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114 - 114 - CHEMISTRY COORDINATOR: EMERGENCY PLAN-POSITION SPECIFIC PROCEDURE

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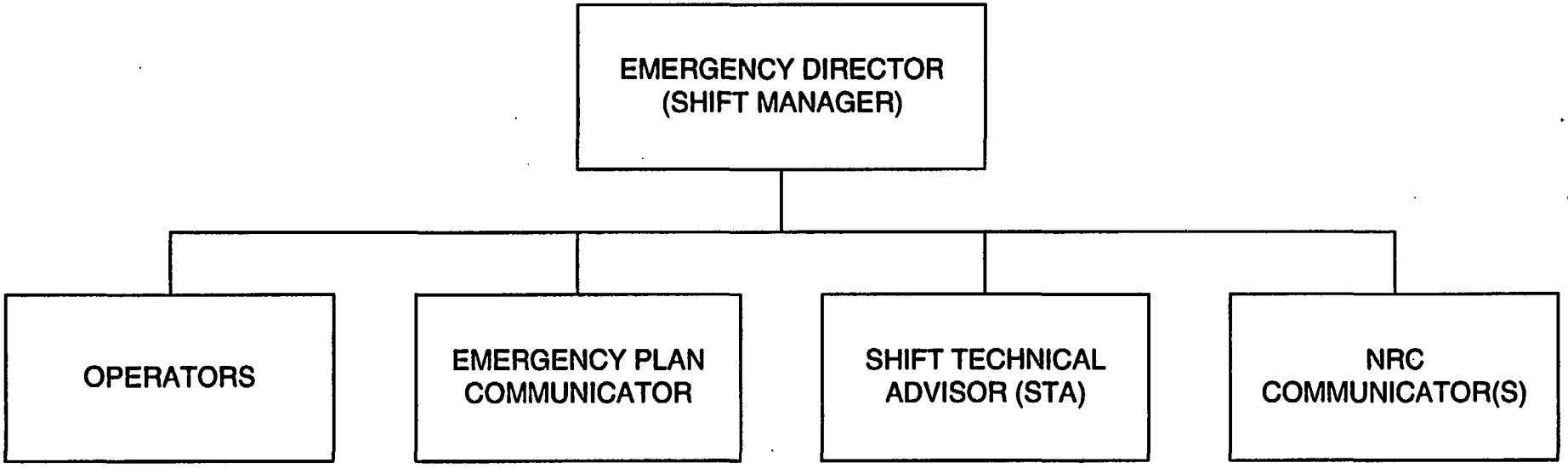
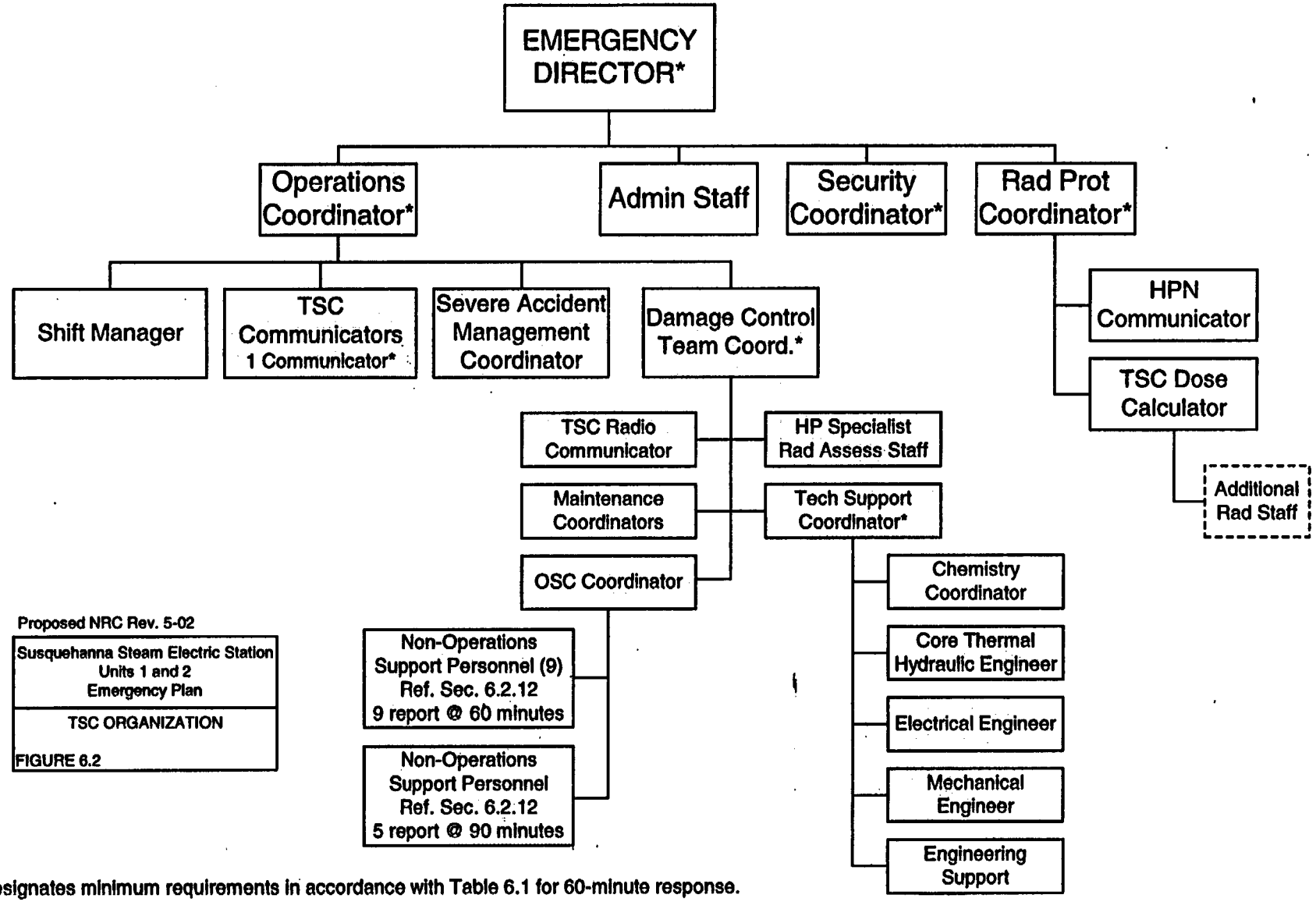
A045

EMERGENCY ORGANIZATION
CONTROL ROOM



TSC ORGANIZATION



Proposed NRC Rev. 5-02

Susquehanna Steam Electric Station
Units 1 and 2
Emergency Plan

TSC ORGANIZATION

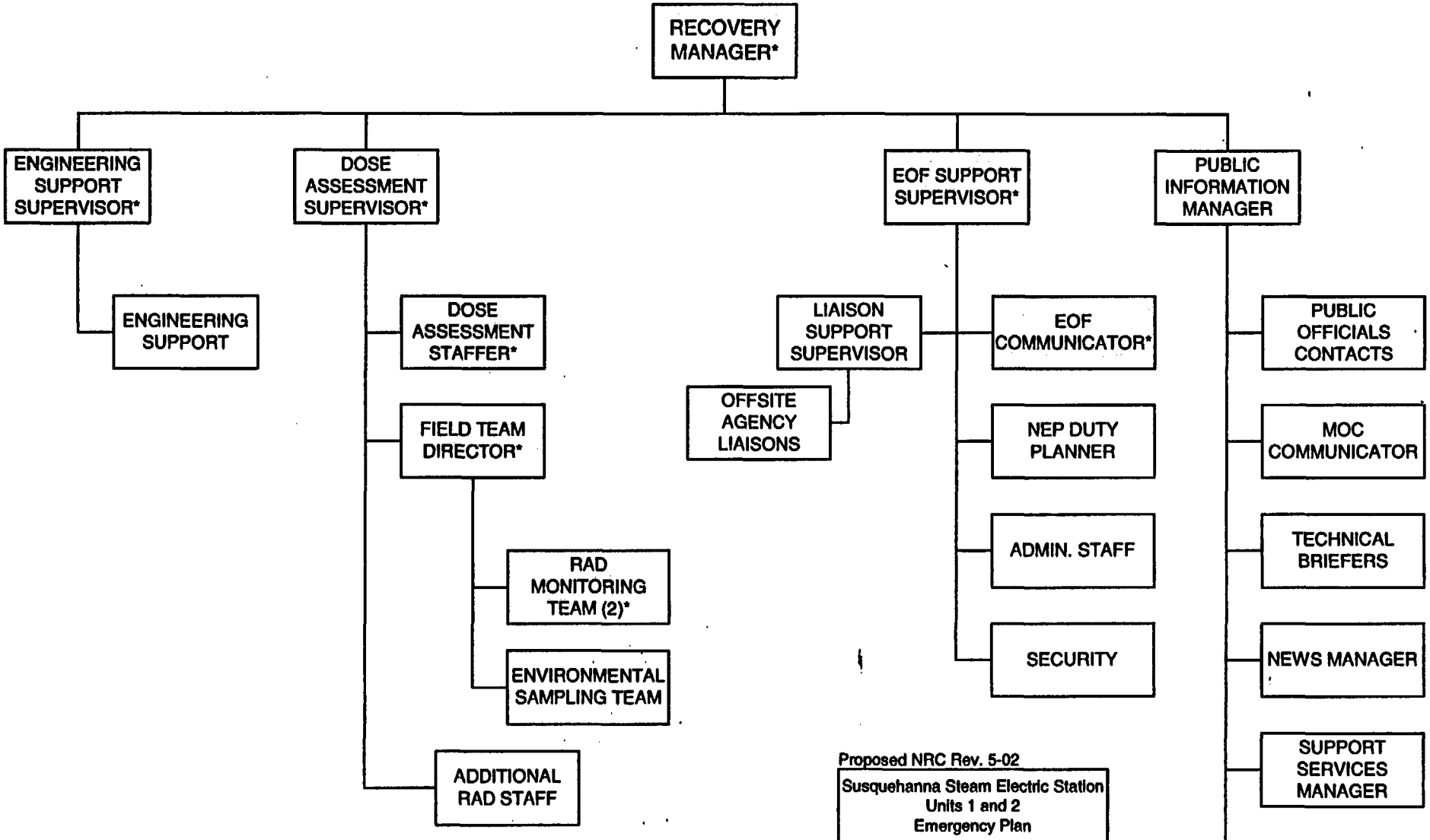
FIGURE 6.2

Designates minimum requirements in accordance with Table 6.1 for 60-minute response.

- - - - - Individuals may be located in the OSC, TSC, or Field.

* Designates positions required for TSC activation.

EOF ORGANIZATION



Designates minimum requirements in accordance with Table 6.1 for 90 minute response.

* Designates positions required for EOF activation.

Proposed NRC Rev. 5-02

Susquehanna Steam Electric Station
Units 1 and 2
Emergency Plan

EOF ORGANIZATION

FIGURE 6.3

Tab 6
EP-PS-114-6

Control # _____

EMERGENCY NOTIFICATION REPORT

☐ THIS IS A DRILL ☐ THIS IS NOT A DRILL

1. This is: _____ at Susquehanna Steam Electric Station.
(Communicator's Name)
My telephone number is: _____. The time is _____.
(Callback telephone number) (Time notification initiated)

2. EMERGENCY CLASSIFICATION:
☐ UNUSUAL EVENT
☐ ALERT
☐ SITE AREA EMERGENCY
☐ GENERAL EMERGENCY
☐ The event has been terminated.

UNIT: ☐ ONE ☐ TWO ☐ ONE & TWO
TIME: _____ (Time classification/ termination declared)
DATE: _____ (Date classification/ termination declared)

THIS REPRESENTS A/AN: ☐ INITIAL DECLARATION ☐ ESCALATION ☐ NO CHANGE } IN CLASSIFICATION STATUS

3. BRIEF NON-TECHNICAL DESCRIPTION OF THE EVENT:

- For initial declaration, static update, or escalation, provide current EAL number only.
- For status reports, significant events, or when directed by the ED, RM, or EOFSS, provide a brief description.
- For termination, write emergency has been terminated.

_____

_____

_____

4. THERE IS: ☐ NO ☐ AN AIRBORNE ☐ A LIQUID } NON-ROUTINE RADIOLOGICAL RELEASE IN PROGRESS

5. WHEN GENERAL EMERGENCY IS THE INITIAL EVENT, PROVIDE PROTECTIVE ACTION RECOMMENDATIONS BELOW: (Control Room Use only, TSC and EOF mark N/A.)

_____

_____

6. WIND DIRECTION IS FROM: _____. WIND SPEED IS: _____ mph.
(Data from 10 meter meteorological tower, available on PICSY.)

☐ THIS IS A DRILL ☐ THIS IS NOT A DRILL

APPROVED: _____ (ED, RM, or EOFSS) Time: _____ (Time form approved) Date: _____ (Date form approved)

Affected Unit _____ Control No. _____

PROTECTIVE ACTION RECOMMENDATION FORM
SUSQUEHANNA STEAM ELECTRIC STATION

☐ This is a Drill ☐ This is **NOT** a Drill Preparer: _____

The EMERGENCY CLASSIFICATION is:			
☐ Unusual Event	☐ Alert	☐ Site Area Emergency	☐ General Emergency

Basis: EAL # _____

This represents:

☐ Initial Classification ☐ Escalation ☐ Reduction ☐ No Change in the Classification Status

Emergency Action(s) implemented onsite:

☐ None
☐ Local Area Evacuation
☐ Site Accountability
☐ Evacuation of non-essential personnel
☐ KI to onsite personnel
☐ Other _____
Bases: _____

The PROTECTIVE ACTION RECOMMENDATION is:	
☐ No Protective Action Recommendation Required	
☐ Evacuate 0-2 miles and Shelter 2-10 miles	☐ Relocation
☐ Evacuate 0-10 miles	☐ Control of Access
	☐ Contamination Controls/Decon
☐ Divert Danville Drinking Water*	☐ Other

*Expected arrival of release at Danville: _____

This represents: ☐ Initial ☐ Change ☐ No Change in the Protective Action Recommendation

The BASIS for the Protective Action Recommendation is:

Plant Status

_____

_____

Status of Radioactive Release: Event-related release in progress? ☐ Yes ☐ No

Total Site Release Rate	Airborne	Liquid
< Tech Requirements Limit	☐	☐
≥ Tech Requirements Limit	☐	☐

NOTE: TRM Limits (µCi/min): Noble Gas 1.00E+6; Iodine 1.04E+2; Particulate 7.72 E+2 (Airborne releases)

Based on: ☐ Effluent Monitors ☐ Field Measurements ☐ Engineering Judgement

Data measured in the field confirm release rate estimations: ☐ Yes ☐ No

Weather Conditions: Wind Speed_____ Wind Direction_____

_____

Dose Projections: ☐ TEDE > 1 rem or thyroid CDE > 5 rem at 2 miles
☐ TEDE > 1 rem or thyroid CDE > 5 rem at EPB
☐ TEDE ≤ 1 rem and thyroid CDE ≤ 5 rem at EPB

_____

Other:

_____

Approval: _____ **Date/Time:**_____

Emergency Director or Recovery Manager approval required if change in Classification or Protective Action Recommendation.
RPC or DASU approval if no change in the Classification or Protective Action Recommendation.

Transmittal: ☐ Verbal ☐ Electronic ☐ Both

Communicated To:

NAME	AGENCY	DATE/TIME

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 (I) (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 (I) (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