number: PMP 2080 EPP.108 Revision: 3 Change: C1  
 Title: INITIAL DOSE ASSESSMENT

Section or Step	Change/Reason For Change
LOEP	Change: Correction; Added Revision number to LOEP <span style="float: right;">m</span> Reason: Procedure Correction
Attachment # 2 Page 1 of 3, Step: I A 1 a-c	Change: Updated telephone numbers to Murray & Trettle Meteorological Service. <span style="float: right;">m</span> Reason: New "Area Code" for their area
	Change: Reason:
	Change: Reason:

**Office Information For Form Tracking Only – Not Part of Form**

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**DONALD C. COOK NUCLEAR PLANT  
PLANT MANAGER PROCEDURE COVER SHEET**

**PROCEDURE USAGE LEVEL**

CONTINUOUS     REFERENCE     INFORMATION

Instruction No. PMP 2080 EPP.108

Revision No. 3

( check one)  
TITLE INITIAL DOSE ASSESSMENT

**SCOPE OF REVISION**

- REVISION 3:
- Revised procedure to reflect the Plant Process Computer (PPC) upgrade in Unit 2.
  - Added NOTE prior to Step 7.1.5
  - Added Steps 7.1.16 and 7.1.17
  - Deleted Section 7.2
  - Revised Audinet Code in Att. #2 for calling Cook Plant.

SIGNATURES	REVISION NUMBER			
*****	REV. 3			
PREPARED BY	<i>Jeff Smith</i>			
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PLANT NUCLEAR SAFETY COMMITTEE	#2856			
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APPROVAL DATE	2-23-95			
EFFECTIVE DATE	2-28-95			

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INDIANA MICHIGAN POWER COMPANY  
DONALD C. COOK NUCLEAR PLANT

INITIAL DOSE ASSESSMENT

1.0 OBJECTIVE

- 1.1 To provide the Site Emergency Coordinator with a method to initially assess potential off-site dose effects of unplanned radioactive releases.

2.0 REFERENCES

- 2.1 Letter from D. Fitzgerald-Stuart to M. A. Glissman dated October 1, 1984, Meteorological Data from Murray & Trettle.
- 2.2 Letter from L. M. Bounds to K. J. Toth dated March 10, 1989, PMP 2081 EPP.305, Protective Action Recommendation, Change Sheet No. 1 50.59 Review.
- 2.3 Letter from K. J. Toth to B. A. Svensson and R. S. Krieger, Jr. dated March 21, 1989, PMP 2081 EPP.305, Protective Action Recommendation, Change Sheet No. 1 50.59 Review.
- 2.4 American Electric Power Service Corporation User Manual for the PC version of Dose Assessment Program (DAP), Rev. 2, dated August, 1989.
- 2.5 PMP 2081 EPP.107, Alternate Release Level Determination.

3.0 RESPONSIBILITIES

- 3.1 The Shift Supervisor, acting as the Site Emergency Coordinator, is responsible for the implementation of this procedure upon an actual unplanned radioactive release. This includes determining release rates and carrying out initial off-site dose calculations.

4.0 LIMITATIONS/PRECAUTIONS

- 4.1 Dose calculations resulting from the implementation of this procedure are predictions and should be verified by actual field measurement if time permits.
- 4.2 Airborne dose projections are dependent upon weather conditions and source term. Therefore, a change in any parameter requires a review and probably recomputation of the dose projections.

## 5.0 INITIAL CONDITIONS

- 5.1 An unplanned release of radioactive material is occurring and the Technical Support Center (TSC) and Emergency Operations Facility (EOF) are not activated.
- 5.2 When working in MIDAS, the Caps Lock must be used (MIDAS only recognizes capital letters).

## 6.0 SUPPLEMENTALS

- 6.1 Attachment No. 1, Obtaining Access to the Dose Assessment Program (DAP Program) and Meteorological Data in the TSC.
- 6.2 Attachment No. 2, Obtaining Meteorological Data by Alternate Means When Not Available from MIDAS Terminal(s).

## 7.0 INSTRUCTIONS

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### NOTE

Dose assessment calculations may be made and meteorological data can be obtained from either Control Room. If neither are available, gain access to the DAP PC and MIDAS terminal in the TSC and perform Attachment No. 1.

---

## 7.1 DOSE ASSESSMENT OPERATION

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### NOTE

If Meteorological Data is not available from the PPC or the TSC MIDAS terminal, perform Attachment No. 2, to obtain data from alternate sources.

---

- 7.1.1 From PPC-5 or PPC-6, ensure Microsoft Windows is running. If not, type "WIN" at the DOS prompt.
- 7.1.2 From the Program Manager, open the Cook Operating Task Folder.
- 7.1.3 Double click the left mouse button on the "UNIT 1 PPC" or "UNIT 2 PPC" icon to start the PPC program.
- 7.1.4 Select ER from the Main Menu.

---

**NOTE**

Meteorological Instrumentation should be used in the following order of priority:

1. 10 Meter Main
  2. 10 Meter Backup
  3. 60 Meter Main
- 

7.1.5 Select Dose Assessment from the Emergency Response (ER) menu.

7.1.6 Print out this screen by simultaneously depressing both "SHIFT" keys or write down the following data:

- Appropriate RMS Channel readings
- Release flow rate
- Wind speed
- Wind Direction
- Delta ( $\Delta$ ) Temperature
- Precipitation

7.1.7 Return to the Cook Operations Tasks window.

---

**NOTE**

DAP generated PAR determinations consider only radiological conditions and do not include reactor core or coolant system status considerations.

Additional information for the program data prompts is provided in the DAP Manual by finding the screen in question in the DAP manual. The screen identifier is located in the lower right hand corner of the screen. The DAP manual is located in the Control Room.

---

7.1.8 Double click the left mouse button on the DAP Icon, to start the Dose Assessment Program.



7.1.9 The following DAP entry screen or equivalent will appear:

```

                                WELCOME TO
                            AMERICAN ELECTRIC POWER SERVICE CORPORATION
                            NUCLEAR RADIOLOGICAL SUPPORT
                            DOSE ASSESSMENT PROGRAM

    DDDDDDDD                 A
    D          D             A  A
    D          D             A  A
    D          D             A  A
    D          D             A  A
    D          D             A  A
    D          D             A  A
    DDDDDDDD                 A

                                AAAAAAAAAAAAA
                                A          A

                                P P P P P P P
                                P          P
                                P          P
                                P          P
                                P P P P P P P
                                P
                                P

    ENTER-continue                      revision 5.1
  
```

**NOTE**

The program is now ready for use. Since DAP is an interactive program, it provides the user with a series of requests for information in order to evaluate the effluent of interest.

If a gaseous release from the auxiliary building is indicated on the same channel of both unit vent monitors, use Attachment 3 to determine the combined monitor reading and flow for the DAP program.

7.1.10 Press "ENTER"

---

NOTE

To toggle between DAP and ER, click on the desired window to bring it to the foreground.

---

7.1.11 The following menu or equivalent will appear:

```
*----- DAP Main Menu -----*
Select a Function ===>

1. Gaseous Release
2. Liquid Release
3. Field Data
4. Spent Fuel Accident
5. Containment Loss of Coolant

A. Input "Additional Data" for
   Output Report
R. Review Previous Output Report
P. Produce PAR Report
Q. Review Previous PAR Report
X. End

Do you want PAR analysis? ===>

ENTER - continue
pf3 - end
```

---

NOTE

If Radiation Data cannot be obtained from the Eberline Control Terminal or Plant Process Computer (PPC), refer to PMP 2081 EPP.107.

---

7.1.12 Select "Release Type" from items 1 through 5

7.1.13 Enter "Y" after question "Do you want PAR analysis"

7.1.14 Press "ENTER".

**NOTE**

Data on meteorological conditions, radiation monitor readings, time of reactor shutdown, duration of release, effluent flow rates, and type of accident must be provided. This data will be used to calculate dose rates at the site boundary, 2 mile, 5 mile, and 10 mile distances downwind of the release. Integrated doses can also be calculated for the event.

- 7.1.15 Provide data requested by the program prompts.
- 7.1.16 Ensure the correct RMS Channel is used by comparing the reading to the RMS Channel Range on the Gas Monitor Menu.
- 7.1.17 If a release path exists through the same path in both Units, use the following formulas to determine monitor readings and release flow rates:

$$\frac{(\text{Monitor 1} \times \text{Flow 1}) + (\text{Monitor 2} \times \text{Flow 2})}{\text{Flow 1} + \text{Flow 2}} = \text{Monitor Reading For DAP Program}$$

$$\text{Flow 1} + \text{Flow 2} = \text{Flow for DAP Program}$$

**CAUTION**

MOST DAP DATA IS STORED FOR USE IN SUBSEQUENT REPORTS. GREAT CARE SHOULD BE TAKEN TO CHECK ALL DATA FOR CHANGES WHEN MAKING 15 MINUTE UPDATES.

- 7.1.18 When asked if additional information is to be provided, enter "Y" if desired and provide additional data as requested by the program prompts.

---

**NOTE**

Program results will be printed out at the end of each run as the State of Michigan Nuclear Plant Accident Notification Form.

---

---

**NOTE**

The DAP Report will only print to the Control Room Laser Jet Printer if no one is logged onto the network at that terminal or if their default print queue is LPT1. It is advisable to print a hard copy of the PAR Report, due to the quick non-stop screen scroll action.

---

- 7.1.19 If a hard copy of the DAP output is desired, send the output to the PC printer.
  - 7.1.20 If additional calculations are required or conditions change, return to Step 7.1.11 to enter new information.
  - 7.1.21 When the program is no longer needed, exit by performing one of the following, as applicable:
    - Enter "X" from the DAP Main Menu.
- OR
- Press PF3 to exit from anywhere in the program.

**OBTAINING ACCESS TO THE DAP PROGRAM AND METEOROLOGICAL  
DATA IN THE TSC**

- 1.0 To access meteorological data from the MIDAS terminal in the TSC perform the following:
  - 1.1 Locate the Tektronics 4208 MIDAS terminal on the table against the north wall of the TSC Communication Room.
  - 1.2 If the power is off, press the power button located on the lower right hand corner of the terminal.
  - 1.3 Press the CAPS LOCK button and press the RETURN button.
  - 1.4 Type "CR1" or "TSC" and press the RETURN button.
  - 1.5 Type "RA" and press the RETURN button. Current meteorological data will then be displayed on the screen for subsequent use in the DAP program when prompted.
- 2.0 To access the DAP program on the DAP PC in the TSC, perform the following:
  - 2.1 Locate the DAP PC on the table against the north wall of the TSC Communication Room.
  - 2.2 Turn on the DAP personal computer by turning on the main computer switch. All other components will automatically turn on.
  - 2.3 If all components do not turn on, turn them on individually.

---

**NOTE**

If the screen shown in step 2.4 does not appear and the user is in DOS, type "DAP" and "ENTER" to call up the program.

---

- 2.4 The following screen or equivalent will automatically appear when the computer is turned on:

```

                                WELCOME TO
                                AMERICAN ELECTRIC POWER SERVICE CORPORATION
                                NUCLEAR RADIOLOGICAL SUPPORT
                                DOSE ASSESSMENT PROGRAM

DDDDDDDD                      A
D      D                      A  A
D      D D                    A  A
D      D D                    A  A
D      D D                    A  A
D      D                      A  A
DDDDDDDD                      A

                                AAAAAAAAAAAAAA
                                A                A

PPPPPPPP                      P
P      P                      P  P
P      P P                    P  P
P      P P                    P  P
PPPPPPPP                      P
P
P

ENTER-continue                revision 5.1
```

- 2.5 Return to the "NOTE" prior to Step 7.1.10 in the body of the procedure.

OBTAINING METEOROLOGICAL DATA BY ALTERNATE MEANS WHEN NOT  
AVAILABLE FROM MIDAS TERMINAL(S)

METEOROLOGICAL DATA SOURCE

SECTION NO.

- Obtaining Meteorological Data from Murray & Trettle
- Pasquill Category Determination

I  
II

**NOTE**

We are contracted with Murray and Trettle to obtain meteorological information only once per hour. Therefore they should only be used if meteorological computer data is not available and environmental conditions do not permit manually accessing meteorological tower data.

If using Murray and Trettle meteorological data, ensure you receive Pasquill Category from them since our Pasquill Category Tables are not applicable to theirs due to different tower heights.

**I. METEOROLOGICAL INFORMATION FROM MURRAY & TRETTLER**

- A. Real-Time Meteorological Data (e.g., wind speed, wind direction, precipitation and stability class).
1. Call the following phone number(s) (In the order listed) and request to speak to the "Nuclear Emergency Forecaster". The caller should identify him/herself as being from the Cook Nuclear Plant, then the specific data being requested.
    - a. 847/446-7800
    - b. 773/273-5600
    - c. 847/446-7834
  2. Wind speed, wind direction, Pasquill category, and delta t should be requested. It is important to verify that wind speed is in miles per hour, since it may be given in knots. Pasquill category should be requested by letter rather than number. Make sure delta t is given in degrees Fahrenheit.
  3. We are contracted to obtain information from Murray & Trettle only once per hour. They can be contacted for forecasted data during the course of an event, but for current data, our own meteorological tower should be used, if available.
- B. Forecasted Meteorological Data
1. Murray & Trettle can give forecasted data on wind speed, wind direction, precipitation and stability class. To obtain this information, follow the steps outlined in A, above.
  2. To obtain a generalized forecast from the National Oceanic and Atmosphere Administration (NOAA), dial the following phone numbers:
    - a. From the TSC, dial extension 1008.
    - b. From the EOF, dial extension 1008.
    - c. Use weather radio in EOF or TSC.

II. PASQUILL CATEGORY DETERMINATION

A. To determine the Pasquill Category using  $\Delta T$  information, use the following guidelines:

"DELTA T" AND ASSOCIATED PASQUILL CATEGORY

DELTA T (°F) (Z = 50M)	PASQUILL CATEGORY	DELTA T(°C) (Z = 50 M)
$\Delta T \leq -1.8$	A	$\Delta T \leq -1.0$
$-1.8 < \Delta T \leq -1.6$	B	$-1.0 < \Delta T \leq - .9$
$-1.6 < \Delta T \leq -1.4$	C	$-.9 < \Delta T \leq -.8$
$-1.4 < \Delta T \leq -0.5$	D	$-.8 < \Delta T \leq -.3$
$-0.5 < \Delta T \leq 1.3$	E	$-.3 < \Delta T \leq .7$
$1.3 < \Delta T \leq 3.6$	F	$.7 < \Delta T \leq 2.0$
$3.6 < \Delta T$	G	$2.0 < \Delta T$

B. If  $\Delta T$  data is unavailable from the meteorological computer or the main tower manually, the Pasquill Category may be found by using the standard deviation of the horizontal wind direction as displayed on the meteorological terminal (see Section I.B of this attachment) and the following guide:

STANDARD DEVIATION OF HORIZONTAL WIND DIRECTION (STD)	PASQUILL CATEGORY
$STD > 22.5$	A
$22.5 > STD > 17.5$	B
$17.5 > STD > 12.5$	C
$12.5 > STD > 7.5$	D
$7.5 > STD > 3.8$	E
$3.8 > STD > 2.1$	F
$2.1 > STD$	G

c. If  $\Delta T$  data or the horizontal wind direction standard deviation data are not available, the Pasquill Category may be estimated using the following guide.



The atmospheric stability is divided into seven categories, A through G, with A being the most unstable and G being the most stable. The proper category is selected from the table below by using the wind speed at a height of about 10 meters and, during the day, the incoming solar radiation or, during the night, the cloud cover. The neutral class, D, can be assumed for overcast conditions during day or night, regardless of wind speed.

SURFACE WIND SPEED (AT 10 METERS)		DAY			NIGHT (2) THINLY OVERCAST	
		INCOMING SOLAR RADIATION (1)			OR $\geq 4/8$	$\leq 3/8$
m/s	mph	Strong	Moderate	Slight	Low Cloud*	Cloud*
< 2	< 5	A	A - B	B	--	--
2 - 3	5 - 7	A - B	B	C	E	F
3 - 5	7 - 11	B	B - C	C	D	E
5 - 6	11 - 13	C	C - D	D	D	D
> 6	13	C	D	D	D	D

- (1) Strong solar radiation -- sun high in sky ( $> 60^\circ$  with horizontal) clear skies. Slight solar radiation -- sun low in sky between  $15^\circ$  and  $35^\circ$  clear skies. Strong radiation cut to moderate with  $5/8$  to  $7/8$  cloud cover of middle clouds and to slight with  $5/8$  to  $7/8$  cloud cover of low clouds.
- (2) Night refers to period from one hour before sunset to one hour after sunrise.
- The degree of cloudiness is defined as that fraction of the sky above the local apparent horizon which is covered by clouds.