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247 - 247 - FIELD TEAM DIRECTOR

REMOVE MANUAL TABLE OF CONTENTS DATE: 05/28/2003

ADD MANUAL TABLE OF CONTENTS DATE: 06/23/2003

CATEGORY: PROCEDURES TYPE: EP
ID: EP-PS-247
REPLACE: REV:1

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UPDATES FOR HARD COPY MANUALS WILL BE DISTRIBUTED WITHIN 5 DAYS IN ACCORDANCE WITH DEPARTMENT PROCEDURES. PLEASE MAKE ALL CHANGES AND ACKNOWLEDGE COMPLETE IN YOUR NIMS INBOX UPON RECEIPT OF HARD COPY. FOR ELECTRONIC MANUAL USERS, ELECTRONICALLY REVIEW THE APPROPRIATE DOCUMENTS AND ACKNOWLEDGE COMPLETE IN YOUR NIMS INBOX.

A045

MET/VENT DATA ACQUISITION OPTIONS

The following are sources of meteorological and ventilation data at Susquehanna SES:

A. ACQUISITION OF MET/VENT DATA FROM THE PICSY TERMINAL

1. From the SSES LOGO display, select **E-PLAN MENU** or type **EPM** and **[ENTER]**.

2. All required meteorological and ventilation (MET/VENT) inputs for the MIDAS dose projections can be obtained by selecting the MET/VENT DATA display option on the E-PLAN menu.

   a. Vent and Primary Met Tower Data is displayed on page 1 of this display.

   b. Use the **PAGE FORWARD** command if the Back-up Tower data is required.

   c. Should neither the Primary or Back-up Tower be available, obtain the Downriver Tower data as follows:

      1) At the command line, type GD_VMS05B and [ENTER] for Downriver Tower wind speed.

      2) At the command line, type GD_VMX09B and [ENTER] for Downriver Tower wind direction.

      3) At the command line, type GD_VMX10B and [ENTER] for Downriver Tower sigma theta.

      4) Press Escape [ESC] to return to the SSES Logo display.

   d. Other options – see Step 6 below.

3. If the Primary Met Tower ΔT data is not available, determine the wind speed corrected stability class as follows:

   a. Determine the initial (uncorrected) stability class using the measured value of sigma theta and the Supplemental Meteorological Information Table 1 (or page 2 of the PICSY screen).

   b. Determine the wind speed corrected stability classification using the initial classification, the measured wind speed, and, as appropriate, either Table 2 or Table 3.

4. The PICSY QUALITY CODES for the display colors are as follows:

YELLOW:	**DATA ACCEPTABLE**
RED:	**DATA EXCEEDS WARNING LIMIT**
MAGENTA:	**DATA EXCEEDS ALARM SETPOINT**
WHITE:	**DATA SUSPECT**

5. If a hard copy printout of the information is required you may either:

   a. Select the PRINT option using the pull down menu (screen copy takes approximately 3 minutes to complete); or

   b. Initiate the MET/VENT DATA LOG option as follows:

      1) On the E-PLAN menu, select the FREE FORMAT LOG MENU.

      2) To activate the TSC log, press **[F1]**, **[22]**, and **[ENTER]**.

         To activate the EOF log, press **[F1]**, **[9]**, and **[ENTER]**.

      NOTE: Be sure to read the log description because there are 2 logs for the TSC and 2 logs for the EOF.

      3) The log will start printing at the next quarter hour.

      4) To deactivate the TSC log, press **[F3]**, **[22]**, and **[ENTER]**.

         To deactivate the EOF log, press **[F3]**, **[9]**, and **[ENTER]**.

6. If historical MET/VENT information is required, refer to the following instructions:

   a. At the command line, type: **GD_^METVENT1** and **[ENTER]**.

   b. Group point display for that display file will come up. Press the **[F3]** key for history. (See bottom of screen for F key menu.) A dialog box will appear.

   c. The work file name to be used is ARCHIVE.D, which is the default for that field.

   d. Enter the desired retrieval time. Click on OK.

   e. Group point display will return with values for the specified retrieval time.

   f. Press the **[F4]** key to step through data points from the specified retrieval time to the current time.

      NOTE: Not all desired data is likely to be available for any one particular point in time.

g. Press the **[F4]** key if you want to step slowly through the data. Press the **[F5]** key if you want to step quickly through the data. (See bottom of screen for F key menu for more options.)

h. The group point display will return to real time when history is complete. A message at the top of the screen will alert you that it is returning to real time.

6. To exit the menu, select the **[ESC]** key.

B. Site-specific meteorological information can be obtained by contacting either ABS Consulting or the National Weather Service (NWS).

1. ABS Consulting

ABS Consulting is the primary meteorological contractor for the Susquehanna Steam Electric Station (SSES). ABS Consulting has the ability to interrogate the primary and backup meteorological towers on a real-time basis and provide short and long-term weather forecasts for the site and surrounding area.

ABS Consulting provides this emergency service to PPL ONLY during normal working hours. The SSES Project Manager's name, phone number and mailing address are as follows:

ABS Consulting
Mark Abrams

(301) 907-9100
(301) 921-2362 (Fax)

ABS Consulting
Suite 200
4 Research Place
Rockville, MD 20850

2. NATIONAL WEATHER SERVICE

The National Weather Service's (NWS) primary meteorological support responsibility for a radiological emergency at SSES resides with the NWS office at Binghamton, New York. In the event the Binghamton office is unable to provide this support, the designated backup is the NWS office in State College, Pennsylvania.

The role of the local NWS office is to provide weather information and forecasts in support of emergency response activities at SSES. The NWS can be consulted over the telephone if data interpretations, assessment, or forecasting assistance are needed.

This information will include the following:

- Forecasts at current time and 6 hours of:
  a. 10-meter and 60-meter wind speed and wind direction,
  b. Precipitation rate in inches per 15 minutes, and,
  c. Boundary layer atmospheric stability described as **STABLE, UNSTABLE,** or **NEUTRAL.**
- Estimates of current 10-meter and 60-meter wind speed and wind direction in the event of complete loss of onsite and offsite meteorological instrumentation.
- General weather forecast from current time to 48 hours with special emphasis on significant weather occurrences such as major changes in wind speed, wind direction or synoptic weather patterns.
- Periodic weather updates at time intervals dictated by the on-going weather and emergency situation.

NOTE: **The NWS should ONLY be contacted when meteorological support from ABS Consulting is not available (i.e., weekends, holidays, and during the overnight hours).**

Whenever contacting the NWS, be sure to provide the following information:

- Name, Title, Facility, and Location
- Reason for the call
- Status of the Emergency
- Return telephone number

The following telephone numbers are UNLISTED and should only be used for EMERGENCY situations.

PRIMARY CONTACT NWS EMERGENCY METEOROLOGICAL SUPPORT OFFICE
National Weather Service Office Binghamton Regional Airport 32 Dawes Drive Johnson City, NY 13795 (607) 798-6625 (607) 729-7629 (607) 798-6624 (Fax)

BACKUP CONTACT NWS EMERGENCY METEOROLOGICAL SUPPORT OFFICE
National Weather Service Office 227 W. Beaver Avenue, Suite 402 State College, PA 16801 (814) 237-1152 (814) 237-1153 (814) 234-9703 (Fax)

PLANT COMPUTER METEOROLOGICAL DATA POINT IDENTIFIERS

METEOROLOGICAL PARAMETER	POINT ID*	UNITS	AVERAGING PERIOD
PRIMARY TOWER - east of the plant, 300' high red/white tower.			
10m Wind Direction	vma03	degrees	15 minutes
10m Wind Speed	vma06	mph	15 minutes
Delta T "A"	vma01	°C/50m	15 minutes
Delta T "B"	vma02	°C/50m	15 minutes
60m Wind Direction	vma04	degrees	15 minutes
60m Wind Speed	vma07	mph	15 minutes
10m Sigma Theta	vma10	degrees	15 minutes
60m Sigma Theta	vmx24	degrees	15 minutes
Precipitation Rate	vma09	in/hr	15 minutes
Ambient Temperature	vmt08b	°F	1 hour
BACKUP TOWER - across from the SSES Learning Center.			
10m Wind Direction	vma05	degrees	15 minutes
10m Wind Speed	vma08	mph	15 minutes
10m Sigma Theta	vma12	degrees	15 minutes
DOWNRIVER TOWER - on Route 93 just east of Nescopeck.			
10m Wind Direction	vmx09b	degrees	2 minutes**
10m Wind Speed	vms05b	mph	2 minutes**
10m Sigma Theta	vmx10b	degrees	2 minutes**

*** Letters are given here in lower case to differentiate the letter o from the number 0.**

SUPPLEMENTARY METEOROLOGICAL INFORMATION TABLES

TABLE 1

ATMOSPHERIC STABILITY CLASSIFICATION					
Stability Class		Delta Temperature (°C/50m)	(Alternate) Sigma Theta (degrees)	Plume Width @ 10 miles (miles)	% of Hrs at SSES
Code	Title				
A	Very Unstable	≤-.95	≥22.5	5.7	6
B	Unstable	-.94 to -.85	17.5 to 22.4	4.3	3
C	Slightly Unstable	-.84 to -.75	12.5 to 17.4	3.3	4
D	Neutral	-.74 to -.25	7.5 to 12.4	2.3	35
E	Slightly Stable	-.24 to .75	3.8 to 7.4	1.6	32
F	Stable	.76 to 2.0	2.1 to 3.7	1.1	12
G	Very Stable	>2.0	<2.1	.75	8

TABLE 2

DAYTIME
(08:00 to 18:00)

Initial Stability Class/ Wind Speed (MPH)	FINAL VALUE
A	
Wind Speed < 7	A
7 ≤Wind Speed < 9	B
9 ≤ Wind Speed < 13	C
Wind Speed ≥ 13	D
B	
Wind Speed < 9	B
9 ≤ Wind Speed < 13	C
Wind Speed ≥ 13	D
C	
Wind Speed < 13	C
Wind Speed ≥ 13	D
D, E, F, G	
Any wind speed.	D

Example: If wind speed is 9 mph and sigma theta is 18 degrees @ 10 a.m., the initial stability class from Table 1 is "B" and the wind speed corrected stability class from Table 2 is "C".

TABLE 3

NIGHTTIME
(18:00 to 08:00)

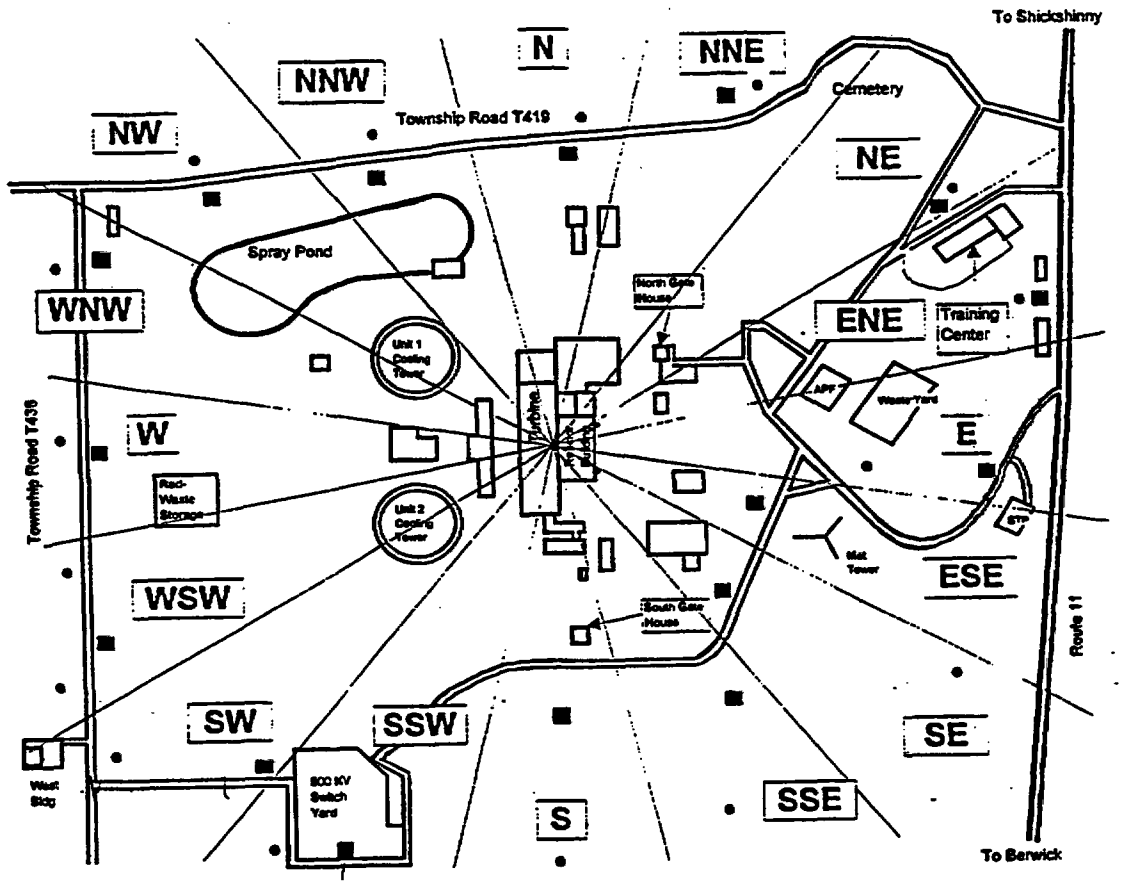
Initial Stability Class/ Wind Speed (MPH)	FINAL VALUE
A	
Wind Speed < 6	F
6 ≤ Wind Speed < 8	E
Wind Speed ≥ 8	D
B	
Wind Speed < 5	F
5 ≤ Wind Speed < 7	E
Wind Speed ≥ 7	D
C	
Wind Speed < 5	E
Wind Speed > 5	D
D	
Any wind speed.	D
E	
Wind Speed < 11	E
Wind Speed ≥ 11	D
F,G	
Wind Speed < 7	F
7 ≤ Wind Speed < 11	E
Wind Speed ≥ 11	D

TABLE 4

WIND SECTORS AND DISTANCES						
Wind From		Affected	Affected EPB*	On-Site Team	Site Boundary	% of Hrs Sector
Degrees	Sector	Sector	Distance (mi)	Distance (mi)	Distance (mi)	Affected SSES
348 - 11	N	S	0.34	0.25	0.38	6
12 - 33	NNE	SSW	0.34	0.37	0.39	9
34 - 56	NE	SW	0.34	0.33	0.61	12
57 - 78	ENE	WSW	0.34	0.39	1.22	11
79 - 101	E	W	0.34	0.37	1.03	6
102 - 123	ESE	WNW	0.34	0.41	0.61	4
124 - 146	SE	NW	0.34	0.35	0.66	4
147 - 168	SSE	NNW	0.34	0.29	0.59	4
169 - 191	S	N	0.34	0.29	0.59	5
192 - 213	SSW	NNE	0.34	0.39	0.78	7
214 - 236	SW	NE	0.34	0.42	0.58	11
237 - 258	WSW	ENE	0.34	0.52	0.49	7
259 - 281	W	E	0.34	0.45	0.48	4
282 - 303	WNW	ESE	0.34	0.18	0.50	3
304 - 326	NW	SE	0.34	0.20	0.43	3
326 - 348	NNW	SSE	0.34	0.20	0.41	5

* EPB distances established at Exclusion Area Boundary distance of 1800 ft.

ONSITE EMERGENCY MONITORING LOCATONS



● Remote Monitoring Station Locations

■ OSCAR Monitoring Team Locations

REMOTE MONITORING SYSTEM INSTRUCTIONS

1.0 RMS Setup/Operational Check

NOTE: For RMS keyboard command reference, see *RMS Keyboard Commands* included in this tab.

1.1 On the RMS terminal, open the panel located above the keyboard and rotate the power switch (first knob, right side) to the ON position.

1.2 Select the Area Monitor Coverage Screen using **[←]** and **[ENTER]**.

1.3 Input BASE for the requested user name, then **[ENTER]**.

1.4 Input STATION for the requested password, then **[ENTER]**.

1.5 If Mobile Survey Plot screen does not appear, select **[1]** to bring up the Mobile Survey Plot (MSP).

1.6 Select **[S]** to display the System Summary Screen.

1.7 Verify RMS operability.

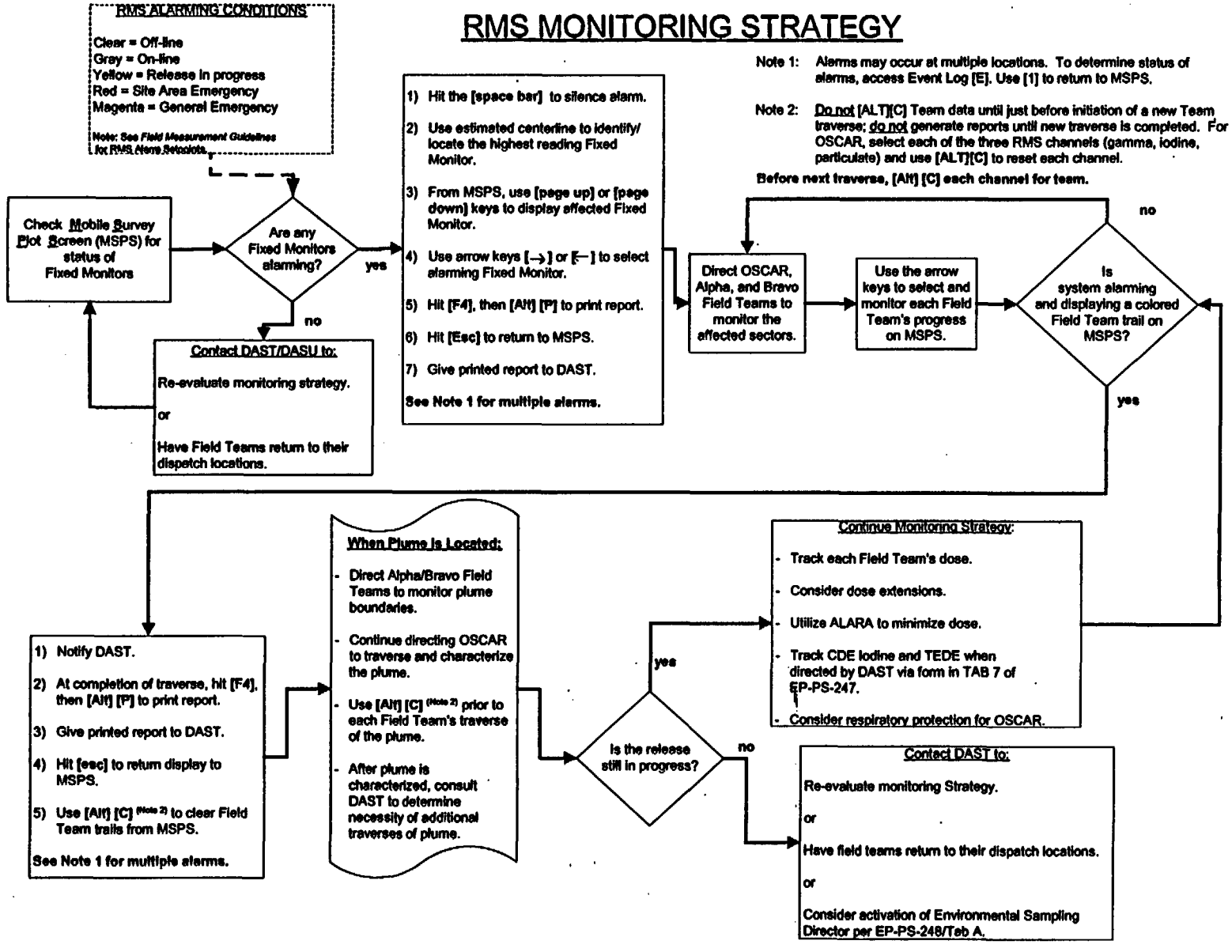
1.7.1 If AVAILABLE Fixed Monitor readings displayed on the System Summary Screen are being updated approximately every 10 seconds, RMS is considered to be *FULLY OPERATIONAL*. Proceed to Tab B, Step 2.

1.7.2 If ALL of the Fixed Monitors shown on the System Summary Screen are NOT being updated (i.e., there is no incoming radiological telemetry), then go to Tab B, Step 1a.

1.8 Depress **[1]** key to restore the Mobile Survey Plot screen.

2.0 Employ RMS/Field Team Monitoring Strategy in accordance with the Flowchart on the following page.

RMS MONITORING STRATEGY



Note 1: Alarms may occur at multiple locations. To determine status of alarms, access Event Log [E]. Use [1] to return to MSPS.

Note 2: Do not [ALT][C] Team data until just before initiation of a new Team traverse; do not generate reports until new traverse is completed. For OSCAR, select each of the three RMS channels (gamma, iodine, particulate) and use [ALT][C] to reset each channel.

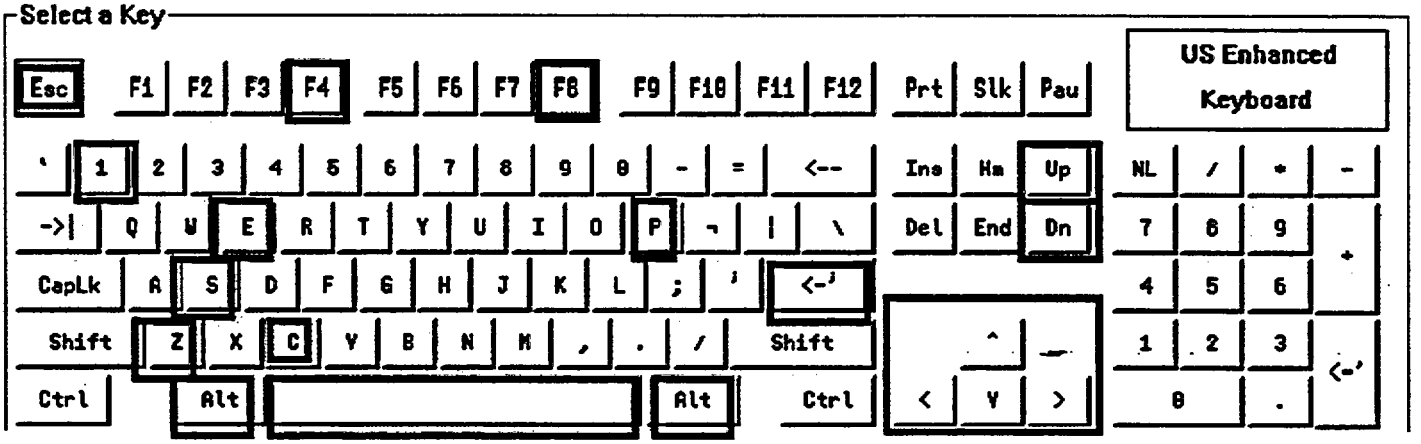
Before next traverse, [Alt] [C] each channel for team.

FIELD MEASUREMENT GUIDELINES

	RELEASE	SITE AREA EMERGENCY	GENERAL EMERGENCY
RMS		mrem/hr	
GAMMA DOSE RATE:	0.1	100	1000
CHILD THYROID CDE DOSE RATE:	68.4	500	5000
FRISKER		Net CPM	
AIR SAMPLE (CARTRIDGE):	100	600	6000
Notify DAST and/or DASU	ASAP	IMMEDIATE	IMMEDIATE

MAGENTA DATA: (last column) — Indicates the need for immediate consideration of field team protective actions

RMS Keyboard Commands



[S]: System Summary Screen

[E]: View Event Log

[1]: Display MSP from Main Menu

Return to MSP from Event Log

[←], **[↑]**, **[↓]**, **[→]** : Move Cursor (left, up, down, right) to select displayed radiological telemetry

[ENTER]: Inputs command / selection

[PAGE UP]: Pages Up Through System Formats

[PAGE DOWN]: Pages Down Through System Formats

[ALT] [Z]: Zoom MSP Maps In and Out

[SPACE BAR]: Silences Alarm

[F4]: Generate Report

[ALT] [P]: Print Generated Report

[ESC]: Previous Screen

[ALT] [C]: Clears Trail off MSP for channel selected

[F8]: Transfers display source from EOF to TSC

Field Monitoring Strategy Notes

1.0 Dispatching of Field Teams

1.1 If OSCAR was not activated prior to your arrival at the EOF, activate OSCAR as soon as possible. Upon activation it will take up to 30 minutes for OSCAR to complete equipment checks and clear the South Gatehouse.

Note: When the OSCAR Iodine sampling equipment is being source checked, RMS will alarm. Reset OSCAR Iodine channel on RMS by selecting the OSCAR Iodine channel and using [ALT][C] to reset the channel. Resetting the OSCAR gamma and particulate channels may also be desirable after OSCAR exits the South Gatehouse. That is accomplished by selecting each of those channels and using [ALT][C] to reset each channel.

1.2 The ALPHA and BRAVO field teams should usually be deployed expeditiously upon activation of the EOF, even if a radioactive release has not yet occurred. (One or both of these teams may be dispatched from the TSC prior to EOF activation.) In such cases the teams may be used to confirm the existence of background dose rates (EDE) in the areas surrounding SSES.

Note: Consider plume location when deploying these teams.

2.0 Field Team Monitoring Strategy – RMS is Available

2.1 Initially, all deployed Field Teams are to be used to traverse the potentially affected sectors to locate the plume and its centerline.

2.2. Once the plume is located and the affected sectors are identified:

2.2.1 OSCAR will be used to characterize/quantify the release by traversing the affected sector(s).

2.2.2 ALPHA and BRAVO field teams will then be used to track the plume direction and movement by monitoring the plume boundaries within the 10-mile EPZ. As conditions warrant, these teams may also be used to characterize plume centerline conditions.

2.2.3 At least one field team (ALPHA or BRAVO) should be kept on the east side of the Susquehanna River to facilitate coverage of the EPZ.

2.3 Once the plume has been characterized and the source of the release has been isolated, consult with the DAST and DASU to determine an appropriate reduction in plume traverse frequency and designate a low dose waiting area for OSCAR.

3.0 Field Team Monitoring Strategy – RMS is Inoperable

3.1 Initially, all deployed field teams are to be used to traverse the potentially affected sectors to locate the plume and its centerline.

3.2 Once the plume is located and the affected sectors are identified:

3.2.1 OSCAR will be used to characterize/quantify the release by traversing the affected sector(s). As conditions warrant, OSCAR shall obtain a manual air sample at the highest reading location inside the plume.

3.2.2 ALPHA and BRAVO field teams will then be used to track the plume direction and movement by monitoring the plume boundaries within the 10-mile EPZ. As conditions warrant, these teams may also be used to characterize plume centerline conditions.

3.2.3 At least one field team (ALPHA or BRAVO) should be kept on the east side of the Susquehanna River to facilitate coverage of the EPZ.

3.3 Once the plume has been characterized and the source of the release has been isolated, consult with the DAST and DASU to determine an appropriate reduction in plume traverse frequency and designate a low dose waiting area for OSCAR.

4.0 Terrain Factors to Consider when Deploying Field Teams

4.1 Winds from the **S** sector could result in a significant backwash effect. This type of terrain-induced backwash could occur in the hills immediately north of SSES and at a number of other locations within several miles of the plant. High external dose rates and surface contamination levels characterize these backwash effects.

4.2 Winds from the **S, SSW, SW, WSW,** or **W** sectors can also result in:

4.2.1 The plume remaining within the river valley.

4.2.2 The plume traveling up Wapwallopen gorge, east of SSES.

4.3 Winds from the **NNE, NE, ENE, E, ESE, SE,** or **SSE** can result in the entrainment of the release in the updraft of the operating cooling tower(s). In this case, evaluate the use of upper level wind sensor information when determining field team placement.

4.4 Be aware that the plume may travel much faster than is indicated by the on-site wind speeds, particularly when the plume is traveling along the river valley.

4.5 Be aware that the complex terrain south and southeast of the plant and on the east side of the Susquehanna River has a negative effect on the accuracy of a MIDAS projection of the plume's location.

In general, the further from the plant you get, the less reliable a MIDAS prediction will be on the plume's location.

5.0 Exposure Control Notes

5.1 Review the exposure control statements of RWP #8002 (E-Plan: Field Monitor Activities) and/or RWP #8001 (E-Plan: OSCAR Activities), as applicable.

5.2 Notify the DAST/DASU promptly when the field teams report any of the following conditions:

- Dose Rates ≥ 1,000 mrem/hr
- Cartridge Readings > 1,200 cpm

5.3 Notify the DAST or DASU immediately if YTD exposure plus current SRD readings are within 200 mrem of a team member's applicable dose limit and immediately position that team in a low background area. Do not send this team back into the plume without the direction of the DAST or DASU.

5.4 Initiate tracking of CDE Iodine and TEDE via the *Calculation and Tracking Sheet for Estimated Iodine CDE and TEDE Doses* form in Tab 7 of EP-PS-247 when:

- The Iodine CDE dose rate at a team sampling location exceeds 1000 mrem/hr (1400 cpm frisker).

OR

- When directed by the DAST/DASU.

LIQUID DISCHARGE DATA SHEETS

Section 1: Release Data

Time of release commencement into river (T_1) _____

Time of release termination (T_2) _____

Duration of release ($T_3 = T_2 - T_1$, expressed in hours) _____ Hours

Sample location(s) _____

NOTE: Complete PART I, II, or III based on location of sample.

Section 2: Determination of Radionuclides (from Part IV)

EC fraction for all radionuclides at Danville (S_d) _____

Section 3: Times of Arrival at Danville

	Transit Time to Danville (from Table 1)	Time of Arrival at Danville
Leading Edge	_____ hrs	_____
Peak Concentration	_____ hrs	_____
Trailing Edge	_____ hrs	_____

LIQUID DISCHARGE DATA SHEETS

PART I: **Complete this part if the results are for a sample obtained directly from the SSES Cooling Tower Blowdown Discharge (CTBD) line. Otherwise, proceed to Part II of this tab. Upon completion of Part I, proceed to Part IV.**

Radionuclides in Sample	Co-60	Sr-91	Mo-99	Te-132	I-131	I-133	I-134	I-135	Cs-134	Cs-136	Cs-137	Ba-139	Ba-140	Ba-141	Np-239
Radionuclide Activity Concentrations (C_i) of the Sample (µCi/ml)															
EC Values (L_i) for Radionuclides (µCi/ml)[1]	3E-6	2E-5	2E-5	9E-6	1E-6	7E-6	4E-4	3E-5	9E-7	6E-6	1E-6	2E-4	8E-6	3E-4	2E-5
EC Fractions (F_i) of Radionuclides[2]															

1 The EC (effluent concentration) values (L_i) are obtained from Table 2, Column 2 of Appendix B to 10CFR20. These EC values correspond to the PAG value (50 mrem CEDE) for river water at Danville.

2 Obtain the EC fractions (F_i) by dividing each radionuclide concentration (C_i) by its corresponding EC value (L_i) as follows: $F_i = C_i/L_i$. The EC fractions are those for the water entering the Susquehanna River from the SSES discharge.

LIQUID DISCHARGE DATA SHEETS

PART II: **Complete this part if the results are for a sample obtained from a waste stream entering directly into the SSES Cooling Tower Blowdown Discharge (CTBD) line. This includes results for a sample obtained from the SSES Spray Pond or from the SSES Liquid Radwaste System. Otherwise, proceed to Part III of this tab. Upon completion of Part II, proceed to Part IV.**

Flow Rate (F_1) of Waste Stream into the CTBD line (gpm)[1]	
Flow Rate (F_2) of CTBD line (gpm)[2]	
Dilution Factor (D_2) for the CTBD line[3]	

1 Obtain the flow rate (F_1) for the waste stream entering the CTBD line. If the waste stream is the SSES Spray Pond, its flow rate into the CTBD line may be determined as follows: a) Obtain the spray pond level from the Control Room, and b) Using the spray pond level, obtain the flow rate (F_1) for the spray pond from Table 2.

2 Obtain the flow rate (F_2) of the CTBD line from the TSC Chemistry Coordinator or TSC Coordinator, if possible. If the actual flow rate can't be obtained from the TSC Coordinator or TSC Chemistry Coordinator, assume that it is 5,000 gpm.

3 The dilution factor (D_2) for the CTBD line is obtained by dividing the sum of the waste stream and CTBD line flow rates (F_1+F_2) by the waste stream flow rate (F_1) as follows: $D_2 = (F_1+F_2)/F_1$.

LIQUID DISCHARGE DATA SHEETS

PART II (Continued)

Radionuclides in Sample	Co-60	Sr-91	Mo-99	Te-132	I-131	I-133	I-134	I-135	Cs-134	Cs-136	Cs-137	Ba-139	Ba-140	Ba-141	Np-239
Radionuclide Activity Concentrations (C_i) of the Sample (µCi/ml)															
Expected Radionuclide Activity Concentration (E_2) in the CTBD Line (µCi/ml)[4]															
EC Values (L_i) for Radionuclides (µCi/ml)[5]	3E-6	2E-5	2E-5	9E-6	1E-6	7E-6	4E-4	3E-5	9E-7	6E-6	1E-6	2E-4	8E-6	3E-4	2E-5
EC Fractions (F_i) of Radionuclides[6]															

4 Obtain the radionuclide concentrations expected (E_2) in the CTBD line by dividing the radionuclide concentrations (C_i) by the CTBD line dilution factor (D_2) as follows: $E_2 = C_i/D_2$.

5 The EC (effluent concentration) values (L_i) are obtained from Table 2, Column 2 of Appendix B to 10CFR20. These EC values correspond to the PAG value (50 mrem CEDE) for river water at Danville.

6 Obtain the EC fractions (F_i) by dividing each expected radionuclide concentration (E_2) by its corresponding EC value (L_i) as follows: $F_i = E_2/L_i$. The EC fractions are those for the water entering the Susquehanna River from the SSES discharge.

LIQUID DISCHARGE DATA SHEETS

PART III: Complete this part if the results are for a sample obtained from a waste stream entering into the Spray Pond before being released to the SSES Cooling Tower Blowdown Discharge (CTBD) line. Upon completion of Part III, proceed to Part IV.

Volume (V) of Release into the Spray Pond (gallons)[1]	
Dilution Factor (D_1) for the Spray Pond[2]	
Flow Rate (F_1) of Spray Pond into the CTBD line (gpm)[3]	
Flow Rate (F_2) of CTBD line (gpm)[4]	
Dilution Factor (D_2) for the CTBD line[5]	

1 Obtain the volume of the release to the Spray Pond from the TSC Chemistry Coordinator or TSC Coordinator.

2 Obtain the dilution factor (D_1) for the Spray Pond by dividing the volume (V) of the release into the Spray Pond by 2E7 as follows: $D_1 = V/2E7$.

3 Obtain the flow rate (F_1) from the SSES Spray Pond from Table 2. Spray Pond level can be obtained from the Control Room.

4 Obtain the flow rate (F_2) of the CTBD line from the TSC Chemistry Coordinator or TSC Coordinator, if possible. If the actual flow rate can't be obtained from the TSC Coordinator or TSC Chemistry Coordinator, assume that it is 5,000 gpm.

5 Obtain the dilution factor (D_2) for the CTBD line by dividing the sum of the Spray Pond (waste stream) and CTBD line flow rates (F_1+F_2) by the Spray Pond flow rate (F_1) as follows: $D_2 = (F_1 + F_2)/F_1$.

LIQUID DISCHARGE DATA SHEETS

PART III (Continued)

Radionuclides in Sample	Co-60	Sr-91	Mo-99	Te-132	I-131	I-133	I-134	I-135	Cs-134	Cs-136	Cs-137	Ba-139	Ba-140	Ba-141	Np-239
Radionuclide Activity Concentrations (C_i) of the Sample (μCi/ml)															
Expected Radionuclide Activity Concentration (E_1) in the Spray Pond (μCi/ml)[6]															
Expected Radionuclide Activity Concentration (E_2) in the CTBD Line (μCi/ml)[7]															
EC Values (L_i) for Radionuclides (μCi/ml)[8]	3E-6	2E-5	2E-5	9E-6	1E-6	7E-6	4E-4	3E-5	9E-7	6E-6	1E-6	2E-4	8E-6	3E-4	2E-5
EC Fractions (F_i) of Radionuclides[9]															

6 Obtain the radionuclide concentrations expected (E_1) in the Spray Pond by dividing the radionuclide concentrations (C_i) of the sample by the dilution factor (D_1) of the Spray Pond as follows: $E_1 = C_i/D_1$.

7 Obtain the radionuclide concentrations expected (E_2) in the CTBD line by dividing the radionuclide concentrations (E_1) by the CTBD line dilution factor (D_2) as follows: $E_2 = E_1/D_2$.

8 The EC (effluent concentration) values (L_i) are obtained from Table 2, Column 2 of Appendix B to 10CFR20. These EC values correspond to the PAG value (50 mrem CEDE) for river water at Danville.

9 Obtain the EC fractions (F_i) by dividing each expected radionuclide concentration (E_2) by its corresponding EC value (L_i) as follows: $F_i = E_2/L_i$. The EC fractions are those for the water entering the Susquehanna River from the SSES discharge.

LIQUID DISCHARGE DATA SHEETS

PART IV: Complete this part using the results obtained from either Parts I, II, or III, as applicable.

Undiluted Sum (S) of EC Fractions for all Radionuclides[1]	
River Depth (R_{CR}) Read at the Control Room – 0C653 or ENVR in PICSY[2]	
Dispersion Factor to Danville (M) from Table 1	
Diluted Sum (S_d) of EC Fractions for all Radionuclides at Danville[3,4]	

1 Obtain the undiluted sum (S) of EC fractions for all radionuclides by adding the EC fractions (F_i) for all radionuclides as follows: $S = \Sigma F_i$. Obtain the EC fractions from either Part I, II, or III, as appropriate.

2 If the river depth (R_{EL}) read at the SSES Environmental Lab is available, convert to the depth (R_{CR}) read at the Control Room as follows: $R_{CR} = 12 \times R_{EL} + 126$.

3 Obtain the diluted sum (S_d) of EC fractions by dividing the undiluted sum (S) of EC fractions by the dispersion factor (M) as follows: $S_d = S/M$.

4 The diluted sum of EC fractions is at Danville after dilution of the SSES effluent by the Susquehanna River enroute.

TABLE 1

SUSQUEHANNA RIVER:
DEPTH - DISPERSION FACTOR - TRANSIT TIME TO DANVILLE

RIVER DEPTH (in)*	DISPERSION AT DANVILLE (M)	TRANSIT TIME (hours)		
		Leading Edge	Peak Conc	Trailing Edge
144	136.4	68.7	74.3	141.2
150	155.5	64.8	70.3	136.5
156	179.2	61.1	66.5	131.9
162	208.3	57.2	62.3	127.2
168	281.3	45.9	52.4	112.9
174	250.6	35.5	41.2	99.7
180	261.5	34.5	40.0	95.6
186	277.8	33.0	38.3	90.2
192	297.3	31.4	36.4	84.0
198	323.6	29.5	34.3	76.7
204	366.7	26.9	31.3	66.7
210	456.6	23.0	27.2	52.7
216	588.2	20.0	24.0	40.8
222	869.6	16.5	20.5	27.5
228	980.4	15.3	19.3	24.3
234	1072	14.7	18.7	23.7
240	1174	14.2	18.2	23.0
246	1285	13.5	17.5	22.5
258	1567	12.2	16.2	21.0
270	2058	10.7	14.7	19.5
282	2597	10.0	14.0	18.7
294	3068	9.8	13.8	18.3
306	3559	9.8	13.8	18.0
318	4082	9.8	13.8	17.7
330	4651	9.7	13.7	17.2
342	5236	9.7	13.7	16.8
354	5882	9.7	13.7	16.3
366	6536	9.5	13.5	16.0
378	7246	9.5	13.5	15.5
390	8000	9.3	13.3	15.0

* **For depth readings found between depths stated above, round to closest figure. If value falls exactly between two depths reported above, round to the lesser value.**

TABLE 2

DISCHARGE FROM SPRAY POND TO COOLING TOWER BLOWDOWN LINE VS. SPRAY POND WATER SURFACE ELEVATION

SPRAY POND WATER SURFACE ELEVATION (feet above msl)	DISCHARGE RATE TO BLOWDOWN CONDUIT (l) (gpm)
678.5	0
.6	541
.7	1,530
.8	2,849
.9	4,445
679.0	6,213
.1	8,166
.2	10,271
.3	12,525
.4	14,804
.5	14,964
.6	15,123
.7	15,279
.8	15,434
.9	15,588
680.0	15,740
.1	15,891
.2	16,040
.3	16,188
.4	16,334
.5	16,480
.6	16,624
.7	16,766
.8	16,907
.9	17,048

SPRAY POND WATER SURFACE ELEVATION (feet above msl)	DISCHARGE RATE TO BLOWDOWN CONDUIT (l) (gpm)
681.0	17,187
.1	17,325
.2	17,462
.3	17,598
.4	17,733
.5	17,867
.6	18,000
.7	18,131
.8	18,262
.9	18,392
682.0	18,521
.1	18,649
.2	18,777
.3	18,903
.4	19,029
.5	19,154
.6	19,278
.7	19,401
.8	19,523
.9	19,645
683.0	19,766
.1	19,886
.2	20,005
.3	20,124
.4	20,242
.5	20,359

PPL EMERGENCY PERSONNEL DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATION (PAR) GUIDE

TABLE OF CONTENTS

NOTE: **EMERGENCY EXPOSURE EXTENSION REQUEST FORM** and **POTASSIUM IODIDE TRACKING FORM** can be found as Forms EP-AD-000-135 and EP-AD-000-141, respectively.

PPL EMERGENCY PERSONNEL DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATION (PAR) GUIDE

CHECK ☐

1.0 Limits for **EMERGENCY** doses.

☐ 1.1 An **EMERGENCY DOSE AUTHORIZATION** (see EMERGENCY EXPOSURE EXTENSIONS) may be granted in order to protect facilities, and or equipment to substantially limit the escape of radioactive effluents or control fires. The maximum planned doses are:

1.1.1 Whole body (TEDE)[1] dose shall not exceed 10 rem.

1.1.2 Dose to any organ (CDE)[2], including the skin and extremity (SDE)[3], shall not exceed 100 rem.

1.1.3 Dose to the lens of the eye shall not exceed 30 rem (LDE)[4].

☐ 1.2 An **EMERGENCY** dose authorization may be granted for life-saving actions or protection of large populations. The maximum doses are:

1.2.1 Planned whole body (TEDE)[1] doses shall not exceed 25 rem.

1.2.2 Planned dose to any organ (CDE)[2], including skin and extremity doses, shall not exceed 250 rem.

1.2.3 Dose to the lens of the eye shall not exceed 75 rem (LDE)[4].

1.3 **RARE** situations may occur in which a dose **GREATER THAN** those specified in SECTION 1.2 above for emergency dose would be unavoidable to carry out a lifesaving operation or to avoid extensive exposure of large populations. It is not possible to prejudge the risk that one should be allowed to take to save lives of others, therefore no upper limit has been established.

(1) The sum of the Effective Dose Equivalent resulting from the exposure to external sources and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the early phase.

(2) The Committed Dose Equivalent to the thyroid from radioiodine.

(3) Shallow Dose Equivalent.

(4) Lens Dose Equivalent.

PPL EMERGENCY PERSONNEL DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATION (PAR) GUIDE

CHECK ☐

2.0 For any **EMERGENCY EXPOSURE OR ACCIDENTAL OVEREXPOSURE**, the assessment actions in step 2 of the EMERGENCY EXPOSURE EXTENSIONS must be performed.

3.0 **PROTECTIVE ACTIONS**

☐ 3.1 Potassium Iodide

3.1.1 For thyroid doses that are strongly expected to exceed 10 rem (CDE)[(2)], ingestion of a KI dose of 130 mg (100mg - iodine) should be recommended, except as noted in paragraph 3.1.2, to personnel whose emergency assignment or qualifications do not allow other protective measures to be taken (e.g. respiratory protection, evacuation, relocation, etc.) to maintain the dose to the thyroid at less than 10 rem.

NOTE: HHS/FDA guidance is that adults over 40 years of age need take KI only in the case of a projected large internal radiation dose to the thyroid (> 500 rem) to prevent hypothyroidism; the guidance is 10 rem for adults over age 18 to age 40.

3.1.2 KI should not be administered to any emergency worker who:

a. does not concur with its use, or

b. has a known allergic reaction to iodine and/or foods containing iodine such as shellfish, or

c. has been directed by their Physician or Pharmacist to avoid ingestion of iodine and/or foods containing iodine such as shellfish.

(2) The Committed Dose Equivalent to the thyroid from radioiodine.

PPL EMERGENCY PERSONNEL DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATION (PAR) GUIDE

CHECK ☐

3.1.3 Onsite issuance of KI for iodine prophylaxis requires the approval of the **EMERGENCY DIRECTOR**. Issuance to EOF and FIELD EMERGENCY MONITORING/SAMPLING TEAM personnel requires the approval of the **RECOVERY MANAGER** when the EOF has relieved the TSC of emergency management activities. The **EMERGENCY DIRECTOR** will approve issuance prior to that time. These approvals must be documented on the **POTASSIUM IODIDE (KI) TRACKING FORM.**

3.1.4 Unless the EMERGENCY DIRECTOR or RECOVERY MANAGER instructs personnel to do otherwise, the KI tablets should generally be taken as soon as possible after thyroid dose exceeding 10 rem CDE [2] is projected.

NOTE: Stable iodine (KI) is most effective when administered immediately prior to exposure to radioiodine. Significant blockage of the thyroid dose can be provided by administration within a few hours after uptake of radioiodine.

3.15 In the event a significant exposure to the thyroid is projected to continue over a period of several days the CONSULTING RADIOLOGICAL PHYSICIAN should be requested to provide a recommended KI dosage for subsequent KI usage. (See Emergency Telephone Directory for telephone number.)

3.16 Until input/advice from the CONSULTING RADIOLOGICAL PHYSICIAN is available, a quarter of a tablet should be taken on days of exposure that follow the day on which the initial full tablet dose (130 mg) was taken.

3.17 If a worker expresses concern with the use of KI and/or is unsure if it will interact with his/her current medication,

a. the CONSULTING RADIOLOGICAL PHYSICIAN should be requested to provide input/advice to the individual concerning the administration and cessation of KI use prior to its ingestion by the individual. (See Emergency Telephone Directory for telephone number.)

[2] The Committed Dose Equivalent to the thyroid from radioiodine.

PPL EMERGENCY PERSONNEL DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATION (PAR) GUIDE

CHECK ☐

b. control and track workers' dose, to limit their projected thyroid dose to 40 rem total organ dose. As warranted, ensure adjusted RWP controls and dose extensions are in place.

3.1.8 Should the projected dose to the thyroid not exceed 10 rem CDE [2] but the worker expresses the strong desire to use KI, the worker may do so at his/her own risk. In such case, the RPC or DASU as appropriate will inform the worker of the potential risks and benefits as described below and will recommend the person contact the CONSULTING RADIOLOGICAL PHYSICIAN for further guidance.

NOTE: Radiation exposure to the thyroid glands of adults does not appear to lead to cancer but has been shown to cause other deterministic effects (such as hypothyroidism resulting from thyroid ablation) from very high radiation doses to the thyroid.

For persons over 40 years of age, HHS/FDA recommends KI only for projected doses to the thyroid of above 500 rem, to prevent hypothyroidism.

The National Council on Radiation Protection and Measurement (NCRP Report No. 55) concludes that the risk of adverse effects from use of KI is on the order of 5 in 10 million.

In some cases, hyperthyroidism (excessive functional activity of the thyroid gland) is possible. Those most at risk are patients with thyroid pathologies. This is most common in patients with goiter. This complication can be serious when the person also has heart disease. The risk of adverse effects is higher in adults of age 45 years and older, due to the frequency of diagnosed and sub-clinical thyroid disease and the use of certain prescription pharmaceuticals that would lead to a drug interaction.

[2] The Committed Dose Equivalent to the thyroid from radioiodine.

PPL EMERGENCY PERSONNEL DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATION (PAR) GUIDE

CHECK ☐

HHS/FDA observes that short-term administration of KI at thyroid blocking doses is safe. The risks of stable iodine administration include sialadenitis (an inflammation of the salivary gland), gastrointestinal disturbances, allergic reactions, and minor rashes. Other risks may apply if repeated doses of KI are ingested.

3.1.9 If the individual states the intent to take KI absent a projected dose of 10 rem (CDE)[2] or more, the RPC or DASU will document in his/her logbook that individual's intent, that information on risks and benefits was described to the individual, and the statement that the individual was notified that ingestion was at the individual's own risk.

3.1.10 For an injured and/or contaminated worker sent to a hospital for treatment, the patient will be under the care of the attending physician. As such, plant procedures no longer apply and KI issuance will be at the discretion of the attending physician. The physician can rely on a senior Health Physics Technician Level II or Health Physics Management to provide the in-plant radiological data on which to base their decision.

☐ 3.2 Protective measures should be implemented for EOF personnel at the direction of the **DOSE ASSESSMENT SUPERVISOR**, within the bounds of RWPs #8001 and #8002. Consultation with and approval by the RPC is needed for RWP revisions.

☐ 3.3 Exposures to members of local offsite support groups, (ambulance workers, fire fighters) shall not exceed 500 mrem (TEDE)[1] for the performance of support duties on the site of the Susquehanna SES.

[2] The Committed Dose Equivalent to the thyroid from radioiodine.

[1] The sum of the Effective Dose Equivalent resulting from the exposure to external sources and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the early phase.

PPL EMERGENCY PERSONNEL DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATION (PAR) GUIDE

CHECK ☐

4.0 **EMERGENCY EXPOSURE NOTIFICATIONS AND A HEALTH CONSEQUENCE INVESTIGATION** must be conducted for any emergency exposure as outlined in step 6 of the Emergency Exposure Extensions.

NOTE: Reference for section 3.1 are as follows:

1. HHS/FDA Guidance-Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies, December 2001.

2. LeGuen, B. et.al., French Approach for the Distribution of Iodine Tablets in the Vicinity of Nuclear Power Plants, Health Physics 2002.

3. PEMA, Report to the REPAC from the Potassium Iodide Working Group, January 2001.

EMERGENCY EXPOSURE EXTENSIONS

CHECK ☐

1. Fill out the attached **EMERGENCY EXPOSURE EXTENSION REQUEST** Form.

2. Review the following factors:

   ☐ Rescue personnel should be volunteers or professional rescuers.

   ☐ Other considerations being equal (e.g., skill, potential need for person on another mission) personnel above the age of 45 are preferred.

   ☐ Rescue personnel should be familiar and briefed with the consequences of exposure.

   ☐ Women capable of reproduction should not take part in an effort requiring EMERGENCY exposure.

   ☐ Use of personnel with high lifetime cumulative exposure should be discouraged.

   ☐ All reasonable measures must be taken to control contamination and internal exposure.

   ☐ Exposure under these conditions shall be limited to once in a lifetime.

   ☐ For exposures greater than 25 rem whole body (TEDE), the persons undertaking any emergency operation in which the dose will exceed 25 rem to the whole body (TEDE) should do so only on a voluntary basis and with full awareness of the risks involved, including the numerical levels of dose at which acute effects of radiation will be incurred and numerical estimates of the risk of delayed effects. See the following two tables for general information concerning Health Effects & Cancer Risks.

EMERGENCY EXPOSURE EXTENSIONS

CHECK ☐

Health Effects Associated with Whole Body Absorbed Doses Received Within a Few Hours[a]

Whole Body Absorbed Dose (rad)	Early Fatalities[b] (percent)	Whole Body Absorbed Dose (rad)	Prodromal Effects[c] (percent affected)
140	5	50	2
200	15	100	15
300	50	150	50
400	85	200	85
460	95	250	98

(a) Risks will be lower for protracted exposure periods.
(b) Supportive medical treatment may increase the dose at which these frequencies occur by approximately 50 percent.
(c) Symptoms (nausea, vomiting) which occur within a few hours after exposure to large doses of radiation and which usually precede more serious health effects.

Approximate Cancer Risk to Average Individuals from 25 Rem Effective Dose Equivalent Delivered Promptly

Age at Exposure (years)	Approximate Risk of Premature Death (deaths per 1,000 persons exposed)	Average Years of Life Lost if Premature Death Occurs (years)
20 to 30	9.1	24
30 to 40	7.2	19
40 to 50	5.3	15
50 to 60	3.5	11

3. Review the **HEALTH PHYSICS AND ALARA CONSIDERATIONS DURING EMERGENCIES** which is attached.

4. Obtain appropriate approval signatures as outlined in the table below.

EXTENSION		APPROVAL	ACTIONS
FROM mrem (TEDE)	TO mrem (TEDE)		
4000	<25000	(ED or RM) and RPC	ALARA REVIEW AND APPLY EMERGENCY EXPOSURE CONSIDERATIONS
>25000		(ED or RM) and RPC	ALL OF ABOVE AND BRIEFING ON RISKS

EMERGENCY EXPOSURE EXTENSIONS

CHECK ☐

5. If the Emergency Dose Extension is for greater that 4 rem (TEDE), have the volunteer sign the **EMERGENCY EXPOSURE REQUEST** Form acknowledging that they are a volunteer and are fully aware of the radiological risks of acute and delayed effects.

6. Upon completion of the activity requiring the Emergency Exposure perform the following:

   ☐ Collect, process, and evaluate personnel dosimetry devices when technically appropriate.

   ☐ Investigate the circumstances of all emergency exposures and confirm the dose received.

   ☐ Notify the NRC of emergency exposure as follows:

   Immediate notification of the NRC is required for:

   a. Exposure of the whole body of greater than 25 rem (TEDE); or
   b. Exposure of the skin of the whole body of greater than 150 rem (SDE); or
   c. Exposure of the extremities of greater than 375 rem (SDE).

   Notification of the NRC **within 24 hours** is required for:

   a. Exposure of the whole body of greater than 5 rem (TEDE); or
   b. Exposure of the skin of the whole body of greater than 30 rem (SDE); or
   c. Exposure of the extremities of greater than 75 rem (SDE).

   ☐ Assess the health consequences of all emergency exposures. Consult with a physician to determine the need for and extent of physical and biochemical examinations.

   ☐ Whole body greater than 25 rem (TEDE) should result in an examination of the exposed person by a physician.

   ☐ If internal exposure is suspected, quantitative measurements should be made as soon as reasonably feasible. Bioassays are required based on the following:

   - Nasal smear or facial contamination greater than 1,000 cpm above background.
   - Greater than 4 DAC-HRS in a day or less, or 20 DAC-HRS in a week or less.

HEALTH PHYSICS AND ALARA CONSIDERATIONS DURING EMERGENCIES

CHECK ☐

1.0 Evaluate radiological conditions.

1.1 Obtain detailed survey data to ascertain:

1.1.1 Beta-Gamma radiation levels

1.1.2 Need for neutron measurements

1.1.3 Contamination levels and protective clothing requirements

1.1.4 Airborne radioactive materials

1.1.5 Variability of conditions over space and time

1.2 Evaluate personnel status.

1.2.1 Determine available dose under normal administrative dose objectives.

1.2.2 If essential, obtain approval from **RADIATION PROTECTION COORDINATOR/EMERGENCY DIRECTOR** for persons expected to exceed administrative objectives.

1.2.3 Follow criteria in PPL Emergency Personnel Dose Assessment and Protective Action Recommendation Guide when emergency exposures are deemed appropriate by **EMERGENCY DIRECTOR.**

1.2.4 Assess individual's history of exposure to airborne materials.

1.2.5 Assess individual's skills in relation to proposed task.

1.2.6 Assess individual's lifetime exposure history.

HEALTH PHYSICS AND ALARA CONSIDERATIONS DURING EMERGENCIES

CHECK ☐

1.3 Determine proper type and placement of dosimeters.

1.3.1 Evaluate need for additional whole body dosimeters.

NOTE: For emergency exposures above 4 rem, the placement of several dosimeters on an individual is recommended to determine spatial distribution of dose to the individual.

1.3.2 Evaluate need and placement of extremity dosimeters.

1.3.3 Evaluate need for additional dosimetry devices such as high range self-reading dosimeters, electronic dosimeters, and neutron dosimeters.

1.3.4 Evaluate need for time keeping.

1.4 Determine proper respirator equipment required to perform task.

NOTE: For tasks expected to last more than several hours, consider need for relief of team members.

1.5 Review the following ALARA items:

NOTE: The detail and scope of ALARA reviews are to be commensurate with the magnitude of doses expected, numbers of people involved, and urgency of required task.

1.5.1 Consider the trend of exposures vs. the importance of the task:

a. Important and critical task with rising exposure rates will require the dispatch of teams as quickly as possible to reduce exposures.

b. Unimportant or less critical task could be delayed until exposure rates begin to trend downward.

HEALTH PHYSICS AND ALARA CONSIDERATIONS DURING EMERGENCIES

CHECK ☐

1.5.2 When time permits the following should be included in the ALARA review:

a. Consider the use of remote handling devices or other special tools.

b. Consider the use of portable shielding.

c. Consider the need for mock-ups or other practice exercises.

d. Assess the number of people required to assure all have essential productive roles.

e. Consider the magnitude of doses received by team members in transit to work location.

COUNTY DECONTAMINATION FACILITY LOCATIONS

A. **Columbia County Decontamination Facility for Emergency Workers:**

Columbia Montour Area Vocational Technical School
5050 Sweppenheiser Drive
Bloomsburg, Pennsylvania

B. **Luzerne County Decontamination Facilities for Emergency Workers:**

Sweet Valley Volunteer Fire Company
5383 Main Road
Sweet Valley, Pennsylvania

Wright Township Volunteer Fire Company
477 South Main Street
Mountaintop, Pennsylvania

NOTE:

These locations are subject to change due to the dynamic nature of volunteer agencies. Confirmation regarding locations of County Decontamination Facilities may be obtained from the Columbia and Luzerne County Emergency Operations Centers.

SHIFT TAKEOVER CHECKLIST

1. Accident Status: (DASU)

a. Current Emergency Classification: None Unusual Event Alert Site Area General EAL #

b. Affected Unit(s): 1 2 Both None

c. Onsite Emergency Actions: ☐ None ☐ Local Area Evacuation ☐ Site Accountability ☐ Evacuation of non-essential personnel

d. Plant Status: _____

_____

_____

e. Current PAR: _____

_____

_____

f. Last transmitted PAR form: Number: _____ Time: _____

g. Last DEP/BRP Communication Time: _____

3. MIDAS Information: (DAST)

a. Accident dose calculation method in use: Menu B Menu C Menu D Menu E-W Menu G

b. Accident Source Term Selection: ATWS Coolant Activity Leak (LOCA) DP-No Fuel Damage (LOCA) Cladding Failure

(LOCA) Fuel Melt Fuel Handling Accident (Percent Clad Failure or Fuel Melt: _____)

c. Projected Doses (TEDE): @ EPB _____ @ 2 mi _____ @ 10 mi _____

d. Proj. Doses (THY CDE): @ EPB _____ @ 2 mi _____ @ 10 mi _____

e. Has release occurred or is one in progress? Y N If yes: Gaseous Liquid

f. Release type: _____ Monitored _____ Unmonitored

4. **Field Data: (FTD)**

a. Status of Monitoring Teams:

Team Name	Status

b. Measured Field Dose Rates: _____

_____

_____

c. Meteorological Conditions:

Wind From _____ Wind Speed _____ Affected Sector _____

Stability Class _____ Precipitation: None L M H

CALCULATION AND TRACKING SHEET FOR ESTIMATED IODINE CDE AND TEDE DOSES

USE THIS FORM:

1. When the iodine CDE dose rate at a team sampling location exceeds 1,000 mrem/hr. (1,200 cpm frisker).
   OR
2. As directed by the TSC Dose Calculator or the DAST.

Methodology:

1. Initiate this form. Identify the affected team and the highest year-to-date (YTD) dose for any individual on the team.
2. Enter the time, current SRD dose and iodine to gamma ratio (I/γ). (Note: Iodine to gamma ratio can be obtained from the RMS Emergency Field Monitoring Secondary Data Report.) **The highest ratio obtained since tracking was initiated should be used (obtain from previously printed reports).**

   NOTE: If the SRD dose is less than 10 mrem enter "<10" in the SRD Dose Field, multiply the I/γ times 10 and enter the CDE and TEDE doses as < dose value.

3. Calculate the iodine CDE: SRD x I/γ = CDE (mrem)
4. Calculate TEDE: CDE x 0.03 + SRD + (YTD) = TEDE (mrem)
5. Notify the TSC Dose Calculator or DAST immediately and pull the team to a low background area if any member of a team reaches or exceeds the following:

   TEDE = 3800 mrem CDE = 10,000 mrem

TEAM: _____ Year-to-Date (YTD) Dose: _____

Date/Time	SRD Dose(mrem)	Iodine/gamma Ratio (I/γ)	Iodine CDE (mrem)	TEDE (mrem)

SURVEY DATA FORM
(with RMS Partially Operable)

FIELD TEAM: _____

DATE/TIME (military): _____/_____

LOCATION/SECTOR: _____ **DISTANCE:** _____ **miles**

Exposure Data

Name:_____ Badge Slot # _____	SRD Reading: _____mR
Name:_____ Badge Slot # _____	SRD Reading: _____mR

Field Team RMS Gamma Dose Rate:

mR/hr

OSCAR Total Iodine Dose Rate:

mR/hr

SURVEY DATA FORM
(with RMS Inoperable)

FIELD TEAM: _____

DATE/TIME (military): _____/_____

SECTOR: _____ **DISTANCE:** _____ **miles**

Exposure Data

Name:_____ SRD Reading: _____mR
Badge Slot # _____

Name:_____ SRD Reading: _____mR
Badge Slot # _____

Radiation Survey

Survey Meter HP # _____

CW _____ mR/hr

Air Sample

Air Sampler # _____

Frisker HP # _____

	Cartridge	Particulate
Sample Count Rate:	_____ cpm	_____ cpm
Bkgd Count Rate:	_____ cpm	_____ cpm
Corrected Count Rate: (sample - Bkgd)	_____ ccpm	_____ ccpm

POTASSIUM IODIDE (KI) TRACKING FORM

(Recommended dose: 1 tablet/day = 130 mg)

KI ISSUED TO: (NAME)	SOCIAL SECURITY #	EST. DATE/TIME OF EXPOSURE		START		KI INTAKE STOP		DOSAGE (Tablets)
		DATE	TIME	DATE	TIME	DATE	TIME	

Approved by:_____ Date _____
Emergency Director - or - Recovery Manager