RADIOLOGICAL EMERGENCY PLAN

Revision Date: IP-4,5,6,7,8,10,17,20,21,22,26 (PORC 4/17/84)
IP-2,3 (PORC 4/18/84) (Issued MAY 4 1984)

This log sheet must be retained as the last page of the Browns Ferry Implementing Procedures Document.

Reason for revision: see cover sheets

Inserted by: _____ Date Inserted: _____

Pages to be Removed			New Pages to be Inserted		
Part	Page Number	Revision	Part	Page Number	Revision
List of Effective Pages	1 of 8	04/13/84	List of Effective Pages	1 of 8	04/30/84
	2 of 8	03/28/84		2 of 8	04/30/84
	3 of 8	03/19/84		3 of 8	04/30/84
	4 of 8	03/28/84		4 of 8	04/30/84
	5 of 8	04/03/84		5 of 8	04/30/84
	6 of 8	02/14/84		6 of 8	04/30/84
	7 of 8	01/20/84		7 of 8	04/30/84
	8 of 8	01/20/84		8 of 8	04/30/84
IP-2	Cover Sheet	01/19/84	IP-2	Cover Sheet	04/17/84
	1 of 3	01/19/84		1 of 3	04/17/84
	2 of 3	01/19/84		2 of 3	04/17/84
IP-3	Cover Sheet	03/20/84	IP-3	Cover Sheet	04/17/84
	1 of 3	03/20/84		1 of 3	04/17/84
	2 of 3	03/20/84		2 of 3	04/17/84
	3 of 3	03/20/84		3 of 3	04/17/84
IP-4	Cover Sheet	03/20/84	IP-4	Cover Sheet	04/17/84
	2 of 3	01/19/84		2 of 3	04/17/84
IP-5	Cover Sheet	03/20/84	IP-5	Cover Sheet	04/17/84
	2 of 3	03/12/84		2 of 3	04/17/84
IP-6	Cover Sheet	03/08/84	IP-6	Cover Sheet	04/17/84
Attachment 1	1 of 2	03/08/84	Attachment 1	1 of 2	04/17/84
	2 of 2	03/08/84		2 of 2	04/17/84

RADIOLOGICAL EMERGENCY PLAN
Revision Log Sheet (continued)
Manual: BROWNS FERRY IMPLEMENTING PROCEDURES DOCUMENT
Revision Date: MAY 4 1984

Pages to be Removed			New Pages to be Inserted		
Part	Page Number	Revision	Part	Page Number	Revision
IP-6 (Cont'd)					
Attachment 2	1 of 2	03/08/84	Attachment 2	1 of 2	04/17/84
	2 of 2	03/08/84		2 of 2	04/17/84
Attachment 3	2 of 2	03/08/84	Attachment 3	2 of 2	04/17/84
IP-7	Cover Sheet	02/15/84	IP-7	Cover Sheet	04/17/84
Attachment 1	2 of 2	02/15/84	Attachment 1	2 of 2	04/17/84
IP-8	Cover Sheet	03/14/84	IP-8	Cover Sheet	04/17/84
	1 of 4	01/12/84		1 of 4	04/17/84
IP-10	Cover Sheet	03/14/84	IP-10	Cover Sheet	04/17/84
Attachment 3	1 of 2	01/19/84	Attachment 3	1 of 2	04/17/84
	2 of 2	03/14/84		2 of 2	04/17/84
IP-17	Cover Sheet	03/16/84	IP-17	Cover Sheet	04/17/84
Table 9	14 of 15	01/26/82	Table 9	14 of 15	04/17/84
IP-20	Cover Sheet	03/20/84	IP-20	Cover Sheet	04/17/84
	1 of 3	01/19/84		1 of 4	04/17/84
	2 of 3	10/19/83		2 of 4	04/17/84
	3 of 3	03/20/84		3 of 4	04/17/84
				4 of 4	04/17/84
Attachment A	1 of 3	01/19/84	Attachment A	1 of 3	04/17/84
	2 of 3	12/08/83		2 of 3	04/17/84
	3 of 3	12/08/83		3 of 3	04/17/84
Attachment G	2 of 4	01/19/84	Attachment G	2 of 4	04/17/84
	3 of 4	01/19/84		3 of 4	04/17/84
	4 of 4	01/19/84		4 of 4	04/17/84
Attachment J	2 of 3	04/07/83	Attachment J	2 of 3	04/17/84
	3 of 3	04/07/83		3 of 3	04/17/84
Attachment K	1 of 1	04/07/83	Attachment K	1 of 1	04/17/84
			Attachment M	1 of 4	04/17/84
				2 of 4	04/17/84
				3 of 4	04/17/84
				4 of 4	04/17/84

RADIOLOGICAL EMERGENCY PLAN
Revision Log Sheet (continued)
Manual: BROWNS FERRY IMPLEMENTING PROCEDURES DOCUMENT
Revision Date: MAY 4 1984

Pages to be Removed			New Pages to be Inserted		
Part	Page Number	Revision	Part	Page Number	Revision
IP-21	Cover Sheet	06/15/82	IP-21	Cover Sheet	04/17/84
	1 of 1	04/07/83		1 of 1	04/17/84
IP-22	Cover Sheet	04/07/83	IP-22	Cover Sheet	04/17/84
	1 of 1	10/06/83		1 of 1	04/17/84
IP-26	Cover Sheet	07/06/83	IP-26	Cover Sheet	04/17/84
	3 of 4	08/03/83		3 of 4	04/17/84

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT IMPLEMENTING PROCEDURES DOCUMENT

LIST OF EFFECTIVE PAGES

This List of Effective Pages must be retained with the Browns Ferry Nuclear Plant Implementing Procedures Documents.

Part	Procedure Number	Subdivision	Page Number	Date/Rev. No.
BFN		List of Effective Pages	1 of 8	04/30/84
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			4 of 8	04/30/84
			5 of 8	04/30/84
			6 of 8	04/30/84
			7 of 8	04/30/84
			8 of 8	04/30/84
		Table of Contents	Coversheet	03/14/84
			1 of 1	03/14/84
	IP-1		Coversheet	04/06/84
		Preface	1 of 1	10/12/83
			1 of 11	03/14/84
			2 of 11	03/14/84
			3 of 11	10/19/82
			4 of 11	04/06/84
			5 of 11	10/19/82
			6 of 11	04/06/84
			7 of 11	10/19/82
			8 of 11	10/19/82
			9 of 11	03/14/84
			10 of 11	10/12/83
			11 of 11	03/14/84
	IP-2		Coversheet	04/17/84
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			2 of 3	04/17/84
			3 of 3	02/04/83
	IP-3		Coversheet	04/17/84
			1 of 3	04/17/84
			2 of 3	04/17/84
			3 of 3	04/17/84

LIST OF EFFECTIVE PAGES (Con't)

Part	Procedure Number	Subdivision	Page Number	Date/Rev. No.
BFN (Cont'd)	IP-3	Table 1	1 of 1	10/12/83
		Table 2	1 of 1	10/12/83
	IP-4		Coversheet	04/17/84
			1 of 3	01/19/84
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			3 of 3	03/20/84
		Table 1	1 of 1	10/12/83
		Table 2	1 of 1	10/12/83
	IP-5		Coversheet	04/17/84
			1 of 3	03/12/84
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			3 of 3	03/20/84
		Table 1	1 of 1	10/12/83
		Table 2	1 of 1	10/12/83
		Figure 1	1 of 1	03/12/84
	IP-6		Coversheet	04/17/84
			1 of 1	03/08/84
		Attachment 1	1 of 2	04/17/84
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		Attachment 2	1 of 2	04/17/84
			2 of 2	04/17/84
		Attachment 3	1 of 2	03/08/84
			2 of 2	04/17/84
	IP-7		Coversheet	04/17/84
			1 of 1	12/21/81
		Attachment 1	1 of 2	02/15/84
			2 of 2	04/17/84
	IP-8		Coversheet	04/17/84
			1 of 4	04/17/84
			2 of 4	03/14/84
			3 of 4	03/14/84
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		Attachment 1 (deleted)	1 of 1	03/14/84
	IP-9 (deleted)		Coversheet	03/14/84

LIST OF EFFECTIVE PAGES (Con't)

Part	Procedure Number	Subdivision	Page Number	Date/Rev. No.
BFN	IP-10		Coversheet	04/17/84
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			2 of 3	07/06/83
			3 of 3	01/19/84
		Attachment 1	1 of 2	03/14/84
			2 of 2	07/06/83
		Attachment 2	1 of 1	07/06/83
		Attachment 3	1 of 2	04/17/84
			2 of 2	04/17/84
		Attachment 4	1 of 2	07/06/83
			2 of 2	07/06/83
		Attachment 5	1 of 1	07/06/83
		Attachment 6	1 of 1	03/14/84
		Attachment 7	1 of 1	07/06/83
		Attachment 8	1 of 2	07/06/83
			2 of 2	07/06/83
		Attachment 9	1 of 2	07/06/83
			2 of 2	07/06/83
	IP-11		Coversheet	06/15/82
			1 of 2	04/07/83
			2 of 2	04/07/83
	IP-12		Coversheet	02/08/83
			1 of 1	02/08/83
	IP-13		1 of 2	06/16/81
			2 of 2	06/16/81

LIST OF EFFECTIVE PAGES (Con't)

Part	Procedure Number	Subdivision	Page Number	Date/Rev. No.
BFN	IP-14		Coversheet	01/19/84
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			3 of 5	10/12/83
			4 of 5	01/19/84
			5 of 5	04/07/83
		Attachment 1	1 of 1	01/19/84
		Attachment 2	1 of 1	01/19/84
		Attachment 3	1 of 1	Rev. 0
		Attachment 4	1 of 1	Rev. 0
		Attachment 5	1 of 1	Rev. 0
	IP-15		Coversheet	06/15/82
			1 of 4	Rev. 0
			2 of 4	Rev. 0
			3 of 4	Rev. 0
			4 of 4	03/30/82
	IP-16		Coversheet	06/15/82
			1 of 2	04/22/82
			2 of 2	Rev. 0
	IP-17		Coversheet	04/17/84
			1 of 15	01/26/82
			2 of 15	03/16/82
			3 of 15	04/07/83
			4 of 15	03/16/82
			5 of 15	01/26/32
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			7 of 15	01/26/82
			8 of 15	10/12/83
			9 of 15	01/26/82
			10 of 15	04/22/82
			11 of 15	04/06/82
			12 of 15	01/26/82
			13 of 15	01/26/82
			14 of 15	04/17/84
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LIST OF EFFECTIVE PAGES (Con't)

Part	Procedure Number	Subdivision	Page Number	Date/Rev. No.
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		Figure 2	1 of 1	04/22/82
		Figure 3	1 of 1	Rev. 0
	IP-19		Coversheet	03/28/84
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			2 of 34	10/19/83
			3 of 34	03/28/84
			4 of 34	10/19/83
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			6 of 34	11/10/83
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			8 of 34	10/19/83
			9 of 34	10/19/83
			10 of 34	10/19/83
			11 of 34	10/19/83
			12 of 34	10/19/83
			13 of 34	10/19/83
			14 of 34	10/19/83
			15 of 34	10/19/83
			16 of 34	10/19/83
			17 of 34	10/19/83
			18 of 34	10/19/83
			19 of 34	10/19/83
			20 of 34	10/19/83
			21 of 34	10/19/83
			22 of 34	10/19/83
			23 of 34	10/19/83
			24 of 34	10/19/83
			25 of 34	10/19/83
			26 of 34	10/19/83
			27 of 34	10/19/83
			28 of 34	10/19/83
			29 of 34	10/19/83
			30 of 34	10/19/83
			31 of 34	10/19/83
			32 of 34	10/19/83
			33 of 34	10/19/83
			34 of 34	10/19/83
	IP-20		Coversheet	04/17/84
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			3 of 4	04/17/84
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LIST OF EFFECTIVE PAGES (Con't)

Part	Procedure Number	Subdivision	Page Number	Date/Rev. No.
BFN (Cont'd)	IP-20	Attachment A	1 of 3	04/17/84
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		Attachment B	1 of 1	04/07/83
		Attachment C	1 of 1	04/07/83
		Attachment D	1 of 1	10/19/82
		Attachment E	1 of 1	06/08/83
		Attachment F	1 of 1	04/07/83
		Attachment G	1 of 4	01/19/84
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			3 of 4	04/17/84
			4 of 4	04/17/84
		Attachment H	1 of 1	04/07/83
		Attachment I	1 of 1	04/07/83
		Attachment J	1 of 3	04/07/83
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		Attachment K	1 of 1	04/17/84
		Attachment L	1 of 1	01/26/84
		Attachment M	1 of 4	04/17/84
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			3 of 4	04/17/84
			4 of 4	04/17/84
		Figure 1	1 of 1	01/19/84
		Figure 2	1 of 1	11/14/83
	IP-21		Coversheet	04/17/84
			1 of 1	04/17/84
		Attachment 1	1 of 2	04/07/83
			2 of 2	12/21/82
		Figure 1	1 of 1	04/07/83
		Figure 2	1 of 1	04/22/82
	IP-22		Coversheet	04/17/84
			1 of 1	04/17/84

LIST OF EFFECTIVE PAGES (Con't)

Part	Procedure Number	Subdivision	Page Number	Date/Rev. No.
BFN (Cont'd)	IP-23		Coversheet	01/12/84
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			4 of 5	11/10/83
			5 of 5	04/07/83
		Attachment A	1 of 2	04/07/83
			2 of 2	04/07/83
		Attachment B	1 of 1	01/12/84
		Attachment C	1 of 1	04/07/83
		Attachment D	1 of 2	06/02/83
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	IP-24		Coversheet	11/04/83
			1 of 6	11/04/83
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		Attachment A	1 of 31	11/04/83
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			9 of 31	11/04/83
			10 of 31	11/04/83
			11 of 31	11/04/83
			12 of 31	11/04/83
			13 of 31	11/04/83
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LIST OF EFFECTIVE PAGES (Con't)

Part	Procedure Number	Subdivision	Page Number	Date/Rev. No.
BFN (Cont'd)	IP-24	Attachment A (Cont'd)	18 of 31	11/04/83
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			22 of 31	11/04/83
			23 of 31	11/04/83
			24 of 31	11/04/83
			25 of 31	11/04/83
			26 of 31	11/04/83
			27 of 31	11/04/83
			28 of 31	11/04/83
			29 of 31	11/04/83
			30 of 31	11/04/83
			31 of 31	11/04/83
BFN	IP-25		Coversheet	01/12/84
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			2 of 2	01/12/84
BFN	IP-26		Coversheet	04/17/84
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			2 of 4	10/12/83
			3 of 4	04/17/84
			4 of 4	07/06/83

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF-2.3
BF 11.1
FEB 15 1984

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number IP-2
Unit No. 1,2,3
Title NOTIFICATION OF UNUSUAL EVENT

History of Revisions (For DCT Use Only)

Approval Date	Affected Pages
4/11/84	1,2
1/19/84	1,2
10/12/83	3
9/30/83	3
7/06/83	2

Reason For Revision Corrections (name, titles, typos)

Pages Affected 1,2

Is this change in response to an LER, IE Bulletin, NRC Inspection Report, *Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document? Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

Prepared By — Date 4/11/84

Submitted By — Date 4/11/84

PORC Chairman — Date 4/18/84

Plant Superintendent — Date 4/18/84

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

*Revision

APR 17 1984

*CAUSE: _____

_____

NOTIFICATION OF UNUSUAL EVENT

1.0 PURPOSE

1.1 Provide for timely notification of appropriate individuals and organizations of a NOTIFICATION OF UNUSUAL EVENT.

1.2 Provide for periodic reanalysis to determine whether the NOTIFICATION OF UNUSUAL EVENT should be cancelled, continued, or upgraded to a more serious classification.

Date		Date	
INITIATED		CANCELLED	
INIT.	TIME	INIT.	TIME

2.0 INSTRUCTIONS

2.1 Shift Engineer notify Operations Duty Specialist 40-0200, 50-0200, or 51-0200) within 5 minutes of declaration of NOTIFICATION OF UNUSUAL EVENT.

Give the following:

a. Your name.

b. Browns Ferry Nuclear Plant

c. NOTIFICATION OF UNUSUAL EVENT

d. Time incident declared.

e. Brief description of incident.

f. Plant condition (whether stable or deteriorating.

g. Reactor (did/did not) shutdown at (time).

h. Unusual release of radioactivity (yes, no, or not known

* i. If radiation release: (a) Ground Level, (b) Elevated - Airborne, (c) Waterborne, (d) Other.

* j. Release rate if unusual release from Table 1 and 2 of IP-3. Release rate _____ uCi/sec.

* k. Direction wind is coming from _____ (degrees) and speed_____ (miles/hour). (Use 91m info, if available.

l. No protective action recommended.

m. Any emergency actions underway onsite.

n. Any offsite support that has been requested.

*Revision

APR 17 1984

INITIATED Init.	Time	CANCELLED Init.	Time			
____	____	____	____	2.2	Operations Duty Specialist will return call to verify authenticity.	
				2.3	Shift Engineer will notify the following of the event:	
____	____	____	____		a. Other Shift Engineer. (When assigned)	
____	____	____	____		b. STA (Code Call 544)	
____	____	____	____		c. Operations Section Supervisor	R. Hunkapiller 214/205 355-5667
					OR	
					Operations Supervisor	Tommy Jordan Muscle Shoals 205/214 383-5868
					OR	
____	____	____	____		Operations Supervisor	A. Burnette 430/429 766-1929
____	____	____	____	*	d. Plant Manager	G. T. Jones Decatur 212/221 350-7444
					OR	
				*	Plant Superintendent	J. E. Swindell Decatur 221/212 355-7277
					OR	
				*	Plant Superintendent	J. R. Pittman 221/212 355-0230
____	____	____	____	*	e. Public Information Officer	Frank Cason Decatur 413 355-3520 (Decatur Inn)
____	____	____	____	* 2.4	Shift Engineer will notify the NRC of NOTIFICATION OF UNUSUAL EVENT by red phone. Give a brief description. Maintain an open line upon request by NRC.	
				NRC/C		

* Revision

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF-5
BF 2.3
BF 11.1
FEB 15 1984

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number IP-3
Unit No. 1,2,3
Title ALERT

Reason For Revision Corrections, add Power Stores to call list based on annual PORC review

Pages Affected 1,2,3

History of Revisions (For DCU Use Only)

Approval Date	/ Affected Pages
4/17/84	/ 1,2,3
3/20/84	/ 1,2, addendum 3
1/19/84	/ 1,2
10/12/83	/ 2, page 1 of Table 1
10/12/83	/ page 1 of Table 2
	/
	/
	/
	/
	/
	/
	/
	/

Is this change in response to an LER, IE Bulletin, NRC Inspection Report, Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document? Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

N/A
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

N/A
Public Safety Services Supervisor

Prepared By [signature] 4/11/84
Date

Submitted By [signature] 4/11/84
Date

L E Swindell 4/18/84
PORC Chairman Date

M. T. Kaspar 4/18/84
Plant Superintendent Date

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

Revision

CAUSE: _____

_____

_____

ALERT

1.0 Purpose

1.1 Provide for timely notification of appropriate individuals and organizations of an ALERT.

Date ____ Date ____
INITIATED CANCELLED
Init. Time Init. Time

1.2 Provide for periodic reanalysis to determine whether the ALERT should be cancelled, continued, or upgraded to a more serious classification.

__ ____ ____ ____

2.0 INSTRUCTIONS

2.1 Shift Engineer notify Operations Duty Specialist (40-200, 50-0200, or 51-0200) within 5 minutes of declaration of ALERT.

Give the following:

a. Your name.

b. Browns Ferry Nuclear Plant

c. ALERT

d. Time incident declared

e. Brief description of incident.

f. Plant condition (whether stable or deteriorating)

g. Reactor (did/did not) shut down at (time).

h. Unusual release of radioactivity (yes, no, or not known)

i. If a radiation release:
   a. Ground level - airborne.
   b. Elevated airborne
   c. Waterborne.
   d. Other

* j. If yes, calculate release rate(s) in _____ uCi/sec from Table 1 and 2. Release rate _____ uCi/sec.

* k. Direction wind is coming from ____ (degrees) and speed _____ (miles/hour). (Use 91m info, if available).

l. No protective action recommended.

m. Any emergency actions underway onsite.

n. Any offsite support that has been requested.

*Revision

INITIATED Init.	Time	CANCELLED Init	Time		
____	____	____	____	2.2	Operations Duty Specialist will return call to verify authenticity.
____	____	____	____	2.3	Shift Engineer will evaluate conditions. If required, initiate area (by public address) or total plant (by siren) evacuation. Refer to IP-8.
				2.4	Shift Engineer's Clerk will:
____	____	____	____		a. Notify other Shift Engineer (when assigned) of ALERT.
____	____	____	____		b. Notify STA (Code Call 544) of the ALERT.
____	____	____	____		c. Notify Chem Lab Supervisor (PAX 367/368) of ALERT. Direct them to activate IP-25.
____	____	____	____		d. Notify HP Shift Supervisor (PAX 300) of ALERT. Direct them to activate IP-14.
____	____	____	____		e. Notify Public Safety Supervisor (PAX 273) of ALERT. Direct them to activate IP-11 (Control Rooms Only) and IP-7.
*____	____	____	____		f. Verify Power Stores manned (Pax 217/104). If not manned, contact B. H. Weeks (757-3379) or Ruddie Putman (233-0039) and request manning.
____	____	____	____	2.5	Shift Engineer's Clerk will:
					a. Initiate IP-6.
____	____	____	____	2.6	Shift Engineer will notify NRC of ALERT by red phone. Give brief description. Maintain an open line upon request by NRC.
		NRC/C			
					NOTE: NRC <u>may</u> send a response team to the site.
____	____	____	____	2.7	Time permitting, the Shift Engineer will implement operation of the TSC (IP-20), to include activation of Dimension telephones and placing required desks in hall in front of TSC.

*Revision

2.8 At least every two hours, or more frequently if conditions warrant, the Shift Engineer/Site Emergency Director will reevaluate the event using IP-1.

a. If the situation no longer exists or should be downgraded, inform all personnel previously notified.

b. If the condition warrants upgrading to a higher classification, initiate the appropriate procedure.

2.9 Refer to Table 1 for a quick estimate of maximum offsite dose for a stack release, and Table 2 for a quick estimate of the site boundary dose for building release.

2.10 If necessary to deviate from license conditions (Technical Specifications and/or plant instructions) to protect public health and safety, refer to Standard Practice BF 12.22.

*Revision

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF-5
BF 2.3
BF 11.1
FEB 15 1984

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number IP-4
Unit No. 1,2,3
Title SITE AREA EMERGENCY

Reason For Revision Correction, add Power Stores to call list based on annual PORC review

Pages Affected 2

History of Revisions (For DCT Use Only)

Approval Date	/ Affected Pages
4/17/84	/ 2
3/20/84	/ 3
1/19/84	/ 1,2,3
10/12/83	/ 2, page 1 of Table 1
10/12/83	/ Page 1 of Table 2
	/
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Is this change in response to an LER, IE Bulletin, NRC Inspection Report, Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document?
Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

Prepared By — Date 4/11/84

Submitted By — Date 4/11/84

PORC Chairman — Date 4/17/84

Plant Superintendent — Date 4/18/84

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

Revision

INITIATED		CANCELLED	
Init.	Time	Init.	Time

k. Direction wind is coming from _____(degrees) and speed _____ (miles/hour). (Use 91m info, if available).

l. No protective action recommended.

m. Any emergency actions underway onsite.

n. Any offsite support that has been requested.

____ ____ ____ ____ 2.2 Operations Duty Specialist will return call to verify authenticity.

____ ____ ____ ____ 2.3 Shift Engineer will evaluate conditions. If required, initiate area (by public address) or total plant (by siren) evacuation. Refer to IP-8.

NOTE: Precautionary site evacuation should be considered.

2.4 Shift Engineer's Clerk will:

____ ____ ____ ____ a. Notify other Shift Engineer (when assigned) of SITE AREA EMERGENCY.

b. Notify STA (Code Call 544) of SITE AREA EMERGENCY.

c. Notify Chem Lab Supervisor (PAX 367/368 of SITE AREA EMERGENCY. Direct them to activate IP-25.

d Notify HP Shift Supervisor (PAX 300) of SITE AREA EMERGENCY. Direct them to activate IP-14.

e. Notify Public Safety Supervisor (PAX 273) of SITE AREA EMERGENCY. Direct them to activiate IP-11 and IP-7.

* f. Verify Power Stores manned (PAX 217/104). If not manned, contact B. H. Weeks (757-3379) or Ruddie Putman (233-0039) and request manning.

____ ____ ____ ____ 2.5 Shift Engineer's Clerk will:

a. Initiate IP-6.

____ ____ ____ ____ 2.6 NRC/C Shift Engineer will notify NRC of SITE AREA EMERGENCY by red phone. Give a brief description. Maintain an open line upon request by NRC.

NOTE: NRC will probably send a response team to the site.

*Revision

Tennessee Valley A
Browns Ferry Nuclear Plant

Form BF-5
BF 2.3
BF 11.1
FEB 15 1984

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number IP-5
Unit No. 1,2,3
Title GENERAL EMERGENCY

Reason For Revision Add Power Stores to call list based on annual PORC review.

Pages Affected 2

History of Revisions (For BCU Use Only)

Approval Date	/ Affected Pages
4/17/84	/ 2
3/20/84	/ 3
3/12/84	/ 1,2,page 1 of
3/12/84	/ Fig. 1
1/19/84	/ 1,2
10/12/83	/ 2,page 1 of
10/12/83	/ Table 1, Page 1
10/12/83	/ Table 2
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	/
	/

Is this change in response to an LER, IE Bulletin, NRC Inspection Report, Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document?
Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

H Chin 14/11/84
Prepared By Date

H Chin 14/11/84
Submitted By Date

J E Emmett 4/17/84
PORC Chairman Date

S. T. Jones 14/16/84
Plant Superintendent Date

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

* Revision

INITIATED Init. Time	CANCELLED Init. Time				
				1.	Recommend protective actions for the public from using logic of Figure 1. (Initial Recommendation given) _____ Recommendation 1 _____ Recommendation 2 _____ Recommendation 3 _____ Recommendation 4 NRC/C Rpt 83-48
				m.	Any emergency actions underway onsite.
				n.	Any offsite support that has been requested.
____	____	____	____	2.2	Operations Duty Specialist will return call to verify authenticity.
____	____	____	____	2.3	Shift Engineer will evaluate conditions. If required, initiate area (by public address) or total plant (by siren) evacuation. Refer to IP-8. NOTE: Site evacuation is probable under these conditions.
				2.4	Shift Engineer's Clerk will:
____	____	____	____	a.	Notify other Shift Engineer (when assigned) of GENERAL EMERGENCY.
____	____	____	____	b.	Notify STA (Code Call 544) of GENERAL EMERGENCY.
____	____	____	____	c.	Notify Chem Lab Supervisor (PAX 367/368) of GENERAL EMERGENCY. Direct them to activate IP-25.
____	____	____	____	d.	Notify HP Shift Supervisor (PAX 300) of GENERAL EMERGENCY. Direct them to activate IP-14.
____	____	____	____	e.	Notify Public Safety Supervisor (PAX 273) of GENERAL EMERGENCY. Direct them to activate IP-11 and IP-7.
____	____	____	____	* f.	Verify Power Stores manned (PAX 217/104). If not manned, contact B. H. Weeks (757-3379) or Ruddie Putman (233-0039) and request manning.
				2.5	Shift Engineer's Clerk will:
____	____	____	____	a.	Initiate IP-6.
____	____	____	____	2.6	Shift Engineer will notify NRC of GENERAL EMERGENCY by red phone. Give a brief description. Maintain an open line upon request by NRC. NRC/C Rpt 81-19
____	____	____	____	2.7	Time permitting, the Shift Engineer will implement operation of the TSC (IP-20), to include activation of Dimension telephones and placing required desks in hall in front of TSC.

*Revision

Tennessee Valley Au.
Browns Ferry Nuclear . nt

Form BF-5
BF 2.3
BF 11.1
FEB 15 1984

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number IP-6
Unit No. 1, 2, 3
Title ACTIVATION OF THE TECHNICAL SUPPORT CENTER

Reason For Revision Personnel changes and corrections

Pages Affected Attachment 1 (pg 1&2); Attachment 2 (pg 1&2); Attachment 3 (pg 2)

History of Revisions (For DCU Use Only)

Approval Date	Affected Pages
4/17/84	1,2 (Att. 1)
4/17/84	1,2 (Att. 2)
4/17/84	2 of Att. 3

Is this change in response to an LER, IE Bulletin, NRC Inspection Report, *Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document? Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

Prepared By — Date 4/11/84

Submitted By — Date 4/11/84

PORC Chairman — Date 4/17/84

Plant Superintendent — Date 4/18/84

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

Revision

ATTACHMENT 1 - TEAM 1

INSTRUCTIONS

If unable to contact team member from TEAM 1, then go to TEAM 2 (Attachment 2), then to the ALTERNATE list (Attachment 3)

Message: "This is Browns Ferry. We have activated the REP.
Please report to the Technical Support Center immediately as the (POSITION)."

Time Contacted	Position		Name	PAX	DIM	HOME	PAGE
_____	Site Emergency Director		George Jones	212/221	701	350-7444	212
_____	Operations Manager		Ray Hunkapiller	205/214	794	355-5667	204
_____	Technical Assessment Manager		Bill Thomison	208	784	355-5443	208
_____	Maintenance Manager		John Pittman	221/212	701	355-0230	221
_____	REP Communicator		Terry Chinn	405/406	786	729-8505	141
_____	Secretary	NOTE: Call all three.	Betty Riley	221/212	701	729-1122	___
* _____	Secretary		Carolyn Martin	208/215	785	247-0983	___
_____	Secretary		Sandra Holland	405/406	787	[illegible]-2862	___
_____	TSC Communicator		Bob Metke	179	783	232-8596	___
_____	NRC Communicator		R. G. Jones	446	874	232-3596	___
_____	Operations Specialist		A. L. (Smiley) Burnette	429/430	861	766-1929	130
_____	Health Physicist	NOTE: Call both	Allen Sorrell	209/274	757	767-6045	274
_____	Health Physicist		Ed Cargill	274/209	758	232-0643	209

*Revision

ATTACHMENT 1 - TEAM 1 (Continued)

	Time Contacted	Position	Name	PAX	DIM	HOME	PAGE
*	_____	Radiochemical Engineer	Jim Clark	443/436	672	533-2120	
	_____	Reactor Engineer	Earl Nave	455/456	845	881-6810	184
	_____	Instrument Engineer	Ron Burns	168	781	353-4992	168
	_____	PSO Engineer	Leonard Bynum	394/395	819	539-5454	256
	_____	PSS Supervisor	Ralph Jackson	266/246	822	757-3509	246
	_____	Systems and Test Engineer	Roger McPherson	171/272	834	355-6518	272
	_____	Electrical Engineer	Tom Cosby	207/235	797	232-8779	235
	_____	Mechanical Engineer	Charlie Wages	206/241	881	383-8878	202
	_____	Computer Engineer	Larry Johnson	418	782	233-0417	264
	_____	Quality Engineer	Larry Jones	100/106	831	233-4848	106
*	_____	Information Officer	Frank Cason	413	839	355-3520 (Decatur Inn)	104

*Revision

ATTACHMENT 2 - TEAM 2

INSTRUCTIONS

Contact members from this list if unable to reach TEAM 1 members. If unable to reach TEAM 2 member to to ALTERNATE list Attachment 3.

Message: "This is Browns Ferry. We have activated the REP. Please report to the Technical Support Center immediately as the (POSITION)."

	Time Contacted	Position	Name	PAX	DIM	HOME	PAGE
	_____	Site Emergency Director	Jim Swindell	221/212	701	355-7277	103
	_____	Operations Manager	Tommy Jordan	205/214	793	383-5868	129
*	_____	Technical Assessment Manager	Dwight Mims	208/215	785	355-9659	272
	_____	Maintenance Manager	Johnny Miller	701/715	712	353-4375	259
	_____	REP Communicator	Bill Roberts	100/106	[illegible]	232-7027	142
	_____	Secretary	Glenda Harrison	178	810	729-6573	___
*	_____	Secretary (NOTE: Call all three)	Jacque Garner	221/212	701	233-0576	___
*	_____	Secretary	Peggy Gilbert	414	895	729-6273	___
	_____	TSC Communicator	M. W. (Tink) Haney	206/241	790	233-0834	241
	_____	NRC Communicator	E. G. Thornton	446	875	232-5952	___
	_____	Operations Specialist	Roy Smallwood	429/430	861	757-3992	___
	_____	Health Physicist (NOTE: Call both)	Herman Crowson	335/334	876	764-1381	334
	_____	Health Physicist	Wayne Simpkins	457/458	759	232-7973	___

*Revision

ATTACHMENT 2 - TEAM 2 (Continued)

Time Contacted	Position	Name	PAX	DIM	HOME	PAGE
* _____	Radiochemical Engineer	Ausie Clement	101/107	802	232-0300	___
_____	Reactor Engineer	Bill Williamson	455/456	845	757-5903	___
_____	Instrument Engineer	Bob Irby	234	841	729-1439	161
_____	PSO Engineer	Lee Haygood	394/395	820	757-5794	___
_____	PSS Supervisor	James Brazell	266/246	822	232-6003	178
_____	Electrical Engineer	Dwight Thompson	207/235	890	233/1773	216
_____	Systems and Test Engineer	Paul Romine	171/272	834	766-2550	___
_____	Mechanical Engineer	Ed Cornelius	206/241	791	_____	___
_____	Computer Specialist	Russel McNutt	264	856	232-2359	___
_____	Quality Engineer	Jim Norris	100/106	833	355-4570	105
_____	Information Officer	No alternate				

*Revision

ATTACHMENT 3 - ALTERNATES (Continued)

	Time Contacted	Position	Name	PAX	DIM	HOME	PAGE
	_____	Electrical Engineer	Walt Christopher	207	889	355-1810	___
	_____	Instrument Engineer	No alternate				
	_____	PSO Engineer	Elmer Todd	394/395	820	232-7978	258
	_____	Systems and Test Engineer	Joe Ely	171/272	834	729/1140	___
	_____	Mechanical Engineer	Pat Ebersole	206/241	791	543-6189	205
	_____	Quality Engineer	Larry Parvin	309/409	801	2343-9570	107
	_____	Quality Engineer	Russell Perry	100/106	623	729-8823	109/112
	_____	PSS Supervisor	Glen Lard	266/246	822	766-8557	___
	_____	Computer Engineer	Wayne Lynch	264	856	233-0998	___
*	_____	Secretary	Darlene Rains	701	714	233-3715	___
*	_____	Secretary	Arnette Johnson	701	713	729-8389	___

*Revision

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF-5
BF 2.3
BF 11.1
FEB 15 1984

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number IP-7
Unit No. 1,2,3
Title ACTIVATION OF THE Operations SUPPORT CENTER

Reason For Revision Add name per annual PORC review

Pages Affected Attachment 1 (pg 2)

History of Revisions (For DCT Use Only)

Approval Date	Affected Pages
4/17/84	2 of Att. 1
2/15/84	1,2 (Att. 1)
1/12/84	1 (Att. 1)
8/11/83	1,2 (Att. 1)
7/06/83	1,2 (Att. 1)

Is this change in response to an LER, IE Bulletin, NRC Inspection Report, Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document?
Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

[signature] 4/1/84
Prepared By Date

[signature] 4/17/84
PORC Chairman Date

[signature] 4/1/84
Submitted By Date

[signature] 4/18/84
Plant Superintendent Date

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

* Revision

ELECTRICAL MAINTENANCE (CONTACT 4)

Initials	Time Contacted	Name	PAX	Dim	Home	Pager
_____	_____	Pete McLemore	307/307/145	619/612	Rogersville- 247-5317	145
_____	_____	Julian Bass	307/307/145	843	Rogersville- 247-0381	154
_____	_____	Herman York	307/145	-	Florence - 764-5856	148
_____	_____	Dennis Gillespie	276	655	Five Points- (615)852-4281	151

MECHANICAL MAINTENANCE (CONTACT 4)

Initials	Time Contacted	Name	PAX	Dim	Home	Pager
_____	_____	John Whitt	310/301	620	Athens - 233-0740	310
_____	_____	Carlos Jones	114/310	620	Athens - 232-1837	201
_____	_____	Bobby Laurence	308/310	620	Lexington - 229-5933	186
* _____	_____	Charlie Thompson	104	620	Athens - 232-1652	301
_____	_____	Tom Marshall	310/301	620	Hartselle - 773-2815	206
_____	_____	Dale Taylor	206	618	Decatur - 353-4005	214
* _____	_____	John Beck	102/310	620	Town Creek - 685-2793	___

PSO (CONTACT 1)

Initials	Time Contacted	Name	PAX	Dim	Home	Pager
_____	_____	Jim Thompson	394	820	Decatur - 355-9666	257
_____	_____	Duncan Massey	394	820	Huntsville - 852-8446	__

*Revision

APR 17 1984

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF-5
BF 2.3
BF 11.1
FEB 15 [illegible]

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number IP-8
Unit No. 4,2,3
Title Personnel Accountability and Evacuation

Reason For Revision Clarify and add additional groups to stay in plant based on annual PORC review

Pages Affected 1

History of Revisions (For DCT Use Only)

Approval Date	Affected Pages
4/17/84	/ 1
3/14/84	/ 2,3,1 of Att. 1
1/12/84	/ 1,2,3,4
11/10/83	/ 1
10/12/83	/ 1,2,3
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Is this change in response to an LER, IE Bulletin, NRC Inspection Report, Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document?
Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

Prepared By — Date 4/11/84

Submitted By — Date 4/11/84

PORC Chairman — Date 4/17/84

Plant Superintendent — Date 4/18/84

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

* Revision

PERSONNEL ACCOUNTABILITY AND EVACUATION

1.0 PURPOSE

1.1 Provide for the accounting and orderly evacuation of plant personnel and visitors from an area, building, or site. Reentry guidelines are also described.

2.0 INSTRUCTIONS

2.1 It is the responsibility of the Site Emergency Director to make the decision concerning the necessity for area, building, and site evacuation.

2.2 AREA AND BUILDING EVACUATION (NOTIFICATION BY PUBLIC ADDRESS)

2.2.1 All personnel evacuate to a safe area and remain there for further instructions. Caution: Individuals in a "C" zone.

a. Remove outer protective clothing.
b. Walk on outer edge of normal passage route.
c. Avoid contact with others.
d. Request HP surveillance as soon as possible.

NRC/C IE Bull. 79-18

2.2.2 Operations personnel will verify area is vacated (announcement by PA may not be heard). Request HP assistance if available.

2.2.3 Senior individual report accountability to Site Emergency Director.

2.3 TOTAL SITE EVACUATION (NOTIFICATION BY PUBLIC ADDRESS AND SIREN)

2.3.1 Site Emergency Groups

a. TSC personnel previously notified by IP-6 report to TSC.
b. OSC personnel previously notified by IP-7 report to OSC.
c. TSC report accountability by name and badge number to Site Emergency Director
d. OSC report accountability by name and badge number to Maintenance Manager in TSC through respective engineers.
e. REP Communicator obtain accountability of Power Stores and Drawing Control by name and badge number (request one individual from each remain inside.)
f. Site Emergency Director notify DNPEC Director of evacuation.

2.3.2 Operations Personnel

a. Secure any operations outside control room.
b. Report to assigned control room.
c. ASE will account for his personnel by name and badge number and report to Shift Engineer.
d. Shift Engineer report accountability by name and badge number to Operations Manager in TSC.

*Revision

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF 2.3
BF 11.1
FEB 15 [illegible]

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number BFN REP, IPD, IP-10
Unit No. 1, 2, 3
Title MEDICAL EMERGENCY PROCEDURE

Reason For Revision TO UPDATE PHONE NUMBER FOR ELIZA COFFEE MEMORIAL HOSPITAL, To correct para number & page number

Pages Affected ATTACHMENT 3 PAGE 1 & 2

History of Revisions (For DCT Use Only)

Approval Date	Affected Pages
4/17/84	1,2 (Att. 3)
3/14/84	1 (Att. 1)
3/14/84	2 (Att. 3)
3/14/84	1 (Att. 6)
1/19/84	3, pgs. 1,2,3 (Att. 3)
7/06/83	All

Is this change in response to an LER, IE Bulletin, NRC Inspection Report, Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document?
Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

C. Rogers 12-30-84
Prepared By Date

J. E. Swindell 1/17/84
PORC Chairman Date

[signature] 1-30-84
Submitted By Date

S. T. Dan 1/18/84
Plant Superintendent Date

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

Revision

PATIENT CARE GUIDELINES

1.0 GENERAL

1.1 First aid and emergency medical care should be provided for onsite to preserve life and to minimize injury and suffering.

1.2 The medical emergency response team will take appropriate action as directed by the nurse.

1.3 A doctor should be consulted when in the nurse's judgment further professional attention is needed.

1.4 If no contamination is involved or suspected, patient has choice of hospital when offsite medical attention is necessary. Partial list of the hospitals most preferred include:

Athens-Limestone Hospital, Athens, Ala.	(205) 729-9292
Decatur General Hospital, Decatur, Ala.	(205) 552-0174
Eliza Coffee Memorial Hospital, Florence, Ala.	(205) 767-9191
Huntsville Hospital, Huntsville, Ala.	(205) 533-8133

1.5 The care of persons known or suspected to be associated with radiation exposure or contamination will be coordinated with the health physics representative. The essential aims of the medical-health physics team are:

a. Minimize the injury and further radiation exposure to the victim.

b. Protect attending personnel from excessive and unnecessary radiation exposure.

c. Control spread of radioactivity contamination.

d. Assess and document the patient's radiological exposure.

e. Immediate lifesaving and disability limiting procedures will take precedence over noncritical decontamination and dosimetry assessment procedures.

2.0 IRRADIATED-NONCONTAMINATED

2.1 Remove the victim from further exposure providing only essential first aid in the process, then direct attention to medical care of other physical injuries.

2.2 Medical care of the radiation exposure is governed by the medical status of the patient and the findings of health physicist. In most cases the treatment of illness or physical injury takes precedence over treatment for radiation exposure.

*Revision

PATIENT CARE GUIDELINES

2.0 IRRADIATED-NONCONTAMINATED (continued):

* 2.3 For individuals who have received an acute total body dose greater than 75 rem, hospitalization should be considered and arrangements made for evaluation by a nuclear medicine specialist regardless of physical injuries or illnesses. Blood studies should be drawn per directions (Attachment 4). If the patient is ill or injured, he should be transported to Huntsville Hospital or Decatur General Hospital with the information that this patient has received an acute total body dose greater than 75 rem. It is recommended that the attending physician consult REAC/TS. If the patient is not seriously ill or injured enough to require hospitalization for physical illness or injury, consultation with REAC/TS should be obtained through a TVA medical office. At the recommendation of REAC/TS, referral may be made to Oak Ridge Hospital of the United Methodist Church where the patient could be observed and treated by the physicians on the REAC/TS team.

3.0 CONTAMINATED PATIENTS

3.1 The patient should be given initial emergency care by the medical emergency response team. All decontamination that the medical status of the patient will allow should be accomplished. The appropriate sequence of care must be determined on an individual basis by the medical-health physics team. The injured person will be transported and treated in one of two ways:

a. If the person is severely injured, they may be transported directly to Huntsville Hospital or Decatur General Hospital. Every reasonable effort should be made to reduce the radioactive contamination level to less than .5 R per hour at one foot. Spread of contamination may be minimized by removing the patient's excess clothing and wrapping him in a sheet, as his injuries permit.

b. If cases of less severe injuries, the patient will be sent to the personnel decontamination facility in the service building (or radwaste building, if stretcher bound) treated in the emergency treatment area or transferred to Huntsville Hospital or Decatur General Hospital.

3.2 The health physicist will collect, identify, label, and analyze all biological specimens as required and deemed necessary. He will obtain the injured person's personal dosimetry and replace with equivalent dosimetry if appropriate.

3.3 The health physics group will control contamination during transportation to the receiving hospital.

*Revision

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF-5
BF 2.3
BF 11.1
FEB 15 1984

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number A1-17
Unit No. 1, 2, 3
Title Emergency Equipment and Supplies

Reason For Revision Change in hospital

Pages Affected Page 14 of 15 (Table 9)

History of Revisions (For DCB Use Only)

Approval Date	Affected Pages
4/17/84	14 (Table 9)
3/16/84	6 (Table 3)
10/12/83	8 (Table 4)
10/12/83	15 (Table 10)

Is this change in response to an LER, IE Bulletin, NRC Inspection Report, Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document? Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

Prepared By — Date 4/11/84

Submitted By — Date 4/11/84

PORC Chairman — Date 4/17/84

Plant Superintendent — Date 4/18/84

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

Revision

APR 17 1984

Table 9

* Huntsville Hospital and Decatur General Hospital

Emergency Room Supplies - Furnished by TVA

1.	Plastic shoe covers	50 pair
2.	Surgeon caps	6
3.	Surgical suits	6
4.	Rubber glove, sizes 7, 8, 9, 10	5 pair each size
5.	Surgeon's face mask	6
6.	Laboratory coats, sizes 36, 38, 40, 42, 46	4 each size
7.	Kem-pac paper, 3 feet wide	1 roll
8.	Polyvinyl, 3 feet wide	1 roll
9.	Masking tape, 2 inches wide	4 rolls
10.	Rope (yellow and magenta in color)	40 feet
11.	Self-sticking labels, "RADIOACTIVE"	1 roll
12.	Radiation warning tags and signs	10 each
13.	Large plastic bags	20
14.	Radiation shield, lead pig	1
15.	Disposable cartons or boxes	5
16.	Cutie pie, 0-10 R/hr.	1
17.	Radiation monitor, with probe (Eberline Model RM-14)	1 each

*Revision

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF
BF 2.3
BF 11.1
FEB 15 1984

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number IP-20
Unit No. 1, 2, 3
Title Technical Support Center (TSC) Operation

Reason For Revision Clarify, change duties, add information based on annual PORC review and annual retraining

Pages Affected 1, 2, 3, 4; Att A, pgs 1, 2, 3; Att G, pgs 2, 3, 4; Att J, pgs 2, 3; Att K, pg 1; Att M, pgs 1, 2, 3, 4 (added)

History of Revisions (For DCU Use Only)

Approval Date	/ Affected Pages
4/17/84	/ 1,2,3, addendum 4
4/17/84	/ 1,2,3 (Att. A)
4/17/84	/ 2,3,4 (Att. G)
4/17/84	/ 2,3 (Att. J)
4/17/84	/ 1 (Att. K)
4/17/84	/ Addendum 1-4 (Att. M)
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Is this change in response to an LER, IE Bulletin, NRC Inspection Report, Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document? Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

Prepared By — Date 4/16/84

Submitted By — Date 4/16/84

PORC Chairman — Date 4/17/84

Plant Superintendent — Date 4/18/84

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

Revision

BFN, IPD
BFN, IP-20
APR 17 1984

TECHNICAL SUPPORT CENTER (TSC) OPERATION

1.0 PURPOSE

To establish the TSC organization and provide for TSC operation after it is manned.

2.0 INSTRUCTIONS

2.1 INITIAL ACTIVATION (Performed by shift engineer and/or first individuals reporting to TSC - Confirmation by REP Communicator)

Initials	Time	
_____	_____	a. Shift engineer designated by schedule as Site Emergency Director) relocate to TSC, if possible.
_____	_____	b. Activate TSC phones (see Attachment C).
_____	_____	c. Establish communications with DNPEC.
_____	_____	d. Establish log of events/communications.
_____	_____	e. Transfer names of TSC personnel from IP-6 data sheets to REP Organization Board.
_____	_____	f. Establish communications with NRC via Red Phone (if required).
_____	_____	g. Move desks and phones to hallway for Secretary, Information Officer, and PSS Supervisor.

2.2 COMPLETE ACTIVATION (After majority of TSC personnel have arrived - Confirmed by REP Communicator).

_____	_____	a. REP Communicator assure TSC positions are filled.
_____	_____	b. REP Communicator begin maintaining plant status board.
_____	_____	c. Site Emergency Director relieve shift engineer. Obtain log of events.
_____	_____	d. Secretary take over log of events/communications.

* Note: Key to IBM copier is in Safeguards box in shift engineer's old office.

*Revision

Initials	Time		
_____	_____	*	e. REP Communicator establish communication with DNPEC Plant Communicator. Verify operability of backup Communications (PAX and PSO radio).
_____	_____		f. Technical assessment manager direct TSC communicator to begin completing IP-20 data sheets (see Attachment A) every 1/2-hour.
_____	_____		g. Technical assessment manager establish communications with TSC communicator in control room using portable phone. (Unit 1 - 628, Unit 2 - 629, Unit 3 - 630).
_____	_____		h. Maintenance engineers establish communications with OSC. Designate individual in charge if Maintenance Unit Supervisor not available. Maintain log of activities. PAX Numbers: Mechanical 301/310/308/114/102/305/306 Electrical 307/145/407 Instrumentation 375/376/425/426/359/184/187
_____	_____	*	i. Computer Specialist activate Emergency Data Information system (See IP-19).
_____	_____		j. Secretary begin operation of telefax machine (see attachment F).
_____	_____		k. NRC communicator establish communications with NRC (if required).
_____	_____	*	l. QE representative begin maintaining area maps and off-site radiation status board.
_____	_____		m. Health physicist begin maintaining in-plant radiation status boards.
_____	_____		n. Radiochemical engineer begin providing information to KEC for projected dose calculations.
_____	_____		o. Health physicist begin providing release information and any plant field team data to MSEC for dose calculations.
_____	_____		p. Secretary (in hall) begin accountability of TSC personnel.
_____	_____		q. Site emergency director will reevaluate emergency conditions in accordance with IP-1 every two hours or more often if conditions warrant.

*Revision

APR 17 1984

2.3 OTHER INFORMATION

a. Organization chart is shown on Figure 1.

b. Physical layout of TSC is shown on Figure 2.

c. Lunchroom (Swamp) is available for breaks and extra work space.

d. Reference books for TSC use are listed on Attachment D.

e. Complete list of TSC dimension numbers - See Attachment B.

f. See IP-23 for communication list.

g. List of DNPEC/CECC Numbers - See Attachment E.

h. Refer to Attachment K for Emergency Information Flow Diagram.

* i. River flows and/or predicted flows - In shift engineer's old office.

j. Complete list of TSC duties for each individual - See Attachment G.

k. Instructions to obtain printout of leakage in systems outside containment - See Attachment L.

* l. Preformated trend curve blanks for selected parameters (see attachment M).

2.4 CONTINGENCIES

a. Long-term operation - See IP-22.

b. Loss of off-site communication by phone. Use PSO Radio - See Attachment H.

c. NRC order - The NRC role onsite is to observe, advise, and concur with licensee decisions and actions. If a situation arises where the NRC wants an action taken regarding plant operation that TVA does not agree with, the site emergency director shall require the NRC to sign a written order (per 10 CFR 2) directing TVA to take the action before the site emergency director will comply.

d. Using HP VHF radio - See Attachment I.

e. Evacuation - Relocate TSC to second level of office building. See Attachment J.

*Revision

f. Activity control - Activity control (Maintenance, etc.) will remain as specified in plant instructions, unless revised by PORC and plant manager/plant superintendents, or as modified by NRC order or as described in BF 12.22 (for protecting public health and safety).

g. Under a SITE AREA or GENERAL EMERGENCY, CECC will dispatch a senior management representative to act as Senior Advisor to the Site Emergency Director. He will advise the Site Emergency Director on TVA policy matters and act as an additional interface with NRC as necessary. He will be located next to the Site Emergency Director with the TSC secretary.

*Addendum

Unit No. _____ Time _____

Parameter	Instrument	Panel	Reading
Reactor Level (Accident) (Zero at top of fuel)	LI 3-62 (inches)	9-3	_____
Drywell Low Pressure (Low range)	PI 64-39A or		_____
	XR-64-159 pen 2 (-5 to +5 psig) (Unit 1 only)	9-3	_____
Drywell Wide Range Pressure	PI-64-160A or	9-3	_____
	XR-64-159 pen 1 (0 to 300 psig) (Unit 1 only)		_____
Drywell Air Temperature	TR 64-52 (^{o}F) (black pen)	9-3	_____
Torus Water Temperature	TI 64-55A (^{o}F) (Units 2 3)	9-3	_____
	TR 64-161/162 (blue pen) (Unit 1)	9-3	_____/_____
Torus Water Level	LI-64-159A (0-20')	9-3	_____
	XR-64-159 pen 3 (0-240") (Unit 1 only)		_____
HPCI Flow	FIC 73-33 (gpm)	9-3	_____
RCIC Flow	FIC 71-36A (gpm)	9-3	_____
RHR Loop I Pressure	PI 74-51 (psig)	9-3	_____
RHR Loop I Flow	FI 74-50 (gpm)	9-3	_____
RHR Loop II Pressure	PI 74-65 (psig)	9-3	_____
RHR Loop II Flow	FI 74-64 (gpm)	9-3	_____
Core Spray Loop I Press.	PI 75-20 (psig)	9-3	_____
Core Spray Loop I Flow	FI 75-21 (gpm)	9-3	_____
Core Spray Loop II Press	PI 75-48 (psig)	9-3	_____
Core Spray Loop II Flow	FI 75-49 (gpm)	9-3	_____

NRC/C Rpt 81-19

After completion, hand carry to secretary in hallway outside TSC for distribution.

Distribution

Technical Assessment Manager
Maintenance Manager
Operations Manager
REP Communicator
NRC Communicator
Radiochemical Engineer
Health Physics
DNPEC (Telecopy)

*Revision

Unit No. _____ Time _____

Reactor Coolant Temp. (Valid only if recirc. pumps running)	TR 68-2 Loop A (^{o}F) red	9-4	_____
	Loop B (F) black	9-4	_____
Reactor Level (Accident) (Zero at inst. zero)	LI 3-46A (inches)	9-5	_____
Reactor Pressure	PI 3-54 (psia)	9-5	_____
Reactor Level (Normal) (Zero at inst. zero)	LI 3-53 (inches)	9-5	_____
(1) Condenser vacuum	P/TR 2-2 (in Hg) black	9-6	_____
(1) Torus H_2 conc.	H_2R 76-39 or 37 (%)	9-54, 55	_____
(1) Torus O_2 conc.	$O_2$4 76-43 or 41 (%)	9-54, 55	_____
(1) Drywell H_2 conc.	H_2R 76-39 or 37 (%)	9-54, 55	_____
(1) Drywell O_2 conc.	O_2R 76-43 or 41 (%)	9-54, 55	_____

(1) HS 76-49 and HS 76-59 must be checked to determine what recorder pens are active.

NRC/C Rpt 81-19

Other (specify)

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Equipment Operability - Check the listed equipment for operability. If less than fully operable, explain in REMARKS.

Equipment	Operable (Init)	Equipment	Operable
Standby Liquid Control	_____	ADS/Relief Vlvs	_____
CRD Pumps	_____	SBGT	_____
Core Spray	_____	Control Room Emer. Press. CAD	_____
RHR (LPCI)	_____	Diesels (U1 U2)	_____
RHR (CTMT Cooling)	_____	Diesels (U3)	_____
HPCI	_____		
RCIC	_____	500 KV Power	_____
EECW	_____	161 KV Power	_____
RHRSW	_____	4 KV System	_____
Feedwater System	_____	480 V System	_____
Condensate System	_____	DC Power	_____
Primary Containment	_____		

After completion, hand carry to secretary in hallway outside TSC for distribution.

Distribution

Technical Assessment Manager	REP Communicator	Health Physics
Maintenance Manager	NRC Communicator	DNPEC (Telecopy)
Operations Manager	Radiochemical Engineer	

*Revision

Unit No. _____ Time: _____

SBGTS Total Flow = FI 65 - 50 + FI - 65 - 71 (SCFM x1000)		9-25	_____
Drywell Radiation			
Unit 1	RR-90-272A (R/hr)	9-54	_____
Unit 1	RR-90-273A (R/hr)	9-55	_____
* Unit 2	RR-90-272A (R/hr)	9-54	_____
* Unit 2	RR-90-273A (R/hr)	9-55	_____
* Unit 3	RR-90-272A (R/hr)	9-54	_____
* Unit 3	RR-90-273A (R/hr)	9-55	_____
Torus Radiation			
Unit 1	RR-90-272A (R/hr)	9-54	_____
Unit 1	RR-90-273A (R/hr)	9-55	_____
* Unit 2	RR-90-272B (R/hr)	9-54	_____
* Unit 2	RR-90-273B (R/hr)	9-55	_____
* Unit 3	RR-90-272B (R/hr)	9-54	_____
* Unit 3	RR-90-273B (R/hr)	9-55	_____
Stack Radiation	RR-90-147A (Cps)	9-2	_____
	RR-90-147B (Cps)	9-2	_____
Stack Flow (Common - on Unit 1)	FI-1-90-271 (cfm)	9-53	_____

NRC/C Rpt 81-19

Remarks: _____

_____

_____

After completion, hand carry to secretary in hallway outside TSC for distribution.

Distribution

Technical Assessment Manager
Maintenance Manager
Operations Manager
RFP Communicator
NRC Communicator
Radiochemical Engineer
Health Physics
DNPEC (Telecopy)

*Revision

Secretaries

1. Maintain log of events.
2. Maintain accountability of TSC personnel.
3. Answer telephones.
4. Distribute IP-20, Att. A. data sheets.
5. Other duties as assigned by Site Emergency Director.
6. Operates Panafax.
7. Operates Emergency Data Information System as necessary.

TSC Communicator

1. Provides information from control rooms to Technical Assessment Manager.
2. Completes IP-20, Attachment A data sheets.

Public Safety Services Supervisor

1. Directs activities of PSS personnel.
2. Control access to site and control rooms.
3. Reports on accountability in case of evacuation.
4. Keep PSS personnel informed of status.

Radiochemical Engineer

1. Coordinates with MSEC assessment of radioactive effluents.
2. Directs post-accident sampling activities.
3. Directs activities of the radiochemical laboratory.

NRC/C

4. Determines impact of incident on radwaste and various effluent treatment systems.
5. Coordinates assessment of radiological conditions offsite with MSEC.
6. Provides meteorlogical and dose projection information to KEC.
7. Keep radiochemical lab informed of status.

Mechanical Engineer

1. Directs OSC (Mechanical)
2. Performs damage and repair assessment.
3. Keep OSC (Mechanical) informed of status.

Reactor Engineer

1. Performs evaluations as directed by Technical Assessment Manager.
2. Maintains parameter trends as directed by Technical Assessment Manager. (see Attachment M for preformated trend blanks for selected parameters)

Instrumentation and Controls Engineer

1. Directs OSC (instrumentation).
2. Performs damage and repair assessment.
3. Keep OSC (Instrumentation) informed of status.

*Revision

Electrical Engineer

1. Directs OSC (Electrical).
2. Performs damage and repair assessment.
3. Maintains maintenance assessment board.
4. Keep OSC (Electrical) informed of status.

Health Physicist

1. Directs and/or performs assessment of inplant and onsite radiological conditions.
2. Directs onsite HP activities.
3. Coordinates additional HP support with MSEC.
4. Makes recommendations for protective actions for onsite personnel.
5. Coordinates effluent and offsite dose assessment with MSEC.
6. Maintains inplant radiation status board.
7. Keep HP lab informed of status.

NRC/C PSO Engineer

1. Directs OSC (PSO).
2. Performs damage and repair assessment.
3. Keep OSC (PSO) informed of status.

Systems and Test Engineer

1. Performs evaluations as directed by Technical Assessment Manager.
2. Maintains Technical Assessment Board.

NRC Communicator

1. Acts as primary liaison with onsite NRC personnel.
2. Updates NRC personnel of plant status.
3. Provides information requests from NRC to TSC personnel.
4. Mans red phone and provides updates at least every half hour.

Operations Specialist

1. Provides operational knowledge into status evaluation of all plant systems.
2. Provides advice regarding technical specifications, system response, safety limits, etc.
3. Assists in development of recommended solutions to developing problems.

*Revision

NRC/C

Computer Engineer

1. Operates Emergency Data Information system.
2. Provides assistance to TSC by maintaining computer, repairing hardware, software development, etc.
3. Troubleshoot, maintain, and repair TSC computer systems and peripheries (when installed).

Quality Engineering

1. Assure QA requirements are met.
2. Provide relief (short term) to TSC personnel as needed.
3. Update area maps and off-site rad status board.

Public Information Officer

1. Coordinates press releases and briefings as required.

Assistant Unit Operator

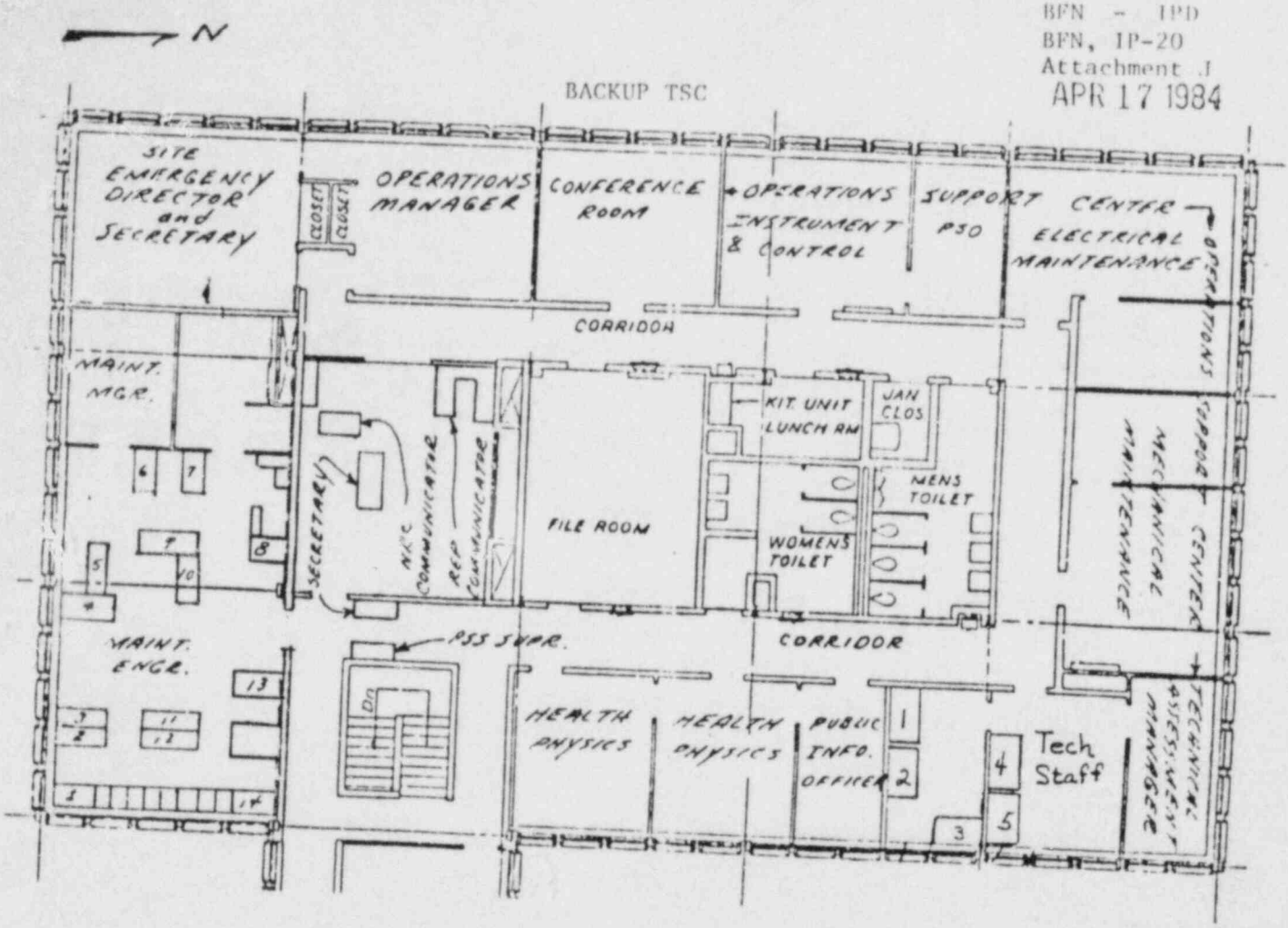
1. Assists in maintaining plant status board.

*Revision

APR 17 1984

	POSITION	DIM	PAX
	Reactor Engineer	865	405/406
	Systems and Test Engineer	865	405/406
*	Computer Specialist	865	405/406
	PSO Engineer	891	207/235
	Electrical Engineer	890	207/235
	Mechanical Engineer	799	207/235
*	Quality Engineering	797	207/235
	Health Physicist	784	208/215
	Health Physicist	785	208/215
	PSS Supervisor	701	202
	OSC (Elec)	790	241
	OSC (Mech)	618	206
	OSC (I&C)	794	214
	OSC (PSO)	793	205

Revision



Maint Engr. Desk Assignment

2. PSO Engineer
5. Electrical Engineer
*8. Quality Engineering
9. Mechanical Engineer
13. Inst. & Controls Engineer

Technical Assessment Staff Desk Assignment

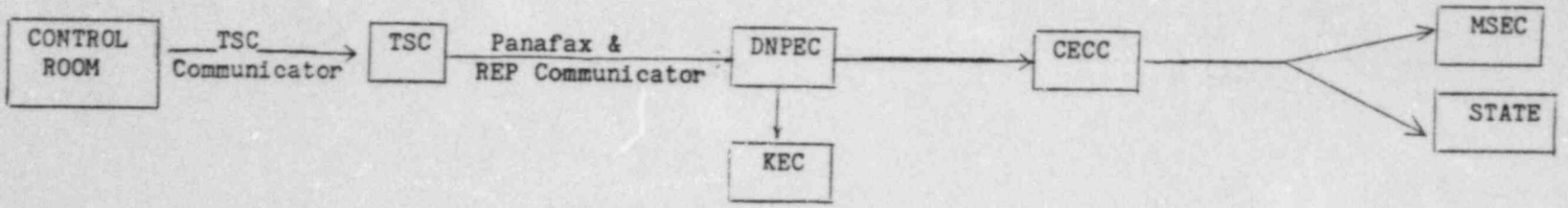
1. Reactor Engineer
2. Systems & Test Engineer
* 3. Computer Specialist
4. Operations Specialist
5. Radiochemical Engineer

*Revision

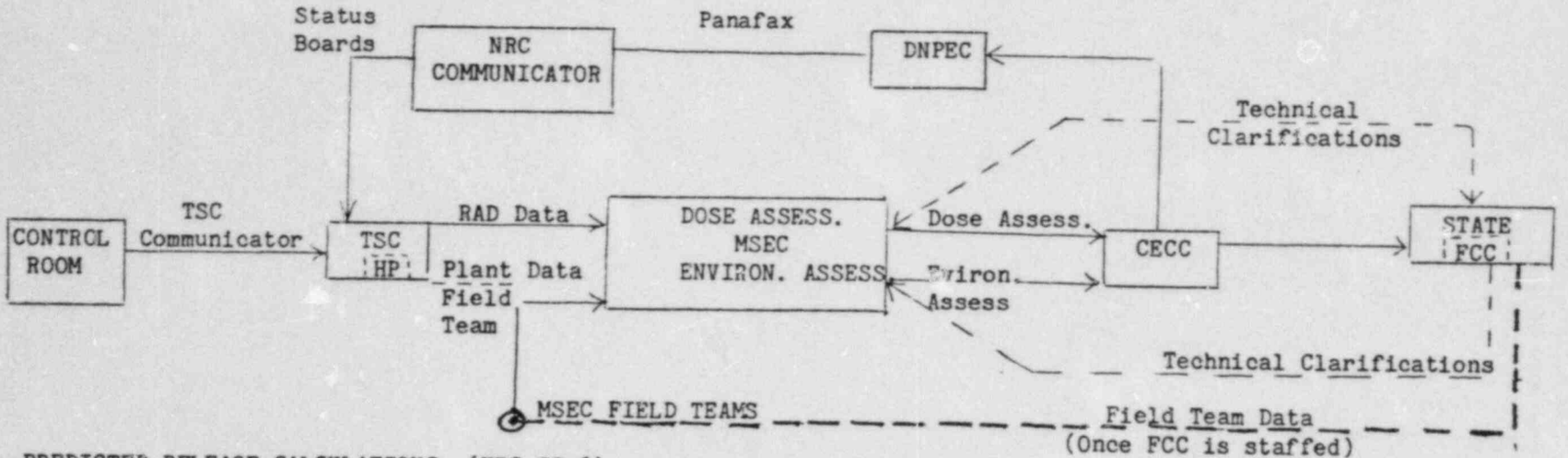
EMERGENCY INFORMATION FLOW DIAGRAM

BFN - IPD
BFN, IP-20
Attachment K
4/17/84

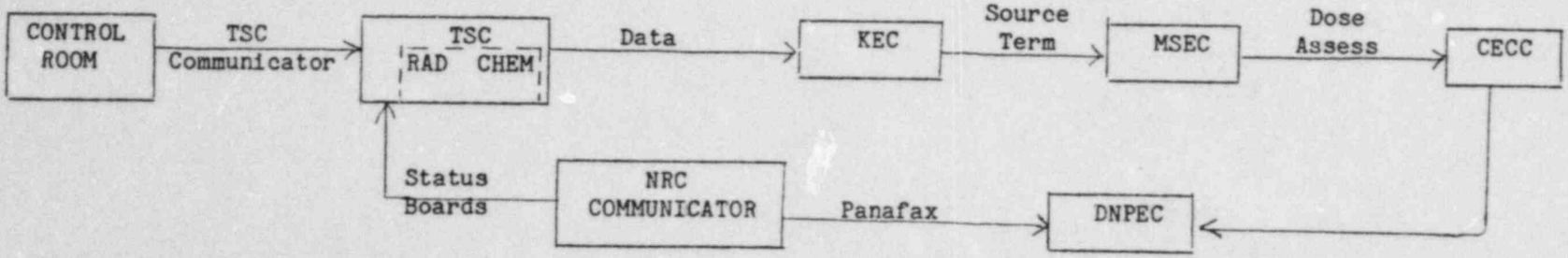
I. PLANT DATA (TSC Data Sheets):



II. DOSE/ENVIRONS ASSESSMENT: (REAL TIME)



* III. PREDICTED RELEASE CALCULATIONS (KEC IP-6):



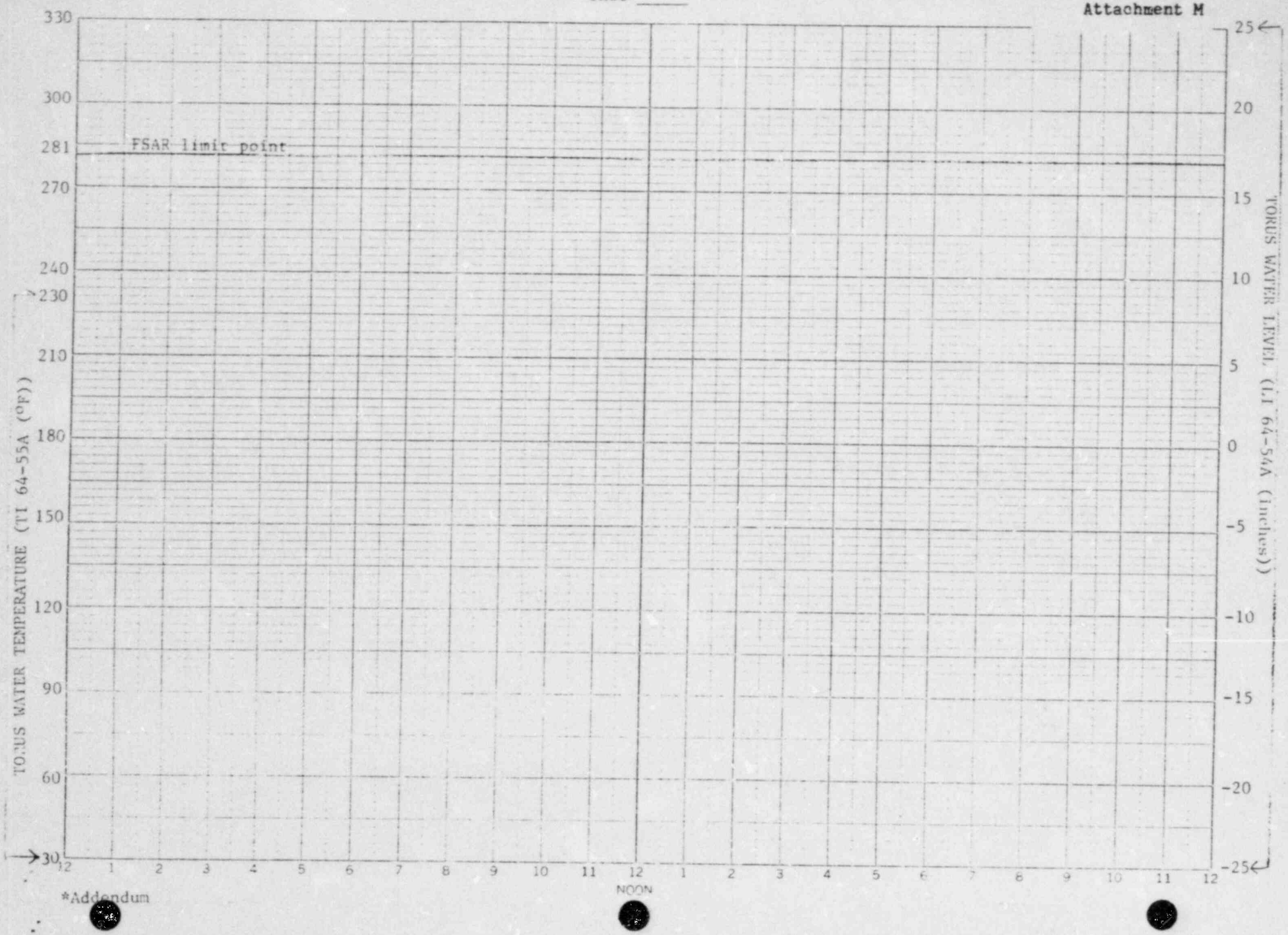
*Revision

K-E 1 DAY BY HOURS X 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 2050

APR 1 [illegible]

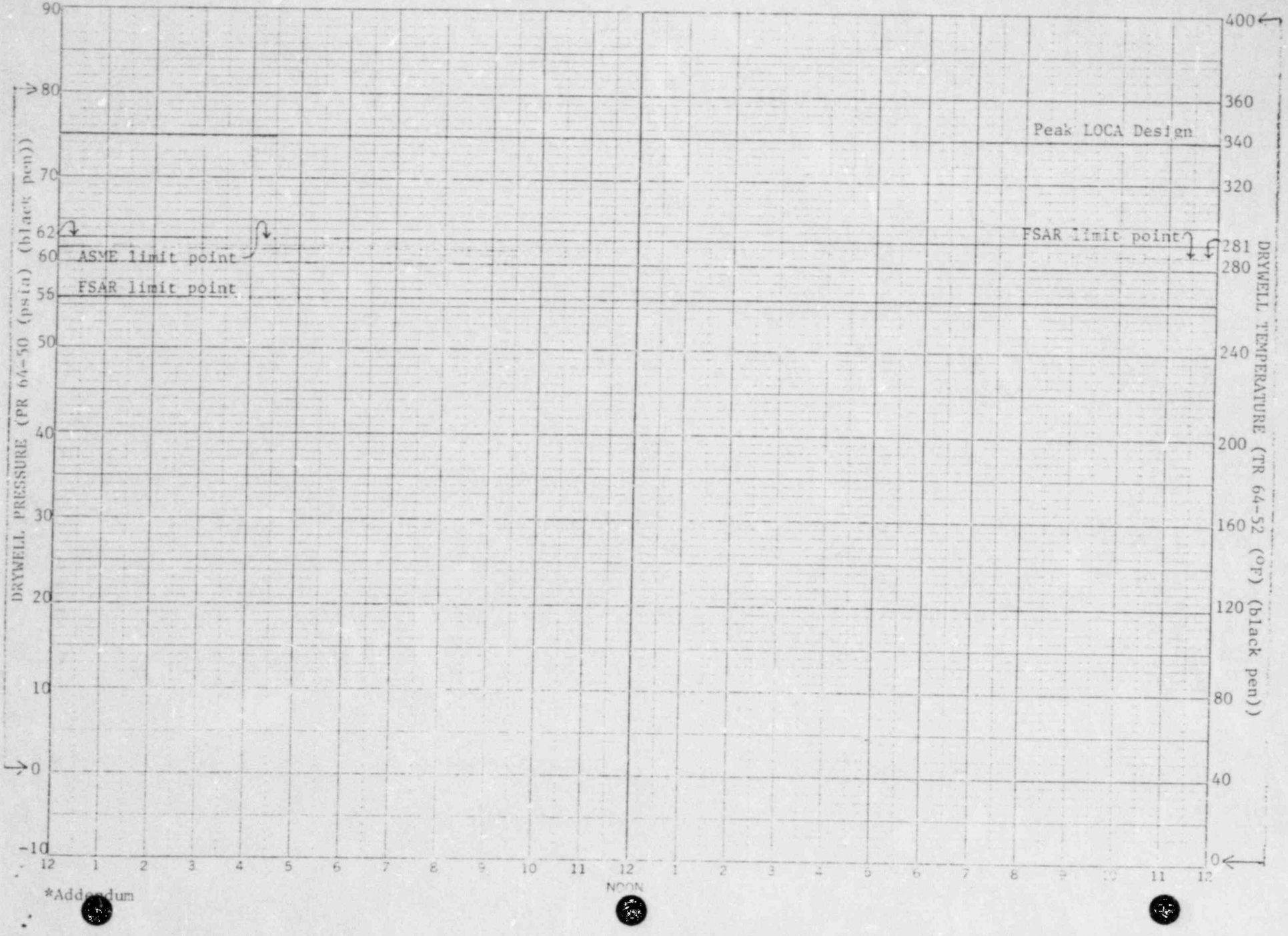
Unit _____



*Addendum

UNIT _____

APR 17 1984



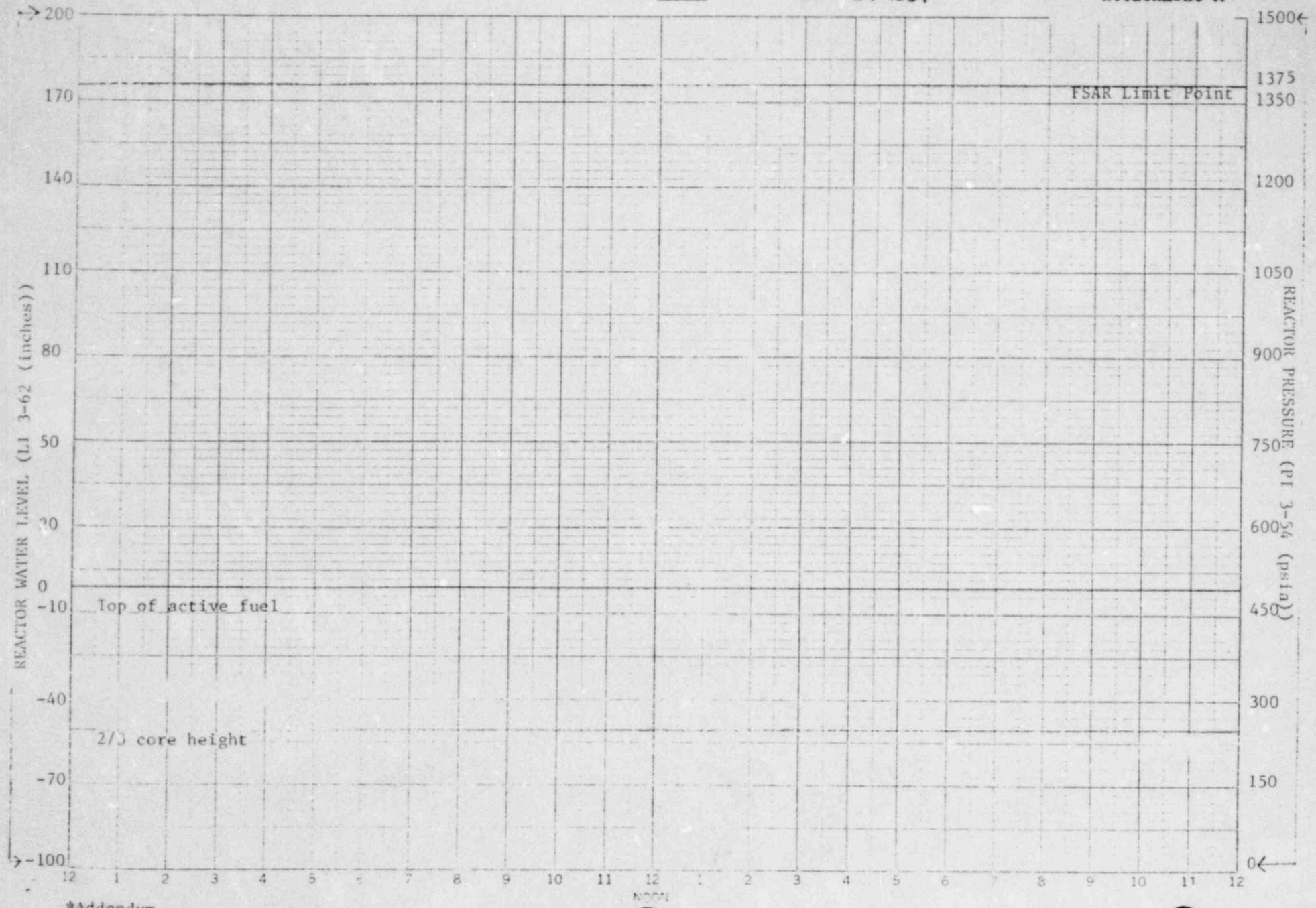
*Addendum

DAY BY HOURS x 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 2050

Unit ____

APR 17 1984



*Addendum

1 DAY BY HOURS x 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 2050

Unit _____

APR 17 1984

TORUS WATER LEVEL (LI 64-159A (Feet))

20
18
16
14
12
10
8
6
4
2
0

12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12

* *Addendum

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF-5
BF 2.3
BF 11.1
FEB 15 1984

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number IP-21
Unit No. 1, 2, 3
Title Operations Support Center (OSC) Operation

History of Revisions (For DCB Use Only)

Approval Date	Affected Pages
4/17/84	1

Reason For Revision Clarify based on annual PORC review

Pages Affected 1

Is this change in response to an LER, IE Bulletin, NRC Inspection Report, Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document?
Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

Prepared By [signature] 14/17/84
Date

PORC Chairman [signature] 4/17/84
Date

Submitted By [signature] 14/17/84
Date

Plant Superintendent S. T. [signature] 4/18/84
Date

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

Revision

APR 17 1984

OPERATIONS SUPPORT CENTER (OSC) OPERATIONS

1.0 PURPOSE

To provide for OSC operation after it is manned.

2.0 INSTRUCTIONS

NOTE: Refer to Figure 1 of IP-20 for Radiological Emergency Organization.

2.1 The OSC is located in three maintenance shop offices as follows:
Mechanical - Mechanical maintenance shop office, elevation 565' service building. (Figure 1).
* Electrical - Electrical maintenance shop office, elevation 565' service building (Figure 1).
Instrumentation - Instrument maintenance shop office, elevation 580' service building. (Figure 2)
* PSO - Same as Electrical

2.2 Any necessary emergency supplies for the OSC can normally be found in the shop areas, but a cabinet in the Central Alarm Station can be used as necessary (See IP-17 for additional supplies).

2.3 The Maintenance Manager in the TSC will direct the OSC through the respective engineers in the TSC.

2.4 Maintenance Unit Supervisor or individual designated by Maintenance Manager will supervise the three OSC areas. They will maintain a log of activities.

* 2.5 Individual in charge of OSC area will maintain accountability for his personnel and report accountability by name and badge number in case of site evacuation to the maintenance manager in the TSC through respective engineers.

2.6 The primary role of OSC is damage and repair assessment. Any inspections must be coordinated with Health Physics. Teams will be briefed as to conditions prior to dispatch.

2.7 In events lasting longer than 12 hours, long-term operations will be undertaken as described in IP-22.

2.8 Should evacuation of the OSC be necessary, the office building, second floor, will act as backup (See IP-20, Attachment J).

2.9 See Attachment 1 for TSC Dimension and PAX phone numbers.

*Revision

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF
BF 2.3
BF 11.1
FEB 15 1984

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number IP-22
Unit No. 1,2,3
Title Long Term Operation

Reason For Revision Add personnel based on annual PORC review

Pages Affected 1

History of Revisions (For DCU Use Only)

Approval Date	Affected Pages
4/17/84	1
10/06/83	1
4/07/83	1

Is this change in response to an LER, IE Bulletin, NRC Inspection Report, Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document?
Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

Prepared By — Date 4/11/84

Submitted By — Date 4/11/84

PORC Chairman — Date 4/17/84

Plant Superintendent — Date 4/18/84

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

Revision

APR 17 1984

LONG TERM OPERATION

1.0 PURPOSE

To provide for operation during an ALERT, SITE AREA EMERGENCY, or GENERAL EMERGENCY which exists or is projected to exist for more than 12 hours.

2.0 INSTRUCTIONS

INITIALS

_____ 2.1 Site Emergency Director notify DNPEC of decision to begin long-term operation. DNPEC can make arrangements necessary for food, clothing, cots, and other supplies requested.

_____ 2.2 Meal periods in the plant lunchroom will be scheduled by the Site Emergency Director. PSS Supervisor will provide for control of the area during these periods.

_____ 2.3 Sleeping facilities will be established as necesary in the second floor of the Plant Administrative Building (outside the gatehouse). PSS Supervisor will provide access control. (If radiological or other conditions do not permit this area to be used, provisions will be made through the DNPEC for near-site lodging, or for other sleeping areas onsite).

_____ 2.4 The lunchroom in the control bay at elevation 3C (Swamp) will serve as an assembly room for meetings, etc. The plant assembly room can also be used if additional space is needed and radiological conditions permit.

_____ 2.5 Additional personnel will be called in by the Site Emergency Director to provide coverage in the following areas as necessary:

a. Drawing Control Center
b. Document Control.
c. Administration.
d. Additional clerical support.
* e. Power Stores.

_____ 2.6 Site Emergency Director establish 12-hour or shorter shifts in the TSC. Additional personnel will be called from IP-6 as necessary.

_____ 2.7 The Maintenance Manager, through the designated engineers, will establish 12-hour (or shorter) shifts for the OSC personnel. the OSC personnel will, in turn, establish a 12-hour (or shorter) shift for their craft personnel on site and call in additional personnel as necessary.

*Revision

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF-5
BF 2.3
BF 11.1
TVA 15[illegible]

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number IP-26
Unit No. 1, 2, 3
Title Tornado Emergency Procedure

Reason For Revision Delete group based on annual PORC review; correct job title

Pages Affected 3

History of Revisions (For DCT Use Only)

Approval Date	Affected Pages
4/17/84	3
10/12/83	2
8/03/83	3
7/06/83	All

Is this change in response to an LER, IE Bulletin, NRC Inspection Report, Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document?
Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

[signature] 4/11/84
Prepared By Date

[signature] 4/11/84
Submitted By Date

[signature] 4/17/84
PORC Chairman Date

[signature] 4/18/84
Plant Superintendent Date

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

Revision

Notify the following by telephone to evacuate to tornado shelter areas:

INITIALS		PAX	DIM or Bell
_____	Public safety chief in administrative office bulding outside security fence (when building is occupied).	___	____
_____	OMMM Supervisor or assistants.	701/715	714
_____	Biotherm research facility supervisor or personnel (direct them to remain in facility).	341	729-8574
_____	Personnel in Warehouse 12 (east side of powerhouse).	793/794/ 789	748
_____	Personnel in greenhouse (direct them to Biotherm)	___	729-6102
_____	Low level radwaste facility	449	___

2.4 All Clear - Following Tornado Watch

_____ Shift engineer notify public safety and all other personnel notified in step 2.2.

2.5 All Clear - Following Tornado Warning

_____ 2.5.1 Shift engineer to announce "ALL CLEAR" on public address system. Cancel IP-2, if appropriate.

_____ 2.5.2 Shift engineer to notify public safety by phone.

_____ 2.5.3 Public safety service shall notify all personnel notified in step 2.3.2 and those gathered in tornado shelter areas of the "ALL CLEAR" condition.

*Revision

RADIOLOGICAL EMERGENCY PLAN

Revision Date: IP-10 PORC 5/1/84, IP-27 PORC 5/4/84
(Issued MAY 16 1984)

This log sheet must be retained as the last page of the Browns Ferry Implementing Procedures Document.

Reason for revision: See cover sheets.

Inserted by: _____ Date Inserted: _____

Pages to be Removed			New Pages to be Inserted		
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(continued)

RADIOLOGICAL EMERGENCY PLAN
Revision Log Sheet (continued)
Manual: Browns Ferry Implementing Procedures Document
Revision Date: IP-10 PORC 5/1/84, IP-27 PORC 5/4/84 (Issued MAY 16 1984)

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			Att. 12	1 of 1	5/4/84

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT IMPLEMENTING PROCEDURES DOCUMENT

LIST OF EFFECTIVE PAGES

This List of Effective Pages must be retained with the Browns Ferry Nuclear Plant Implementing Procedures Documents.

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BROWNS FERRY NUCLEAR PLANT

RADIOLOGICAL EMERGENCY PROCEDURES

*Revision

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF 2.3
BF 11.1
FEB 15 1984

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number BFN IP-10
Unit No. 1,2,3
Title Medical Emergency Procedure

Reason For Revision To reinsert paragraphs 2.3 + 2.4 which had been left out. Change paragraph 2.3 to read 2.5. Page 3 added for pasination

Pages Affected Pages 1, 2 + 3 of Att 3

History of Revisions (For DCS Use Only)

Approval Date	Affected Pages
5/01/84	1,2,3 (Att. 3)
4/17/84	1,2 (Att. 3)
3/14/84	1 (Att. 1)
3/14/84	2 (Att. 3)
3/14/84	1 (Att. 6)
1/19/84	3, pgs. 1,2,3 (Att. 3)
7/06/83	All

Is this change in response to an LER, IE Bulletin, NRC Inspection Report, *Management/Supervisor Inspection, OQAB audit, etc.? Yes ____ No X
(If yes, specify document under reason for revision.)

Change in procedural detail of FSAR or other licensing document?
Yes ____ No X ; New instruction? Yes ____ No X
(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. ____) X No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

NA
Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

NA
Public Safety Services Supervisor

[signature] 4/25/84
Prepared By Date

[signature] 5/1/84
PORC Chairman Date

[signature] 4/25/84
Submitted By Date

[signature] 5-4-84
Plant Superintendent Date

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

Revision

PATIENT CARE GUIDELINES

1.0 GENERAL

1.1 First aid and emergency medical care should be provided for onsite to preserve life and to minimize injury and suffering.

1.2 The medical emergency response team will take appropriate action as directed by the nurse.

1.3 A doctor should be consulted when in the nurse's judgment further professional attention is needed.

1.4 If no contamination is involved or suspected, patient has choice of hospital when offsite medical attention is necessary. Partial list of the hospitals most preferred include:

Athens-Limestone Hospital, Athens, Ala.	(205) 729-9292
Decatur General Hospital, Decatur, Ala.	(205) 552-0174
Eliza Coffee Memorial Hospital, Florence, Ala.	(205) 767-9191
Huntsville Hospital, Huntsville, Ala.	(205) 533-8133

1.5 The care of persons known or suspected to be associated with radiation exposure or contamination will be coordinated with the health physics representative. The essential aims of the medical-health physics team are:

a. Minimize the injury and further radiation exposure to the victim.

b. Protect attending personnel from excessive and unnecessary radiation exposure.

c. Control spread of radioactivity contamination.

d. Assess and document the patient's radiological exposure.

e. Immediate lifesaving and disability limiting procedures will take precedence over noncritical decontamination and dosimetry assessment procedures.

2.0 IRRADIATED-NONCONTAMINATED

2.1 Remove the victim from further exposure providing only essential first aid in the process, then direct attention to medical care of other physical injuries.

2.2 Medical care of the radiation exposure is governed by the medical status of the patient and the findings of health physicist. In most cases the treatment of illness or physical injury takes precedence over treatment for radiation exposure.

*Revision

PATIENT CARE GUIDELINES

2.0 IRRADIATED-NONCONTAMINATED (continued):

* 2.3 Individuals who have received an acute total body dose of less than 5 rem usually require no medical examination or treatment for the radiation exposure.

* 2.4 Individuals who have received an acute total body dose of between 5 and 75 rem radiation should have hematological studies performed to detect chromosomal abberrations and other changes in other blood constitutents. Attachment 4 gives laboratory directions for drawing blood samples for chromosomal and hematological studies.

* 2.5 For individuals who have received an acute total body dose greater than 75 rem, hospitalization should be considered and arrangements made for evaluation by a nuclear medicine specialist regardless of physical injuries or illnesses. Blood studies should be drawn per directions (Attachment 4). If the patient is ill or injured, he should be transported to Huntsville Hospital or Decatur General Hospital with the information that this patient has received an acute total body dose greater than 75 rem. It is recommended that the attending physician consult REAC/TS. If the patient is not seriously ill or injured enough to require hospitalization for physical illness or injury, consultation with REAC/TS should be obtained through a TVA medical office. At the recommendation of REAC/TS, referral may be made to Oak Ridge Hospital of the United Methodist Church where the patient could be observed and treated by the physicians on the REAC/TS team.

3.0 CONTAMINATED PATIENTS

3.1 The patient should be given initial emergency care by the medical emergency response team. All decontamination that the medical status of the patient will allow should be accomplished. The appropriate sequence of care must be determined on an individual basis by the medical-health physics team. The injured person will be transported and treated in one of two ways:

a. If the person is severely injured, they may be transported directly to Huntsville Hospital or Decatur General Hospital. Every reasonable effort should be made to reduce the radioactive contamination level to less than .5 R per hour at one foot. Spread of contamination may be minimized by removing the patient's excess clothing and wrapping him in a sheet, as his injuries permit.

*Revision

3.0 CONTAMINATED PATIENTS (Continued):

b. If cases of less severe injuries, the patient will be sent to the personnel decontamination facility in the service building (or radwaste building, if stretcher bound) treated in the emergency treatment area or transferred to Huntsville Hospital or Decatur General Hospital.

3.2 The health physicist will collect, identify, label, and analyze all biological specimens as required and deemed necessary. He will obtain the injured person's personal dosimetry and replace with equivalent dosimetry if appropriate.

3.3 The health physics group will control contamination during transportation to the receiving hospital.

*Addendum

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF-
BF 2.3
BF 11.1
FEB 15 [illegible]

PERMANENT INSTRUCTION CHANGE INFORMATION

Instruction Number IP 27
Unit No. 1, 2 & 3
Title PLANT EMERGENCY OFFSITE MONITORING

Reason For Revision TO IMPLEMENT PROCEDURE FOR EMERGENCY OFFSITE MONITORING

Pages Affected ALL

History of Revisions (For DCS Use Only)

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5/04/84	All

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(If yes to either question, a USQD is required.)

Is this a work plan initiated change? ____ Yes (Work Plan No. X) ____ No

Fire Protection System involved? Yes ____ No X (If yes, review and signature of fire protection engineer is required.)

Fire Protection Engineer

Was this change made to meet a NRC commitment? Yes ____ No X
(If yes, refer to BF 2.3 for proper identification of the change.)

Security System involved? Yes ____ No X (If yes, review and signature of Public Safety Services Supervisor is required.)

Public Safety Services Supervisor

Prepared By — Date 4/30/84

PORC Chairman — Date 5/4/84

Submitted By — Date 4/30/84

Plant Superintendent — Date 5-4-84

Retention: Period - Lifetime; Responsibility - Document Control Supervisor
(Note: If this is a new instruction or instruction deletion, document control will update the source document matrix.)

Revision

PLANT EMERGENCY OFFSITE MONITORING

MAY 4 1984

I. PURPOSE

The purpose of this procedure is to provide guidance and instructions to site health physics personnel in performance of offsite emergency radiological monitoring prior to arrival of MSEC environs monitoring team.

II. SCOPE

This procedure will be followed by onsite health physics personnel following any event creating a need for offsite radiological monitoring. MSEC will conduct or direct long term monitoring using MSEC IP-9.

III. REFERENCES

3.1 Muscle Shoals Emergency Center IP-9

3.2 Browns Ferry Nuclear Plant, Radiological Emergency Plan

3.3 "Emergency Dose Assessment Procedures for Atmospheric Releases of Radioactivity from TVA Power Plants, "TVA Publication RH-82-1-RA1 (1984)

3.4 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness is Support of Nuclear Power Plants," NUREG-0654 FEMA-REP-1, Rev. 1 (1980)

3.5 "Manual of Protective Action Guide and Protection Actions for Nuclear Accidents," EPA-520/1-75-001 (1980)

3.6 Evaluation of Radiation Emergencies and Accidents Selected Criteria and Data, International Atomic Energy Agency, Vienna, (1974)

IV. ABBREVIATIONS AND DEFINITIONS

4.1 TSC: Technical Support Center

4.2 MSEC: Muscle Shoals Emergency Center

4.3 FCC: Field Control Center

4.4 GMSM: Geiger Mueller Survey Meter

4.5 ISM: Ionization Survey Meter

4.6 EOC: Emergency Operations Center

4.7 DRD: Direct Reading Dosimeter

4.8 Lo-Vol: Low Volume Air Sampler

4.9 LUDLUM 22: Portable Scaler Ratemeter

4.10 HP-210: Hand Probe Model 210

4.11 TLD: Thermoluminescent Dosimeter

V. RESPONSIBILITIES

5.1 Upon determination of a radiological emergency and at request of the site emergency director, the health physics shift supervisor will designate an environs monitoring team.

5.2 The site health physics monitoring team shall prepare and transport equipment listed in attachment 1, to the emergency van and perform required surveys as directed from the TSC. After the MSEC is staffed and assumes responsibility for offsite monitoring by other teams, the plant health physics supervisor may choose to allow direction of the plant van by MSEC based on monitoring priorities determined by the Plant Health Physics Supervisor.

5.3 The health physics supervisor, or designee, will direct the site environs monitoring.

5.4 The site monitoring team shall inform the TSC or MSEC, as appropriate, and/or health physics laboratory of survey results.

5.5 The site chemistry laboratory will place the highest priority, commensurate with other activities on air samples returned for iodine analyses.

VI. PREPARATIONS AND PRECAUTIONS

6.1 Communications

While deployed the monitoring team will have their FM transmitter receiver radio turned on so as to be in communication contact at all times.

6.2 Preparation Prior to Leaving Lab

6.2.1 Obtain the survey instruments listed in attachment 1 and keys to the REP vans.

Note: A list of equipment located in the van is contained in attachment 2.

6.2.2 Prior to leaving the site, obtain the initial sample location (or general area) from the TSC. All instructions concerning the types and locations of surveys will come from the TSC until the MSEC is staffed.

6.2.3 Prior to leaving the site, the monitoring team leader will complete the protective and precautionary checklist provided as attachment 3.

6.3 Radiological Precaution

6.3.1 Monitoring team personnel shall be responsible for taking protective actions to restrict the radiation dose and dose commitment they accrue to less than the limits promulgated in Title 10 of the Code of Federal Regulations, Part 50.47(b)(11), and set forth by the Environmental Protection Agency (EPA). Prompt implementation of protective actions should limit the dose they receive to within TVA guidelines. The guidelines for emergency workers are given in the table below:

Population at Risk	Mission	Dose Limit in REM Whole Body	Dose Limit in REM Thyroid
Emergency Workers	Emergency Radiological Monitoring Activities	10 REM (TVA Guideline)	10 REM (TVA Guide-line)
		25 REM (EPA Guideline)	125 REM (EPA Guide-line)

6.3.2 The following protective actions are recommended by EPA to ensure that emergency workers do not accrue a dose or dose commitment in excess of these limits:

(a) The ingestion of 130 mg of potassium iodide, KI (one tablet of KI per day during exposure), to reduce the dose commitment to the thyroid from inhalation of radioiodine--primarily (^{131}I);

(b) The use of a full-face respirator to filter radioactive particulates out of the air and, thereby, reduce the dose commitment to the internal organs of the body; and

(c) The immdediate evacuation of personnel from the radiation area.

6.3.3 These protective actions, including those on attachment 4, shall be initiated by team personnel unless directed otherwise by the TSC. When the isotopic mixture of the airborne release is not known, monitoring team personnel must rely on exposure rate measurements and air sample analyses. For conditions where the results from air sample analyses are not readily available, the protective action levels are based solely on the exposure rate measurements obtained with survey meters. For radiological conditions which are not covered under these guidelines, the TSC or MSEC, as appropriate, should be consulted to determine alternative protective action levels.

6.3.4 The plant health physics supervisor may use Attachment 12 in directing the field monitoring team for expected exposure rates.

6.4 Vehicular Safety

All individuals in emergency van will be seated in permanently installed seats when the van is moving.

6.5 Dose rate instruments should be in an operable mode when the sampling team is near the vicinity of the plume. These instruments should be observed frequently to determine background fluctuation.

VII. DOCUMENTATION REQUIREMENTS

7.1 Monitoring team personnel shall use the applicable data form to record all pertinent sampling parameters, calculated values, and the time at which the data are reported to the TSC or MSEC (when staffed) team director. Personnel exposures shall be recorded by the TSC or MSEC, as appropriate, team director on the dose-tracking form shown as attachment 5.

7.2 Whenever field samples are collected and forwarded to the chemistry laboratory for analyses, they shall be accompanied with a form similiar to attachment 6.

VIII. SAMPLING PRIORITIES AND PROCEDURES

8.1 During the early phases of radiological emergency, protective actions (i.e., evacuation, sheltering, and/or ingestion of KI) must be initiated quickly to be effective. Environmental measurements which could be used to calculate the inhalation dose commitment rate to the thyroid and the total body external gamma dose rates to the general public are the most important. Accordingly, each monitoring team is required to perform the following tasks as directed by the TSC or MSEC, as appropriate, team director:

(a) Take survey meter readings at near contact with the ground, one meter, and two meters from the ground

(b) Collect and analyze low-volume air samples for radioiodine (^{131}I) and particulate activity.

(c) Analyze the filter cartridge for (^{131}I).

(d) Analyze the prefilter for particulate activity.

Silver zeolite cartridges shall be used and sent to the chemistry laboratory for gamma analysis, if practicable. Otherwise, the monitoring team should do screening analysis.

8.2 Emergency Van Environs Monitoring

8.2.1 Exposure Rate Measurement

8.2.1.1 Travel to the site boundary in the down-wind direction and measure the dose rate with a GMSM or ISM if GMSM is offscale.

8.2.1.2 Measurements shall be taken at near contact with the ground, one meter, two meters from the ground. Any statistically significant increase in the count rate for the near-contact reading over the one at a meter would indicate the presence of ground contamination.

8.2.1.3 Exposure rate measurements will be performed with energy-compensated GMSM and ionization survey meters. All survey data should be recorded on the data sheet provided as attachment 7. The operating instructions are provided in attachment 8.

8.2.2 Air Sampling

Sampling for airborne radioiodine and particulates should commence at the site boundary. Air sampling shall be performed with silver zeolite cartridges and paper filters. If weather conditions exist which may result in the air sampling apparatus being exposed to moisture, the samples shall be taken in an area which minimizes this exposure. Silver zeolite cartridges shall be sent to the chemistry laboratory for analyses whenever possible. If conditions warrant, cartridges can be analyzed at the sampling site

provided the background radiation level is less than 10 mR/hr and the contact dose rate from the sample is less than 1 mR/hr. Under these conditions, the cartridges and particulate filters can be analyzed with the LUDLUM 2200 and scintillation probe.

8.2.3 All air samples analyzed by the environs team will be retained and transported to the screening van or chemistry laboratory for additional analysis as time permits.

8.2.4 Sampling instructions and precautions are provided as attachment 9. Operating instructions are provided in attachment 10. Sampling parameters and data will be recorded on the form provided as attachment 11.

ATTACHMENT 1

ENVIRONS MONITORING VAN EQUIPMENT CHECKLIST

Monitoring team leaders shall enter a check in the blank to the left of each loaded in the van prior to departure.

(The following equipment is stored in the health physics lab).

_____ 2 Ludlum 2200 scalers with dedicated NaI scintillation probe

_____ 2 ionization survey meters (RO-2A)

_____ 2 GMSM (Ludlum 14C or E-530)

_____ 1 Ba-133 check source

_____ 1 Cs-137 calibration source

_____ 1 Low-volume air sampler (Radeco)

_____ 1 Frisker with pancake probe

_____ _____

Time/Date Team Leader

ATTACHMENT 2

The following supplies are contained in each emergency van. All cabinets are presealed. Each time a van is used the team will resupply it according to the following list upon return to the plant.

Drawer 1

2 flashlights
2 DC power cords for MS-2

Drawer 2

Scissors
1 calculator with battery
1 set allen wrenches
1 pr. tweezers
1 stop watch
5 pencils
3 pens

Cabinet A

BFN IPD (controlled copy)
MSEC IPD (controlled copy)
10 ea. data forms
25 sample envelopes
1 ball of twine
2 steno books
1 logbook
1 Radiological Health Handbook
1 Ludlum 2200 manual
1 set gummed sample labels
10 contamination tags
10 radiation tags
1 calculator manual
10 clear plastic bags
1 box Saran Wrap

Cabinet B

10 silver zeolite cartridges
1 box 4" paper filters
1 box 2" paper filters
2 boxes smear discs with envelopes

4 200 mR direct-reading dosimeters
2 5R direct-reading dosimeters
1 dosimeter charger
2 TLD badges
8 "D" cell batteries
2 bottles KI
1 filter cutter
6 planchets
2 ea. 10 and 50 mile EPZ maps for each plant site
1 ea. State road maps of TN, AL, GA

Cabinet C

1 First Aid Kit
Tape
Pliers
Screwdriver
1 box of fuses (Ludlum 2200)
1 4" putty knife

Cabinet D

For survey meter storage

Cabinet E

2 hardhats
30 plastic bags (large)

Cabinet F

2 facemasks with cartridges
8 pr. paper coveralls
2 pr. canvas coveralls

Cabinet G

24 pr. rubber gloves with inserts
2 pr. work gloves
5 pr. rubber shoe covers
24 pr. plastic booties
2 hat liners
2 rain suits

Cabinet H

15 petri dishes
15 marinelli beakers

Cabinet K

2 environmentally packaged air samplers (when available)

Cabinet L

1 100 ft. extension cord
1 set jumper cables
1 funnel

Cabinet M

10 sample jugs
1 hammer
1 siphon hose
1 set pliers
1 set screwdrivers
1 set wrenches
2 spotlights
1 flashing light

Cabinet N

2 environmentally packaged air samplers (when available)
1 25 ft. dedicated extension cord

Cabinet P

1 set tire chains
1 jack and associated tools

Not in Cabinets

1 GM probe in shield
1 ramp
1 ground pole
1 generator
1 gas can
1 sampler bracket
2 fire extinguishers
2 pr. insulated coveralls
1 50 ft. dedicated extension cord
1 soil sampling tool

Time/Date Van No. Team Leader

MAY 4 1984

PLANT EMERGENCY OFFSITE MONITORING

ATTACHMENT 3

PROTECTIVE AND PRECAUTIONARY MEASURES

Monitoring team leaders are required to enter a check in the blank to the left of each measure performed.

A. BEFORE LEAVING HEALTH PHYSICS LAB

_____ All equipment in HP lab to be taken to van is present and operable.

_____ GMSM turned on with selector switch adjusted to lowest range and the audio speaker activated. The instrument is positioned for continuous viewing and ready access.

_____ All radiation detector probes are sealed in poly-plastic bags to prevent contamination and turned on to lowest range.

_____ Contacted health physics shift supervisor to confirm completion of protective and precautionary measures, and to determine the dose rate for radiation releases ongoing.

B. IMMEDIATELY UPON ENTERING VAN

_____ Each team member is equipped with one TLD and two DRDs (200 mR and 5 R fullscale). Dosimeters will be worn between the neck and waist.

_____ Each team member has at ready access, a full-face respirator with filter cartridges.

_____ Each team member has at ready access, one course (14 tablets) of KI.

_____ _____
Time/Date Team Leader

ATTACHMENT 4

PROTECTIVE ACTION LEVELS AND RECOMMENDED PROTECTIVE ACTIONS

Radiation Safety Level	Recommended Protective Action
A. Survey Instrument Readings	
1. Radioiodine air activity is not known and survey meter readings >25 mR/hr.	Take potassium iodide (KI) unless directed otherwise by TSC.
2. GMSM Instrument Readings >200 mR/hr.	Evacuate radiation area unless mandatory, contact TSC.
3. Ionization Chamber Instrument Readings >10 R/hr.	Evacuation of radiation area mandatory, contact TSC.
B. Direct Reading Dosimeter Measurements	
1. DRD Measurements >5R	Contact TSC for instructions
2. DRD >10R	Evacuate radiation area unless directed otherwise by TSC.
3. DRD >25R	Evacuation of radiation area mandatory.
C. Air Sample Measurements	
1. Radioiodine (^{131}I) air activity >3.6×10^{-7} µCi/cc (40 MPC).	Take potassium iodide (KI) unless directed otherwise by TSC.
2. Radioiodine (^{131}I) air activity >4.5×10^{-6} µCi/cc (500 MPC).	Take potassium iodide (KI). Contact TSC.
3. Particulate air activity >4×10^{-8} µCi/cc (40 MPC).	Full-face respirator recommended.
4. Particulate air activity >5×10^{-7} µCi/cc (500 MPC).	Full-face respirator required. Contact TSC.
5. Particulate air activity >2.5×10^{-6} µCi/cc (2500 MPC).	Evacuation of radiation area. Contact TSC.

ATTACHMENT 5

RADIOLOGICAL MONITORING RECORD

Field Coordinator _____ Page ____ of ____ Date _____

A	B	C	D	E-F			G1	G2	G3	G4	G5	G6		H
Monitoring Team	Radiological Monitoring Location (Direction + Distance/Point or Altitude, Heading)	Time Taken (Central)	Survey Instruments[5]	Ground Level Exposure Rates[1] 2 Meters (mR/h)	1 Meter (mR/h)	Near Contact (mR/h)	Aerial Exposure Rates[1] (mR/h)	Personnel Direct Reading Dosimeter[2] (mR)	Radioiodine (^{131}I) Air Activity[3] (μCi/cc)	Particulate Air Activity[4] (μCi/cc)	Fixed Monitoring Samples[6]	Terrestrial Samples[7]	Comments	Time Reported (Central)

[5] Abbreviations:

Survey Instruments

GMSM–GM Survey Meter

*ISM–Ionization Survey Meter

**MS-2 SPA-3 (VDL or [illegible]) = multimeter with ionization detector in vertical down locking position or horizontal forward looking position

[6] Fixed Monitoring Samples

P–Particulate (paper filter)
HP–Heavy Particulate (gum paper)
RI–Radioiodine (charcoal filter)
RW–Rainwater

[7] Terrestrial Samples

DR–Direct Radiation (TLDs)
M–Milk
V–Vegetation (grass)
WW–Well Water
DWSS–Drinking Water from Surface Source
S–Soil

Footnotes:

Protective Action Levels

1a. Exposure rate > 25 mR/h and radioiodine (^{131}I) air activity is not known
b. Exposure rate > 200 mR/h
c. Exposure rate > 10 R/h
2a. Total exposure > 5 R
b. Total exposure > 10 R
c. Total exposure > 25 R
* 3a. Radioiodine (^{131}I) air activity > 3.6×10^{-7} μCi/cc (40 MPC)
b. Radioiodine (^{131}I) air activity > 4.5×10^{-6} μCi/cc (500 MPC)
4a. Particulate air activity > [illegible] μCi/cc (40 MPC)
b. Particulate air activity > [illegible] μCi/cc (500 MPC)
c. Particulate air activity > [illegible] μCi/cc (2500 MPC)

Protective Actions

1a. Potassium iodide (KI) recommended
b. Evacuation recommended
c. Evacuation mandatory
2a. Consider evacuation
b. Evacuation recommended
c. Evacuation mandatory
3a. Potassium iodide (KI) recommended
b. Potassium iodide (KI) mandatory
4a. Respiratory protection recommended
b. Respiratory protection mandatory
c. Evacuation mandatory

Additional Comments:

*Modification
**Deletion

BFN-IPD
IP-27
Attachment 5
Page 1 of 1
MAY 4 1994

ATTACHMENT 6
GAMMA ID SHEET

A. Urgency (Check One)

_____ Count immediately. (Cancel counts in progress.)
_____ Count within 30 minutes.
_____ Count within 8 hours.
_____ Count within 24 hours.
_____ Other _____
_x_ Call Health Physics.

B. Description of Sample

1. Location: _____

2. Survey No. _____ Sample No. _____

3. Type: Particulate Charcoal Gaseous Smear _____

4. Library (Check One):

N. HP Lib. N. Iodine N. Gases N. Master

Other: _____

5. Sample (Complete a. or b.): (Date/Time)

a. On _____ / _____ CST

Off _____ / _____ CST

b. Midpoint _____ / _____
(MO, DA, YR) (HR, MIN, SEC)

C. Other Information

1. Date/Time to Chem Lab _____ / _____ CST

HP Technician _____

2. Date/Time HP Notified _____ / _____ CST

HP Notified _____ Chem Tech

3. Comments _____

_____

ATTACHMENT 7

Exposure Rate Measurement Data Form

Page __ of __

Monitoring Team (Names) _____

Van _____

Plant _____ Date _____

Location	Survey Time (Central)	Survey[1] Instrument	[2]Exposure Rates (mR/h) 2 Meters	1 Meter	Near Contact	Direct Reading Dosimeter (mR)	Comments	Time Reported (Central)

[1] Abbreviations and footnotes on back.

Abbreviations

GMSM - GM Survey Meter.
ASM - Air Ionization Survey Meter.

Protective Action Levels

If:

1a. Exposure rate > 25 mR/h and radioiodine (^{131}I) air activity is not known.
b. Exposure rate > 200 mR/h.
c. Exposure rate > 10 R/h.
2a. Total exposure > 5 R.
b. Total exposure > 10 R.
c. Total exposure > 25 R.
3a. Radioiodine (^{131}I) air activity > 3.7×10^{-7} µCi/cc (40 MPC).
b. Radioiodine (^{131}I) air activity > 4.5×10^{-6} µCi/cc (500 MPC).
4a. Particulate air activity > 1.2×10^{-7} µCi/cc (40 MPC).
b. Particulate air activity > 1.5×10^{-6} µCi/cc (500 MPC).
c. Particulate air activity > 7.5×10^{-5} µCi/cc (2500 MPC).

Then:

1a. Postassium iodide (KI) recommended.
b. Evacuation recommended.
c. Evacuation mandatory.
2a. Consider evacuation.
b. Evacuation recommended.
c. Evacuation mandatory.
3a. Potassium iodide (KI) recommended.
b. Potassium iodide (KI) mandatory.
4a. Respiratory protection recommended.
b. Respiratory protection mandatory.
c. Evacuation mandatory.

ATTACHMENT 8

OPERATING INSTRUCTIONS - GMSM, IONIZATION SURVEY METERS, AND DIRECT-READING DOSIMETERS

1. GMSM (Ludlum 14, Eberline E-530 with HP 270, 240, 177C probes)

   A. General

      1. Ensure that the instrument has a current calibration sticker (6-month calibration interval).

      2. Check batteries - In BATT position the meter should indicate within the BATT OK area.

      3. The meter reading (mR/h) must be multiplied by the appropriate scale multiplier (X10, X1.0, X0.1, X0.01) to obtain the correct measurement.

      4. Audible speakers attached to GMSM contain a battery and have an ON-OFF switch.

   B. Operation

      1. Inplume measurements are to be performed with the instrument enclosed in a protective plastic bag to prevent contamination.

      2. Exposure rate measurements are to be made with the beta shield closed. Measurements are to be taken at two meters, one meter, and at near contact with the ground surface.

2. Ionization Survey Meters (i.e., Nuclear Research Corp. CP-2, CP-10, or Eberline RO-2A).

   A. General

      1. Ensure that the instrument has a current calibration sticker (6-month calibration interval).

      2. Check batteries - A BATT test position is provided; the meter reading should indicate within the BATT TEST or BATT OK position.

      3. The meter readings (mR/h or mrad/h) must be multiplied by the scale multiplier to obtain the correct readings.

ATTACHMENT 8 (Continued)

4. These instruments are designed to measure gamma and beta radiation. The protective "end caps" are removable for measuring low-energy photon (< 100 keV) and beta radiation when requested.

B. Operation

1. Inplume measurements are to be performed with the entire instrument enclosed in a protective plastic bag to prevent contamination.

2. Check battery - BATT position

3. Zero the instrument - ZERO SET position and adjust scale reading to "0." The instrument can be zeroed in a radiation field.

4. Adjust the range switch to the lowest multiplier which permits an on-scale reading. Record the measurement.

5. Inplume exposure rate measurements are to be performed at two meters, one meter, and at near contact with the ground surface.

6. Contamination surveys are performed with the detector at near contact with the surface. Both beta and gamma measurements should be taken.

3. Direct-Reading Dosimeters

A. General

1. This dosimetry system is composed of a small cylindrical self-reading (direct) dosimeter and a charger/reader unit.

B. Operation

1. Reading the dosimeter is accomplished by holding the device up to a light source and looking through the optical end. The position of the dark line (shadow of the fiber) on the graduated scale indicates the exposure to the meter.

2. Zeroing the dosimeter is accomplished by firmly coupling the dosimeter to the charger/reader device, and while viewing the illuminated scale, adjust the zero control to position the thin dark line to the zero position.

3. Remove the dosimeter from the charger/reader unit and read to be sure it is zeroed properly.

ATTACHMENT 9

AIR SAMPLING INSTRUCTIONS

A. Ac Power Source

Park the van so that the air samplers face the plant. Monitoring teams should utilize ac power outlets at siren sites, perimeter or local monitors, if possible. However, if electric power is not available, use the portable generator according to instructions given below:

1. Remove the generator from the vehicle.
2. Fill the fuel tank.
3. If lightning threatens, implant the ground pole at least one foot into the ground, and attach the generator ground lead to the ground pole.
4. Attach extension cord from generator to van.
5. Position air sampler on support.
6. Plug in air samplers with ON-OFF switches in OFF position.
7. Start generator.
8. When generator is fully operational, turn on air samplers to test operability.

B. Low-Volume Air Sampling For Radioiodine and Particulates

1. Mark the side of the cartridge with an arrow pointing the direction of the air flow.
2. Mount the silver zeolite cartridge with paper prefilter (rough side out) on the air sampler.
3. Turn air sampler on and adjust the flow rate to 2 ft^3/min. Record the time the sampler was started.
4. Collect an air sample for 15 minutes ($\sim$ 30 ft^3 at about 2 ft^3/min); however, reduce sampling time if cartridge has contact exposure rates of > 1 mR/h.
5. Remove the cartridge from the air sampler and seal in plastic wrap.
6. Survey the cartridge with GMSM (beta shield closed).
7. Cartridges with contact exposure rates < 1 mR/h can be analyzed with the Ludlum 2200 and scintillation probe. Refer to attachment 10 for operating instruction and methods for calculating the radioiodine (^{131}I) air activity.
8. Cartridges with contact exposures > 1 mR/h should not be analyzed with the miniscaler and scintillation probe. These cartridges should be sent directly to the screening van for processing.

ATTACHMENT 9 (Continued)

9. The monitoring team should contact the Field Coordinator for instructions. For the safety of the monitoring team, the radioiodine (^{131}I) air activity can be approximated from the contact exposure rate as follows.

$$\mu Ci/cc = \frac{\text{Contact Exposure Rate (mR/h)} \times 1.8 \times 10^{-4}}{\text{Sample Volume (ft}^3\text{)}}$$

10. Remove the prefilter and analyze in accordance with the instructions in attachment 10.
11. Place filter in a petri dish, and place the dish and cartridge in an envelope and label in accordance with section 7.1.
12. Transfer the filter to the courier as soon as possible.

C. Operation of the Hi-Q Model CMP-14CM Environmentally Packaged Air Sampler

1. Prepare the filter head by loading it with a silver zeolite cartridge and a paper prefilter. The cartridge must be marked with an arrow indicating the direction of airflow through the cartridge.
2. The sampler will be connected to ac power at a siren, or it can be connected to the portable generator for samples of high activity plumes. The lock removed from the siren power box will be used to lock the sampler control cover.
3. Connect the sampler to ac power and mount the quick-disconnect filter head.
4. Reset the timer to zero.
5. Start the sampler, noting the time. (The time used for activity calculations will be the value on the elapsed timer when it is shut off. However, starting and ending times must be recorded on the envelope before the cartridge or filter can be sent to the screening van.)
6. Adjust the flowrate to one cubic foot per minute (cmf). The rotameter is graduated in liters per minute (lpm). 1 cfm = 28 lpm.
7. Close the clear plastic cover over the controls and lock it.
8. When sampling is completed, unlock the controls, record the flow rate, and shut the sampler off.
9. Disconnect the filter head. It can be taken into the van and the filters removed. Survey the cartridge with the GMSM. Cartridges reading over 1 mR/hr cannot be counted with sampling van instruments. The screening van cannot count cartridges reading over 10 mR/hr. Cartridges reading over 100 mR/hr cannot be counted on any TVA instruments. Iodine activity can be estimated according to the formula in section B.

ATTACHMENT 9 (Continued)

10. Before placing the sampler back in the van, check it for contamination. It can be placed in a large plastic bag if warranted.
11. Utilize the flow rate and the elapsed time to calculate air activity. If there was a change in the flow rate, use an average of the initial and final flow rates.
12. Remember to lock up the power box on the siren.
13. Record the appropriate data and arrange transfer of the filters to the courier in accordance with section B.

ATTACHMENT 10
Operating Instructions - Ludlum 2200 With
GM and Scintillation Detector Probes

These procedures are to be used with the instrument settings and reference readings listed in the instructions attached to the cover of the scaler. The half-life of Ba^{133} is 10.7 years. The half-life of ^{137}Cs is 30.0 years.

I. Gross Beta-Gamma Counting with GM Detector

A. Initial Settings

1. Set the HV knob to zero.

2. Set the power switch to BAT.

3. Check for proper battery power by turning the RATE/HV/BAT switch to BAT and observing the meter indication. If the batteries fail, other D-cell batteries must be used, or the unit may be operated on ac power when the van is connected to an ac power source. Low battery voltage will cause the voltage to the detector to become erratic and the counting efficiency to become unpredictable.

   The RATE/HV/BAT switch can be reset to any of the three functions without affecting operation of the scaler.

4. Set a value of 1 in the MINUTES window of the timer and X1 on the knob.

5. Connect the GM probe to the scaler.

6. Adjust the HV control to 4.2.

7. Adjust the THRESHOLD to 8.0.

8. Set the WINDOW on/off switch to OFF.

9. Set the response switch to S, and the meter RANGE to X100. RANGE can be changed at any time to keep an on-scale reading.

   CAUTION: THE GM PROBE HAS A THIN, END WINDOW. ALWAYS BE CAREFUL WHEN POSITIONING A SAMPLE FILTER OR CALIBRATION SOURCE: THE WINDOW MUST NOT BE PUNCTURED.

ATTACHMENT 10 (Continued)

B. Efficiency Calibration

CAUTION: THE CALIBRATION SOURCE IS COVERED BY VERY THIN MYLAR WHICH IS EASILY PUNCTURED. HANDLE IT CAREFULLY.

1. Place the ^{137}Cs calibration source planchet on the shelf closest to the probe, but not touching it.

2. Record all efficiency calibration data on attachment 15.

3. Obtain a 1-minute gross count.

4. Remove the calibration source and obtain a 1-minute background count.

5. Subtract the background count rate from the gross count rate to obtain the net count rate.

6. Divide the net count rate by the activity of the calibration source in disintegrations (dpm) per minute, according to the following equation.

$$\text{Efficiency} = \frac{\text{Net Count Rate}}{\text{*Activity } (\mu Ci) \cdot 2.2 \times 10^{6} \text{ (dpm/}\mu Ci)}$$

C. Sample Analysis

NOTE: All data will be recorded on attachment 8 to MSEC IP-9. Always check for proper battery power before counting a sample.

1. Obtain and record a 1-minute background count.

2. Place the filter disk on the planchet (rough side up) and insert it on the same shelf used for efficiency calibration.

3. Obtain and record a 1-minute gross count rate.

4. Determine and record the net sample count rate.

5. Calculate and record the particulate air activity using the following equation:

$$\text{Activity } (\mu Ci/cc) = \frac{\text{Net sample count rate (cpm)} \cdot 1.605 \times 10^{-11}}{\text{Efficiency} \cdot \text{Sample Volume } (ft^3)}$$

NOTE: MPCa for unknown beta-gamma emitting radioisotopes = 1×10^{-9} $\mu Ci/cc$

ATTACHMENT 10 (Continued)

II. Gamma Spectroscopy with Scintillation Detector

A. Initial Settings

1. Set the HV knob to zero.

2. Set the power switch to BAT.

3. Check for proper battery power by turning the RATE/HV/BAT switch to BAT and observing the meter indication. Then reset the switch to RATE. This switch can be reset to select any of the three functions at any time. If the battery indication is unacceptable, see I.A.3.

4. Set a value of 1 in the MINUTES window of the timer and XO.1 on the knob.

5. Connect the sodium iodide (NaI) detector to the scaler.

6. Adjust the HV, THRESHOLD, and WINDOW knobs to the settings specified in the instructions on the cabinet.

7. Set the WINDOW ON/OFF switch to ON.

8. Set the response switch to S, and the meter RANGE to X1K. RANGE can be changed at any time to keep an on-scale reading.

B. Response Check

1. Place the ^{133}Ba check source in the shield and lower the probe to make contact with the check source. Record all response check data on attachment 15.

2. Beginning with the initial setting, adjust the H.V. up and down scale (no more than ±0.06), taking a series of 0.1-minute counts to locate the H.V. setting that yields the highest count rate.

3. Set the H.V. on the value that provides the highest count rate.

4. Change the timer knob setting to X1 and obtain a 1-minute count.

5. Remove the check source and obtain a 1-minute background count.

ATTACHMENT 10 (Continued)

6. Subtract the background count rate from the gross count rate to obtain the net count rate.

7. Normalize the net count rate by dividing the net count rate by the activity of the check source in μCi. The result will be in units of counts per minute per microcurie (cpm/μCi).

8. If the normalized count rate in step 15 is not within ±10 percent of the reference reading specified on top of the instrument cabinet, do not use the instrument for NaI counting. It may be used, however, for GM counting if proper response checks can be obtained. Repeat the instrument response checks utilizing the other scaler.

C. Sample Analysis

NOTE: Record all data on attachment 8 of MSEC IP-9. Always check for proper battery power before counting a sample.

1. Place the silver zeolite cartridge in a plastic bag to prevent contamination of the probe and shield.

2. Obtain and record a 1-minute background count.

3. Place the cartridge on a shelf in the shield and lower the probe to make contact with the cartridge.

4. Obtain and record a 1-minute gross sample count.

5. Determine and record the net sample count rate.

6. Calculate the iodine air activity with the equation given in the instructions attached to the top of the scaler. The equation has the form:

$$\mu Ci/cc = \frac{\text{Net count rate (cpm)} \cdot \text{correction factor}}{\text{Sample volume } (ft^3)}$$

NOTE: MPCa for $^{131}I = 9 \times 10^{-9}$ μCi/cc

7. Record the calculated activity in the appropriate column of attachment 8.

ATTACHMENT 11

Air Sampling Data Form

Monitoring Team (Names) _____

Van _____

Plant _____ Date _____

^{131}I (μCi/cc) = $\frac{\text{(cpm) (correction factor)}}{(ft^3)}$ Particulate (μCi/cc) = $\frac{\text{(cpm) (1.605E - 11)}}{\text{(efficiency) } (ft^3)}$

Location	Time (CST)	Sample Number	Sample Type[3]	Flow Rate (cfm)	Flow Time (min)	Sample Volume (ft^3)	Count Rates (cpm) Bkgd	Gross	Net	^{131}I Activity (μCi/cc)[1]	Particulate Activity (μCi/cc)[2]	Time Reported (CST)

Footnotes on page 2.

1. Radiological Protective Action Levels

   If:

   1a. Radioiodine (^{131}I) air activity > 3.6×10^{-7} µCi/cc (40 MPC).
   b. Radioiodine (^{131}I) air activity > 4.5×10^{-6} µCi/cc (500 MPC).

   Then:

   1a. Potassium iodide recommended unless directed otherwise by Field Coordinator.
   b. Potassium iodide required, contact Field Coordinator.

2. Radiological Protective Action Levels

   If:

   2a. Particulate air activity > 4.0×10^{-8} µCi/cc (40 MPC).
   b. Particulate air activity > 5.0×10^{-7} µCi/cc (500 MPC).
   c. Particulate air activity > 2.5×10^{-6} µCi/cc (2500 MPC).

   Then:

   2a. Full face respirator recommended unless directed otherwise by Field Coordinator.
   b. Full face respirator required, contact Field Coordinator.
   c. Evacuation of radiation area mandatory, contact Field Coordinator.

3. Abbreviations:

   LOVOL - Low Volume (Eberline) air sample.
   ENV - Environmentally packaged (Hi-Q) air sample

ESTIMATED DOSE RATE AT SITE BOUNDARY FOR ENVIRONS EMERGENCY MONITORING TEAMS DIRECTION

Maximum dose rate via stack release (the thyroid dose rate is at 5 miles downwind)

Noble Gas and Radioiodine Release Rates	Whole Body Dose Rates	Thyroid Dose Rate
1 Ci/sec	1 mrem/h	370 mrem/h
10 Ci/sec	10 mrem/h	3700 mrem/h
100 Ci/sec	100 mrem/h	37000 mrem/h
1000 Ci/sec	1000 mrem/h	370000 mrem/h

Maximum dose rate via ground level reliable

10^3 µCi/sec	0.33 mrem/h	400 mrem/h
2 x 10^3 µCi/sec	0.66 mrem/h	800 mrem/h
5 x 10^3 µCi/sec	1.65 mrem/h	2000 mrem/h
10^4 µCi/sec	3.3 mrem/h	4000 mrem/h
10^5 µCi/sec	33 mrem/h	40000 mrem/h
10^6 µCi/sec	330 mrem/h	400000 mrem/h

Assumptions:
This assumes equal releases for noble gas and radioiodine for dose rates shown.

Windspeed 2 m/s
Stability class F