

INDIANA & MICHIGAN ELECTRIC COMPANY

DONALD C. COOK NUCLEAR PLANT

Instruction or Procedure Temporary Sheet

This temporary sheet applies to OFF-SITE DOSE ASSESSMENTS Instruction or Procedure No. PMP 2081.EPP.014 Revision No. 1	TEMPORARY SHEET NO. TP-1
--	------------------------------------

The following change (X) new requirement () shall be
 instituted effective (Date) 25 January, 1983

page 1 of 1

Replace the following pages as indicated:

- List of Effective Pages, Page 1 of 2, Revision 1 with Revision 1, TP-1
- List of Effective Pages, Page 2 of 2, Revision 1 with Revision 1, TP-1
- Page 2 of 7, Revision 1 with Revision 1, TP-1
- Page 3 of 7, Revision 1 with Revision 1, TP-1
- Page 5 of 7, Revision 1 with Revision 1, TP-1
- Page 7 of 7, Revision 1 with Revision 1, TP-1

Add the following pages:

- EXHIBIT C, Revision 1, TP-1
- EXHIBIT X, Revision 1, TP-1
- EXHIBIT Y, Revision 1, TP-1

DCR

FEB 02 1983

REASON FOR CHANGE: Changes were made in response to NRC - Identified Weaknesses in the Emergency Plan involving the incorporation of evacuation time estimates into the decision-making process for protective action recommendations.

This change should be made a permanent revision to the Instruction or Procedure:

YES
 NO
 NOT KNOWN, additional review required

Expiration Date: <u>PROCEDURE REVISION</u> Originator: <u>Mary A. Glassman</u> Management Staff: <u>[Signature]</u> Senior Reactor Operator: <u>[Signature]</u> PNSRC <u>E. J. Townley</u> Date <u>2-11-83</u> Plant Manager <u>[Signature]</u> Date <u>2-1-83</u>	Standard Dist. List No.: _____ Distribution: _____
---	---

8302180042 830214
 PDR ADDCK 05000315
 PDR

LIST OF EFFECTIVE PAGES

<u>Page Number</u>	<u>Revision Number and Date</u>
1 of 7	Revision 1 - Oct.12, 1982
2 of 7	Revision 1 - TP-1
3 of 7	Revision 1 - TP-1
4 of 7	Revision 1 - Oct.12, 1982
5 of 7	Revision 1 - TP-1
6 of 7	Revision 1 - Oct.12, 1982
7 of 7	Revision 1 - TP-1
EXHIBIT A, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT B, Page 1 of 1	Does not Exist
EXHIBIT C, Page 1 of 1	Revision 1 - TP-1
EXHIBIT D, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT E, Page 1 of 4	Revision 1 - Oct.12, 1982
Page 2 of 4	Revision 1 - Oct.12, 1982
Page 3 of 4	Revision 1 - Oct.12, 1982
Page 4 of 4	Revision 1 - Oct.12, 1982
EXHIBIT F, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT G, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT H, Page 1 of 2	Revision 1 - Oct.12, 1982
Page 2 of 2	Revision 1 - Oct.12, 1982
ATTACHMENT I, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT I, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT J, Page 1 of 2	Revision 1 - Oct.12, 1982
Page 2 of 2	Revision 1 - Oct.12, 1982
EXHIBIT K, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT L, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT M, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT N, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT O, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT P, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT Q, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT R, Page 1 of 1	Revision 1 - Oct.12, 1982

LIST OF EFFECTIVE PAGES

<u>Page Number</u>	<u>Revision Number and Date</u>
EXHIBIT S, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT T, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT U, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT V, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT W, Page 1 of 1	Revision 1 - Oct.12, 1982
EXHIBIT X, Page 1 of 1	Revision 1 - TP-1
EXHIBIT Y, Page 1 of 1	Revision 1 - TP-1

4.0 INSTRUCTIONS

NOTE: Initial dose estimates may be made by PMP 2080.EPP.006 or by the use of the AEPSC computer programs CPM002 or MIDAS.

4.1 The RAD shall perform the following functions and record all data on the appropriate exhibits:

4.1.1 Determine the Pasquill Category and record meteorological data on Exhibit C of PMP 2081 EPP.020. | TP-1

4.1.1-1 If meteorological data is available from the computer, obtain and record Pasquill Category, wind speed and direction, ΔT and precipitation on Exhibit C of PMP 2081 EPP.020. | TP-1

4.1.1-2 If meteorological data is not available from the computer, obtain it from Exhibit B, the Technical Information Sheet.

4.1.1-3 To determine Pasquill Category using ΔT information, use the following guide:

$\Delta T = (T_{180ft} - T_{30ft}), ^\circ C$	$^\circ C/100m$	Pasquill Category
-0.87	-1.9	A
-0.87 to -0.78	-1.9 to -1.7	B
-0.78 to -0.68	-1.7 to -1.5	C
-0.68 to -0.23	-1.5 to -0.5	D
-0.23 to 0.68	-0.5 to 1.5	E
0.68 to 1.83	1.5 to 4.0	F
1.83 and above	4.0 and above	G

4.1.1-4 If information about ΔT is unavailable from meteorological tower or Exhibit B, Pasquill Category may be estimated using this chart:

	<u>Sunny Day</u>	<u>Cloudy Day</u>	<u>Cloudy Night</u>	<u>Clear Night</u>
light wind or calm (<9.8 mph)	B	C	E	F
moderate, strong wind (<9.8 mph)	C	D	D	D

4.1.2 Complete the lower two-thirds of information on Exhibit C of PMP 2081 EPP.020 (from Basis for Projected Dose onward). This includes calculation of dose rates and projected doses to whole body and thyroid as well as making recommendations for support or emergency actions based on this data. Also complete Exhibit C of this procedure and use this information in making protective action recommendations. | TP-1

4.1.3 Coordinate information being used to complete each Exhibit C, previously described, in the TSC and EOF as the transition from TSC to EOF is made using Exhibit A, Off-Site Dose Assessment: EOF/TSC Coordination Checklist.

| TP-1

4.2 Calculation of dose rates and projected doses to the whole body and thyroid is performed using the method outlined below:

NOTE: Reference for details of using the hand calculator program is Exhibit E, Off-Site Dose Program. Flow sheet for this program is Exhibit F, Off-Site Dose Program Flow Sheet.

4.2.1 Load both sides of both program cards.

4.2.2 Enter the program by specifying the Pasquill Category.

| TP-1

4.2.3 When 610 appears, specify boundary distance in meters.
R/S

4.2.4 When 0.01 appears, specify wind speed in mph. R/S

4.2.5 When 0. appears, enter release rate in Ci/sec. R/S
(For details on calculating release rates, see Exhibit E).

4.2.6 When 2. appears, enter release classification (as defined in Exhibit G). If classification is 7, Isotopic Mixture program, Exhibit H, should be used. R/S

4.2.7 Read whole body (thyroid) dose rate at site boundary.
R/S

4.2.8 After site boundary distance flashes, read whole body (thyroid) dose rate at site boundary. Record this value for Dose Rate, R/hr, on Exhibit C, Accident Information Reporting Data Sheet. Record values to three significant figures; if values are <0.001 , record as " <0.001 ". R/S

4.2.9 After 2 (representing 2 miles) flashes, read and record values as described in 4.2.8. R/S

4.2.10 Repeat step 4.2.9 for distances of 5 and 10 miles. R/S

4.2.11 When 15. appears, specify exposure time in minutes. R/S

4.2.12 Read whole body (thyroid) boundary dose for this case.
R/S

4.2.13 Read whole body (thyroid) dose at boundary integrated from beginning of event. Record values on Exhibit D, Integrated Dose and Projected Dose Worksheet. R/S

To reset integrated doses to zero in both registers, press STO, then CLR. When numbers appear in the display, press D and go to step 4.2.13.

- 4.2.22 If classification in 4.2.6 is entered as 7, the number 0.04249 will appear. The program, Isotopic Mixture (Exhibit H and I), is to be used according to instructions contained therein. For more details, refer to Exhibit E.

NOTE: If meteorological conditions change, the program can be restarted at step 4.2.2 without losing any integrated dose data. Any time the calculator is not computing, the program may be redirected or restarted by pressing any of the user-defined keys (A-E or A'-E') without losing integrated dose totals.

- 4.2.23 If evacuation is suggested, project the most recently calculated dose rate (start at 4.2.7) or dose (start at 4.2.12) out for the estimated time required for evacuation (Exhibit Y) by entering that time (in minutes) at step 4.2.14. The value of projected dose obtained could then be said to be that which would be received by the last individual to be evacuated from the area.

TP-1

4.3 Definition of Exhibits

NOTE: Other pertinent information that may be required for analysis or decision making may be found in the Radiation Assessment Director (RAD) Data Book.

- 4.3.1 Exhibit A: Off-Site Dose Assessment: EOF/TSC Coordination Checklist

This is for use during the transition of operations from the TSC to the EOF. It is used to ensure that the same information is being used as the basis for calculations of dose rate and dose in both the TSC and the EOF.

- 4.3.2 Exhibit B: Technical Information Sheet

The Dose Parameters section of this sheet is used to obtain meteorological and release data essential for use with the hand calculator and/or CPM002 programs for dose rate calculation.

- 4.3.3 Exhibit C: Protective Action Recommendation Data Sheets

Data concerning evacuation times and associated dose and risk projections on this sheet are to be used by the Radiation Assessment Director in recommending protective actions. Space is provided for making protective action recommendations for population, workers and livestock/agricultural products.

TP-1

- 4.3.4 Exhibit D: Integrated Dose and Projected Dose Worksheet

This is to function as a worksheet for recording the values for whole body and thyroid dose at the site boundary integrated from the beginning of event.

- 4.3.17 Exhibit Q: Graph of radiation levels at 6 inches from Unit 1 Gland Seal Exhaust line, R/hr, vs. release rate, Ci/sec @ 1 cfm.
- 4.3.18 Exhibit R: Graph of radiation levels at 6 inches from Unit 2 SJAE line, R/hr, vs. release rate, Ci/sec @ 1 cfm.
- 4.3.19 Exhibit S: Graphs of radiation levels at 6 inches from Unit 2 Gland Seal Exhaust line, R/hr, vs. release rate, Ci/sec @ 1 cfm.
- 4.3.20 Exhibit T: Recommended Protective Actions for Population and Workers
For use with Exhibit C for determining recommended protective actions.
- 4.3.21 Exhibit U: Map of Donald C. Cook Nuclear Plant Site
For use with Exhibits J and K for determining sampling site locations.
- 4.3.22 Exhibit V: Description of Sampling Site Locations
For use with Exhibit U for obtaining geographical data of sampling sites.
- 4.3.23 Exhibit W: Main Steam System Emergency Release Determination
For use in determining release rate when given a reading in R/hr at a sampling location. Use in conjunction with Exhibit E.
- 4.3.24 Exhibit X: Map of Berrien County with Sectors
For use with Exhibit Y in determining projected dose during evacuations of 45° sectors.
- 4.3.25 Exhibit Y: Estimated Evacuation Times for Sectors B-L of Berrien County for 2, 5 and 10 Miles
For use with Exhibit X in determining projected dose during evacuations of 45° sectors of Berrien County under favorable and adverse conditions.

TP-1

RADIATION PROTECTION RECOMMENDATIONS FOR PROTECTIVE ACTIONS

TO POPULATION:

TO WORKERS:

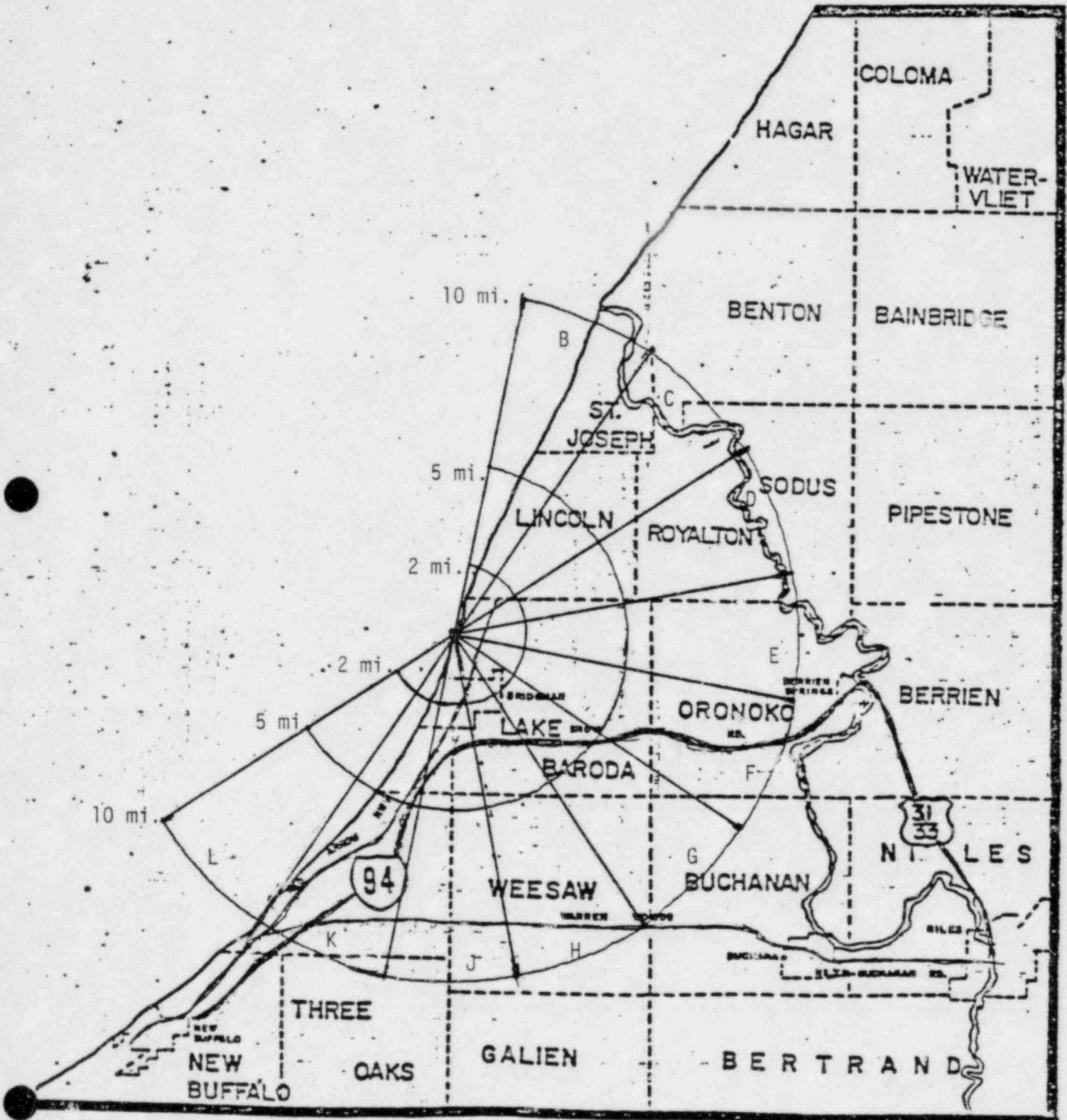
TO LIVESTOCK/AGRICULTURAL PRODUCTS:

ADDITIONAL BASIS FOR RECOMMENDATIONS & PROJECTED DOSE

SECTOR(S)	OUT TO (DISTANCE IN MILES)	CONDITIONS (FAV. OR ADV.)	ESTIMATED EVACUATION TIME	ESTIMATED EXPOSURE FROM EVAC.	SPECIAL CONSIDERATIONS

ADDITIONAL COMMENTS OR R.P. INFORMATION:

MAP OF BERRIEN COUNTY, MI, SHOWING SECTORS B THROUGH L*



*Information obtained from Attachments to Appendix 1 of the Berrien County Basic Plan.

ESTIMATED EVACUATION TIME

NOTE: Times are shown in hours:minutes. Times in parentheses are in minutes as a convenience for calculations.

Sectors	2 Miles		5 Miles		10 Miles	
	Favorable	Adverse	Favorable	Adverse	Favorable	Adverse
BC	:50 (50)	1:20 (80)	2:05 (125)	4:20 (260)	5:10 (310)	8:35 (515)
DE	:80 (80)	1:40 (100)	1:45 (105)	2:10 (130)	3:20 (200)	4:05 (245)
FG	1:20 (80)	1:40 (100)	1:45 (105)	2:30 (150)	2:55 (175)	4:35 (275)
HJ	1:20 (80)	1:20 (80)	1:40 (100)	2:35 (155)	3:25 (205)	4:25 (265)
K	1:00 (60)	1:25 (85)	1:25 (85)	2:35 (155)	3:05 (185)	4:35 (275)
BCDE	1:40 (100)	2:20 (140)	3:15 (195)	5:45 (345)	5:55 (355)	7:35 (455)
FGHJ	1:50 (110)	2:50 (170)	3:00 (180)	4:20 (260)	5:40 (340)	7:05 (425)
BCDEFGHJ	4:05 (245)	4:30 (270)	5:40 (340)	6:20 (380)	6:05 (365)	7:50 (470)
Special Considerations						
BC	Memorial Hospital; Oles Homestead for the Aged; Park Wayne Manor; Shoreham Terrace					
DE	Fancher Adult Foster Care					
FG	Gateway, Inc.					
HJ	Bethany Retirement Home; Jordan's Rest Home; Lake Valley Adult Foster Care					
K	Warren Dures					

This information originated from Attachments 29, 31, 33, 35 and 37 to Appendix 1 of the Berrien County Basic Plan.

INDIANA & MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

PLANT MANAGER PROCEDURE

Index

Identification Number	Title	Revision No. And Date	Comments
PMP 2091 EPP.001	Emergency Telephone Communications	Rev. 1 6-24-82	
EPP.002	Barring of the PABX	Revision 1 6-29-82	
EPP.003	Follow-Up Off-Site Communications	Revision 1 11-16-82	
EPP.004	Protective Action Guides (PAGs) and Protective Actions	Revision 1 9-28-82	
EPP.005	Personnel Evacuation	Revision 1 5-25-82	
EPP.006	Activation of the Reentry and Rescue Team	Revision 1 9-28-82	
EPP.007	Security Actions During Emergency Conditions	Revision 1 5-5-82	
EPP.008	Emergency Medical Plan Guidelines	Revision 1 9-28-82	TP-1,11-30-82 Exp NA
EPP.009	Health Physics Procedures	Revision 1 9-29-82	
EPP.010	Activation of Radiation Monitoring Teams	Revision 1 2-1-83	
EPP.011	On-Site Radiological Monitoring	Revision 0 4-1-81	
EPP.012	Off-Site Radiological Monitoring	Revision 1 9-2-82	TP-1,1-25-83 Exp NA
EPP.013	Environmental Monitoring and Analysis	Revision 0 4-1-81	TP-1,2-25-82 Exp N/A

INDIANA & MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

PLANT MANAGER PROCEDURE

Index

Identification Number	Title	Revision No. And Date	Comments
PMP 2081 EPP.014	Off-Site Dose Assessments	Revision 1 10-12-82	TP-1,1-25-83 Exp. NA
EPP.015	Sampling and Analysis of Waterborne Releases	Revision 0 4-1-81	
EPP.016	Collection and Analysis of Liquid and Gaseous Samples	Revision 0 4-1-81	
EPP.017	Interpretation of Liquid and Gaseous Samples	Revision 0 4-1-81	
EPP.018	Transportation Accidents Involving Radioactive Material	Revision 1 6-24-82	
EPP.019	AEP Emergency Response Organization Activation and Management	Revision 0 4-1-81	
EPP.020	Activation and operation of the Technical Support Center (TSC)	Revision 1 8-24-82	TP-1,9-9-82 Exp NA
EPP.021	Activation and Operation of the Operations Staging Area (OSA) and Personnel Accountability	Revision 1 5-25-82	
EPP.022	Activation and Operation of the Emergency Operations Facility	Revision 3 1-28-83	
EPP.023	Activation and Operation of the Emergency Control Center (ECC) (An Emergency Operations Facility)	CANCELLED 6-4-82	
EPP.024	Activation and Operation of the Joint Public Information Center (JPIC) (An Emergency Operations Facility)	Revision 1 6-24-82	

LIST OF EXHIBITS

PMP 2081 EPP.010

- EXHIBIT A RADIATION PROTECTION DIRECTOR ACTIVATION PRIORITIES (1)
- EXHIBIT B RADIATION MONITORING TEAM MISSION DIRECTIVE

PMP 2081 EPP.011

- EXHIBIT A DIRECT RADIATION SURVEY DATA
- EXHIBIT B SAMPLE ENVELOPE DATA

PMP 2081 EPP 012

- EXHIBIT A OFF-SITE SURVEY MAP (10 MILE EPZ)
- EXHIBIT B ESTABLISHED SURVEY POINT MAPS
- EXHIBIT C RADIATION MONITORING TEAM MISSION DIRECTIVE
- EXHIBIT D DOSE RATE FORM
- EXHIBIT E SAMPLE ENVELOPE DATA
- EXHIBIT F OFF-SITE RADIOLOGICAL MONITORING

PMP 2081 EPP.013

- EXHIBIT A ON-SITE ENVIRONMENTAL SAMPLING STATIONS
- EXHIBIT B OFF-SITE ENVIRONMENTAL SAMPLING STATIONS
- EXHIBIT C DCCNP ENVIRONMENTAL MONITORING PROGRAM
- EXHIBIT D INGESTION DOSE PROJECTION CALCULATIONS
- EXHIBIT E VERTICAL DISPERSION COEFFICIENT AS A FUNCTION OF DOWNWIND DISTANCE FROM THE SOURCE
- EXHIBIT F HORIZONTAL DISPERSION COEFFICIENT AS A FUNCTION OF DOWNWIND DISTANCE FROM THE SOURCE
- EXHIBIT G DOSE AT VARIOUS DISTANCES FROM CLOUD CENTERLINE

INDIANA & MICHIGAN
ELECTRIC COMPANY
DONALD C. COOK NUCLEAR PLANT

PROCEDURE COVER SHEET

Procedure No. PMP 2081 EPP.010

Revision No. 1

TITLE ACTIVATION OF RADIATION MONITORING
TEAMS

SCOPE OF REVISION

Revision 1 - Corrected to reflect current operational methods.
Deleted unnecessary organization chart.

DCR
FEB 02 1983

SIGNATURES

	ORIGINAL	Rev. 1	REV. 2	Rev. 3
PREPARED BY	<i>Dave [Signature]</i>	<i>D. Palmer</i>		
QUALITY ASSURANCE REVIEW	<i>[Signature]</i>	<i>[Signature]</i>		
INTERFACING DEPARTMENT HEAD CONCURRENCE	N.A.	<i>Richard Beggs</i>		
DEPARTMENT HEAD APPROVAL	N.A.	NA		
PLANT NUCLEAR SAFETY COMMITTEE	<i>[Signature]</i>	<i>[Signature]</i>		
PLANT MANAGER APPROVAL	<i>[Signature]</i>	<i>[Signature]</i>		
DATE OF ISSUE	3-31-81	2-1-83		

LIST OF EFFECTIVE PAGES

<u>PAGE NUMBER</u>	<u>REVISION NUMBER AND DATE</u>
Page 1 of 5	Revision 1, Feb.1,1983
Page 2 of 5	Revision 1, Feb.1,1983
Page 3 of 5	Revision 1, Feb.1,1983
Page 4 of 5 (EXHIBIT A)	Revision 1, Feb.1,1983
Page 5 of 5 (EXHIBIT B)	Revision 1, Feb.1,1983

INDIANA & MICHIGAN ELECTRIC COMPANY
DONALD C. COOK NUCLEAR PLANT

ACTIVATION OF RADIATION MONITORING TEAMS

1.0 OBJECTIVES

This procedure includes suggested priorities for activation of radiation monitoring personnel based on emergency conditions and describes functions of the Radiation Protection Director. This procedure shall be implemented by the Shift Supervisor or On-Site Emergency Coordinator upon recognition of a potential or actual unplanned release of radioactive gas or liquid.

2.0 RESPONSIBILITIES

The Shift Supervisor (SS) or Plant Manager (acting as the On-Site Emergency Coordinator) is responsible for activating the Radiation Protection Director upon recognition of a potential or actual unplanned radioactivity release.

The Radiation Protection Director is responsible for activating Radiation Monitoring Teams as required to assess radiation conditions.

3.0 INSTRUCTIONS

NOTE: REFER TO EXHIBIT A: RADIATION PROTECTION DIRECTOR ACTIVATION PRIORITIES, TO DETERMINE TEAMS TO BE ACTIVATED BASED ON PRIORITIES AND EXISTING CONDITIONS.

3.1 Based on personnel availability, the Radiation Protection Director shall:

NOTE: THE SHIFT SUPERVISOR OR PLANT MANAGER MAY SERVE AS THE RADIATION PROTECTION DIRECTOR UNTIL THE PRIMARY OR ALTERNATE RPD IS ACTIVATED.

3.1.1 Designate Radiation Monitoring Team Leaders and Team members based on emergency conditions.

NOTE: EACH RADIATION MONITORING TEAM SHALL BE MADE UP OF AT LEAST ONE TECHNICIAN QUALIFIED IN RADIATION PROTECTION AND AT LEAST ONE OTHER PERSON.

- 3.1.2 Document teams and assignments on EXHIBIT C, RADIATION MONITORING TEAM MISSION DIRECTIVE.
- 3.1.3 Upon arrival of designated personnel at the OSA, brief all reporting RMT personnel on plant conditions, source and conditions of the release, anticipated dose rates or ranges anticipated at specific locations, and protective equipment to be used.
- 3.1.4 Direct implementation of emergency procedures.
- 3.2 Upon being assigned to a Radiation Monitoring Team:
 - 3.2.1 Ensure you are properly briefed by the RPD or RMT Leader on expected radiation levels, stay times, form of results expected, monitoring routes and locations.
 - 3.2.2 Obtain the required protective and monitoring equipment from locations designated or approved by the RPD.
 - 3.2.3 Prior to leaving the area where monitoring equipment is obtained, perform an instrument check to assure power supply is adequate, calibration sticker is current, limitations of instrument are acceptable, and (if time permits), perform a source check.
 - 3.2.4 Proceed to the specific locations to be monitored or sampled with monitoring instruments in operation.
 - 3.2.5 Perform assigned functions in accordance with specified EPP's or existing plant procedures, and record readings in all areas encountered.

NOTE: INFORMATION ON BOTH HIGH AND LOW RADIATION AREAS MAY BE SIGNIFICANT DURING EMERGENCIES.

- 3.2.6 Ensure exposure does not exceed limits set in PMP 2082 EPP.001, Emergency Exposure Guidelines.

3.2.7 Record and report all results and your exposure to the RPD or his designee.

RADIATION PROTECTION DIRECTOR ACTIVATION PRIORITIES (1)

Priority	Task	EPP(s) That Implement
1	Search and Rescue and First Aid-Life Saving Only	PMP 2081 EPP.006
2	Initial Dose Projections and Comparison with EAL's	PMP 2080 EPP.001, .006, .007
3	In-Plant Surveys to Calculate Initial Source Team	PMP 2081 EPP.011, .012, .014
4	Dose Confirmation (Off-site Monitoring)	PMP 2081 EPP.012
5	Monitoring at Access Control Points at Radiation/Contaminated Areas	PMP 2081 EPP.011
6	Emergency First Aid and Decontamination - not Life Saving	PMP 2081 EPP.008, .009
7	Accompany Follow-up Re-entry and Rescue Teams	PMP 2081 EPP.010
8	Personnel Exposure Control (Routine Dosimetry Assurance and Completion of Radiation Work Permits)	PMP 2081 EPP.009
9	Follow-up Radiation Monitoring for Effects	PMP 2081 EPP.012, .013, .014, .015
10	Liaison with Off-site Agencies	PMP 2081 EPP.013
11	Follow-up Dose Projections and EAL Modifications	PMP 2081 EPP.012, .013, .014, .015
12	Follow-up In-plant/On-site Monitoring and Sample Collection	PMP 2081 EPP.011, .016
13	Sample Analysis and Interpretation	PMP 2081 EPP.016, .017
14	Minor First Aid Decontamination	PMP 2081 EPP.008, .009

(1) This list of activity priorities is sequenced in a "likely order" for a fast breaking radiological emergency when personnel resources may be limited. Personnel assignments should be made as needed by the specific plant and personnel requirements.

RADIATION MONITORING TEAM MISSION DIRECTIVE

TYPE MISSION: On-Site Off-Site Airborne Waterborne Sampling Monitoring

ASSIGNED TO TEAM LEADER: _____ TEAM MEMBERS: _____

DATE/TIME ASSIGNED: _____ / _____ AREA INVOLVED: _____
Date Time

MISSION DETAILS: _____

RADIATION/DAMAGE CONDITIONS/ROUTE: _____

BRIEFING AND RECEIPT ACKNOWLEDGED _____
Team Leader

TIME MISSION INITIATED: _____ TIME MISSION COMPLETED: _____

RESULTS OF MISSION (USE REFERENCES AS CONVENIENT): _____

INDIANA & MICHIGAN ELECTRIC COMPANY

DONALD C. COOK NUCLEAR PLANT

Instruction or Procedure Temporary Sheet

This temporary sheet applies to OFF-SITE RADIOLOGICAL MONITORING Instruction or Procedure No. PMP 2081.EPP.012 Revision No. 1	TEMPORARY SHEET NO. TP-1
---	------------------------------------

The following change (X) new requirement () shall be instituted effective (Date) 25 January, 1983.

page 1 of 1

Replace the following pages as indicated:

- List of Effective Pages, Page 1 of 1, Revision 1 with Revision 1, TP-1
- Page 1 of 11, Revision 1 with Revision 1, TP-1
- Page 2 of 11, Revision 0 with Revision 0, TP-1
- Page 3 of 11, Revision 1 with Revision 1, TP-1
- Page 4 of 11, Revision 1 with Revision 1, TP-1

DCR

FEB 02 1983

REASON FOR CHANGE: Changes were made in response to NRC - Identified Weaknesses in the Emergency Plan involving obtaining representative samples of the plume atmosphere using a thin window detector to enable differentiation between beta/gamma and gamma measurements.

This change should be made a permanent revision to the Instruction or Procedure:

YES
 NO
 NOT KNOWN, additional review required

Expiration Date: <u>PROCEDURE REVISION</u> Originator: <u>Mary A. Gorman</u> Management Staff: <u>[Signature]</u> Senior Reactor Operator: <u>[Signature]</u> PNSRC <u>E. J. Townley</u> Date <u>2-11-83</u> Plant Manager <u>[Signature]</u> Date <u>2-1-83</u>	Standard Dist. List No.: _____ Distribution: _____
---	---

LIST OF EFFECTIVE PAGES

<u>PAGE NUMBER</u>	<u>REVISION NUMBER AND DATE</u>
Page 1 of 11	Revision 1, TP-1
Page 2 of 11	Revision 0, TP-1
Page 3 of 11	Revision 1, TP-1
Page 4 of 11	Revision 1, TP-1
Page 5 of 11 (EXHIBIT A)	Revision 0, 04-01-81
Page 6 of 11 (EXHIBIT B)	Revision 0, 04-01-81
Page 7 of 11 (EXHIBIT B)	Revision 0, 04-01-81
Page 8 of 11 (EXHIBIT C)	Revision 0, 04-01-81
Page 9 of 11 (EXHIBIT D)	Revision 0, 04-01-81
Page 10 of 11 (SAMPLE ENVELOPE DATA)	Revision 0, 04-01-81
Page 11 of 11 (EXHIBIT F)	Revision 0, 04-01-81

INDIANA & MICHIGAN ELECTRIC COMPANY
DONALD C. COOK NUCLEAR PLANT

OFF-SITE RADIOLOGICAL MONITORING

1.0 OBJECTIVES

This procedure includes requirements for off-site radiation monitoring and data acquisition necessary for the TSC Plant Evaluation Team and RAD to verify the extent and nature of off-site gaseous releases per PMP 2081.EPP.014, Off-Site Dose Assessments, and to recommend protective actions to the public. This procedure does not address determination of radiological effects on the environment (contained in PMP 2081.EPP.013).

2.0 RESPONSIBILITIES

The Radiation Monitoring Team (RMT) are responsible to the Radiation Protection Director (RPD) / to:

- 2.1 Survey and record off-site radiological data at selected locations.
- 2.2 Report all survey results to the RPD.
- 2.3 Assist in surveys from helicopters (if necessary).
- 2.4 Recommend survey locations for continuous plume dispersion monitoring.

3.0 INSTRUCTIONS OPTIONAL CHECKLIST ENTRIES PROVIDED

| TP-1

NOTE: INITIAL DOSE ESTIMATES MAY BE MADE BY VISUAL AIDS OR BY THE USE OF THE AEPSC COMPUTER PROGRAM CPM 002 OR MIDAS OR BY HAND AS PER PMP 2081.EPP.014. FIELD MEASUREMENTS ARE TO VERIFY ANL/OR ESTABLISH CORRELATIONS.

NOTE: IF THE RMT IS TO USE A HELICOPTER, THEN PROCEED DIRECTLY TO STEP 3.6.

- 3.1 Receive briefing from the RPD or RAD on-site conditions and off-site locations to be monitored.

| TP-1

NOTE: USE EXHIBITS A, OFF-SITE SURVEY MAP; AND B, ESTABLISHED SURVEY POINTS, TO LOCATE THE SURVEY POINTS. ALSO, SEE PMP 2082.EPP.008, MAPS AND OVERLAYS.

- 3.2 When directed by the RAD to perform off-site radiological surveys, obtain a radio telephone, Radiation Protection Emergency Kit, and a 12 volt Air Sampler, (Mobile), while another RMT member locates and prepares the survey vehicle.

| TP-1

NOTE: KEYS FOR I&M VEHICLES ARE MAINTAINED IN THE OPERATIONS STAGING AREA EMERGENCY EQUIPMENT ROOM.

- 3.3 Perform an equipment and instrument check prior to leaving the site.
- 3.4 Establish communications with the TSC using the radio telephone and proceed to the survey points.
- 3.5 Ask the RPD if the points to be surveyed remain the same and document the changed instructions, on EXHIBIT C, RADIATION MONITORING TEAM MISSION DIRECTIVE.
- 3.6 If requested to assist in off-site agency surveys from a helicopter, proceed as follows:

| TP-1

3.6.1 Request a briefing on the helicopter landing location, estimated time of arrival, and on present plant conditions from the RPD.

3.6.2 Obtain a Radiation Protection Emergency Kit and a portable air sampler.

NOTE: THE OFF-SITE MONITORING KIT (MOBILE) CAN BE OBTAINED AT THE OSA EMERGENCY EQUIPMENT ROOM OR AS SPECIFIED IN PMP 2082.EPP.007.

3.6.3 Perform a quick equipment check prior to proceeding.

| TP-1

3.6.4 Meet the helicopter.

NOTE: RECORD ALL SURVEY INSTRUCTIONS AND LOCATIONS OF SURVEY POINTS (DISTANCE IN MILES FROM THE SITE AND ELEVATION, OR FEET ABOVE GROUND LEVEL) ON EXHIBIT C, RADIATION MONITORING TEAM MISSION DIRECTIVE.

- 3.7 Survey to determine the approximate location of the plume and the presence or absence of ground deposition of beta activity.
- 3.7.1 The Eberline E-530G is the instrument of choice for determining plume location. Operational details for this instrument may be found in 12 THF 6010.RAD.517.
- 3.7.1.1 Using the E-530G, obtain readings of count rate using the side or end window of the probe. Obtain readings with the window open and with it closed. The open window result minus the closed window result yields an estimate of beta presence.
- 3.7.1.1-1 If there is an indication of beta from all directions, this indicates that the probe is within the plume and that it is a good location for obtaining air samples.
- 3.7.1.1-2 If high gamma readings are found with low or no beta, this indicates that the probe is under the plume.
- 3.7.1.1-3 If beta results are obtained when the open window is directed at the ground, but not when directed into the air above ground, ground deposition is indicated.
- 3.7.1.2 Use the directional capability of the E-530G probe to determine the team's approximate location in relation to the plume.
- 3.7.1.3 Once the plume's location is established, obtain dose rates and begin surveying a traverse of the plume using the PIC-6. If the plume is too low in radioactivity for the PIC-6, obtain readings with the E-530G.
- 3.8 Continuously monitor the general area. Record all survey data and results of the analyses on EXHIBITS D, DOSE RATE FORM: AND E, SAMPLE ENVELOPE DATA, as specified. Additional actions/comments can be entered on EXHIBIT D.
- 3.8.1 Using equipment shielded against beta radiation, traverse the plume in the crosswind direction, determine the maximum mRem/hr, and record that reading, time the reading was taken, and the location on EXHIBIT E.
- 3.8.2 Place a particulate filter and a silver zeolite cartridge in the air sampler and collect a sample of 5 to 10 cubic feet volume at the location where the mRem/hr reading was the highest (found during traverse).

TP-1

- 3.8.3 While collecting the sample, report the specific survey location and results of the gamma dose rate survey to the RPD.
- 3.8.4 After collecting the air sample, record (on the sample container - EXHIBIT E) and place the silver zeolite cartridge and the particulate filter in separate sample envelopes and mark them for later identification.
- 3.8.5 Contact the RPD (by radio) to locate a low background area to be used for counting and proceed to the area specified.
- 3.8.6 Determine the activities per 12 THP 6010.RAD.517.

NOTE: USE CURVES IN KIT AS NECESSARY.

- 3.8.7 Complete the information required on EXHIBIT E.
- 3.9 Perform additional surveys as follows:

NOTE: BASED ON FIELD DOSE RATE MEASUREMENTS, TAKE THE AIR SAMPLES STARTING AS NEAR TO THE CENTER OF THE PLUME AS POSSIBLE.

- 3.9.1 Repeat Step 3.7 or 3.8 as directed by the RPD (3 or 4 passes across the plume would be optimum) and record data on EXHIBITS D, DOSE RATE FORM, and E, SAMPLE ENVELOPE DATA.
 - 3.9.2 Compute the average dose rate for all passes made in or near the same location and record on EXHIBIT E.
 - 3.9.3 Report the Average Dose Rate and specific location to RPD.
 - 3.10 Assist in coordination and augmentation of the State and local effort, as directed by the RPD/RAD.
 - 3.11 Request further instructions from the RPD/RAD.
- CAUTION: IF RELIEVED BY A NEW RMT MEMBER, FULLY BRIEF THE MEMBER ON THE STATUS OF THE SURVEYS.
- 3.12 Exhibit F is a Checklist for Off-Site Radiological Monitoring.