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TITLE: BACKUP AND SUPPLEMENTAL METEOROLOGY

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**PALISADES NUCLEAR PLANT**  
**EMERGENCY IMPLEMENTING PROCEDURE**

**TITLE: BACKUP AND SUPPLEMENTAL METEOROLOGY**

<i>JZ Fontana</i>	1	4/9/02
<b>Procedure Sponsor</b>		<b>Date</b>
NKBrott	1	2/16/95
<b>Technical Reviewer</b>		<b>Date</b>
MDMennucci	1	2/7/96
<b>User Reviewer</b>		<b>Date</b>

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**ATTACHMENTS**

- Attachment 1, "Supplemental WSI Commands"
- Attachment 2, "Backup and Supplemental Meteorology Work Sheet"

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**USER ALERT**  
**INFORMATION USE PROCEDURE**

The activities covered by this procedure may be performed from memory.

**1.0 PERSONNEL RESPONSIBILITY**

The Health Physics Support Group Leader is responsible for the implementation of this procedure. In the absence of a Health Physics Support Group Leader, the Site Emergency Director or EOF Director shall delegate this responsibility.

**2.0 PURPOSE**

To provide a backup procedure to access the Weather Services International (WSI) meteorological system and obtain meteorological data required in offsite dose calculations when onsite meteorological data is not available. To provide a procedure to obtain supplemental regional meteorological data, site specific meteorological forecast, and precipitation data as required.

**3.0 REFERENCES**

**3.1 SOURCE DOCUMENTS**

- 3.1.1 Palisades Site Emergency Plan, Section 7, "Emergency Facilities and Equipment"
- 3.1.2 NUREG 0654, Section I, "Accident Assessment"

**3.2 REFERENCE DOCUMENTS**

- 3.2.1 Emergency Implementing Procedure EI-6.0, "Offsite Dose Calculation and Recommendations for Protective Actions"
- 3.2.2 Palisades Administrative Procedure 10.46, "Plant Records"
- 3.2.3 Palisades Administrative Procedure 10.41, "Procedure Initiation and Revision"

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**4.0 INITIAL CONDITIONS AND/OR REQUIREMENTS**

- 4.1 This procedure shall be implemented as required per Emergency Implementing Procedure EI-6.0, "Offsite Dose Calculation and Recommendations for Protective Actions."
- 4.2 Data and results from this procedure may be recorded on the Backup and Supplemental Meteorology Work Sheet, Attachment 2.
- 4.3 Emergency Preparedness Computers in the TSC, Control Room, or EOF with modem software installed are required to access the WSI Weather System.
- 4.4 If dose assessment software is loaded onto a computer not listed in Section 5.1, the EP Coordinator shall be notified of such actions prior to loading the software.

**5.0 PROCEDURE**

**USER ALERT**  
**INFORMATION USE PROCEDURE**

The activities covered by this procedure may be performed from memory.

**5.1 ACCESSING THE WSI WEATHER SYSTEM (EMERGENCY PREPAREDNESS COMPUTERS IN THE TSC, CONTROL ROOM, AND EOF)**

**NOTE:** This section is utilized when onsite meteorological data is not available, and to obtain supplemental regional meteorological data, site specific meteorological forecast, and precipitation data as required.

- 5.1.1 Turn the power on to the computer and all peripherals using the master power switch. (The TSC computer has an external modem with a separate power switch that must be turned on separately.) The main menu should appear after the computer boots.
- a. If the computer is already on, exit any program or menu screen until the main menu appears. If the computer is at a DOS prompt, type the word AUTO at any C prompt to load the main menu. If nothing else works to return to the menu, turn the power to the computer off and then back on. The main menu should appear after the computer reboots.

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5.1.2 Choose option one (1), PALISADES DOSE ASSESSMENT PROGRAM, from the main menu.

5.1.3 Choose option nine (9), ACCESS METEOROLOGICAL MONITORING SYSTEMS, to access the METEOROLOGICAL DATA MENU.

**NOTE:** The "Alt-L" command may need to be entered after automatic logon (during on-screen data generation) to enable the attached printer. Also, the automatic logon sequence may take 30-45 seconds to complete. | e

5.1.4 Choose option two (2), PRINT WSI HOURLY AND FORECAST DATA, to automatically log onto the WSI Weather System, retrieve the latest 48 hour forecast for the Palisade Plant (WSI command MOSPAL) and the latest hourly meteorological data for Benton Harbor and Muskegon (WSI command USINFO BEH,MKG YWZQ), print the data, and return to the PALISADES DOSE ASSESSMENT PROGRAM.

**NOTE:** WSI updates "Forecast Data" twice daily. An error message will appear if data is requested during these updates.

5.1.5 **IF** an error message is received while accessing "Forecast Data," **THEN** request the previous 48 hour Forecast Data update (generated 12 hours earlier) per Section 5.3 and/or Attachment 1 (Section A) of this procedure.

5.1.6 **IF** a "Write Fault" error is received, **THEN** check the printer for problems. For example, verify it is powered, check printer cable connections, and/or re-boot the printer. | e

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5.1.7 The data will appear in the following format:

a. The forecast will appear as:

DATE/GMT	27/18	28/00	28/06	28/12	28/18	29/00	29/06	29/12
DATE/EST	27/13	27/19	28/01	28/07	28/13	29/19	29/01	29/07
WIND-MP	0910	0711	0813	0811	0610	1511	2109	3303
CLDS-1	10	10	10	10	10	10	8	2
HGT-FT	6100	6450	4750	3750	3150	5650	5500	5500
PAS	D	D	D	D	D	D	D	C

Where:

DATE	=	Day of the month
GMT	=	Greenwich Mean Time
EST	=	Eastern Standard Time
WIND-MP	=	Wind direction (tens of degrees) and wind speed (mph) value
CLDS-1	=	Cloud cover in tenths
HGT-FT	=	Cloud height in feet
PAS	=	Pasquill stability category

b. The hourly observation will appear as:

Observations for 8PM(01Z)      1-DEC-81

Station Name	Wind	PS→
Benton Harbor, MI	0113	D
Muskegon, MI	3512	E

Where:

Wind = Direction from which the wind is blowing in tens of degrees east of north, and wind speed in mph. The first two digits are the direction and the last two digits are the speed, so 3512 would be wind from 350° at 12 mph and 0113 would be wind from 10° at 13 mph.

PS = Pasquill stability category (A-G)

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- 5.1.8 If "Wind" is listed as 0000 (calm), use the wind direction from the previous hour and a wind speed of 1 mph.
- 5.1.9 If the hourly data for Benton Harbor (BEH) is available, use it. Otherwise use Muskegon (MKG).
- 5.1.10 **IF** Attachment 2, "Backup and Supplemental Meteorology Work Sheet," is being used, **THEN** record the wind direction, the wind speed, and Pasquill stability class.
- 5.1.11 Occasionally, a poor telephone connection may cause some data to be incorrectly transmitted. If the computer does not "understand" a command that was automatically sent by the modem software or if the computer output is garbled, simply wait until the computer automatically returns to the PALISADES DOSE ASSESSMENT PROGRAM and try again.

**5.2 NATIONAL WEATHER SERVICE**

**NOTE:** This section is utilized for meteorological parameters only if a connection to the WSI Weather System cannot be established.

- 5.2.1 Dial the Grand Rapids National Weather Service directly (616-949-0640). Identify yourself as a Palisades Plant representative and request the following data from the meteorologist on duty:
  - a. Wind direction, degrees from which the wind is blowing.
  - b. Wind speed in mph.
  - c. Cloud cover (clear, scattered, broken, overcast).
- 5.2.2 Stability class must be estimated as follows:
  - a. Daytime = D
  - b. Nighttime, broken, or overcast = D
  - c. Nighttime, clear, or scattered = E
- 5.2.3 **IF** Attachment 2, "Backup and Supplemental Meteorology Work Sheet," is being used, **THEN** record the wind direction, the wind speed, and Pasquill stability class.

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**5.3 SUPPLEMENTAL METEOROLOGICAL DATA**

**NOTE:** This section provides supplemental meteorological information only. These steps are to be implemented only if time permits.

- 5.3.1 Choose option one (1), PALISADES DOSE ASSESSMENT PROGRAM, from the MAIN MENU. Choose option nine (9), ACCESS METEOROLOGICAL MONITORING SYSTEMS, to access the METEOROLOGICAL DATA MENU.
- 5.3.2 Choose option four (4), WSI - OPTIONS MENU, from the METEOROLOGICAL DATA MENU to obtain additional forecast data, hourly observation data, Muskegon radar map, State of Michigan Regional Meteorological data, or enter WSI commands manually. The computer will automatically log onto the WSI Weather System and bring up an options menu. Follow the directions on the screen.
- 5.3.3 The available options are:
- a. **PRINT FORECAST DATA**  
Allows user to select specific 48-hour forecasts.
  - b. **PRINT HOURLY OBSERVATION DATA**  
Allows user to specify a specific hourly observation or a time period of observations.
  - c. **PRINT MUSKEGON RADAR MAP**  
Allows user to display the most recent radar map (precipitation) for the Midwest centered on Muskegon.
  - d. **PRINT REGIONAL MET DATA FOR STATE OF MICHIGAN**  
Allows user to display a weather map of wind data or stability classes for the State of Michigan.
  - e. **MANUAL COMMAND ENTRY - ALL DATA WILL BE PRINTED**  
Allows user to enter any WSI command to obtain weather information. See Attachment 1, "Supplemental WSI Commands," for the WSI commands that are available for use and instructions on how to use them.
  - f. **LOGOUT**  
To return to the PALISADES DOSE ASSESSMENT PROGRAM.
- 5.3.4 Attachment 1, "Supplemental WSI Commands," gives further instructions on how to use these WSI commands and interpret the results.
- 5.3.5 All results will be printed. The computer will automatically return to the main menu when the session is terminated by choosing the LOGOUT option.

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**5.4 MODEM SOFTWARE CONFIGURATION**

**NOTE:** The number for WSI is now a multi-part number. This is why the primary and alternate number is the same. | e

5.4.1 The modem software installed in the personal computers and used to access the WSI Weather System is already configured for use and should not need to be changed. The telephone numbers and modem parameters are:

<u>NAME</u>	<u>NUMBER</u>	<u>BAUD</u>	<u>PDS</u>	<u>D</u>
WSI	978-901-1522	9600	N81	F
ALT PH# FOR WSI	978-901-1522	9600	N81	F

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5.4.2 If additional numbers are added or deleted to the modem software dialing directory, it is important that the above two numbers remain as number three (3) and number four (4) in the dialing directory. The software that automatically accesses data from the WSI Weather System will only attempt to dial the third and fourth numbers in the modem software's dialing directory.

5.4.3 To exit the modem software Press "ALT-H" (hangup) followed by "ALT- X" (exit). To exit the dose assessment software press "F2."

**6.0 ATTACHMENTS AND RECORDS**

**6.1 ATTACHMENTS**

6.1.1 Attachment 1, "Supplemental WSI Commands"

6.1.2 Attachment 2, "Backup and Supplemental Meteorology Work Sheet"

**6.2 RECORDS**

Records generated by this procedure shall be filed in accordance with Palisades Administrative Procedure 10.46, "Plant Records."

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**7.0 SPECIAL REVIEWS**

The scope of this procedure does not include activities that require a 50.59 review per Palisades Administrative Procedure 10.41, "Procedure Initiation and Revision." Therefore, changes to this procedure do not require a 50.59 review.

The scope of this procedure includes activities that require a PRC review per Palisades Administrative Procedure 10.41, "Procedure Initiation and Revision." Therefore, changes to this procedure require a PRC review.

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**SUPPLEMENTAL WSI COMMANDS**

The following WSI commands may be used when the "MANUAL COMMAND ENTRY" option is selected. These commands allow customized information from various locations to be determined. They also allow manual data retrieval when an automatic report fails to be generated (eg, WSI Hourly or Forecast Data).

**A. Forecast Data**

The National Weather Service prepares a numerical weather forecast for select cities around the United States twice a day from data taken at OOZ (7:00 PM EST) and 12Z (7:00 AM EST). This forecast is called Model Output Statistics (MOS). The output from this forecast is used to obtain a site specific 48-hour forecast in 6-hour increments for the Palisades Nuclear Plant. The Plant forecast parameters are wind direction (tens of degrees), wind speed (mph), cloud cover (tenths), cloud ceiling height (ft), and Pasquill stability category. The wind direction and wind speed values are printed to the nearest ten degrees and mph respectively. A value of 2710 would be interpreted as wind coming from 270° at 10 mph. The forecast is available thorough WSI after approximately 10 AM EST and 10 PM EST.

To obtain the forecast for the Palisades Plant, type:

MOSPAL 00 or 12 depending on which forecast you want

The forecast will appear as:

DATE/GMT	27/18	28/00	28/06	28/12	28/18	29/00	29/06	29/12
DATE/EST	27/13	27/19	28/01	28/07	28/13	29/19	29/01	29/07
WIND-MP	0910	0711	0813	0811	0610	1511	2109	3303
CLDS-1	10	10	10	10	10	10	8	2
HGT-FT	6100	6450	4750	3750	3150	5650	5500	5500
PAS	D	D	D	D	D	D	D	C

Where:

DATE	=	Day of the month
GMT	=	Greenwich Mean Time
EST	=	Eastern Standard Time
WIND-MP	=	Wind direction (tens of degrees) and wind speed (mph) value
CLDS-1	=	Cloud cover in tenths
HGT-FT	=	Cloud height in feet
PAS	=	Pasquill stability category

## SUPPLEMENTAL WSI COMMANDS

### B. Hourly Observations

To print the current data for more than one station, type each station code separated by a comma only (ie, no spaces). For example, to print the current data for Benton Harbor and Muskegon, type:

USINFO BEH,MKG YWZQ

**NOTE:** Data can also be printed from previous hours, or a set of hours. Data for most stations are stored for one day (24 hours). The command format is the same for the current hour except a time period is added after the "YWZQ." The following codes are used to specify time periods.

A AM  
P PM

The format for specifying the time periods is:

start time-end time

12 A represents midnight

12 P represents noon

To print the hourly Benton Harbor data from 1 AM through 7 AM, type:

USINFO BEH YWZQ 1A-7A

If you want the data from all the hours since a certain time, leave the end time blank. To print all the hours at Benton Harbor since 1 AM, type:

USINFO BEH YWZQ 1A-

To print data for one particular hour (1 AM), type:

USINFO BEH YWZQ 1A

**SUPPLEMENTAL WSI COMMANDS**

**NOTE:** The same format is used for multiple stations. If the meteorological data for a station is missing for a particular hour, nothing will be displayed for that particular parameter.

The data will appear in the following format:

Observations for 8PM(01Z)	1-DEC-81		
Station Name	Wind	PS→	
Benton Harbor, MI	0113	D	
Muskegon, MI	3512	E	

Where:

Wind = Direction from which the wind is blowing in tens of degrees east of north, and wind speed in mph. The first two digits are the direction and the last two digits are the speed, so 3512 would be wind from 350° at 12 mph and 0113 would be wind from 10° at 13 mph.

## SUPPLEMENTAL WSI COMMANDS

### C. Radar Maps (Precipitation)

To display the most recent radar map for Palisades Plant area, type:

RADMAP MKG      (Radar station located in Muskegon, Michigan)

The map produced will be centered on the National Weather Service Radar Station at Muskegon. Digits indicating intensity of radar echoes will be superimposed on the map. Every hour, radar stations across the country take radar observations and determine the intensity of precipitation. The intensity at a particular location is reported as a single digit. The digits are defined as:

<u>Digit</u>	<u>Precipitation Intensity</u>
1	Light
2	Moderate
3	Heavy
4	Very Heavy
5	Intense
6	Extreme
8	Unknown, but probably light to moderate
9	Unknown, but probably heavy
**	Indicates that a valid report has been received for the station at that location.
MM	Indicates that the service at that location has been reported out of service.

If no report is received from a station, neither \*\* or MM will be displayed. If an echo (levels 1-6, 8-9) is reported at the station, the echo level will be typed, otherwise \*\* indicates the location of the station.

The data are updated once per hour at 35 minutes past the hour, and the new map is available through WSI at approximately 55 minutes past the hour.

## SUPPLEMENTAL WSI COMMANDS

### D. Regional Meteorological Data

**NOTE:** Wind direction is reported by tens of degrees (from which the wind is blowing) and wind speed in mph, as described in A, "Hourly Observation."

To display a weather map of wind data for the State of Michigan, type:

MIC YW

The system will print "OK" to indicate that it is processing the command.

To display a weather map of stability classes for the State of Michigan, type:

MIC ' ( ' = an apostrophe, uppercase 7 on keyboard)

The system will print "OK" to indicate that it is processing the command.

### E. Problems Assistance

If problems are encountered at any time with any of the WSI commands, call the WSI Customer Service direct at 978-670-5052. Before calling WSI make sure that the problem is not in the computer, modem, or modem software.

**BACKUP AND SUPPLEMENTAL METEOROLOGY**  
**WORK SHEET**

1. Wind Direction	= _____ Degrees From
2. Wind Speed	= _____ mph
3. Pasquill Stability Class	= _____

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Completed By: \_\_\_\_\_