



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

April 27, 2001

10 CFR Part 50, App E

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Gentleman:

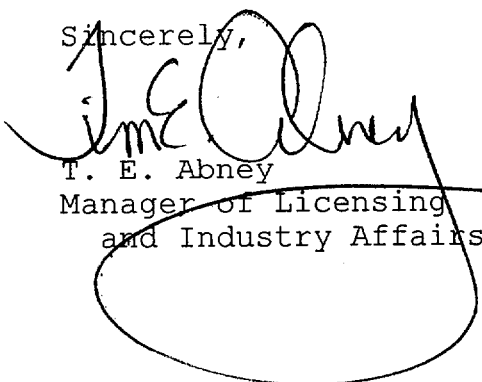
In the Matter of)	Docket Nos. 50-259
Tennessee Valley Authority)	50-260
		50-296

**BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, and 3
EMERGENCY PLAN IMPLEMENTING PROCEDURE (EPIP) REVISIONS**

TVA is submitting this notification in accordance with the requirements of 10 CFR Part 50, Appendix E, Section V, to provide NRC with the following EPIP revisions: (1) EPIP Index is canceled; (2) EPIP-1, Table of Content (TOC), Revision 30; (3) EPIP-1, Section II-4.0, Revision 29; (4) EPIP-1, Section III-4.0, Revision 29, (5) EPIP-2, Revision 22; (6) EPIP-3, Revision 25; (7) EPIP-4, Revision 24; (8) EPIP-5, Revision 29; (9) EPIP-8, Revision 13; and (10) EPIP-14, Revision 16.

The EPIP Index revision date is April 6, 2001, while the revision date for the other changes (2 through 10) is March 31, 2001. If you have any questions, please telephone me at (256) 729-2636.

Sincerely,


T. E. Abney
Manager of Licensing
and Industry Affairs

A045

U.S. Nuclear Regulatory Commission
Page 2
April 27, 2001

Enclosure

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ENCLOSURE
TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT
UNITS 1, 2, AND 3

EMERGENCY PLAN IMPLEMENTING PROCEDURES (EPIP)
EPIP -1, -2, -3, -4, -5, -8, and -14

(SEE ATTACHED)

GENERAL REVISIONS

GENERIC FILING INSTRUCTIONS

FILE DOCUMENTS AS FOLLOWS:

PAGES TO BE REMOVED

EPIP INDEX (ALL)

EPIP-1, TOC, REVISION 29 (ALL)

EPIP-1, SEC II-4.0, REV 28 (ALL)
(ALL)

EPIP-1, SEC III-4.0, REV 28 (ALL)
(ALL)

EPIP-2 REVISION 21 (ALL)

EPIP-3 REVISION 24 (ALL)

EPIP-4 REVISION 23 (ALL)

EPIP-5 REVISION 28 (ALL)

EPIP-8 REVISION 12 (ALL)

EPIP-14 REVISION 15 (ALL)

PAGES TO BE INSERTED

EPIP INDEX CANCELLATION SHEET

EPIP-1, TOC, REVISION 30 (ALL)

EPIP-1, SEC II-4.0, REV 29

EPIP-1, SEC III-4.0, REV 29

EPIP-2 REVISION 22 (ALL)

EPIP-3 REVISION 25 (ALL)

EPIP-4 REVISION 24 (ALL)

EPIP-5 REVISION 29 (ALL)

EPIP-8 REVISION 13 (ALL)

EPIP-14 REVISION 16 (ALL)

EPIP INDEX CANCELLATION SHEET

EPIP INDEX WAS CANCELLED ON APRIL 6, 2001

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP-1

EMERGENCY CLASSIFICATION PROCEDURE

REVISION 30

PREPARED BY: T. W. CORNELIUS

PHONE: 2038

RESPONSIBLE ORGANIZATION: EMERGENCY PREPAREDNESS

APPROVED BY: GILBERT LITTLE

DATE: 03/09/2001

EFFECTIVE DATE: 03/31/2001

LEVEL OF USE: REFERENCE USE

QUALITY-RELATED

REVISION LOG

Procedure Number: EPIP-1

Revision Number 30

Pages Affected: 1, 34, 127, 129, 131-134, 137, 138

Description of Change:

- IC - 41 This revision is being conducted as a result of revised calculations effecting the stack noble gas release rate values. EDMS L63 010206 800 document the information utilized for making this revision.
- Page 1 - Revised to update revision numbers
 - Page 34 - Revised to update Tables 4.1-S and 4.1-G, gaseous release rate, stack noble gas (WRGERMS) limits.
 - Page 131, 132, 133, 134 - Revised to update gaseous release rate, stack noble gas (WRGERMS) limits.
 - Page 127, 129, 132, 134, 137, 138 - Revised to update reference.

EPIP-1
EMERGENCY CLASSIFICATION PROCEDURE

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EPIP-1
EMERGENCY CLASSIFICATION PROCEDURE

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RADIOACTIVITY RELEASES 4.0

NOTES:

- NOTE 4.1-U** Prior to making this emergency classification based upon the WRGERMS indication, assess the release by either of the following:
 1. Actual field measurements exceed the limits in Table 4.1-U
 2. SI 4.8.B.1.a.1 Release Fraction exceeds 2.0
 If neither assessment can be conducted within 60 minutes then the declaration must be made on the valid WRGERMS reading
- NOTE 4.1-A** Prior to making this emergency classification based upon the WRGERMS indication, assess the release by either of the following:
 1. Actual field measurements exceed the limits in Table 4.1-A
 2. SI 4.8.B.1.a.1 Release Fraction exceeds 200
 If neither assessment can be conducted within 15 minutes then the declaration must be made on the valid WRGERMS reading
- NOTE 4.1-S** Prior to making this emergency classification based upon the Gaseous Release Rate indication, assess the release by either of the following methods:
 1. Actual field measurements exceed the limits in Table 4.1-S.
 2. Projected or Actual Dose Assessments exceed 100 mrem TEDE or 500 mrem CDE.
 If neither assessment can be conducted within 15 minutes then the declaration must be made based on the valid WRGERMS reading
- NOTE 4.1-G** Prior to making this emergency classification based upon the Gaseous Release Rate indication, assess the release by either of the following methods:
 1. Actual field measurements exceed the limits in Table 4.1-G.
 2. Projected or Actual Dose Assessments exceed 1000 mrem TEDE or 5000 mrem CDE.
 If neither assessment can be conducted within 15 minutes then the declaration must be made based on the valid WRGERMS reading

CURVES/TABLES:

Table 4.1-U RELEASE LIMITS FOR UNUSUAL EVENT			
TYPE	MONITORING METHOD	LIMIT	DURATION
GASEOUS RELEASE RATE	STACK NOBLE GAS (WRGERMS)	$2.88 \times 10^{-7} \mu\text{Ci/sec}$	1 HOUR
GASEOUS RELEASE RATE	SI 4.8.B.1.a.1	RELEASE FRACTION 2.0	1 HOUR
SITE BOUNDARY RADIATION READING	FIELD ASSESSMENT TEAM	0.10 MREM/HR $\gamma - \beta$	1 HOUR

Table 4.1-A RELEASE LIMITS FOR ALERT			
TYPE	MONITORING METHOD	LIMIT	DURATION
GASEOUS RELEASE RATE	STACK NOBLE GAS (WRGERMS)	$2.88 \times 10^{-9} \mu\text{Ci/sec}$	15 MINUTES
GASEOUS RELEASE RATE	SI 4.8.B.1.a.1	RELEASE FRACTION 200	15 MINUTES
SITE BOUNDARY RADIATION READING	FIELD ASSESSMENT TEAM	10 MREM/HR $\gamma - \beta$	15 MINUTES

Table 4.1-S RELEASE LIMITS FOR SITE AREA EMERGENCY			
TYPE	MONITORING METHOD	LIMIT	DURATION
GASEOUS RELEASE RATE	STACK NOBLE GAS (WRGERMS)	$5.9 \times 10^{-9} \mu\text{Ci/sec}$	15 MINUTES
SITE BOUNDARY RADIATION READING	FIELD ASSESSMENT TEAM	100 MREM/HR $\gamma - \beta$	1 HOUR
SITE BOUNDARY IODINE-131	FIELD ASSESSMENT TEAM	$3.9 \times 10^{-7} \mu\text{Ci/cm}^3$	1 HOUR

Table 4.1-G RELEASE LIMITS FOR GENERAL EMERGENCY			
TYPE	MONITORING METHOD	LIMIT	DURATION
GASEOUS RELEASE RATE	STACK NOBLE GAS (WRGERMS)	$5.9 \times 10^{-10} \mu\text{Ci/sec}$	15 MINUTES
SITE BOUNDARY RADIATION READING	FIELD ASSESSMENT TEAM	1000 MREM/HR $\gamma - \beta$	1 HOUR
SITE BOUNDARY IODINE-131	FIELD ASSESSMENT TEAM	$3.9 \times 10^{-6} \mu\text{Ci/cm}^3$	1 HOUR

REVISION 29

NOTES:

CURVES/TABLES:

LIQUID EFFLUENT		
DESCRIPTION	DESCRIPTION	
<div>4.3-U</div> <p>Liquid release rate exceeds 20 times ECL as determined by chemistry sample AND Release duration exceeds or will exceed 60 minutes.</p> <p>OPERATING CONDITION: - All</p>		UNUSUAL EVENT
<div>4.3-A</div> <p>Liquid release rate exceeds 2000 times ECL as determined by chemistry sample AND Release duration exceeds or will exceed 15 minutes.</p> <p>OPERATING CONDITION: - All</p>		ALERT
		SITE EMERGENCY
		GENERAL EMERGENCY

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RADIOACTIVITY RELEASE 4.0

GASEOUS EFFLUENT

4.1-U

UNUSUAL EVENT

Gaseous release exceeds ANY limit and duration in Table 4.1-U.

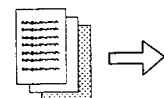
OPERATING - All
CONDITION

BASIS Unplanned radioactivity releases that exceed Table 4.1-U limits and continue for 1 hour or longer represent an uncontrolled situation and potential degradation in the level of safety of the plant. The Offsite Dose Calculation Manual (ODCM) contains the site specific release limits and appropriate surveillance requirements which normally monitor these limits. Table 4.1-U is based on 2 times the ODCM limit. The release should not be averaged over 60 minutes. For example, a release of 4 times ODCM limits for 30 minutes does not meet the requirements for this event classification. The 1 hour time period allows sufficient time to isolate any release after exceeding ODCM limits. Release continuing for more than 1 hour represents inability to isolate or control the release. The Site Emergency Director should declare the event as soon as it is determined that the release duration has or will likely exceed 1 hour. The value of 0.10 mrem/hr at the site boundary is based on a proration of twice the 500 mrem/yr ODCM instantaneous release rate limit.

Utilize Radiological Control for obtaining site boundary assessments.

Escalation to Alert is based on radiation release rate which exceeds 200 times the ODCM limit.

REFERENCES - Reg Guide 1.101 Rev. 3, (NUMARC-AU1 example-1)
- EDMS L63 010206 800
- 10CFR20



GASEOUS EFFLUENT

4.1-U

UNUSUAL EVENT (CONTINUED)

CURVES/TABLES

Table 4.1-U RELEASE LIMITS FOR UNUSUAL EVENT			
TYPE	MONITORING METHOD	LIMIT	DURATION
GASEOUS RELEASE RATE	STACK NOBLE GAS (WRGERMS)	$2.88 \times 10^{-7} \mu\text{Ci/sec}$	1 HOUR
GASEOUS RELEASE RATE	SI 4.8.B.1.a.1	RELEASE FRACTION 2.0	1 HOUR
SITE BOUNDARY RADIATION READING	FIELD ASSESSMENT TEAM	0.10 MREM/HR $\gamma - \beta$	1 HOUR

NOTES

- NOTE 4.1-U
- Prior to making this emergency classification based upon the WRGERMS indication, assess the release by either of the following:
1. Actual field measurements exceed the limits in Table 4.1-A
 2. SI 4.8.B.1.a.1 Release Fraction 2.0
- If neither assessment can be conducted within 60 minutes then the declaration must be made on the valid WRGERMS reading.

GASEOUS EFFLUENT

4.1-A

ALERT

Gaseous release exceeds ANY limit and duration in Table 4.1-A.

OPERATING - All
CONDITION

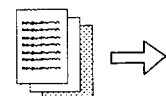
BASIS This event escalates from Unusual Event by increasing the magnitude of the release by a factor of 100. The release limit is equivalent to 200 times the Offsite Dose Calculation Manual (ODCM) limit. The value of 10 mrem/hr at the site boundary is based on a proration of the 500 mrem/yr criteria for both time (8766 hr/yr) and the 200 multiplier. The required release duration is reduced to 15 minutes in recognition of the increased severity. Table 4.1-A contains the Alert limits and appropriate monitoring points for the releases.

Utilize Radiological Control for obtaining site boundary assessments.

Escalation to Site Area Emergency is based on radiation release which will yield a dose to a member of the public which exceeds 10CFR20 limits.

REFERENCES

- Reg Guide 1.101 Rev. 3, (NUMARC-AA1 example-1)
- EDMS L63 010206 800
- 10CFR20
- EPA 400



GASEOUS EFFLUENT

4.1-A

ALERT (CONTINUED)

CURVES/TABLES

Table 4.1-A RELEASE LIMITS FOR ALERT			
TYPE	MONITORING METHOD	LIMIT	DURATION
GASEOUS RELEASE RATE	STACK NOBLE GAS (WRGERMS)	2.88×10^{-9} $\mu\text{Ci/sec}$	15 MINUTES
GASEOUS RELEASE RATE	SI 4.8.B.1.a.1	RELEASE FRACTION 200	15 MINUTES
SITE BOUNDARY RADIATION READING	FIELD ASSESSMENT TEAM	10 MREM/HR $\gamma - \beta$	15 MINUTES

NOTES

- NOTE 4.1-A Prior to making this emergency classification based upon the WRGERMS indication, assess the release by either of the following:
1. Actual field measurements exceed the limits in Table 4.1-A
 2. SI 4.8.B.1.a.1 Release Fraction 200

If neither assessment can be conducted within 15 minutes then the declaration must be made on the valid WRGERMS reading.

GASEOUS EFFLUENT

4.1-S

SITE AREA EMERGENCY

EITHER of the following conditions exists:

- Gaseous release exceeds or is expected to exceed ANY limit and duration in Table 4.1-S.
- Dose assessment indicates actual or projected dose consequences above 100 mrem TEDE or 500 mrem thyroid CDE

OPERATING - All
CONDITION

BASIS The limits in this event classification are based on 10 percent of the EPA Protective Action Guidelines or the 10CFR20 dose limit for a member of the public. These limits also provide a desirable gradient between Alert, Site Area Emergency, and General Emergency.

Table 4.1-S limits for stack and field surveys measurements are consistent with 10 percent of the EPA Protective Action Guidelines or the 10CFR20 dose limit for a member of the public. Stack Noble Gas Release Rates of $5.9 \times 10^9 \mu\text{Ci/sec}$ for 15 minutes, site boundary radiation readings of 100 mrem/hr for 1 hour, and Iodine-131 concentration of $3.9 \times 10^{-7} \mu\text{Ci/cm}^3$ for 1 hour are indicative of dose consequences consistent with the limits described previously. The durations in Table 4.1-S are consistent with NUMARC recommendations and industry standards. If analyses indicated a longer or shorter duration for this period in which the substantial portion of the activity is released these dose rates should be adjusted.

Utilize Radiological Control for obtaining site boundary. Dose projection assessments should be requested through the CECC by the implementation of CECC EPIP-8, if the CECC is not staffed utilize site Radiological Control for dose projection assessments through the implementation of BFN EPIP-14.

GASEOUS EFFLUENT

4.1-S

SITE AREA EMERGENCY (CONTINUED)

The 500 mrem thyroid CDE limit was established in consideration of the 1 to 5 ratio of the EPA Protective Action Guidelines for TEDE and thyroid CDE.

Escalation to General Emergency is based on actual or projected dose exceeding 1000 mrem TEDE or 5000 mrem thyroid CDE.

- REFERENCES**
- Reg Guide 1.101 Rev. 3, (NUMARC-AS1 example-1)
 - EDMS L63 010206 800
 - 10CFR20
 - EPA 400

CURVES/TABLES

Table 4.1-S RELEASE LIMITS FOR SITE AREA EMERGENCY			
TYPE	MONITORING METHOD	LIMIT	DURATION
GASEOUS RELEASE RATE	STACK NOBLE GAS (WRGERMS)	5.9×10^{-9} μ Ci/sec	15 MINUTES
SITE BOUNDARY RADIATION READING	FIELD ASSESSMENT TEAM	100 MREM/HR $\gamma - \beta$	1 HOUR
SITE BOUNDARY IODINE-131	FIELD ASSESSMENT TEAM	3.9×10^{-7} μ CI/cm ³	1 HOUR

NOTES

NOTE 4.1-S Prior to making this emergency classification based upon the Gaseous Release Rate indication, assess the release by either of the following methods:

1. Actual field measurements exceed the limits in Table 4.1-S.
2. Projected or Actual Dose Assessments exceed 100 mrem TEDE or 500 mrem CDE.

If neither assessment can be conducted within 15 minutes then the declaration must be made based on the valid WRGERMS reading.

GASEOUS EFFLUENT

4.1-G

GENERAL EMERGENCY

EITHER of the following conditions exists:

- Gaseous release exceeds or is expected to exceed ANY limit and duration in Table 4.1-G.
- Dose assessment indicates actual or projected dose consequences above 1000 mrem TEDE or 5000 mrem thyroid CDE

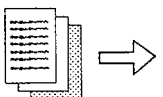
OPERATING - All
CONDITION

BASIS The limits in this event classification are based on the EPA Protective Action Guidelines which require public protective actions if dose consequences of 1000 mrem TEDE or 5000 mrem thyroid CDE are indicated. These limits also provide a desirable gradient between Alert, Site Area Emergency, and General Emergency and represent the upper level of the gradient.

Table 4.1-G limits for stack and field surveys measurements are consistent with the EPA Protective Action Guidelines for dose limits requiring public protective actions. Stack Noble Gas Release Rates of $5.9 \times 10^{10} \mu\text{Ci/sec}$ for 15 minutes, site boundary radiation readings of 1000 mrem/hr for 1 hour, and Iodine-131 concentration of $3.9 \times 10^{-6} \mu\text{Ci/cm}^3$ for 1 hour are indicative of dose consequences consistent with the limits described previously. The durations in Table 4.1-G are consistent with NUMARC recommendations and industry standards. If analyses indicated a longer or shorter duration for this period in which the substantial portion of the activity is released these dose rates should be adjusted.

Utilize Radiological Control for obtaining site boundary assessments. Dose projection assessments should be requested through the CECC by the implementation of CECC EPIP-8, if the CECC is not staffed utilize site Radiological Control for dose projection assessments through the implementation of BFN EPIP-14.

The 5000 mrem thyroid CDE limit was established in consideration of the 1 to 5 ratio of the EPA Protective Action Guidelines for TEDE and thyroid CDE. Actual meteorology is used in dose assessment calculations to achieve the most accurate dose assessment possible.



GASEOUS EFFLUENT

4.1-G

GENERAL EMERGENCY (CONTINUED)

REFERENCES - Reg Guide 1.101 Rev. 3, (NUMARC-as1 example-1)
- EDMS L63010206 800
- 10CFR20

CURVES/TABLES

Table 4.1-G RELEASE LIMITS FOR GENERAL EMERGENCY			
TYPE	MONITORING METHOD	LIMIT	DURATION
GASEOUS RELEASE RATE	STACK NOBLE GAS (WRGERMS)	$5.9 \times 10^{-10} \mu\text{Ci/sec}$	15 MINUTES
SITE BOUNDARY RADIATION READING	FIELD ASSESSMENT TEAM	1000 MREM/HR $\gamma - \beta$	1 HOUR
SITE BOUNDARY IODINE-131	FIELD ASSESSMENT TEAM	$3.9 \times 10^{-6} \mu\text{Ci/cm}^3$	1 HOUR

NOTES

NOTE 4.1-G Prior to making this emergency classification based upon the Gaseous Release Rate indication, assess the release by either of the following methods:

1. Actual field measurements exceed the limits in Table 4.1-G.
2. Projected or Actual Dose Assessmnets exceed 1000 mrem TEDE or 5000 mrem CDE.

If neither assessment can be conducted within 15 minutes then the declaration must be made based on the valid WRGERMS reading.

MAIN STEAM LINE BREAK

4.2-U

UNUSUAL EVENT

Main Steam Line break outside Primary Containment with isolation.

OPERATING - Mode 1
CONDITION - Mode 2
- Mode 3

BASIS This event classification is intended to address the puff release associated with a Main Steam Line break outside Primary that isolates by PCIS Logic as required or can be isolated from the Main Control Room. Regardless of whether the break is in the Turbine Building or the Reactor Building a ground level release should be anticipated due to the blowout panels between the two buildings. Design basis analysis shows that even if MSIV closure occurs within design limits, dose consequences from a "puff" release should be expected. Thus this event classification is included due to the possibility of offsite exposures from the "puff" release.

This event is detected by instrumentation which inputs to the PCIS Logic circuitry. Main Steam Line high flow, Reactor low pressure with the mode switch in "Run", And Turbine Building Main Steam Space high temperature are all symptoms of the event and should be evaluated to determine if an actual break has occurred.

Escalation to Area is based on radiation release rate event classifications.

REFERENCES - Reg Guide 1.101 Rev. 3, (NUMARC-FU)

MAIN STEAM LINE BREAK

4.2-S

SITE AREA EMERGENCY

Unisolable Main Steam Line break outside Primary Containment.

OPERATING - Mode 1
CONDITION - Mode 2
- Mode 3

BASIS This event classification applies to Main Steam Line Break that cannot be isolated by PCIS Logic or from the Main Control Room. Regardless of whether the break is in the Turbine Building or the Reactor Building a ground level release is expected due to the blowout panels between the two buildings. This event classification represents a loss of two of the three fission product barriers.

Main Steam Line high flow, Reactor low pressure with the mode switch in "Run", and Turbine Building Main Steam Space high temperature are all symptoms of the event. This event is anticipatory to 4.1-S and the threshold for leakage outside Primary and Secondary Containment should be considered to be any continuous discharge of steam through the break that, in the opinion of the Site Emergency Director, could result in exceeding the limits outlined in 4.1-S.

Escalation to General Emergency is based on loss of the Fuel Clad barrier or radioactivity release event classifications.

REFERENCES - Reg Guide 1.101 Rev. 3, (NUMARC-FS)

LIQUID EFFLUENT

4.3-U

UNUSUAL EVENT

Liquid release rate exceeding 20 times ECL as determined by
chemistry sample

AND

Release duration exceeds or will exceed 60 minutes.

OPERATING - All
CONDITION

BASIS Liquid release rates are determined using Surveillance Instructions which utilize liquid samples rather than instrument readings for activity determination. Effluent Concentration Limits (ECL) are those annual concentrations given in 10CFR20 Appendix B, Table 2, Column 2. 10 times ECL is equivalent to the instantaneous ODCM limit. Unplanned radioactivity releases that exceed 20 times ECL (2 times ODCM limit) and continue for 60 minutes or longer represent an uncontrolled situation and potential degradation in the level of safety of the plant. The release should not be averaged over 60 minutes. For example, a release of 40 times ECL for 30 minutes does not meet the requirements of this event classification. The 60 minute time period allows sufficient time to isolate any release after exceeding ECL. Greater than 60 minutes represents inability to isolate or control the release. The Site Emergency Director should declare the event as soon as it is determined that the release duration has or will likely exceed 60 minutes. The Chemistry Department determines the magnitude of the release by sample procedure for any release as required by initiating procedures (i.e., SI, ARP, AOI, EOI). The sample results are reported to the Site Emergency Director as a fraction or multiple of ECL.

Escalation to Alert is based on release in excess of 2000 times ECL for greater than 15 minutes.

REFERENCES - Reg Guide 1.101 Rev. 3, (NUMARC-AU1 example-2)
- EDMS L63 010206 800
- 10CFR20

LIQUID EFFLUENT

4.3-A

ALERT

Liquid release rate exceeding 2000 times ECL as determined by chemistry sample

AND

Release duration exceeds or will exceed 15 minutes.

OPERATING - All
CONDITION

BASIS This event escalates from Unusual Event by increasing the magnitude of the release by a factor of 100. The required release duration is reduced to 15 minutes in recognition of the increased severity. The Chemistry Department determines the magnitude of the release by sample procedure for any release as required by initiating procedures (e.g., SI, ARP, AOI, EOI). The sample results are reported to the Site Emergency Director as a fraction or multiple of ECL. 10 times ECL is equal to the ODCM limit; therefore, 200 times the ODCM limit is equivalent to 2000 times ECL.

Escalation to Site Area Emergency is based on event classifications indicative of failure of the Reactor Coolant System pressure boundary and Primary Containment barrier.

REFERENCES - Reg Guide 1.101 Rev. 3, (NUMARC-AA1 example-2)
- EDMS L63 010206 800

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP- 2

NOTIFICATION OF UNUSUAL EVENT

REVISION 22

PREPARED BY: TIM CORNELIUS

PHONE: 2038

RESPONSIBLE ORGANIZATION: EMERGENCY PREPAREDNESS

APPROVED BY: GILBERT LITTLE

DATE: 03/09/2001

EFFECTIVE DATE: 03/31/2001

LEVEL OF USE: REFERENCE USE

QUALITY-RELATED

REVISION LOG

Procedure Number: EPIP-2

Revision Number: 22

Pages Affected: 2, 7, 8, 9, 10

Description of Change:

- IC-27 This change is being conducted to incorporate the management of NRC Commitment changes as prescribed in the correspondence from site licensing RIMS R08000217713, to remove the Public Information Officer from the notification form and to human factor the notification and follow-up notification forms.
- Page 2 - change to step 3.1.1 involves human factoring the Notification Form Title.
- Page 7 - changes involves removing the "NRC Commitment Brackets to step requiring the review of PORC and the human factoring of applicable steps.
- Page 7 - change involves human factoring attachment title.
- Page 8 - change involves human factoring attachment title and modifying information to ensure consistency with NRC guidance.
- Page 9 - change involves removing the Public Information Officer from the Attachment B notifications along with the NRC Commitment Brackets
- Page 10 - change involved adding a clarify statement concerning the appropriate use of the Follow-up Notification Form.

1.0 PURPOSE

- 1.1** Provide for timely notification of appropriate individuals or organizations when the Shift Manager has determined by EPIP-1 that an incident has occurred which is classified as a NOTIFICATION OF UNUSUAL EVENT.
- 1.2** Provide for periodic analysis of the current situation by the Shift Manager/Site Emergency Director (SED) to determine whether the NOTIFICATION OF UNUSUAL EVENT should be terminated, continued, or upgraded to a more serious classification.

2.0 SCOPE

This procedure applies to emergency events that are classified as a Notification of Unusual Event by EPIP-1, Emergency Classification Procedure.

3.0 INSTRUCTIONS

3.1 Notification of the Operations Duty Specialist (ODS)

Note: The ODS should be notified within 5 minutes after the emergency event is declared.

Date: ____/____/____

3.1.1 Complete Attachment A (Initial Notification Form).

INITIALS

TIME

3.1.2 Notify the ODS and Provide the information from Attachment A.

INITIALS

TIME

Note: Utilize the direct ring-down ODS phone when making this notification or as applicable dial direct.

ODS Telephone Numbers

5-751-1700

5-751-2495

If the ODS cannot be reached within 10 minutes, Then contact the State of Alabama directly by requesting the Rad Health Duty Officer at:

Day Shift 8 a.m. - 5 p.m.

9-1-334-206-5391

Holidays-Weekends-Offshifts

9-1-334-242-4378

3.1.3 Fax a copy of Attachment A to the ODS for confirmation of information or state if contacted directly).

INITIALS

TIME

ODS Fax

5-751-8620

AL Rad Health

9-1-334-206-5387

3.1.4 Receive confirmation call from the ODS (to verify notification of the State of Alabama) (NA this step if the State was contacted directly).

INITIALS

TIME

3.0 INSTRUCTIONS (CONTINUED)

3.2 NOTIFICATION OF SITE PERSONNEL

3.2.1 **Provide** the Unit 1, Unit Operator with a completed copy of Attachment A.

INITIALS

TIME

3.2.2 **Direct** the Unit 1, Unit Operator to make notifications from Attachment B (Unit 1, Unit Operator Notification), utilizing information from Attachment A.

INITIALS

TIME

3.2.3 **Make** the following plant P.A. announcement:

INITIALS

TIME

THIS IS (*NAME*), SHIFT MANAGER. A
NOTIFICATION OF UNUSUAL EVENT HAS BEEN
DECLARED ON UNIT _____. I HAVE ASSUMED
THE DUTIES OF SITE EMERGENCY DIRECTOR.

3.2.4 **Notify** the Plant Manager or alternate.

INITIALS

TIME

3.3 OFFSITE DOSE ASSESSMENT

3.3.1 Evaluate the need for offsite dose assessment.
(N/A STEP IF NOT APPLICABLE)

INITIALS

TIME

3.3.1.1 When offsite dose assessment is required obtain the information from the CECC when operational.

3.3.1.2 If the CECC is not operational, contact the TSC, when staffed or the RADCON Shift Supervisor and request the implementation of EPIP 14, for dose assessment.

3.0 INSTRUCTIONS (CONTINUED)

3.4 NOTIFICATION OF THE NRC

3.4.1 **Notify** the NRC immediately or within 1 hour and if requested by the NRC maintain an open and continuous communications channel.

INITIALS

TIME

Note: **Utilize** the Emergency Notification System (ENS) when making this notification. Dial the first number listed on the sticker affixed to the ENS telephone, by dialing 9-1-
“The Ten Digit Number Listed on the ENS Telephones”.
If the number is busy, **Then** select in order, the alternate numbers until a connection is achieved. No access codes are required.

3.0 INSTRUCTIONS (CONTINUED)

3.5 PERIODIC EVALUATION OF THE EVENT

3.5.1 Continue to **Evaluate** the event by using EPIP-1 as conditions warrant.

3.5.2 **If** other EAL conditions exist indicating the current emergency classification or significant changes in plant conditions have occurred since the last update to the ODS, and the CECC is not staffed, **Then, Complete** the "Follow-Up" Notification Form (Attachment C), notify the ODS and provide the new information. Utilize the direct ring-down ODS phone when making this notification or as applicable dial direct.

ODS - 5-751-2495, 1700

Note **If** the ODS cannot be reached, **Then** contact the State of Alabama directly by requesting the Rad Health Duty Officer at:

Day Shift 8 a.m. - 5 p.m.
9-1-334-206-5391

Holidays-Weekends-Offshifts
9-1-334-242-4378

3.5.3 **If** the conditions warrants upgrading to a higher classifications, **Then** initiate the appropriate EPIP.

3.5.4 **If** the conditions warrant termination of the classification, **Then** enter the Termination section of **this** procedure at step 3.6.

3.5.5 **Re-enter** this procedural section as conditions warrant at step 3.5.1 or until directed to exit this procedure by steps 3.5.3 or 3.5.4.

3.0 INSTRUCTIONS (CONTINUED)

3.6 TERMINATION OF THE EVENT

If the situation no longer exists terminate the event and notify the following:

Date: ____/____/____

3.6.1 Notify the ODS of the termination of the emergency or the state directly if the ODS cannot be contacted.

INITIALS

TIME

3.6.2 Notify the NRC of the termination of the emergency.

INITIALS

TIME

3.6.3 Notify the Plant Manager or Alternate of the termination of the emergency.

INITIALS

TIME

3.6.4 Complete Attachment A by providing the time and date of termination.

INITIALS

TIME

3.6.4 Notify the Unit 1, Unit Operator. Provide the Unit 1, Unit Operator with the termination time and date and direct the Unit 1, Unit Operator to notify the individuals contacted on Attachment B of the termination of the emergency.

INITIALS

TIME

3.0 INSTRUCTIONS (CONTINUED)

3.7 CLOSURE OF THE NOTIFICATION OF UNUSUAL EVENT

3.7.1 Upon termination of the Notification of Unusual Event, the Shift Manager shall send the completed EPIP-2 and all attachments to Emergency Preparedness (EP).

INITIALS

TIME

3.7.2 EP shall forward to the PORC Secretary the completed EPIP and all attachments for review by PORC.

INITIALS

TIME

3.7.3 PORC Review Completed.

PORC Chairman / _____
DATE

3.7.4 After PORC review is completed the PORC secretary shall forward the signed EPIP-2 with all attachments to EP for documentation storage.

INITIALS

TIME

4.0 ATTACHMENTS

Attachment A - Initial Notification Form

Attachment B - Unit 1, Unit Operator Notification

Attachment C - Follow Up Information Form

ATTACHMENT A (Page 1 of 1)
INITIAL NOTIFICATION FORM
NOTIFICATION OF UNUSUAL EVENT

☐ THIS IS AN ACTUAL EVENT ☐ THIS IS AN EXERCISE

This is _____
NAME

A **NOTIFICATION OF UNUSUAL EVENT** has been declared at Browns Ferry affecting:

☐ Unit 1 ☐ Unit 2 ☐ Unit 3 ☐ Common

Event Declared: **Time:** _____ **Date:** _____

EAL Designator: _____

Brief Description of the Event:

Radiological Conditions:

- ☐ No Abnormal Releases Offsite
- ☐ Airborne Release Offsite
- ☐ Liquid Release Offsite
- ☐ Release Information Not Known at this time

☐ **There is no Protective Action Recommendation at this time.**

☐ Ask, "Please repeat the information you have received to ensure accuracy."

ATTACHMENT B (Page 1 of 1)
UNIT 1, UNIT OPERATOR NOTIFICATIONS

Date: ____/____/____

Note: All notifications should be made utilizing the information located on EPIP 2, Attachment A

Received a completed copy of EPIP 2, Attachment A from the
Site Emergency Director.

INITIALS

TIME

Personnel Notifications	Initial Notifications		Termination Notifications	
Notify the Operations Manager (from the weekly duty list)	_____ Initials	_____ Time	_____ Initials	_____ Time
Notify the Vice President (from the weekly duty list)	_____ Initials	_____ Time	_____ Initials	_____ Time
Notify the REP manager (from the weekly duty list)	_____ Initials	_____ Time	_____ Initials	_____ Time
Notify the Nuclear Security Shift Supervisor. Ext. 3150 or 2219	_____ Initials	_____ Time	_____ Initials	_____ Time
Notify the NRC Resident Ext. 2573, or 2572 or from the weekly duty list.	_____ Initials	_____ Time	_____ Initials	_____ Time

This is a Quality Assurance record with a retention of five years.

ATTACHMENT C (Page 1 of 1)
FOLLOW-UP INFORMATION FORM
NOTIFICATION OF UNUSUAL EVENT

☐ THIS IS A REAL EVENT ☐ THIS IS A DRILL

Note: This form is for conducting Follow-up Information only.

This is _____ at Browns Ferry.

Name

There has been a NOTIFICATION OF UNUSUAL EVENT declared at Browns Ferry affecting:

☐ Unit 1 ☐ Unit 2 ☐ Unit 3 ☐ Common

The Reactor is ☐ Shutdown ☐ At Power

Plant Conditions are ☐ Stable ☐ Deteriorating

“Follow-Up” Information (e.g., Key Events, Status Changes)

Current Radiological Conditions are:

- ☐ No Abnormal Releases Offsite
- ☐ Airborne Release Offsite
- ☐ Liquid Release Offsite
- ☐ Release Information Not Known

Additional Rad information: (e.g., release duration)

☐ There is no Protective Action Recommendation at this time.

Please repeat the information you have received to ensure accuracy.

The time for this follow up is: Time: _____ Date: _____

SIGNATURE: _____

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP-3

ALERT

REVISION 25

PREPARED BY: TIM CORNELIUS

PHONE: 2038

RESPONSIBLE ORGANIZATION: EMERGENCY PREPAREDNESS

APPROVED BY: GILBERT V. LITTLE

DATE: 03/09/2001

EFFECTIVE DATE: 03/31/2001

LEVEL OF USE: REFERENCE USE

QUALITY-RELATED

REVISION LOG

Procedure Number: EPIP-3

Revision Number: 25

Pages Affected: 2,6,7,9, 10

Description of Change:

- IC-30 This change is being conducted to incorporate the management of NRC Commitment changes as prescribed in the correspondence from site licensing RIMS R08000217713, and to human factor the notification and follow-up notification forms.
- Page 2 - change to step 3.2.1 involves human factoring the Notification Form Title.
 - Page 6 - changes involves removing the "NRC Commitment Brackets to step requiring the review of PORC and the human factoring of applicable steps.
 - Page 7 - change involves human factoring attachment title and modifying information to ensure consistency with NRC guidance.
 - Page 8 - change involves adding information regarding the support of the Unit 1 Operator in staffing the ERO.
 - Page 9 - Updated information for the Unit Operator to use during the ERO staffing process.
 - Page 10 - change involved adding a clarify statement concerning the appropriate use of the Follow-up Notification Form.

1.0 PURPOSE

- 1.1** Provide for timely notification of appropriate individuals or organizations when the Shift Manager/Site Emergency Director (SED) has determined by EPIP-1 that an incident has occurred which is classified as an ALERT.
- 1.2** Provide for periodic evaluation of the current situation by the Shift Manager/SED to determine whether the ALERT should be terminated, continued, or upgraded to a more serious classification.

2.0 SCOPE

This procedure applies to emergency events that are classified as Alert by EPIP-1, Emergency Classification Procedure.

3.0 INSTRUCTIONS

Date: ____/____/____

- 3.1** If all Emergency Centers **ARE STAFFED**, Then notify the following that an **ALERT** Emergency Classification has been issued and EPIP 3 is being implemented, and continue in this procedure at Step 3.4. If all Emergency Centers **ARE NOT STAFFED**, Then N/A this step and continue in this procedure.

CECC ☐
TSC ☐
OSC ☐

Control Rooms ☐
Plant PA Announcement ☐

INITIALS_____
TIME

This is NAME, Site Emergency Director, an Alert has been declared at BFN, we are currently implementing EPIP-3. Standby for further updates.

3.2 Notification of the Operations Duty Specialist (ODS) & Emergency Responders

Note: The ODS **should** be notified within 5 minutes after the emergency event is declared.

- 3.2.1** **Complete** Attachment A (Initial Notification Form).

INITIALS_____
TIME

- 3.2.2** **Direct** the Unit 1, Unit Operator to make notifications from Attachment B (Unit 1, Unit Operator Notification)

INITIALS_____
TIME

- 3.2.3** **Notify** the ODS and **Provide** the information from Attachment A.

INITIALS_____
TIME

Note: Utilize the direct ring-down ODS phone when making this notification or as applicable dial direct.

ODS Telephone Numbers - 5-751-1700, or 2495

If the ODS cannot be reached within 10 minutes, **Then** contact the State of Alabama directly by requesting the Rad Health Duty Officer at:

Day Shift 8 a.m. - 5 p.m. - Holidays-Weekends-Offshifts
9-1-334-206-5391 9-1-334-242-4378

- 3.2.4** **Fax** a copy of Attachment A to the ODS for confirmation of information or state if the state was contacted directly.

INITIALS_____
TIME

ODS Fax AL Rad Health Fax
5-751-8620 9-1-334-206-5387

- 3.2.5** **Receive** confirmation call from the ODS (to verify notification of the State of Alabama)(NA this step, if the state was contacted directly).

INITIALS_____
TIME

3.0 INSTRUCTIONS (CONTINUED)**3.3 NOTIFICATION OF SITE PERSONNEL**

3.3.1 Make the following plant P.A. announcement:

INITIALS

TIME

THIS IS (*NAME*), SHIFT MANAGER. An ALERT HAS BEEN DECLARED ON UNIT _____. I HAVE ASSUMED THE DUTIES OF SITE EMERGENCY DIRECTOR. REPORT TO YOUR ASSIGNED EMERGENCY RESPONSE FACILITY AT THIS TIME!

3.4 ACCOUNTABILITY

CAUTION: Do not initiate an Accountability if the Alert is due to a Tornado or other severe weather condition.

3.4.1 If the emergency situation warrants an Accountability, activate the Accountability Alarm. (Reference EPIP-8) (N/A STEP IF NOT APPLICABLE)

INITIALS

TIME

Note: If the emergency situation does not warrant an Accountability at this time, continue to assess the situation and activate the Accountability Alarm when necessary.

3.5 OFFSITE DOSE ASSESSMENT

3.5.1 Evaluate the need for offsite dose assessment. (N/A STEP IF NOT APPLICABLE)

INITIALS

TIME

3.5.1.1 When offsite dose assessment is required obtain the information from the CECC when operational.

3.5.1.2 If the CECC is not operational, contact the TSC, when staffed or the RADCON Shift Supervisor and request the implementation of EPIP 14, for dose assessment.

3.0 INSTRUCTIONS (CONTINUED)**3.6 NOTIFICATION OF THE NRC**

3.6.1 Notify the NRC immediately or within 1 hour and if requested by the NRC maintain an open and continuous communications channel.

INITIALS

TIME

Note: **Utilize** the Emergency Notification System (ENS) when making this notification. Dial the first number listed on the sticker affixed to the ENS telephone, by dialing 9-1-**"The Ten Digit Number Listed on the ENS Telephones"**. **If** the number is busy, **Then** select in order, the alternate numbers until a connection is achieved. No access codes are required.

3.0 INSTRUCTIONS (CONTINUED)**3.7 PERIODIC EVALUATION OF THE EVENT**

3.7.1 Continue to **Evaluate** the event using EPIP-1 as conditions warrant.

3.7.2 **If** plant conditions warrant the need for follow up information, **Complete** the Follow Up Notification Form, Attachment C.

Note: Conditions that warrant this evaluation are as a minimum when other EAL conditions exist indicating the current emergency classification or significant changes in plant conditions have occurred.

3.7.3 **If** the CECC is not staffed, **Then** notify the ODS and provide follow up information from the completed Attachment C form. Utilize the direct ring-down ODS phone when making this notification or as applicable dial direct.

ODS - 5-751-2495, 1700

Note: **If** the ODS cannot be reached, **Then** contact the State of Alabama directly by requesting the Rad Health Duty Officer at:

Day Shift 8 a.m. - 5 p.m.
9-1-334-206-5391

Holidays-Weekends-Offshifts
9-1-334-242-4378

3.7.4 **If** the conditions warrant upgrading to a higher classification, **Then** initiate the appropriate EPIP.

3.7.5 **If** the conditions warrants termination of the classifications, **Then** enter EPIP-16, Termination and Recovery Procedure.

3.7.6 **After** the evaluation has been completed, **if staffed**, **Notify** the following of the status:

- | | |
|-------------|-------------------------|
| • CECC | • OSC |
| • NRC (ENS) | • CONTROL ROOMS |
| • TSC | • PLANT PA ANNOUNCEMENT |

3.7.7 **Re-enter** this procedural section as conditions warrant at step 3.7.1 or until directed to exit this procedure by steps 3.7.4 or 3.7.5.

3.0 INSTRUCTIONS (CONTINUED)**3.8 CLOSURE OF THE ALERT**

- 3.8.1** Upon termination of the Alert, send the completed EPIP-3 and all attachments to Emergency Preparedness (EP).

INITIALS

TIME

- 3.8.2** EP shall forward to the PORC Secretary the completed EPIP and all attachments for review by PORC.

INITIALS

TIME

- 3.8.3** PORC Review Completed.

PORC Chairman

DATE

- 3.8.4** After PORC review is completed the PORC secretary shall forward the signed EPIP-3 with all attachments to EP for documentation storage.

INITIALS

TIME**4.0 ATTACHMENTS**

Attachment A - Initial Notification Form

Attachment B - Unit 1, Unit Operator Notification

Attachment C - Follow Up Information Form

ATTACHMENT A (Page 1 of 1)
INITIAL NOTIFICATION FORM
ALERT

☐ THIS IS A REAL EVENT☐ THIS IS A DRILL

This is _____
NAME

An **ALERT** has been declared at Browns Ferry affecting:

☐ Unit 1☐ Unit 2☐ Unit 3☐ Common

Event Declared: Time: _____ Date: _____

EAL Designator: _____

Brief Description of the Event:

Radiological Conditions:

- ☐ No Abnormal Releases Offsite
- ☐ Airborne Release Offsite
- ☐ Liquid Release Offsite
- ☐ Release Information Not Known at this time

☐ There is no Protective Action Recommendation at this time.

☐ Ask "Please repeat the information you have received to ensure accuracy."

ATTACHMENT B (Page 1 of 2)
Unit 1, Unit Operator NOTIFICATION

Date: ____/____/____

1. **Activate** the Automatic Paging System (APS).

INITIALS_____
TIME

Note: Monitor paging system terminal display. If a "NO" response is observed or if the position being paged has not responded within approximately 20 minutes, utilize the "Weekly Duty List" and attempt to contact the position representative. If contact can not be established, utilize the "Call-Out List" and attempt to contact an alternate position representative. Continue until all positions are filled.

Important: If the APS does NOT activate, Call the ODS (5-751-1700 or 5-751-2495) to activate and notify the SED immediately.

2. **Notify** the Unit Supervisors on shift.

INITIALS_____
TIME

3. **Notify** Nuclear Security Shift Supervisor and state "AN ALERT HAS BEEN DECLARED" and direct to activate EPIP-11, Security and Access Control.

INITIALS_____
TIME

- Plant Extension 3150 or 2219

4. **Notify** the Chemistry Lab Supervisor and state "AN ALERT HAS BEEN DECLARED" and direct to activate EPIP-13, Radiochemical Laboratory Procedure.

INITIALS_____
TIME

- Plant Extension 2367 or 2368

5. **Notify** the RADCON Shift Supervisor and state "AN ALERT HAS BEEN DECLARED" and direct to activate EPIP-14, Radiological Control Procedure.

INITIALS_____
TIME

- Plant Extension 2300 or 3104

ATTACHMENT B (Page 2 of 2)
Unit 1, Unit Operator NOTIFICATION

Date: ____/____/____

6. **Notify** the "On-Call" NRC Resident and state "AN ALERT HAS BEEN DECLARED," per BFN-EPIP-03.

INITIALS_____
TIME

- Plant Extension 2572 [Secretary] or
from weekly duty list

7. **IF** the APS did not operate properly, **Make** notifications from the current weekly duty list. **If** the individuals on the weekly duty list cannot be contacted, **Make** notifications from the Call Out List. **Notify** the SED of the condition.

INITIALS_____
TIME

ATTACHMENT C (Page 1 of 1)
FOLLOW-UP INFORMATION FORM
ALERT

☐ THIS IS A REAL EVENT ☐ THIS IS A DRILL

Note: This form is for conducting Follow-up Information only.

This is _____ at Browns Ferry.

Name

There has been a Alert declared at Browns Ferry affecting:

☐ Unit 1 ☐ Unit 2 ☐ Unit 3 ☐ Common

The Reactor is ☐ Shutdown ☐ At Power

Plant Conditions are ☐ Stable ☐ Deteriorating

“Follow-Up” Information (e.g., Key Events, Status Changes)

Current Radiological Conditions are:

- ☐ No Abnormal Releases Offsite
☐ Airborne Release Offsite
☐ Liquid Release Offsite
☐ Release Information Not Known

Additional Rad information: (e.g., release duration)

☐ There is no Protective Action Recommendation at this time.

Please repeat the information you have received to ensure accuracy.

The time for this follow up is: Time: _____ Date: _____

SIGNATURE: _____

LAST PAGE

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP-4

SITE AREA EMERGENCY

REVISION 24

PREPARED BY: TIM CORNELIUS

PHONE: 2038

RESPONSIBLE ORGANIZATION: EMERGENCY PREPAREDNESS

APPROVED BY: GILBERT V.LITTLE

DATE: 03/09/2001

EFFECTIVE DATE:03/31/2001

LEVEL OF USE: REFERENCE USE

QUALITY-RELATED

REVISION LOG

Procedure Number: EPIP-4

Revision Number: 24

Pages Affected: 2,3,6,7,8,9,11

Description of Change:

- IC-31 This change is being conducted to incorporate a manual method of evacuating on-site, non-emergency response personnel during emergency situations. In addition changes to the procedure are being conducted to incorporate the management of NRC Commitment changes as prescribed in the correspondence from site licensing RIMS R08000217713, and to human factor the notification and follow-up notification forms.
- Page 2 - change to step 3.2.1 involves human factoring the Notification Form Title.
- Page 3- -changes to steps 3.4.1 - 3.4.5 involves information regarding steps for the SED to take when conducting an Accountably/Assembly and Evacuation.
- Page 6 - changes involves removing the "NRC Commitment Brackets to step requiring the review of PORC and the human factoring of applicable steps.
- Page 7 - change involves human factoring attachment title.
- Page 8 - change involves human factoring attachment title and modifying information to ensure consistency with NRC guidance.
- Page 9 - change involves adding information for Unit 1 Operator regarding ERO staffing support.
- Page 10 - updated information for the Unit Operator to use during the ERO staffing process.
- Page 11 - change involved adding a clarify statement concerning the appropriate use of the Follow-up Notification Form.

1.0 PURPOSE

- 1.1** Provide for timely notification of appropriate individuals or organizations when the Shift Manager/Site Emergency Director (SED) has determined by EPIP-1 that an incident has occurred which is classified as a SITE AREA EMERGENCY (SAE).
- 1.2** Provide for periodic evaluation of the current situation by the Shift Manager/SED to determine whether the SAE should be terminated, continued, or upgraded to a more serious classification.

2.0 SCOPE

This procedure applies to emergency events that are classified as Site Area Emergency by EPIP-1, Emergency Classification Procedure.

3.0 INSTRUCTIONS

Date: ____/____/____

- 3.1 If all Emergency Centers **ARE STAFFED**, Then notify the following that a **SITE AREA EMERGENCY** Emergency Classification has been issued and EPIP 4 is being implemented, and continue in this procedure at Step 3.4. If all Emergency Centers **ARE NOT STAFFED**, Then N/A this step and continue in this procedure.

CECC ☐
TSC ☐
OSC ☐

Control Rooms ☐
Plant PA Announcement ☐

INITIALS

TIME

This is NAME, Site Emergency Director, an SAE has been declared at BFN, we are currently implementing EPIP-4. Standby for further updates.

3.2 Notification of the Operations Duty Specialist (ODS) & Emergency Responders

Note: The ODS **should** be notified within 5 minutes after the emergency event is declared.

3.2.1 **Complete** Attachment A (Initial Notification Form).

INITIALS

TIME

3.2.2 **Direct** the Unit 1, Unit Operator to make notifications from Attachment B (Unit 1, Unit Operator Notification)

INITIALS

TIME

3.2.3 **Notify** the ODS and **Provide** the information from Attachment A.

INITIALS

TIME

Note: Utilize the direct ring-down ODS phone when making this notification or as applicable dial direct.

ODS Telephone Numbers
5-751-1700, 2495

If the ODS cannot be reached within 10 minutes, **Then** contact the State of Alabama directly by requesting the Rad Health Duty Officer at:

Day Shift 8 a.m. - 5 p.m. - Holidays-Weekends-Offshifts
9-1-334-206-5391 9-1-334-242-4378

3.2.4 **Fax** a copy of Attachment A to the ODS for confirmation of information or if the state is contacted directly.

INITIALS

TIME

ODS Fax AL Rad Health Fax
5-751-8620 9-1-334-206-5387

3.2.5 **Receive** confirmation call from the ODS (to verify notification of the State of Alabama)(NA this step, if the state was contacted directly).

INITIALS

TIME

3.0 INSTRUCTIONS (CONTINUED)

3.3 NOTIFICATION OF SITE PERSONNEL

3.3.1 **Make** the following plant P.A. announcement:

INITIALS

TIME

THIS IS (*NAME*), SHIFT MANAGER. A SITE AREA
EMERGENCY HAS BEEN DECLARED ON UNIT
____. I HAVE ASSUMED THE DUTIES OF SITE
EMERGENCY DIRECTOR. REPORT TO YOUR
ASSIGNED EMERGENCY RESPONSE FACILITY
AT THIS TIME!

3.4 ACCOUNTABILITY AND EVACUATION OF NON-EMERGENCY RESPONDERS

3.4.1 **If** Accountability has not been conducted **Then**, continue
in this procedure. **If** Accountability has been conducted,
Then continue in this procedure at step 3.4.4.

3.4.2 **Prior** to sounding the Accountability Alarm, **Notify**
Nuclear Security. **If** the TSC is staffed **Then** notify the
TSC Security Manager. **If** the TSC is not staffed or the
TSC Security Manager position has not been filled **Then**
call 3150 or 2219.

INITIALS

TIME

3.4.3 **Activate** the Accountability Alarm. (Reference EPIP-8)

INITIALS

TIME

3.4.4 **When** accountability is complete, **Initiate** the order for
the Evacuation of non-emergency responders. Notify
Nuclear Security to conduct an evacuation of non-
emergency responders and implement EPIP-8, step
3.4.3.

INITIALS

TIME

3.4.5 **Notify** the CECC Director of the Evacuation Order, **If**
the CECC is not staffed, **Then** notify the ODS.

INITIALS

TIME

3.0 INSTRUCTIONS (CONTINUED)

3.5 DOSE ASSESSMENT

- 3.5.1 Evaluate the need for offsite dose assessment.
(N/A STEP IF NOT APPLICABLE)

INITIALS

TIME

3.5.1.1 **When** offsite dose assessment is required obtain the information from the CECC when operational.

3.5.1.2 **If** the CECC is not operational, contact the TSC, when staffed or the RADCON Shift Supervisor and request the implementation of EPIP 14, for dose assessment.

3.6 NOTIFICATION OF THE NRC

- 3.6.1 **Notify** the NRC immediately or within 1 hour and if requested by the NRC maintain an open and continuous communications channel.

INITIALS

TIME

Note: **Utilize** the Emergency Notification System (ENS) when making this notification. Dial the first number listed on the sticker affixed to the ENS telephone, by dialing 9-1-
“The Ten Digit Number Listed on the ENS Telephones”.
If the number is busy, **Then** select in order, the alternate numbers until a connection is achieved. No access codes are required.

3.0 INSTRUCTIONS (CONTINUED)

3.7 PERIODIC EVALUATION OF THE EVENT

3.7.1 Continue to **Evaluate** the event using EPIP-1 as conditions warrant.

3.7.2 **If** plant conditions warrant the need for follow up information, **Complete** the Follow Up Notification Form, Attachment C.

Note: Conditions that warrant this evaluation are as a minimum when other EAL conditions exist indicating the current emergency classification or significant changes in plant conditions have occurred.

3.7.3 **If** the CECC is not staffed, **Then** notify the ODS and provide follow up information from the completed Attachment C form. Utilize the direct ring-down ODS phone when making this notification or as applicable dial direct.

ODS - 5-751-2495, 1700

Note: **If** the ODS cannot be reached, **Then** contact the State of Alabama directly by requesting the Rad Health Duty Officer at:

Day Shift 8 a.m. - 5 p.m.
9-1-334-206-5391

Holidays-Weekends-Offshifts
9-1-334-242-4378

3.7.4 **If** the conditions warrants upgrading to a higher classifications, **Then** initiate EPIP-5, General Emergency.

3.7.5 **If** the conditions warrant termination of the classification, **Then** enter EPIP-16, Termination and Recovery Procedure.

3.0 INSTRUCTIONS (CONTINUED)

3.7 PERIODIC EVALUATION OF THE EVENT (CONTINUED)

3.7.6 **After** the evaluation has been completed, **if staffed**, **Notify** the following of the status:

- CECC
- NRC (ENS)
- TSC
- OSC
- CONTROL ROOMS
- PLANT PA ANNOUNCEMENT

3.7.7 **Re-enter** this procedural section as conditions warrant at step 3.7.1 or until directed to exit this procedure by steps 3.7.4 or 3.7.5.

3.8 CLOSURE OF THE SITE AREA EMERGENCY

3.8.1 **Upon** termination of the Site Area Emergency, **Send** the completed EPIP-4 and all attachments to Emergency Preparedness (EP).

INITIALS

TIME

3.8.2 EP shall **Forward** to the PORC Secretary the completed EPIP and all attachments for review by PORC.

INITIALS

TIME

3.8.3 PORC Review Completed.

PORC Chairman

DATE

3.8.4 After PORC review is completed the PORC secretary shall **Forward** the signed EPIP-4 with all attachments to EP for documentation storage.

INITIALS

TIME

4.0 ATTACHMENTS

Attachment A - Initial Notification Form

Attachment B - Unit 1, Unit Operator Notification

Attachment C - Follow Up Information Form

ATTACHMENT A (Page 1 of 1)
INITIAL NOTIFICATION FORM
SITE AREA EMERGENCY

☐ THIS IS A REAL EVENT

☐ THIS IS A DRILL

This is _____
NAME

An **SITE AREA EMERGENCY** has been declared at Browns Ferry affecting:

☐ Unit 1

☐ Unit 2

☐ Unit 3

☐ Common

Event Declared: Time: _____ Date: _____

EAL Designator: _____

Brief Description of the Event:

Radiological Conditions:

☐ No Abnormal Releases Offsite

☐ Airborne Release Offsite

☐ Liquid Release Offsite

☐ Release Information Not Known at this time

☐ **There is no Protective Action Recommendation at this time.**

Meteorological conditions are:

Wind Speed: _____ m.p.h.

Wind Direction From: _____ degrees

☐ Ask "Please repeat the information you have received to ensure accuracy."

ATTACHMENT B (Page 1 of 2)
Unit 1, Unit Operator NOTIFICATION

Date: ____/____/____

1. **Activate** the Automatic Paging System (APS).

INITIALS

TIME

Note: Monitor paging system terminal display. If a "NO" response is observed or if the position being paged has not responded within approximately 20 minutes, utilize the "Weekly Duty List" and attempt to contact the position representative. If contact can not be established, utilize the "Call-Out List" and attempt to contact an alternate position representative. Continue until all positions are filled.

Important: If the APS does NOT activate, Call the ODS (5-751-1700 or 5-751-2495) to activate and notify the SED immediately.

2. **Notify** the Unit Supervisors on shift.

INITIALS

TIME

3. **Notify** Nuclear Security Shift Supervisor and state "A SITE AREA EMERGENCY HAS BEEN DECLARED," and direct to activate EPIP-11, Security and Access Control.

INITIALS

TIME

- Plant Extension 3150 or 2219

4. **Notify** the Chemistry Lab Supervisor and state "A SITE AREA EMERGENCY HAS BEEN DECLARED," and direct to activate EPIP-13, Radiochemical Laboratory Procedure.

INITIALS

TIME

- Plant Extension 2367 or 2368

5. **Notify** the RADCON Shift Supervisor and state "A SITE AREA EMERGENCY HAS BEEN DECLARED," and direct to activate EPIP-14, Radiological Control Procedure.

INITIALS

TIME

Plant Extension 2300 or 3104

ATTACHMENT B (Page 2 of 2)
Unit 1, Unit Operator NOTIFICATION

Date: ____/____/____

6. **Notify** the "On-Call" NRC Resident and state "A SITE AREA EMERGENCY HAS BEEN DECLARED," per BFN-EPIP-04.

INITIALS

TIME

- Plant Extension 2572 [Secretary] or from weekly duty list

7. **IF** the APS did not operate properly, **Make** notifications from the current weekly duty list. **If** the individuals on the weekly duty list cannot be contacted, **Make** notifications from the Call Out List. **Notify** the SED of the condition.

INITIALS

TIME

ATTACHMENT C (Page 1 of 1)
FOLLOW-UP INFORMATION FORM
SITE AREA EMERGENCY

☐ THIS IS A REAL EVENT

☐ THIS IS A DRILL

Note: This form is for conducting Follow-up Information only.

This is _____ at Browns Ferry.

Name

There has been a Site Area Emergency declared at Browns Ferry affecting:

☐ Unit 1

☐ Unit 2

☐ Unit 3

☐ Common

The Reactor is ☐ Shutdown

☐ At Power

Plant Conditions are ☐ Stable

☐ Deteriorating

“Follow-Up” Information (e.g., Key Events, Status Changes)

Current Radiological Conditions are:

☐ No Abnormal Releases Offsite

☐ Airborne Release Offsite

☐ Liquid Release Offsite

☐ Release Information Not Known

Additional Rad information: (e.g., release duration)

☐ There is no Protective Action Recommendation at this time.

Please repeat the information you have received to ensure accuracy.

The time for this follow up is:

Time: _____

Date: _____

SIGNATURE: _____

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP-5

GENERAL EMERGENCY

REVISION 29

PREPARED BY: TIM CORNELIUS

PHONE: 2038

RESPONSIBLE ORGANIZATION: EMERGENCY PREPAREDNESS

APPROVED BY: GILBERT V. LITTLE

DATE: 03/09/2001

EFFECTIVE DATE: 03/31/2001

LEVEL OF USE: REFERENCE USE

QUALITY-RELATED

REVISION LOG

Procedure Number: EPIP-5

Revision Number: 29

Pages Affected: 2,3,4,6,7,8,9,12

Description of Change:

- IC-37 This change is being conducted to incorporate a manual method of evacuating on-site, non-emergency response personnel during emergency situations. In addition changes to the procedure are being conducted to incorporate the management of NRC Commitment changes as prescribed in the correspondence from site licensing RIMS R08000217713, and to human factor the notification and follow-up notification forms.
- Page 2 - change to step 3.2.1 involves human factoring the Notification Form Title and revised telephone for Morgan County.
- Page 3/4 - changes to steps 3.4.1 - 3.4.5 involves information regarding steps for the SED to take when conducting an Accountably/Assembly and Evacuation.
- Page 6 - changes involves removing the "NRC Commitment Brackets to step requiring the review of PORC and the human factoring of applicable steps.
- Page 7 - change involves human factoring attachment title.
- Page 8 - change involves human factoring attachment title.
- Page 9 - change involves adding information for Unit 1 Operator regarding ERO staffing support.
- Page 10 - revised to update information supporting Unit 1 Operator actions regarding ERO staffing support.
- Page 11 - revised Protective Action Recommendation Flowchart.
- Page 12 - change involved adding a clarify statement concerning the appropriate use of the Follow-up Notification Form.

1.0 PURPOSE

- 1.1** Provide for timely notification of appropriate individuals or organizations when the Shift Manager/Site Emergency Director (SED) has determined by EPIP-1 that an incident has occurred which is classified as a GENERAL EMERGENCY (GE).
- 1.2** Provide for periodic evaluation of the current situation by the Shift Manager/SED to determine whether the GE should be terminated, or continued.

2.0 SCOPE

This procedure applies to emergency events that are classified as General Emergency by EPIP-1, Emergency Classification Procedure.

3.0 INSTRUCTIONS

Date: ____/____/____

- 3.1 If all Emergency Centers **ARE STAFFED**, Then notify the following that a **GENERAL EMERGENCY** Emergency Classification has been issued and EPIP 5 is being implemented, and continue in this procedure at Step 3.4. If all Emergency Centers **ARE NOT STAFFED**, Then N/A this step and continue in this procedure.

CECC ☐
TSC ☐
OSC ☐Control Rooms ☐
Plant PA Announcement ☐_____
INITIALS_____
TIME

This is NAME, Site Emergency Director, an GE has been declared at BFN, we are currently implementing EPIP-5. Standby for further updates.

3.2 **Notification of the Operations Duty Specialist (ODS) & Emergency Responders**

Note: The ODS **should** be notified within 5 minutes after the emergency event is declared.

- 3.2.1
- Complete**
- Attachment A (Initial Notification Form).

INITIALS_____
TIME

- 3.2.2
- Direct**
- the Unit 1, Unit Operator to make notifications from Attachment B (Unit 1, Unit Operator Notification)

INITIALS_____
TIME

- 3.2.3
- Notify**
- the ODS and
- Provide**
- the information from Attachment A.

INITIALS_____
TIME

Note: Utilize the direct ring-down ODS phone when making this notification or as applicable dial direct.

ODS Telephone Numbers
5-751-1700, 2495

If the ODS cannot be reached within 10 minutes, **Then** contact the following and Provide the information from Attachment A:

- 1.
- Limestone County:**
- 9-232-0111

INITIALS_____
TIME

- 2.
- Morgan County:**
- 9-1-256-432-2143

INITIALS_____
TIME

- 3.
- Lawrence County:**
- 9-1-256-974-7641

INITIALS_____
TIME

- 4.
- Lauderdale County:**
- 9-1-256-760-9117

INITIALS_____
TIME

- 5.
- State of Alabama Rad Health Duty Officer:**

Day Shift 8 a.m. - 5 p.m.

INITIALS_____
TIME

9-1-334-206-5391

Holidays-Weekends-Offshifts

9-1-334-242-4378

3.0 INSTRUCTIONS (CONTINUED)

- 3.2.4** Fax a copy of Attachment A to the ODS for confirmation of information or the state if contacted directly.

INITIALSTIME

ODS Fax
5-751-8620

AL Rad Health
9-1-334-206-5387

- 3.2.5** Receive confirmation call from the ODS (to verify notification of the State of Alabama), (N/A this step if the State was contacted directly).

INITIALSTIME**3.3 NOTIFICATION OF SITE PERSONNEL**

- 3.3.1** Make the following plant P.A. announcement:

INITIALSTIME

THIS IS (NAME), SHIFT MANAGER. A GENERAL EMERGENCY HAS BEEN DECLARED ON UNIT _____. I HAVE ASSUMED THE DUTIES OF SITE EMERGENCY DIRECTOR. REPORT TO YOUR ASSIGNED EMERGENCY RESPONSE FACILITY AT THIS TIME!

3.4 ACCOUNTABILITY AND EVACUATION OF NON-EMERGENCY RESPONDERS

- 3.4.1** If Accountability has not been conducted Then, continue in this procedure. If Accountability has been conducted, Then continue in this procedure at step 3.4.4.

INITIALSTIME

- 3.4.2** Prior to sounding the Accountability Alarm, Notify Nuclear Security. If the TSC is staffed Then notify the TSC Security Manager. If the TSC is not staffed or the TSC Security Manager position has not been filled Then call 3150 or 2219.

INITIALSTIME

- 3.4.3** Activate the Accountability Alarm. (Reference EPIP-8)

INITIALSTIME

3.0 INSTRUCTIONS (CONTINUED)**3.4 ACCOUNTABILITY AND EVACUATION OF NON-EMERGENCY RESPONDERS (CONTINUED)**

3.4.4 When accountability is complete, Initiate the order for the Evacuation of non-emergency responders. Notify Nuclear Security to conduct an evacuation of non-emergency responders and implement EPIP-8, step 3.4.3.

INITIALS

TIME

3.4.5 Notify the CECC Director of the Evacuation Order, If the CECC is not staffed, Then notify the ODS.

INITIALS

TIME**3.5 DOSE ASSESSMENT**

3.5.1 Evaluate the need for offsite dose assessment.
(N/A STEP IF NOT APPLICABLE)

INITIALS

TIME

3.5.1.1 When offsite dose assessment is required Obtain the information from the CECC when operational.

3.5.1.2 If the CECC is not operational, Contact the TSC, when staffed or the RADCON Shift Supervisor and Request the implementation of EPIP 14, for dose assessment.

3.6 NOTIFICATION OF THE NRC

3.6.1 Notify the NRC immediately or within 1 hour and if requested by the NRC maintain an open and continuous communications channel.

INITIALS

TIME

Note: Utilize the Emergency Notification System (ENS) when making this notification. Dial the first number listed on the sticker affixed to the ENS telephone, by dialing 9-1-"The Ten Digit Number Listed on the ENS Telephones". If the number is busy, Then select in order, the alternate numbers until a connection is achieved. No access codes are required.

3.0 INSTRUCTIONS (CONTINUED)

3.7 PROTECTIVE ACTION RECOMMENDATION

- 3.7.1 **If** the CECC is **not staffed**, **Then** make a Protective Action Recommendation (PAR) using Attachment C.
(This PAR shall be made only by the SED.) (N/A STEP
IF NOT APPLICABLE)

INITIALS

TIME

3.8 PERIODIC EVALUATION OF THE EVENT

- 3.8.1 Continue to **Evaluate** the event using EPIP-1 as conditions warrant.
- 3.8.2 **If** plant conditions warrant the need for follow up information, **Complete** the Follow Up Notification Form, Attachment D.
- Note:** Conditions that warrant this evaluation are as a minimum when other EAL conditions exist indicating the current emergency classification or significant changes in plant conditions have occurred.
- 3.8.3 **If** the CECC is not staffed, **Then** notify the ODS and provide follow up information from the completed Attachment D form. Utilize the direct ring-down ODS phone when making this notification or as applicable dial direct.

ODS - 5-751-2495, 1700

Note: **If** the ODS cannot be reached, **Then** contact the State of Alabama directly by requesting the Rad Health Duty Officer at:

Day Shift 8 a.m. - 5 p.m.
9-1-334-206-5391

Holidays-Weekends-Offshifts
9-1-334-242-4378

3.0 INSTRUCTIONS (CONTINUED)

3.8 PERIODIC EVALUATION OF THE EVENT(CONTINUED)

3.8.4 **If** the conditions warrant termination of the classification, **Then** enter EPIP-16, Termination and Recovery Procedure.

3.8.5 **After** the evaluation has been completed, **if staffed**, **Notify** the following of the status:

- CECC
- NRC (ENS)
- TSC
- OSC
- CONTROL ROOMS
- PLANT PA ANNOUNCEMENT

3.8.6 **Re-enter** this procedural section as conditions warrant at step 3.8.1 or until directed to exit this procedure by steps 3.8.4.

3.9 CLOSURE OF THE GENERAL EMERGENCY

3.9.1 **Upon** termination of the General Emergency **Send** the completed EPIP-5 and all attachments to Emergency Preparedness (EP).

INITIALS

TIME

3.9.2 EP shall **Forward** to the PORC Secretary the completed EPIP and all attachments for review by PORC.

INITIALS

TIME

3.9.3 PORC Review Completed.

PORC Chairman

DATE

3.9.4 After PORC review is completed the PORC secretary shall **Forward** the signed EPIP-5 with all attachments to EP for documentation storage.

INITIALS

TIME

4.0 ATTACHMENTS

Attachment A - Initial Notification Form

Attachment B - Unit 1, Unit Operator Notification

Attachment C - Protective Action Recommendations

Attachment D - Follow Up Information Form

ATTACHMENT A (Page 1 of 1)
INITIAL NOTIFICATION FORM
GENERAL EMERGENCY

☐ THIS IS A REAL EVENT

☐ THIS IS A DRILL

This is _____
NAME

There has been a **GENERAL EMERGENCY** declared at Browns Ferry affecting:

☐ Unit 1

☐ Unit 2

☐ Unit 3

☐ Common

Event Declared: _____ **Time:** _____ **Date:** _____

EAL Designator: _____

Brief Description of the Event:

Radiological Conditions:

- ☐ No Abnormal Releases Offsite
☐ Airborne Release Offsite
☐ Liquid Release Offsite
☐ Release Information Not Known at this time

The following Protective Action Recommendation is provided

- ☐ Recommendation 1 - Evacuate 2 mile radius and 10 miles downwind and shelter remainder of 10 mile EPZ.
☐ Recommendation 2 - Evacuate 2 mile radius and 5 miles downwind and shelter remainder of 10 mile EPZ.

Meteorological Conditions are:

Wind Speed: _____ m.p.h.

Wind Direction From: _____ degrees

☐ Ask, "Please repeat the information you have received to ensure accuracy."

ATTACHMENT B (Page 1 of 2)
Unit 1, Unit Operator NOTIFICATION

Date: ____/____/____

1. **Activate** the Automatic Paging System (APS).

INITIALS

TIME

Note: Monitor paging system terminal display. If a "NO" response is observed or if the position being paged has not responded within approximately 20 minutes, utilize the "Weekly Duty List" and attempt to contact the position representative. If contact can not be established, utilize the "Call-Out List" and attempt to contact an alternate position representative. Continue until all positions are filled.

Important: If the APS does NOT activate, Call the ODS (5-751-1700 or 5-751-2495) to activate and notify the SED immediately.

2. **Notify** the Unit Supervisor's on shift.

INITIALS

TIME

3. **Notify** Nuclear Security Shift Supervisor and state "A GENERAL EMERGENCY HAS BEEN DECLARED," and direct to activate EPIP-11, Security and Access Control.

INITIALS

TIME

- Plant Extension 3150 or 2219

4. **Notify** the Chemistry Lab Supervisor and state "A GENERAL EMERGENCY HAS BEEN DECLARED," and direct to activate EPIP-13, Radiochemical Laboratory Procedure.

INITIALS

TIME

- Plant Extension 2367 or 2368

5. **Notify** the RADCON Shift Supervisor and state "A GENERAL EMERGENCY HAS BEEN DECLARED," and direct to activate EPIP-14, Radiological Control Procedure.

INITIALS

TIME

- Plant Extension 2300 or 3104

ATTACHMENT B (Page 2 of 2)
Unit 1, Unit Operator NOTIFICATION

Date: ____/____/____

6. **Notify** the "On-Call" NRC Resident and state "A
GENERAL EMERGENCY HAS BEEN
DECLARED," per BFN-EPIP-05.

INITIALS

TIME

- Plant Extension 2572 [Secretary] or
from weekly duty list

7. **IF** the APS did not operate properly, **Make** notifications
from the current weekly duty list. **IF** the individuals on
the weekly duty list cannot be contacted, **Make**
notifications from the Call Out List. **Notify** the SED of
the condition.

INITIALS

TIME

ATTACHMENT C (Page 1 of 1)
PROTECTIVE ACTION RECOMMENDATIONS

Note 1: If conditions are unknown utilizing the flowchart, then answer NO.

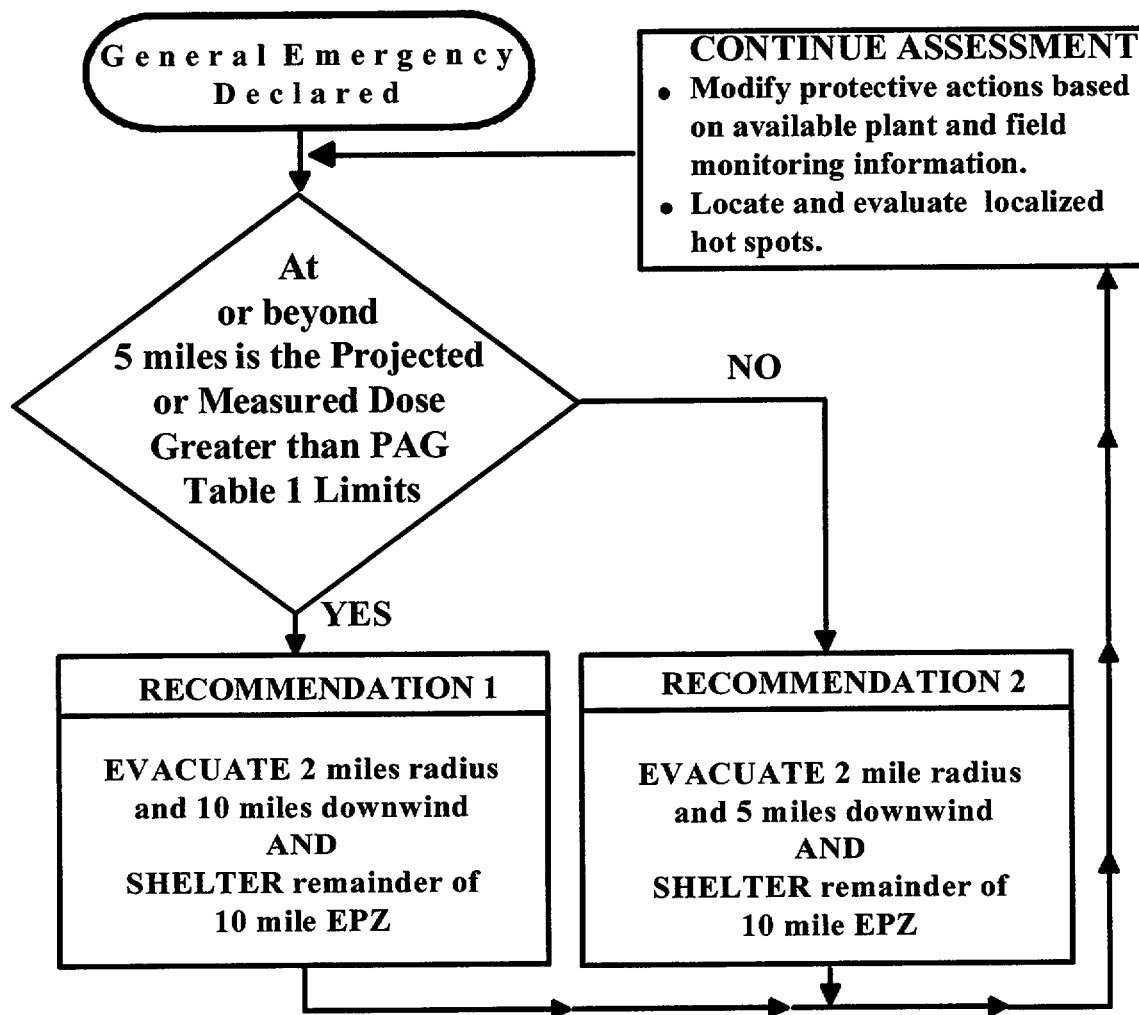


TABLE 1 Protective Action Guides	
TYPE	LIMIT
Measured	3.9E-6 micro Ci/cc of Iodine 131 or 1 REM/hr External Dose
Projected	1 REM TEDE or 5 REM Thyroid CDE

ATTACHMENT D (Page 1 of 1)
FOLLOW-UP INFORMATION FORM
GENERAL EMERGENCY

☐ THIS IS A REAL EVENT ☐ THIS IS A DRILL

Note: This form is for conducting Follow-up Information only.

This is _____ at Browns Ferry.
Name

There has been a General Emergency declared at Browns Ferry affecting:

☐ Unit 1 ☐ Unit 2 ☐ Unit 3 ☐ Common

The Reactor is ☐ Shutdown ☐ At Power

Plant Conditions are ☐ Stable ☐ Deteriorating

"Follow-Up" Information (e.g., Key Events, Status Changes, Status of any Plant Evacuations)

Current Radiological Conditions are:

☐ No Abnormal Releases Offsite ☐ Airborne Release Offsite
☐ Liquid Release Offsite ☐ Release Information Not Known

Additional Rad information: (e.g., release duration)

The current meteorological conditions from the site are:

Wind Speed _____, Wind Direction from _____

The following Protective Action Recommendation is provided:

☐ Recommendation 1
☐ Recommendation 2

Please repeat the information you have received to ensure accuracy.

The time for this follow up is: Time: _____ Date: _____

SIGNATURE: _____

LAST PAGE

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP-8

PERSONAL ACCOUNTABILITY AND EVACUATION

REVISION 13

PREPARED BY: TIM CORNELIUS

PHONE: 2038

RESPONSIBLE ORGANIZATION: EMERGENCY PREPAREDNESS

APPROVED BY: GILBERT LITTLE

DATE: 03/09/2001

EFFECTIVE DATE: 03/31/2001

LEVEL OF USE: REFERENCE USE

QUALITY-RELATED

REVISION LOG

Procedure Number: EPIP-8

Revision Number: 13

Pages Affected: All

Pagination Pages: None

Description of Change:

- IC-16 This revision is being conducted to incorporate a manual method of evacuating on-site, non-emergency personnel during emergency situations. This revision will eliminate the 3-minute steady siren for evacuation purposes.
- Page 1 - Revise the purpose and scope to more accurately describe the intent of the procedure.
 - Page 2 - Revised to manage personnel being escorted for the purposes of evacuation.
 - Page 3 - Human factored terms to more accurately address intent.
 - Page 4 - Delete the information regarding the use of the 3-minute steady siren for evacuation purposes and provide information for managing non-emergency responders utilizing the manual evacuation process.
 - Page 5 - Revise information regarding use of exit card readers. Revise responsibilities of SED, and Nuclear Security.
 - Page 6 - Revise listing of Assembly Areas outside the protected area and title of attachment.
 - Page 7 - Revised the title of attachment.
 - Page 9, 10 - Created new attachment "Evacuation Checklist", which defines the process for the manual evacuation.

1.0 PURPOSE

The purpose of this procedure is to provide a means for administering a protective action response such as the capability to account for all individuals onsite within the "Protective Area (PA)" and for the evacuation of all on-site non-emergency personnel. The procedure is written to prescribe the actions and responsibilities necessary to account for all personnel inside the PA and evacuate non-emergency personnel located within the owner controlled area during an emergency situation.

2.0 SCOPE

The scope of this procedure includes employees having and not having emergency assignments, visitors, contractor and construction personnel and other persons who may be within the owner controlled area during an emergency situation.

3.0 INSTRUCTIONS

3.1 General

3.1.1 All individuals entering the protected area shall:

- Swipe their badge into the Entry Card Reader.
- Enter the protected area in accordance with security procedures.

3.1.2 All individuals leaving the protected area shall:

- Swipe their badge into the Exit Card Reader in the appropriate exit portals.
- Exit the protected area in accordance with security procedures.

NOTE: These "Entry and Exit" Card Readers function as accountability card readers.

3.2 Particular Area Evacuation

3.2.1 The Public Address (PA) System will be used to announce the evacuation of a particular area of the plant.

3.2.2 Personnel in the affected areas upon hearing the PA announcement shall do the following:

- If working in a contaminated zone, exit the zone in accordance with Radiological Control (RADCON) procedures, unless instructed otherwise by RADCON.
- Exit the affected area in an orderly manner.
- Personnel not in the affected area should continue assigned task if not instructed otherwise.

NOTE: Personnel should not enter the affected area until the "All Clear" has been announced or directed through emergency response processes.

3.0 INSTRUCTIONS (CONTINUED)

3.2 Particular Area Evacuation (continued)

3.2.3 Shift Manager/Site Emergency Director (SED) shall:

Make a Public Address (PA) announcement similar to - "Attention All Personnel, conditions in the (area to be evacuated) warrant an evacuation of the area. Leave the (area to be evacuated) immediately.

3.3 Site Assembly and Accountability

3.3.1 General

3.3.1.1 A 3 minute undulating siren (Assembly and Accountability Siren) will sound when an emergency condition exists requiring assembly and accountability of site personnel.

3.3.1.2 Non-Emergency Responders, upon hearing the Assembly and Accountability Siren, PA Announcement or See associated Strobe Lights, shall proceed immediately to their designated assembly areas as listed on Attachment A. Upon arriving at the assembly area, swipe your badge into the Accountability Card Reader and remain in the designated assembly area until released by the Site Emergency Director (SED) or a Plant Evacuation is ordered. See step 3.4.1.2 for instructions regarding Plant Evacuation.

3.3.1.3 Emergency Responders, upon hearing the Assembly and Accountability Siren PA Announcement or associated Strobe Lights, shall proceed immediately to their designated assembly area as listed on Attachment B. Upon arriving at the designated assembly area swipe your badge into the Accountability Card Reader and Sign the Accountability Roster Form, Attachment C. If you are a emergency responder and have escort responsibilities, please take the applicable steps to have the visitor transferred to a non-emergency responder and re-located to an appropriate assembly area. If a Plant Evacuation is ordered, all Emergency Responders will remain in their designated assembly area.

3.3.1.4 Visitors remain with escorts and swipe your badge into the appropriate Accountability Card Reader.

3.3.1.5 If you cannot reach your designated assembly area within 20 minutes, go to the nearest Accountability Card Reader and swipe your badge. See Attachment A and B.

3.3.1.6 If the Accountability Card Reader will not accept your badge, or if your cannot access a reader, call Nuclear Security at extension 3238 or 2219.

3.0 INSTRUCTIONS (CONTINUED)

3.3 Site Assembly and Accountability (continued)

3.3.2 When required the Shift Manager/SED shall:

3.3.2.1 Activate the Assembly and Accountability Alarm (3-minute undulating siren). Reactivate as necessary.

3.3.2.2 Use guidelines listed below to re-locate personnel from designated assembly areas to other assembly areas.

- radiation dose rate > 2 mrem/hr
- airborne radioactivity > 10CFR 20.1201 DAC Limits

3.3.2.3 Make PA announcement, use Emergency Dispatches and or instruct Nuclear Security to inform the affected personnel.

3.3.3 Upon the activation of Site Assembly and Accountability Nuclear Security (NS) shall:

3.3.3.1 Restrict access to the Protected Area to personnel listed on the Emergency Response Access List or as authorized by the SED.

3.3.3.2 Dispatch officer(s) to search areas on TVA property outside the protected area.

NOTE: For any person found on the owner controlled area and are not TVA personnel or contractors, NS will obtain name, address, phone number. RADCON will survey the individuals if conditions warrant.

3.3.3.3 Report results of accountability within 30-minutes after the assembly and accountability alarm has sounded.

3.3.3.4 If necessary, form a search team to locate missing individual(s) 15-minutes after accountability deadline has passed.

3.3.3.5 Each team will be accompanied by a RADCON technician.

3.3.3.6 Provide assistance to the SED/Shift Manager in movement and informing personnel.

3.0 INSTRUCTIONS (CONTINUED)

3.3 Site Assembly and Accountability (continued)

3.3.4 Upon the activation of Site Assembly and Accountability RADCON shall:

3.3.4.1 Survey all assembly areas (including the Emergency Centers), if radiological conditions warrant.

3.3.4.2 Support any search teams.

3.4 Site Evacuation

3.4.1 General

3.4.1.1 A Site Evacuation will be conducted upon an order by the SED to initiate a Site Evacuation.

3.4.1.2 All Non-Emergency Responder Assembly Areas will be evacuated in an orderly manner. Non-Emergency Responders should remain in their designated assembly area until released to evacuate either by plant public address announcement or Nuclear Security personnel. For non-emergency personnel assembled within the protected area, when released, proceed to the appropriate protected area exit portal. Swipe your badge into the Exit Card Reader or as instructed by Nuclear Security. Exit the protected area in accordance with security procedures. Proceed to your vehicle and evacuate from the site to your place of residence. For non-emergency personnel assembled outside the protected area, proceed to your vehicle and evacuate from the site to your place of residence. All personnel exiting the site area should anticipate that site area checkpoints will be established and that Radcon will be monitoring vehicles as they exit, if conditions warrant. Additionally exit routes may be suggested by Nuclear Security, please follow all guidance provided by appropriate site personnel during the conduct of a site evacuation. Upon exiting the owner controlled area follow all guidance at this time of state and local authorities, where applicable.

3.4.1.3 Emergency Responders, shall remain in designated assembly areas.

3.0 INSTRUCTIONS (CONTINUED)

3.4 Site Evacuation (continued)

3.4.1.4 Visitors remain with escorts and swipe your badge into the appropriate Exit Card Reader or as instructed by Nuclear Security.

3.4.1.5 If for any reason the Exit Card Reader will not acknowledge acceptance your badge indicated by receiving the green indicator light, call Nuclear Security at extension 3238 or 2219.

3.4.2 When required the SED shall:

3.4.2.1 Initiate the Site Evacuation Order.

3.4.2.2 Notify Nuclear Security to implement EPIP-8 steps 3.4.3.

3.4.3 Upon the notification of the Order to conduct a Site Evacuation, Nuclear Security shall:

3.4.3.1 Complete Attachment D.

3.4.4 Upon the activation of Site Evacuation RADCON shall:

3.4.4.1 If radiological condition warrants, set up control check points which coincide with NS access control points.

3.4.4.2 Ensure personnel and vehicles are decontaminated before being released from the owner controlled area.

3.4.4.3 If necessary, provide decontamination support to the Muscle Shoals Service Shop #4. (Offsite decontamination facility)

4.0 ATTACHMENTS

Attachment A -	Non-Emergency Responder Assembly Areas
Attachment B -	Emergency Responder Emergency Facility/Assembly Areas
Attachment C -	Accountability Roster Form
Attachment D -	Evacuation Checklist

ATTACHMENT A

Page 1 of 1

NON EMERGENCY RESPONDERS ASSEMBLY AREAS

Designated Assembly Area	Reporting Organizations
Maintenance Shop	Maintenance Production personnel (except for IM) Maintenance Program Support personnel Work Control Center personnel
Plant Assembly Room	Work Control/Outage personnel
Maintenance Building	Instrument Mechanic (IM) Shop personnel Maintenance Support personnel
Plant Engineering Building	Site Engineering - System Engineering personnel Radwaste personnel
West Access Portal Exit	All other organizations not listed and the west portal is your regular entry point.
East Access Portal Exit	All other organizations not listed and the west portal is your regular entry point.
Plant Managers Office Foyer Area	Plant Manager's office staff Operations office staff Maintenance office staff RADCON office staff Outage Office Staff

NOTE: If your organization is not listed on this attachment and your are exiting, utilizing the east or west portal then swipe your badge into the Exit Card Reader at the portal and go inside one of the following Buildings

- Administration Building
- Common Maintenance Building
- BFN Training and Visitor Center
- Materials Procurement Complex
- Modifications Fabrication Shop
- Modifications Administration Building

ATTACHMENT B

Page 1 of 1

EMERGENCY RESPONDERS EMERGENCY FACILITY/ASSEMBLY AREAS

Designated Assembly Area	Reporting Organizations
Unit 1 and 2 Control Rooms	All operations personnel in Control Bays, Unit 1/2
Unit 3 Control Room	All operations personnel in Control Bays, Unit 3
Technical Support Center	TSC staff
Operations Support Center	OSC staff Document Control and Records Management, personnel from plant office building information center.
OSC Staging Area	Maintenance personnel assigned to staging area Fire Protection ESTs Tool Room personnel
Radiological Control (RADCON)	RADCON Field Operations personnel
Radiochemistry Laboratory	Chemistry Control personnel

ATTACHMENT D

Page 1 of 2

EVACUATION CHECKLIST

The following checklist shall be utilized by the TSC Nuclear Security Manager or if unavailable the Shift Nuclear Security Supervisor for the purpose of conducting a Site Evacuation when ordered by the SED.

Initials/Time	Evacuation Checklist Item				
_____/____	Control All Protected Area Access, restricting access except for Designated or SED Authorized Emergency Response Personnel.				
_____/____	Establish Owner Controlled Property Road Blocks, On-Site Traffic Controls and Evacuation Checkpoints.				
_____/____	Notify TSC Radcon Manager or if unavailable the on-shift Radcon Shift Supervisor to provide support at Evacuation Checkpoints (if conditions warrant).				
	<table><tbody><tr><td>TSC Radcon Manager</td><td>3767</td></tr><tr><td>On-Shift Radcon Supervisor</td><td>2300</td></tr></tbody></table>	TSC Radcon Manager	3767	On-Shift Radcon Supervisor	2300
TSC Radcon Manager	3767				
On-Shift Radcon Supervisor	2300				
_____/____	Determine evacuation route for personnel exiting the owner controlled property. <ul style="list-style-type: none">• Consult with Radcon concerning off-site environmental radiological hazards (potential plume pathways).• Consider, if applicable, Local Weather Information to determine hazardous weather conditions.				
_____/____	Suggested Evacuation Route is: <ul style="list-style-type: none"><input type="checkbox"/> Shaw Road (North)<input type="checkbox"/> Nuclear Plant Road (East)<input type="checkbox"/> Shaw Road or Nuclear Plant Road				

ATTACHMENT D

Page 2 of 2

EVACUATION CHECKLIST

Initials/Time

Evacuation Checklist Item

_____/_____

All prior items in this listing have been completed.

_____/_____

Utilizing Security Personnel begin the evacuation of "Outside the Protected Area" Assembly Areas.

- ☐ BFN Training and Visitor Center
- ☐ Administration Building
- ☐ Materials and Procurement Building
- ☐ Common Maintenance Building
- ☐ Modifications Fabrication Shop
- ☐ Modifications Administration Building

_____/_____

Utilizing the Plant Public Address System, or Security Personnel begin the evacuation of Assembly Areas within the Protective Area.

- ☐ Maintenance Shop Area
- ☐ Plant Assembly Room
- ☐ Maintenance Building
- ☐ Plant Engineering Building
- ☐ Plant Managers Office Foyer Area

_____/_____

Evacuation Completed _____/_____
Time Date

_____/_____

Notify the SED upon completion of Site Evacuation and request the SED to inform the CECC.

LAST PAGE

PAGE 10 OF 10

REVISION 13

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP-14

RADIOLOGICAL CONTROL PROCEDURES

REVISION 16

PREPARED BY: T. W. CORNELIUS

PHONE: 2038

RESPONSIBLE ORGANIZATION: EMERGENCY PREPAREDNESS

APPROVED BY: GILBERT LITTLE

DATE: 03/09/2001

EFFECTIVE DATE: 03/31/2001

LEVEL OF USE: REFERENCE USE

QUALITY-RELATED

REVISION LOG

Procedure Number: EPIP-14

Revision Number: 16

Pages Affected: 6, 7, 11-27

Pagination Pages: None

Description of Change:

IC-20 The revision is being conducted to revise the manual method for calculating total effective dose equivalent and include a method for calculating thyroid committed dose equivalent.

Page 6 Revised the instruction portion of the procedure to include thyroid CDE and add a statement to ensure that Attachment F is completed..

Page 7 Revised to update the title of attachments and the instruction section header.

Page 11-27 Revised to update the method for calculating and reporting the results for TEDE dose projection and include a method for calculating and reporting the results for Thyroid CDE.

1.0 PURPOSE

The purpose of this procedure is to describe actions and responsibilities of Radiological Controls (RADCON) personnel during a radiological emergency at Browns Ferry.

2.0 SCOPE

EPIP-14 will be initiated when RADCON Shift Supervisor or designee receives indications that the Emergency Plan has been activated or information regarding processes contained within this procedure are required.

EPIP-14 contains instructions for RADCON during the implementation of the Emergency Plan event classifications. The procedure additionally contains instructions for RADCON during Site Assembly and Evacuation, RADCON Lab Habitability, Issuance of Potassium Iodide, the use of the Health Physics Network, the Alternate Personnel Decontamination Facility and methods for Projecting Total Effective Dose Equivalent (TEDE) from airborne radioactivity releases.

The method for projecting TEDE from airborne radioactivity releases may be requested by operations to support emergency classification and/or protective action recommendations. The use of this method should only be utilized in the absence of more sophisticated dose models, when the Central Emergency Control Center (CECC) is not activated.

3.0 INSTRUCTIONS

3.1 Notification of Unusual Event

3.1.1 No offsite radiological problems are postulated during a Notification of Unusual Event. (NOUE). This situation should not have any major impact on RADCON.

3.1.2 Although RADCON will not automatically be called, should assistance be needed, RADCON will follow standard practices and procedures during response activities.

3.0 INSTRUCTIONS (CONTINUED)

3.2 Alert

- 3.2.1** When a Site Assembly is conducted, (see Section 3.4) all RADCON personnel will report to their assigned assembly areas.
- 3.2.2** If radiological conditions warrant, RADCON personnel will periodically take radiation, airborne (particulate and iodine), and contamination surveys of all assembly areas inside the protected area (Refer to EPIP-8, Attachment "A" and "B" for list of assembly areas).
- 3.2.3** A RADCON technician will accompany any personnel dispatched into areas of potential radiological hazard.
- 3.2.4** RADCON personnel will assist in the development of recovery plans as deemed necessary by the recovery organization. Recommendations will be made to keep exposure as low as reasonable achievable and to recommend and approve any clean up activities.

3.3 Site Area Emergency or General Emergency

- 3.3.1** RADCON technicians report to the lab as directed by their Shift Supervisor or designee. A site evacuation will be conducted at the SAE or GE classification, if not already completed (see Section 3.5).
- 3.3.2** RADCON personnel will periodically take radiation, contamination and airborne surveys as necessary to ensure no radiological hazards exist in occupied Emergency Response Facilities, (TSC, OSC, Staging Area, RADCON Lab, Chemistry Lab, Control Rooms, or other Operations areas).
- 3.3.3** A RADCON technician will accompany any personnel dispatched into areas of potential radiological hazard.
- 3.3.4** Equipment listed in CECC-EPIP-9, Attachment J, Section 1.0 may need to be transported to the environmental monitoring van. Nuclear Security (NS) will allow equipment to be removed from the protected area.

3.0 INSTRUCTIONS (CONTINUED)

3.3 Site Area Emergency or General Emergency (continued)

3.3.5 Initial offsite environmental assessment will be conducted per CECC-EPIP-9.

3.3.6 Dispatch RADCON technician to the site access control point established by NS personnel. Survey vehicles and personnel leaving the site using RM-14 friskers (or equivalent) and smear techniques, if radiological conditions warrant.

3.4 Site Assembly and Evacuation

3.4.1 RADCON technicians proceed to the RADCON Lab and read your badge into the accountability reader. If uninhabitable, see Section 3.5.

3.4.2 Sign the Accountability Roster.

3.4.3 If any plant personnel are unaccounted for, NS will form search teams, each having at least one RADCON technician as a part of the team.

3.4.4 RADCON will survey personnel and vehicles leaving the site at the NS access control point, if radiological conditions warrant. Contaminated individuals will be evacuated to the Power Service Shop No. 4 Locker Room at Muscle Shoals Reservation, as directed by the OSC.

3.4.5 Should conditions exist that RADCON cannot survey all people and vehicles leaving the site, RADCON will set up a monitoring station as directed by the SED.

3.5 Radiological Control Lab Habitability

3.5.1 [NRC/C] When conditions within the Radcon Lab become uninhabitable the RADCON technicians will proceed to mechanical equipment room, control bay, Unit 3, elevation 617. [NRC/C 81-19-17]

3.5.2 [NRC/C] Report location to the RADCON Manager in the TSC. [NRC/C 81-19-17]

3.6 Issuing Potassium Iodide (KI)

3.6.1 If the TSC RADCON Manager has reason to believe that a person's projected cumulative dose to the thyroid from inhalation of radioactive iodine might exceed 10 rems (see Attachment A), the exposed person should be started immediately on a dose regimen of KI. This decision shall be immediately communicated to the SED.

3.6.1.1 If the TSC is not staffed or the RADCON Manager position has not been filled, then the senior onsite RADCON Supervisor has the authority to issue KI utilizing the bases describe in step 3.6.1.

3.6.1.2 The initial dose of KI should be not delayed since thyroid blockage requires 30 to 60 minutes. Anyone authorized to initiate KI shall be familiar with the Food and Drug Administration approve package insert and be sure that each recipient is similarly informed.

3.6.1.3 Prior to issuing KI to an individual, the person should be asked if he/she is allergic to iodine. If the person indicates a possible sensitivity to iodine they should not be issued KI.

3.6.2 KI is stored in the plant RADCON supply cage and the REP Van instrument kits.

3.6.3 RADCON normally will not dispense a container or package of KI to TVA Personnel involved in activities to support a radiological emergency. RADCON will however dispense a single individual dose of KI to team members dispatched from the OSC.

3.6.4 Follow the dosage outlined on the package insert (Attachment B). A copy of the Food and Drug Administration approved package insert shall accompany the issuance of KI. If KI is distributed in individual doses, verbal instructions of the significant information on the package insert by a knowledgeable individual is sufficient.

3.6.5 Complete the KI Issue Report (Attachment C) or an RWP time sheet as appropriate for issuance of KI. An RWP time sheet may be used for this documentation instead of completing the Attachment C. If the RWP time sheet is used to document distribution of the KI, note the time of KI distribution on the back of the time sheet.

3.7 Use of the NRC Health Physics Network (HPN)

3.7.1 The HPN contact with the NRC will be made by the RADCON group.

3.8 Browns Ferry Alternate Personnel Decontamination Facility

3.8.1 The BFN alternate personnel decontamination facility is located at the Power Service Shop No. 4 Locker Room on the Muscle Shoals Reservation. It will be activated when the BFN personnel decontamination facility is inaccessible or incapable of handling the number of contaminated personnel.

3.8.2 When the decision is made to transport contaminated personnel to the alternate decontamination facility, BFN RADCON shall make notifications to the CECC, and the Power Service Shops.

The notification to the CECC shall include all available information at that time. Interface with state and local authorities (i.e., transportation route considerations) will be made available via the CECC.

The notification to the Power Service Shops shall include a request that the Shop 4 sewer lift station sump be emptied, followed by tagging out the power supply to the two pumps. (The sump and control panel are located adjacent to the North East corner of the Gas and Diesel Building, approximately 500 feet east of Shop 4). In the event a volume of effluent in excess of 1800 gallons is anticipated, additional containment capabilities will need to be arranged. The primary point of contact is the Supervisor, Maintenance Group, with the back-up being the Mechanical Supervisor. Notification phone numbers are listed in the Radiological Emergency Notification Directory (REND).

3.0 INSTRUCTIONS (CONTINUED)

3.8 Browns Ferry Alternate Personnel Decontamination Facility (continued)

3.8.3 Browns Ferry RADCON is responsible for the following:

- Providing appropriate personnel and equipment to operate the alternate decontamination facility.
- Calculating the amount of radioactive material in the decontamination effluent. Effluent releases will be in accordance with Standard Program and Process (SPP) - 5.1.
- Documenting appropriate records on all contaminated personnel.
- Ensuring the alternate decontamination facility is secured following decontamination activities and assisting in recovery efforts.

3.9 Method for Projecting Total Effective Dose Equivalent (TEDE) and Thyroid Committed Dose Equivalent (CDE) from Airborne Radioactivity Releases

The method for Projecting TEDE and Thyroid CDE from Airborne Radioactivity Releases is by manual method through the application of matrix tables and calculations.

3.9.1 Manual Method for Projecting TEDE and Thyroid CDE from Airborne Radioactivity Releases

3.9.1.1 The Radcon Shift Supervisor/designee or the TSC Radcon representative is responsible for completing Attachment D of this procedure when releases involves a stack release or Attachment E when the release involves a building or ground level release. The results of the completed attachment "D" and "E" should then be summarized on attachment "F" and forwarded to the Shift Manager / Site Emergency Director.

3.9.1.2 This method for projecting the TEDE and Thyroid CDE from airborne radioactivity releases should only be utilized in the absence of more sophisticated dose models.

3.9.1.3 This method may be requested by the Shift Manager prior to any emergency classification declaration. Results of this method may be utilized to classify emergency conditions, make protective action recommendations or by TSC personnel conducting evaluations of current plant conditions.

3.0 INSTRUCTIONS (CONTINUED)

3.9 Method for Projecting Total Effective Dose Equivalent (TEDE) and Thyroid Committed Dose Equivalent (CDE) from Airborne Radioactivity Releases

3.9.1.4 When requested the appropriate attachment of this procedure should be completed immediately and the results reported to the Shift Manager or SED.

4.0 ATTACHMENTS

Attachment A - Occupational Dose From Inhalation of Iodine-131

Attachment B - Patient Package Insert

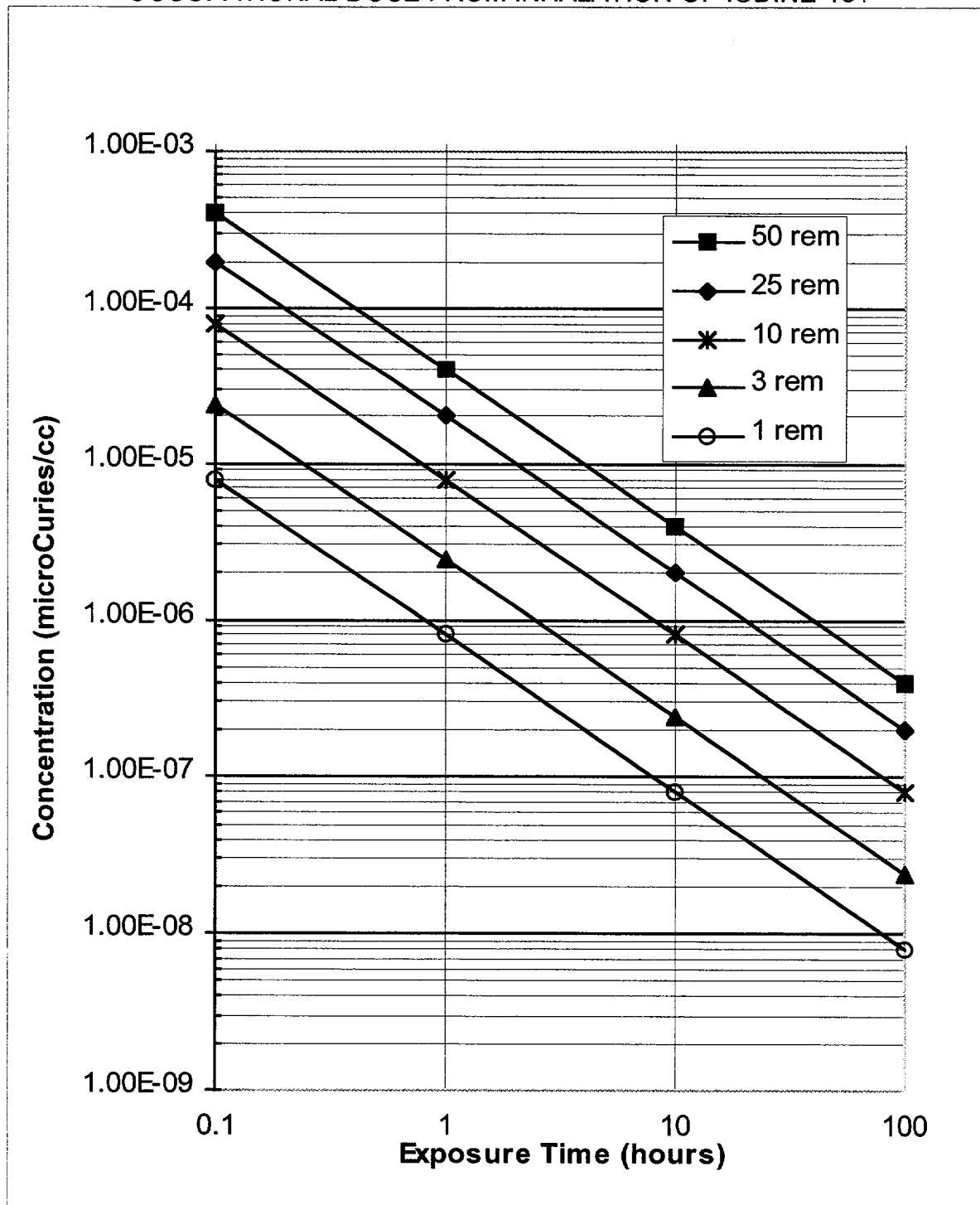
Attachment C - Potassium Iodide Issue Report

Attachment D - Projecting Total Effective Dose Equivalent (TEDE) and Thyroid Committed Dose Equivalent (CDE) from Stack Airborne Radioactivity Releases

Attachment E - Projecting Total Effective Dose Equivalent (TEDE) and Thyroid Committed Dose Equivalent (CDE) from Ground Level Airborne Radioactivity Releases

Attachment F - Projected TEDE and Thyroid CDE Assessment Survey Form

ATTACHMENT A (Page 1 of 1)
OCCUPATIONAL DOSE FROM INHALATION OF IODINE-131



ATTACHMENT B (Page 1 of 1)
PATIENT PACKAGE INSERT

IOSAT

Tablets

(POTASSIUM IODIDE TABLETS, U.S.P.)
(pronounced poe-TASS-e-um EYE-oh-dyed)
(Abbreviated KI)

TAKE POTASSIUM IODIDE ONLY WHEN PUBLIC HEALTH OFFICIALS TELL YOU IN A RADIATION EMERGENCY, RADIOACTIVE IODINE COULD BE RELEASED INTO THE AIR. POTASSIUM IODIDE (A FORM OF IODINE) CAN HELP PROTECT YOU

IF YOU ARE TOLD TO TAKE THIS MEDICINE, TAKE IT ONE TIME EVERY 24 HOURS. DO NOT TAKE IT MORE OFTEN. MORE WILL NOT HELP YOU AND MAY INCREASE THE RISK OF SIDE EFFECTS. DO NOT TAKE THIS DRUG IF YOU KNOW YOU ARE ALLERGIC IODIDE. (SEE SIDE EFFECTS BELOW.)

INDICATIONS

THYROID BLOCKING IN A RADIATION EMERGENCY ONLY.

DIRECTIONS FOR USE

Use only as directed by State or local public health authorities in the event of a radiation emergency.

Dose

ADULTS AND CHILDREN ONE YEAR OF AGE OR OLDER: One (1) tablet once a day. Crush for small children.

BABIES UNDER ONE YEAR OF AGE: One half (1/2) tablet once a day. Crush first.

DOSAGE: Take tablets 10 days unless directed otherwise by State or local public health authorities.

Store at controlled room temperature between 15° and 30°C (59° to 86°F). Keep package dry and foil packets intact.

WARNING

POTASSIUM IODIDE SHOULD NOT BE USED BY PEOPLE ALLERGIC TO IODIDE. Keep out of the reach of children. In case of overdose or allergic reaction, contact a physician or the public health authority.

DESCRIPTION

Each IOSAT™ TABLET contains 130 mg of potassium iodide.

HOW POTASSIUM IODIDE WORKS

Certain forms of iodine help your thyroid glands work right. Most people get the iodine they need from foods, iodized salt or fish. The thyroid can "store" or hold only a certain amount of iodine.

In a radiation emergency, radioactive iodine may be released in the air. This material may be breathed or swallowed. It may enter the thyroid gland and damage it. The damage would probably not show itself for years. Children are most likely to have thyroid damage.

If you take potassium iodide, it will fill up your thyroid gland. This reduces the change that harmful radioactive iodine will enter the thyroid gland.

WHO SHOULD NOT TAKE POTASSIUM IODIDE

The only people who should not take potassium iodide are people who know they are allergic to iodide. You may take potassium iodide even if you are taking medicines for a thyroid problem (for example, a thyroid hormone or antithyroid drug). Pregnant and nursing women and babies and children may also take this drug.

HOW AND WHEN TO TAKE POTASSIUM IODIDE

Potassium iodide should be taken as soon as possible after public health officials tell you. You should take one dose every 24 hours. More will not help you because the thyroid can "hold" only limited amounts of iodine. Larger doses will increase the risk of side effects. You will probably be told not to take the drug for more than 10 days.

SIDE EFFECTS

Usually, side effects of potassium iodide happen when people take higher doses for a long time. You should be careful not to take more than the recommended dose or take it for longer than you are told. Side effects are unlikely because of the low dose and the short time you will be taking the drug.

Possible side effects include skin rashes, swelling of the salivary glands, and "iodism" (metallic taste, burning mouth and throat, sore teeth and gums, symptoms of a head cold, and sometimes stomach upset and diarrhea).

A few people have an allergic reaction with more serious symptoms. These could be fever and joint pains, or swelling of parts of the face and body and at times severe shortness of breath requiring immediate medical attention.

Taking iodide may rarely cause overactivity of the thyroid gland, underactivity of the thyroid gland, or enlargement of the thyroid gland (goiter).

WHAT TO DO IF SIDE EFFECTS OCCUR

If the side effects are severe or if you have an allergic reaction, stop taking potassium iodide. Then, if possible, call a doctor or public health authority for instructions.

HOW SUPPLIED

IOSAT™ TABLETS (Potassium Iodide Tablets, U.S.P.) packages of 14 tablets (NDC 51803-001-01). Each white, round, scored tablet contains 130 mg potassium iodide.

Distributed by
ANBEX, INC.
15W. 75th St., New York, N. Y. 10023

ATTACHMENT C (Page 1 of 1)
POTASSIUM IODIDE ISSUE REPORT

NAME	SSN	Time of Exposure	Time of Initial KI Dose	Package Insert Issued	Issue Agent
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

ATTACHMENT D (Page 1 of 8)

**PROJECTING TOTAL EFFECTIVE DOSE EQUIVALENT (TEDE) FROM
STACK AIRBORNE RADIOACTIVITY RELEASES**

CAUTION: USE THIS ATTACHMENT FOR STACK RELEASES ONLY

DETERMINE RELEASE PATHWAY

Contact the affected unit, Unit Supervisor to obtain information regarding the release pathway. The two pathway options for a stack release are; (1) stack (filtered) and (2) stack (unfiltered). Remember that when multiple pathways such as, Stack and Ground-Level, are experienced, both pathway calculations should be conducted and the results summed and recorded on Attachment F, the projected TEDE Thyroid CDE assessment survey form.

Record data on page 5 of this attachment.

DETERMINE ESTIMATED RELEASE START TIME AND RELEASE DURATION

Contact the affected unit, Unit Supervisor to obtain information regarding the release start time and duration. Record release duration in hours. If the release duration can not be determined by operations, then a default duration of 4 hours should be utilized.

Record data on page 5 of this attachment.

DETERMINE NOBLE GAS RELEASE RATE IN $\mu\text{Ci}/\text{SECOND}$

The Noble Gas Release Rate should be calculated utilizing data obtained from the SPDS terminals under the screen name "MISCRAD". From this screen use the "F5" key to view a tabular form of the instruments utilized by the previous screen. Collect data described as "WIDE RANGE GASEOUS EFFL RAD MON and STACK FLOW".

If the value for the "WIDE RANGE GASEOUS EFFL RAD MON" is equal to or less than 0.00, then discontinue the dose assessment and report that there are no off-site TEDE concerns for the stack release.

Utilize SPDS history to obtain the highest release concentration for the incident. It is recommended that data be reviewed from history approximately thirty (30) minutes prior to the estimated start time as referenced in the preceding step. Place the data in the applicable calculation fields. The completed calculation provides the Noble Gas Release Rate. Record and utilize this rate for the dose assessment calculations.

If SPDS is unavailable, notify affected unit, operations personnel, to gain the information utilizing control room instrumentation, or if unavailable notify the Shift Manager/Site Emergency Director that TI-67, "Determination of Stack and Hardened Wetwell Vent Release Rates" (backup method), procedure must be performed by Radcon and Chemistry personnel.

The following conversion chart can be utilized to convert curies to microcuries.

TO CONVERT	MULTIPLY BY	TO OBTAIN
Ci	1.0×10^6	μCi

Record data on page 5 of this attachment.

ATTACHMENT D (Page 2 of 8)

DETERMINE RELEASE TYPE

Contact the Plant Assessment Team, Core Damage Assessor (5-751-1633) in the CECC to determine the applicable release type. If the Core Damage Group in the CECC can not be contacted, then use the default release type, "Type 2". The four release type options are; (1) "Type 1", Reactor Coolant System Leakage Release, (2) "Type 2" Fuel Cladding GAP Release, (3) "Type 3", Fuel Over Temperature Release, and (4) "Type 4", Fuel Melt.

Some release types have an additional "F" indicator, this implies that the release type has a filtered release pathway.

Record data on page 5 of this attachment.

DETERMINE METEOROLOGICAL DATA

Met data should be obtained from the SPDS terminals under screen name "METDATA" or by accessing the "Met Data Terminal" located in the Technical Support Center.

For stack releases record measurements at the 91 meter instrument readings.

If all Met Data Collection Methods are unavailable contact the National Weather Service by dialing 9-1-205-621-5650. The National Weather Service will provide wind speed and wind direction.

The default value for stability class with no met data available is "D" for stack releases.
The default value for wind speed with no met data available is 4.0 meters/second for the stack.

Record the following data on page 5 of this attachment.

- **STABILITY CLASS**

Note: Stability Class may be electronically displayed as 1,2,3.... This corresponds to A,B,C....

- **WIND SPEED IN METERS/SECOND**

The following conversion chart can be utilized for conversions to meters/second.

TO CONVERT	MULTIPLY BY	TO OBTAIN
MILES/H	0.45	METERS/SEC
METERS/SEC	2.2	MILES/H
KNOTS	0.5	METERS/SEC

- **WIND DIRECTION IN DEGREES**

- **PLUME DIRECTION IN DEGREES**

NOTE: TO OBTAIN PLUME DIRECTION, ADD 180° TO WIND DIRECTION IF $< 180^{\circ}$ OR SUBTRACT 180° IF WIND DIRECTION IS $> 180^{\circ}$.

ATTACHMENT D (Page 3 of 8)

DETERMINE THE TEDE FACTOR

In determining the TEDE Factor you must know the stability class and the wind speed.

Locate the "TEDE Factor" table that corresponds to the applicable stability class located on page 7 of this attachment.

Locate the column within the table that corresponds to the applicable wind speed. If wind speed falls between the two column variables choose the lower value, this is the more conservative factor.

Determine data for the 0.62, 2 and 5 mile distances.

Record data on page 5 of this attachment.

DETERMINE THE TEDE RATIO

In determining the TEDE Ratio you must know the release pathway and the release type.

Locate the "TEDE Ratio" table that corresponds to the applicable release pathway located on page 8 of this attachment.

Locate the column within the table that corresponds to the applicable release type. Recall that the "F" indicator for some release types simply indicate that the release type is filtered.

Determine data for the 0.62, 2 and 5 mile distances.

Record data on page 5 of this attachment.

DETERMINE THE THYROID CDE RATIO

In determining the Thyroid CDE Ratio you must know the release pathway and the release type.

Locate the "Thyroid CDE Ratio" table that corresponds to the applicable release pathway located on page 8 of this attachment.

Locate the column within the table that corresponds to the applicable release type. Recall that the "F" indicator for some release types simply indicate that the release type is filtered.

Determine data for the 0.62, 2 and 5 mile distances.

Record data on page 5 of this attachment.

ATTACHMENT D (Page 4 of 8)

Complete CALCULATIONS AND ATTACHMENT F

Input data into applicable calculation fields and calculate. Use caution to input correct factors and ratios for the different mile indications.

Note, to complete the Thyroid CDE calculation, the TEDE calculation must be completed and the TEDE value utilized.

Also use caution when inserting values into the calculations. Use correct terms, i.e. meters/second verses miles/hour.

COMPLETE ATTACHMENT F, PROJECTED TEDE AND THYROID CDE ASSESSMENT SURVEY FORM, AND FORWARD TO THE SHIFT MANAGER OR THE SITE EMERGENCY DIRECTOR. ENTER TEDE VALUES IN REM/HR ON ARROWS FOR APPLICABLE MILEAGE RINGS. SHOW PLUME DIRECTION ON SURVEY MAP BY THE USE OF AN ARROW.

ATTACHMENT D (Page 5 of 8)

**Stack Release
Data Collection and Calculation Worksheet**

RELEASE PATHWAY ☐ STACK (FILTERED) ☐ STACK (UNFILTERED)

ESTIMATED RELEASE START TIME _____ ESTIMATED RELEASE DURATION _____
NOTE: IF AN ESTIMATED RELEASE DURATION IS UNKNOWN USE 4 HOURS AS THE DEFAULT RELEASE DURATION.

NOBLE GAS RELEASE RATE _____ $\mu\text{Ci}/\text{SECOND}$

NOBLE GAS CONCENTRATION _____ $\mu\text{Ci}/\text{CC}$
FLOW RATE _____ SCFM

$$\left(\frac{\text{RELEASE CONC.}}{\mu\text{Ci}/\text{CC}} \right) \times \left(\frac{\text{FLOW RATE}}{\text{SCFM}} \right) \times \left(\frac{472}{\text{CONVERSION FACTOR}} \right) = \frac{\text{RELEASE RATE}}{\mu\text{Ci}/\text{SECOND}}$$

RELEASE TYPE ☐ TYPE 1F (FILTERED) ☐ TYPE 1 (UNFILTERED)
☐ TYPE 2F (FILTERED) ☐ TYPE 2 (UNFILTERED)
☐ TYPE 3F (FILTERED) ☐ TYPE 3 (UNFILTERED)
☐ TYPE 4F (FILTERED) ☐ TYPE 4 (UNFILTERED)

NOTE: TYPE 2 IS THE DEFAULT RELEASE TYPE.

STABILITY CLASS _____ WIND SPEED _____ METERS/SECOND

WIND DIRECTION _____ DEGREES PLUME DIRECTION _____ DEGREES

TEDE FACTOR

0.62 MILES _____
2.0 MILES _____
5.0 MILES _____

TEDE RATIO

0.62 MILES _____
2.0 MILES _____
5.0 MILES _____

THYROID CDE RATIO

0.62 MILES _____
2.0 MILES _____
5.0 MILES _____

ATTACHMENT D (Page 6 of 8)

**Stack Release
Data Collection and Calculation Worksheet**

TEDE DOSE ASSESSMENT CALCULATIONS

0.62 - 1.99 MILES

$$\left(\frac{\text{TEDE FACTOR}}{\text{TEDE FACTOR}} \right) \times \left(\frac{\text{RELEASE RATE}}{\text{RELEASE RATE}} \mu\text{Ci/s} \right) \times \left(\frac{\text{RELEASE DURATION}}{\text{RELEASE DURATION}} \text{ HOURS} \right) \times \left(\frac{\text{TEDE RATIO}}{\text{TEDE RATIO}} \right) = \text{TEDE REM}$$

2.00 - 4.99 MILES

$$\left(\frac{\text{TEDE FACTOR}}{\text{TEDE FACTOR}} \right) \times \left(\frac{\text{RELEASE RATE}}{\text{RELEASE RATE}} \mu\text{Ci/s} \right) \times \left(\frac{\text{RELEASE DURATION}}{\text{RELEASE DURATION}} \text{ HOURS} \right) \times \left(\frac{\text{TEDE RATIO}}{\text{TEDE RATIO}} \right) = \text{TEDE REM}$$

5.00 - 10.00 MILES

$$\left(\frac{\text{TEDE FACTOR}}{\text{TEDE FACTOR}} \right) \times \left(\frac{\text{RELEASE RATE}}{\text{RELEASE RATE}} \mu\text{Ci/s} \right) \times \left(\frac{\text{RELEASE DURATION}}{\text{RELEASE DURATION}} \text{ HOURS} \right) \times \left(\frac{\text{TEDE RATIO}}{\text{TEDE RATIO}} \right) = \text{TEDE REM}$$

THYROID CDE DOSE ASSESSMENT CALCULATIONS

0.62 - 1.99 MILES

$$\left(\frac{\text{TEDE REM}}{\text{TEDE REM}} \right) \times \left(\frac{\text{THYROID CDE RATIO}}{\text{THYROID CDE RATIO}} \right) = \text{THYROID CDE REM}$$

2.00 - 4.99 MILES

$$\left(\frac{\text{TEDE REM}}{\text{TEDE REM}} \right) \times \left(\frac{\text{THYROID CDE RATIO}}{\text{THYROID CDE RATIO}} \right) = \text{THYROID CDE REM}$$

5.00 - 10.00 MILES

$$\left(\frac{\text{TEDE REM}}{\text{TEDE REM}} \right) \times \left(\frac{\text{THYROID CDE RATIO}}{\text{THYROID CDE RATIO}} \right) = \text{THYROID CDE REM}$$

COMPLETE ATTACHMENT F AND FORWARD TO SM/SED.

ATTACHMENT D (Page 7 of 8)

TEDE Factor (rem/h per $\mu\text{Ci/s}$) from a BFN Stack Release

Stability A	wind speed									
miles	1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62 mi	1.1E-09	6.0E-10	4.8E-10	3.6E-10	2.4E-10	2.2E-10	1.9E-10	1.7E-10	1.4E-10	1.2E-10
2 mi	4.4E-10	2.2E-10	1.8E-10	1.3E-10	8.7E-11	7.8E-11	7.0E-11	6.1E-11	5.2E-11	4.4E-11
5 mi	7.4E-11	5.2E-11	4.8E-11	4.4E-11	4.0E-11	3.6E-11	3.2E-11	2.8E-11	2.4E-11	2.0E-11

Stability B	wind speed									
miles	1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62	2.3E-09	1.1E-09	9.3E-10	7.1E-10	4.9E-10	4.4E-10	3.9E-10	3.4E-10	2.9E-10	2.4E-10
2	6.5E-10	3.3E-10	2.7E-10	2.0E-10	1.3E-10	1.2E-10	1.1E-10	9.4E-11	8.0E-11	6.6E-11
5	9.9E-11	6.8E-11	6.6E-11	6.5E-11	6.4E-11	5.8E-11	5.1E-11	4.5E-11	3.9E-11	3.2E-11

Stability C	wind speed									
miles	1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62	2.0E-09	1.1E-09	9.2E-10	7.0E-10	4.8E-10	4.4E-10	3.9E-10	3.4E-10	2.9E-10	2.5E-10
2	1.4E-09	8.1E-10	6.5E-10	4.9E-10	3.3E-10	3.0E-10	2.7E-10	2.3E-10	2.0E-10	1.7E-10
5	1.6E-10	1.1E-10	1.1E-10	1.1E-10	1.1E-10	1.0E-10	9.0E-11	7.9E-11	6.7E-11	5.5E-11

Stability D	wind speed									
miles	1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62	1.7E-09	1.1E-09	8.9E-10	6.7E-10	4.6E-10	4.1E-10	3.7E-10	3.2E-10	2.8E-10	2.3E-10
2	1.9E-09	1.2E-09	9.8E-10	7.6E-10	5.3E-10	4.7E-10	4.2E-10	3.7E-10	3.2E-10	2.6E-10
5	4.0E-10	3.0E-10	3.1E-10	3.1E-10	3.2E-10	2.9E-10	2.6E-10	2.2E-10	1.9E-10	1.6E-10

Stability E	wind speed									
miles	1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62	1.7E-09	1.2E-09	9.7E-10	7.4E-10	5.1E-10	4.6E-10	4.1E-10	3.6E-10	3.1E-10	2.6E-10
2	2.1E-09	1.3E-09	1.1E-09	8.0E-10	5.5E-10	5.0E-10	4.4E-10	3.9E-10	3.4E-10	2.8E-10
5	6.0E-10	4.3E-10	4.4E-10	4.5E-10	4.6E-10	4.2E-10	3.7E-10	3.2E-10	2.8E-10	2.3E-10

Stability F	wind speed									
miles	1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62	1.5E-09	9.9E-10	8.0E-10	6.1E-10	4.2E-10	3.8E-10	3.4E-10	2.9E-10	2.5E-10	2.1E-10
2	1.8E-09	1.2E-09	9.8E-10	7.6E-10	5.4E-10	4.9E-10	4.4E-10	3.8E-10	3.3E-10	2.8E-10
5	6.7E-10	4.9E-10	5.1E-10	5.2E-10	5.4E-10	4.9E-10	4.4E-10	3.8E-10	3.3E-10	2.8E-10

Stability G	wind speed									
miles	1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62	1.5E-09	9.0E-10	7.3E-10	5.5E-10	3.8E-10	3.4E-10	3.0E-10	2.7E-10	2.3E-10	1.9E-10
2	1.6E-09	9.8E-10	8.1E-10	6.3E-10	4.6E-10	4.2E-10	3.7E-10	3.3E-10	2.8E-10	2.4E-10
5	5.4E-10	4.0E-10	4.3E-10	4.5E-10	4.8E-10	4.4E-10	3.9E-10	3.5E-10	3.0E-10	2.6E-10

ATTACHMENT D (Page 8 of 8)

TEDE RATIOS FOR VARIOUS PATHS AND RELEASE TYPES

(STACK Release)

Stack (Filtered)

mi	Type 1F	Type 2F	Type 3F	Type 4F
0.62	1.0	1.0	1.1	1.2
2	1.0	1.0	1.0	1.1
5	1.0	1.0	1.0	1.1

STACK (unfiltered)

mi	Type 1	Type 2	Type 3	Type 4
0.62	1.9	1.9	2.4	5.3
2	2.4	2.4	3.3	8.8
5	3.5	3.5	4.8	13.5

THYROID CDE RATIOS FOR VARIOUS ACCIDENTS AND RELEASE TYPES

(STACK Release)

Stack (Filtered)

mi	Type 1F	Type 2F	Type 3F	Type 4F
0.62	1.6 E-03	1.6 E-03	7.6 E-03	1.4E-02
2	4.4 E-02	4.4 E-02	1.7 E-02	3.0E-02
5	6.9 E-02	6.9 E-02	2.7E-02	4.6E-02

STACK (unfiltered)

mi	Type 1	Type 2	Type 3	Type 4
0.62	1.1E+00	1.1E+00	3.6E-01	3.1E-01
2	1.8E+00	1.8E+00	5.2E-01	3.7E-01
5	2.0E+00	2.0E+00	5.8E-01	3.7E-01

ATTACHMENT E (Page 1 of 8)

**PROJECTING TOTAL EFFECTIVE DOSE EQUIVALENT (TEDE) AND THYROID CDE FROM
GROUND-LEVEL RADIOACTIVITY RELEASES**

CAUTION: USE THIS ATTACHMENT FOR GROUND-LEVEL RELEASES ONLY

DETERMINE RELEASE PATHWAY

Contact the affected unit, Unit Supervisor to obtain information regarding the release pathway. The two pathway options for a ground level release are; (1) Containment Bypass (CTM) and (2) Main Steam Line Break (MSLB). Remember that when multiple pathways such as, Stack and Ground-Level, are experienced, both pathway calculations should be conducted and the results summed and recorded on Attachment F, the projected TEDE and Thyroid CDE assessment survey form.

Record data on page 5 of this attachment.

DETERMINE ESTIMATED RELEASE START TIME AND RELEASE DURATION

Contact the affected unit, Unit Supervisor to obtain information regarding the release start time and duration. Record release duration in hours. If the release duration can not be determined, then a default duration of 4 hours should be utilized.

Record data on page 5 of this attachment.

DETERMINE NOBLE GAS RELEASE RATE IN $\mu\text{Ci}/\text{SECOND}$

To obtain the Total Noble Gas Release Rate for a building/ground level release the collection of rates from several building exhaust continuous air monitors (CAM) will be required. The Noble Gas Release Rate data should be obtained from a SPDS terminal under the screens "U1CAMS", "U2CAMS", and "U3CAMS". When you reach the applicable window press the "F5" key to retrieve a tabular set of CAM data. Collect all CAM data as petitioned by page 4 of this attachment. Sum all rates together to obtain a Total Building Noble Gas Release Rate. Record and utilize this rate for the dose assessment calculations. Utilize SPDS history to assist in obtaining the highest release rate for the incident. It is recommended that data be reviewed from approximately thirty (30) minutes prior to the estimated start time as referenced in the preceding step.

If SPDS is unavailable, notify affected unit operations personnel to gain the information utilizing control room instrumentation, or through the completion of 0-SI-4.B.1.a.1, Attachment 11.

The following conversion chart can be utilized to convert curies to microcuries.

TO CONVERT	MULTIPLY BY	TO OBTAIN
CI	1.0×10^6	μCi

Record data on page 5 of this attachment.

ATTACHMENT E (Page 2 of 8)

DETERMINE RELEASE TYPE

Contact the Plant Assessment Team, Core Damage Assessor (5-751-1633) in the CECC to determine the applicable release type. If the Core Damage Group in the CECC can not be contacted, then use the default release type, "Type 2". The four release type options are; (1) "Type 1", Reactor Coolant System Leakage Release, (2) "Type 2" Fuel Cladding GAP Release, (3) "Type 3", Fuel Over Temperature Release, and (4) "Type 4", Fuel Melt.

Some release types have an additional "F" indicator, this implies that the release type has a filtered release pathway.

Record data on page 5 of this attachment.

DETERMINE METEOROLOGICAL DATA

Met data should be obtained from the SPDS terminals under screen name "METDATA" or by accessing the "Met Data Terminal" located in the Technical Support Center.

For ground-level releases record measurements at the 46 meter instrument readings.

If all Met Data Collection Methods are unavailable contact the National Weather Service by dialing 9-1-205-621-5650. The National Weather Service will provide wind speed and wind direction.

The default value for stability class with no met data available is "D" for ground level releases. The default value for wind speed with no met data available is 2.0 meters/second for ground level releases.

Record the following data on page 5 of this attachment.

- **STABILITY CLASS**

Note: Stability Class may be electronically displayed as 1,2,3.... This corresponds to A,B,C....

- **WIND SPEED IN METERS/SECOND**

The following conversion chart can be utilized for conversions to meters/second.

TO CONVERT	MULTIPLY BY	TO OBTAIN
MILES/H	0.45	METERS/SEC
METERS/SEC	2.2	MILES/H
KNOTS	0.5	METERS/SEC

- **WIND DIRECTION IN DEGREES**

- **PLUME DIRECTION IN DEGREES**

NOTE: TO OBTAIN PLUME DIRECTION, ADD 180° TO WIND DIRECTION IF $< 180^{\circ}$ OR SUBTRACT 180° IF WIND DIRECTION IS $> 180^{\circ}$.

ATTACHMENT E (Page 3 of 8)

DETERMINE THE TEDE FACTOR

In determining the TEDE Factor you must know the stability class and the wind speed.

Locate the "TEDE Factor" table that corresponds to the applicable stability class located on page 7 of this attachment.

Locate the column within the table that corresponds to the applicable wind speed. If wind speed falls between the two column variables choose the lower value, this is the more conservative factor.

Determine data for the 0.62, 2 and 5 mile distances.

Record data on page 6 of this attachment.

DETERMINE THE TEDE RATIO

In determining the TEDE Ratio you must know the release pathway and the release type.

Locate the "TEDE Ratio" table that corresponds to the applicable release pathway located on page 8 of this attachment.

Locate the column within the table that corresponds to the applicable release type. Recall that the "F" indicator for some release types simply indicate that the release type is filtered.

Determine data for the 0.62, 2 and 5 mile distances.

Record data on page 6 of this attachment.

DETERMINE THE THYROID CDE RATIO

In determining the Thyroid CDE Ratio you must know the release pathway and the release type.

Locate the "Thyroid CDE Ratio" table that corresponds to the applicable release pathway located on page 8 of this attachment.

Locate the column within the table that corresponds to the applicable release type. Recall that the "F" indicator for some release types simply indicate that the release type is filtered.

Determine data for the 0.62, 2 and 5 mile distances.

Record data on page 6 of this attachment.

ATTACHMENT E (Page 4 of 8)

Complete CALCULATIONS AND ATTACHMENT F

Input data into applicable calculation fields and calculate. Use caution to input correct factors and ratios for the different mile indications.

Note, to complete the Thyroid CDE calculation, the TEDE calculation must be completed and the TEDE value utilized.

Also use caution when inserting values into the calculations. Use correct terms, i.e. meters/second verses miles/hour.

COMPLETE ATTACHMENT F, PROJECTED TEDE AND THYROID CDE ASSESSMENT SURVEY FORM, AND FORWARD TO THE SHIFT MANAGER OR THE SITE EMERGENCY DIRECTOR. ENTER TEDE VALUES IN REM/HR ON ARROWS FOR APPLICABLE MILEAGE RINGS. SHOW PLUME DIRECTION ON SURVEY MAP BY THE USE OF AN ARROW.

ATTACHMENT E (Page 5 of 8)

Ground-Level Release Data Collection and Calculation Worksheet

RELEASE PATHWAY ☐ CTM BYPASS ☐ MAIN STEAM LINE BREAK

ESTIMATED RELEASE START TIME _____ ESTIMATED RELEASE DURATION _____

NOTE: IF AN ESTIMATED RELEASE DURATION IS UNKNOWN USE 4 HOURS AS THE DEFAULT RELEASE DURATION.

NOBLE GAS RELEASE RATE _____ $\mu\text{Ci}/\text{SECOND}$

	POINT ID	DESCRIPTION	CURRENT VALUE
SPDS	90-252c0	U0 CAM-RB VENT EXH BETA GAS	_____ $\mu\text{Ci}/\text{SEC}$
"U1CAMS"	90-250c1	U1 CAM-RB VENT EXH BETA GAS	_____ $\mu\text{Ci}/\text{SEC}$
"F5"	90-251c1	U1 CAM-TB VENT EXH BETA GAS	_____ $\mu\text{Ci}/\text{SEC}$
"HISTORY"	90-249c1	U1 CAM-TB VENT EXH BETA GAS	_____ $\mu\text{Ci}/\text{SEC}$

	POINT ID	DESCRIPTION	CURRENT VALUE
SPDS	90-250c2	U2 CAM-RB VENT EXH BETA GAS	_____ $\mu\text{Ci}/\text{SEC}$
"U2CAMS"	90-251c2	U2 CAM-TB VENT EXH BETA GAS	_____ $\mu\text{Ci}/\text{SEC}$
"F5"	90-249c2	U2 CAM-TB VENT EXH BETA GAS	_____ $\mu\text{Ci}/\text{SEC}$
"HISTORY"			

	POINT ID	DESCRIPTION	CURRENT VALUE
SPDS	90-250c3	U3 CAM-RB VENT EXH BETA GAS	_____ $\mu\text{Ci}/\text{SEC}$
"U3CAMS"	90-251c3	U3 CAM-TB VENT EXH BETA GAS	_____ $\mu\text{Ci}/\text{SEC}$
"F5"	90-249c3	U3 CAM-TB VENT EXH BETA GAS	_____ $\mu\text{Ci}/\text{SEC}$
"HISTORY"			

TOTAL NOBLE GAS RELEASE RATE _____ $\mu\text{Ci}/\text{SEC}$

RELEASE TYPE ☐ TYPE 1 (UNFILTERED)
☐ TYPE 2 (UNFILTERED)
☐ TYPE 3 (UNFILTERED)
☐ TYPE 4 (UNFILTERED)

NOTE: TYPE 2 IS THE DEFAULT RELEASE TYPE.

STABILITY CLASS _____ WIND SPEED _____ METERS/SECOND

WIND DIRECTION _____ DEGREES PLUME DIRECTION _____ DEGREES

ATTACHMENT E (Page 6 of 8)

TEDE FACTOR 0.62 MILES _____
2.0 MILES _____
5.0 MILES _____

TEDE RATIO 0.62 MILES _____
2.0 MILES _____
5.0 MILES _____

THYROID CDE RATIO

0.62 MILES _____
2.0 MILES _____
5.0 MILES _____

TEDE DOSE ASSESSMENT CALCULATIONS

0.62 - 1.99 MILES

(_____) X (_____ $\mu\text{Ci/s}$) X (_____ HOURS) X (_____) = _____ TEDE REM
TEDE FACTOR RELEASE RATE RELEASE DURATION TEDE RATIO

2.00 - 4.99 MILES

(_____) X (_____ $\mu\text{Ci/s}$) X (_____ HOURS) X (_____) = _____ TEDE REM
TEDE FACTOR RELEASE RATE RELEASE DURATION TEDE RATIO

5.00 - 10.00 MILES

(_____) X (_____ $\mu\text{Ci/s}$) X (_____ HOURS) X (_____) = _____ TEDE REM
TEDE FACTOR RELEASE RATE RELEASE DURATION TEDE RATIO

THYROID CDE DOSE ASSESSMENT CALCULATIONS

0.62 - 1.99 MILES

(_____) X (_____) = _____ THYROID CDE REM
TEDE REM THYROID CDE RATIO

2.00 - 4.99 MILES

(_____) X (_____) = _____ THYROID CDE REM
TEDE REM THYROID CDE RATIO

5.00 - 10.00 MILES

(_____) X (_____) = _____ THYROID CDE REM
TEDE REM THYROID CDE RATIO

COMPLETE ATTACHMENT F AND FORWARD TO SM/SED.

ATTACHMENT E (Page 7 of 8)

TEDE FACTOR (rem/hr per $\mu\text{Ci/s}$) FROM A GROUND-LEVEL RELEASE

Stability	A	wind speed									
miles		1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62 mi		1.6E-09	8.0E-10	6.4E-10	4.8E-10	3.2E-10	2.9E-10	2.5E-10	2.2E-10	1.9E-10	1.6E-10
2 mi		5.5E-10	2.8E-10	2.2E-10	1.7E-10	1.1E-10	1.0E-10	9.0E-11	7.8E-11	6.7E-11	5.5E-11
5 mi		7.5E-11	5.2E-11	5.2E-11	5.1E-11	5.1E-11	4.6E-11	4.0E-11	3.5E-11	3.0E-11	2.5E-11

Stability	B	wind speed									
miles		1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62		7.5E-09	3.7E-09	3.0E-09	2.2E-09	1.4E-09	1.3E-09	1.2E-09	1.0E-09	8.9E-10	7.5E-10
2		7.2E-10	3.6E-10	2.9E-10	2.2E-10	1.4E-10	1.3E-10	1.2E-10	1.0E-10	8.7E-11	7.2E-11
5		9.9E-11	6.8E-11	6.7E-11	6.7E-11	6.6E-11	6.0E-11	5.3E-11	4.6E-11	4.0E-11	3.3E-11

Stability	C	wind speed									
miles		1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62		2.2E-08	1.1E-08	9.0E-09	6.7E-09	4.3E-09	3.9E-09	3.5E-09	3.0E-09	2.6E-09	2.2E-09
2		2.9E-09	1.4E-09	1.2E-09	8.8E-10	5.9E-10	5.3E-10	4.7E-10	4.1E-10	3.5E-10	2.9E-10
5		1.9E-10	1.3E-10	1.3E-10	1.3E-10	1.3E-10	1.2E-10	1.1E-10	9.3E-11	7.9E-11	6.5E-11

Stability	D	wind speed									
miles		1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62		6.3E-08	3.2E-08	2.6E-08	1.9E-08	1.2E-08	1.1E-08	1.0E-08	8.8E-09	7.5E-09	6.3E-09
2		1.0E-08	5.4E-09	4.3E-09	3.2E-09	2.2E-09	1.9E-09	1.7E-09	1.5E-09	1.3E-09	1.0E-09
5		8.3E-10	5.8E-10	5.7E-10	5.6E-10	5.6E-10	5.0E-10	4.5E-10	3.9E-10	3.4E-10	2.8E-10

Stability	E	wind speed									
miles		1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62		1.1E-07	5.5E-08	4.4E-08	3.3E-08	2.2E-08	2.0E-08	1.8E-08	1.6E-08	1.3E-08	1.1E-08
2		2.1E-08	1.0E-08	8.3E-09	6.3E-09	4.2E-09	3.8E-09	3.4E-09	2.9E-09	2.5E-09	2.1E-09
5		1.8E-09	1.2E-09	1.2E-09	1.2E-09	1.2E-09	1.1E-09	9.8E-10	8.6E-10	7.3E-10	6.0E-10

Stability	F	wind speed									
miles		1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62		2.2E-07	1.0E-07	8.3E-08	6.3E-08	4.2E-08	3.8E-08	3.4E-08	3.0E-08	2.6E-08	2.2E-08
2		4.9E-08	2.5E-08	2.0E-08	1.5E-08	9.7E-09	8.8E-09	7.8E-09	6.8E-09	5.8E-09	4.9E-09
5		4.6E-09	3.2E-09	3.1E-09	3.1E-09	3.0E-09	2.7E-09	2.4E-09	2.1E-09	1.8E-09	1.5E-09

Stability	G	wind speed									
miles		1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
0.62		4.8E-07	2.3E-07	1.8E-07	1.4E-07	9.0E-08	8.1E-08	7.2E-08	6.3E-08	5.4E-08	4.6E-08
2		1.1E-07	5.1E-08	4.0E-08	3.0E-08	2.0E-08	1.8E-08	1.6E-08	1.4E-08	1.2E-08	1.0E-08
5		1.1E-08	7.5E-09	7.3E-09	7.2E-09	7.0E-09	6.3E-09	5.6E-09	4.9E-09	4.1E-09	3.4E-09

ATTACHMENT E (Page 8 of 8)

TEDE RATIOS FOR VARIOUS PATHS AND RELEASE TYPES

CTM Bypass

mi	Type 1	Type 2	Type 3	Type 4
0.62	23	5.9	7.6	22
2	23	6.0	7.6	21
5	55	13	17	52

MSLB

mi	Type 1	Type 2	Type 3	Type 4
0.62	10	10	8.9	24
2	11	11	9.2	25
5	23	23	21	59

THYROID CDE RATIOS FOR VARIOUS ACCIDENTS AND RELEASE TYPES

CTM Bypass

mi	Type 1	Type 2	Type 3	Type 4
0.62	1.1E-01	6.2E+00	2.0E+00	1.4E+00
2	1.1E-01	6.2E+00	2.0E+00	1.4E+00
5	1.1E-01	6.2E+00	2.0E+00	1.4E+00

MSLB

mi	Type 1	Type 2	Type 3	Type 4
0.62	1.1E+01	1.1E+01	4.8E+00	3.3E+00
2	1.1E+01	1.1E+01	4.8E+00	3.3E+00
5	1.1E+01	1.1E+01	4.8E+00	3.3E+00

ATTACHMENT F (Page 1 of 1)

PROJECTED TEDE and Thyroid CDE ASSESSMENT SURVEY FORM

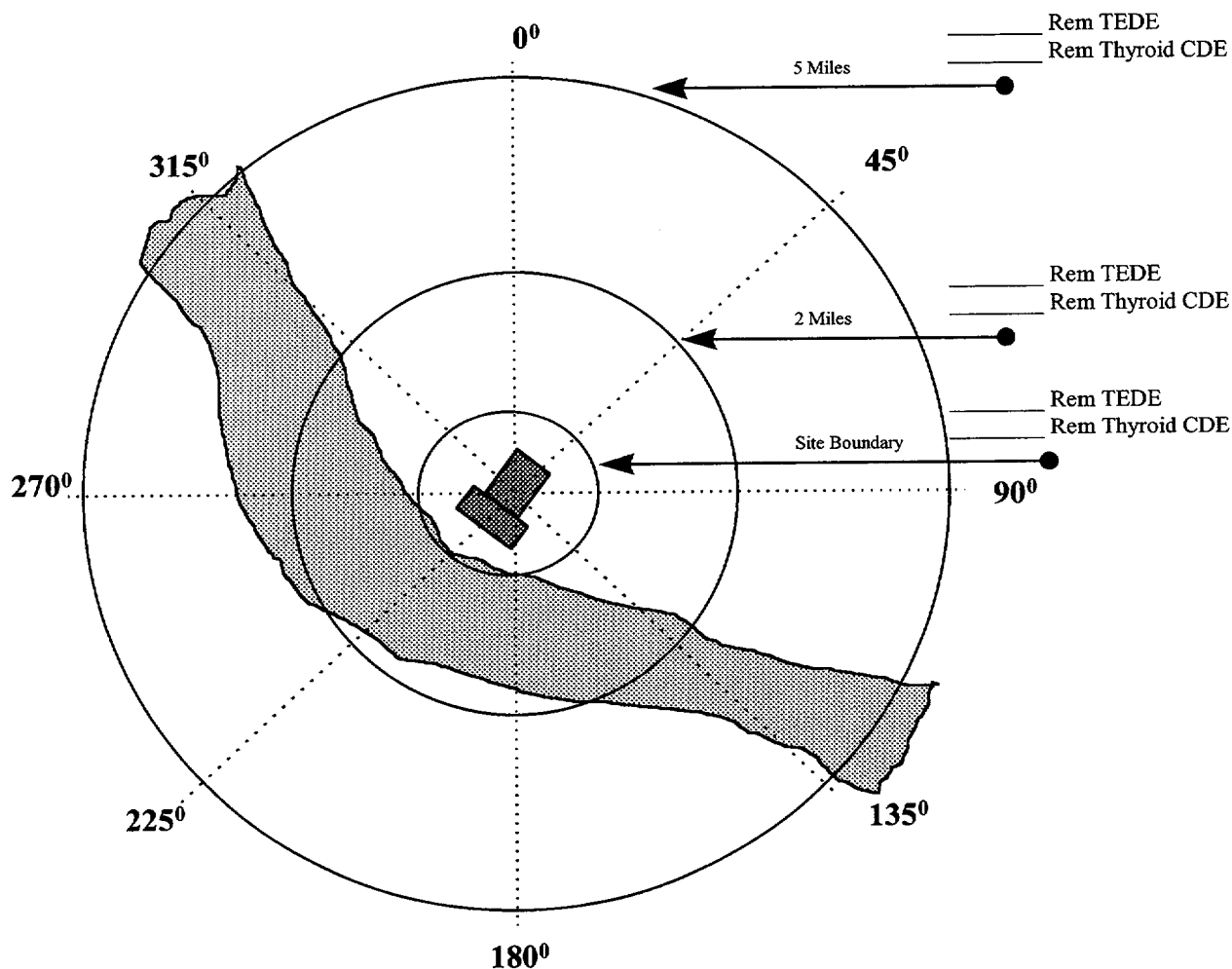
- ☐ STACK RELEASE
☐ GROUND-LEVEL RELEASE

TIME OF ASSESSMENT _____ RELEASE RATE _____ $\mu\text{Ci/s}$

WIND SPEED _____ MILES/HR STABILITY CLASS _____

WIND DIRECTION _____ PLUME DIRECTION _____

PREPARED BY _____ DATE _____



LAST PAGE