FARLEY NUCLEAR PLANT
EMERGENCY PLAN IMPLEMENTING PROCEDURE
FNP-0-EIP-8

SAFETY RELATED

NOTIFICATION ROSTER

Approved:

W. S. Hairston III
Plant Manager

Date Issued: 4-3-81

Disk EIP-1

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NOTIFICATION ROSTER

1.0 Purpose

This procedure provides a listing of names and telephone numbers of personnel and organizations who could be notified in the event of an emergency condition.

2.0 References

Joseph M. Farley Nuclear Plant Emergency Plan

3.0 General

3.1 Copies of this procedure shall be maintained at all times with the Emergency Director on call.

3.2 The Chemistry and Health Physics Supervisor shall be responsible for updating all names and telephone numbers at least quarterly. Offsite agencies will be updated by direct contact. The Plant Call List will be updated three times each year by using the Farley Plant Telephone Listing and once annually through direct verification by all plant personnel. In addition, the Staff Assistant will provide each new employee with a notice explaining that it is the responsibility of each employee to report any address or telephone changes to the Administrative Office. The Chemistry and Health Physics Supervisor shall also initiate corrective action on discrepancies discovered during communications checks.

3.3 A current copy of the Plant Call List which contains the names, job classifications, addresses, and phone numbers of all permanent plant personnel will be issued with this procedure.

3.4 Channel 5 on the public address system is to be used during emergencies.

3.5 Authentication

3.5.1 Authentication of emergency messages shall not be required on dedicated communications systems.

3.5.2 Authentication of notifications over land lines shall be accomplished by the offsite party calling the TSC for the individual who made the notification.

4.0 Procedure

4.1 Refer to Table 1, Emergency Director Call List, for the Emergency Director on call.

4.2 Refer to Table 2, Fire, Medical, and Law Enforcement Assistance and Weather Information, for offsite fire department support, medical transportation, hospitals, plant doctors, law enforcement agencies, and weather information.

4.3 Refer to Table 3, APCo Management Notification, for the Emergency Coordinator and APCo Safety Department, and the Emergency Operations Facility.

4.4 Refer to Table 4, State Notification, for States of Alabama, Georgia and Florida Notifications.

4.5 Refer to Table 5, Regulatory Notification or Assistance, for the Nuclear Regulatory Commission and Savannah River Operations' Office.

4.6 Refer to Table 6, Support Groups, for other miscellaneous notifications. Information to be requested by Westinghouse is shown in Attachment 1.

4.7 Refer to Table 7, Health Physics Support, for qualified health physics personnel.

4.8 Refer to Table 8, Technical Support Center (TSC) Call List, for members of the TSC staff.

4.9 Refer to Table 9, Oil Spill Notifications, for organizations who are to be notified as required by the FNP "Oil Spill Prevention and Countermeasure Plan".

4.10 Refer to Appendix 1 for information regarding he use of the Emergency Notification Network.

4.11 Refer to Appendix 2 for Initial Messages to be used in notifying offsite authorities.

4.12 Refer to Appendix 3 for Follow-up Messages to be used in providing additional information to offsite authorities.

TABLE 1

EMERGENCY DIRECTOR CALL LIST

The individuals listed below will serve as the "on-call" Emergency Director for a seven day period (Monday through Sunday) on a rotating basis.

"On-call" is defined as:

a. At Farley Nuclear Plant, or

b. At the individual's home where he can be reached at his home phone number, or

c. At a specific location in the Dothan area other than the individual's home AND the control room has the phone number where the individual can be contacted, or

d. In the Dothan area (not greater than 30 miles from downtown Dothan) AND the individual's pager is ON.

1. The pager will be activated by dialing 793-XXXX (pager number) on the Dothan exchange.

2. On any exchange other than the Dothan exchange the pager will be activated by dialing 1-793-XXXX (pager number).

3. After dialing, two rings will be followed by a high frequency tone; the caller then has 15 seconds to deliver a message. NOTE: The pager is a receiver only. It has no transmitting capability.

EMERGENCY DIRECTORS

Name and Position	Home phone	Pager Number
W.G. Hairston, III Plant Manager		
J. D. Woodard Asst. Plant Manager		
D. N. Morey Operations Superintendent		

TABLE 2
FIRE, MEDICAL, LAW ENFORCEMENT, AND WEATHER INFORMATION

Service	Organization	Phone
Aeromed. Evac.	U. S. Army Aviation Center	255-6500 255-3827
Ambulance	Daniel Construction Co.-First Aid	899-5171 Ext.
Ambulance	Ambulance Service Co.-Dothan	792-4118 794-4444
Ambulance	A & A Ambulance Co. - Birmingham	324-4505
	Adamsel	674-1400
Fire	Daniel Const. Co. - Fire Brigade	899-5171 Ext. Ext.
	Daniel Const. Co. - Safety Office	899-5171 Ext.
Fire	Dothan Fire Department (794-0800 exchange) Ask for fire dept. Business	911 793-0100 Ask for Ext. 254/ or Central Dispatch 215
Hospital	Southeast Alabama Medical Center Ask for Emergency Room Nurse or Direct line to Emergency Room Nurse	Ext.
Hospital	RCTF University of Alabama Medical Center Ask for Senior Staff Oncologist on call	Page Main Operator 934-4011
	Emergency Department	934-5105
Hospital	REACTS Oak Ridge (Normal work hours) Asso. Universities Dr. Rickie Ricks Director of REACTS, Dr. Hubner Office Dr. Lushbaugh Oak Ridge Hospital (24 hour) Rad. Accident Personnel	(615) 576-3131 Emergency No. Pager beeper
Local Law Enforcement Agencies	Daniel Const. Co. Security	899-5171 Ext.

Service	Organization		Phone
	Dothan City Police	(794-0800 exchange)	
		Emergency	911
		Ask for police	
		Business	793-0100
		Communication Division	Ext.
	Houston Co. Sheriff Dept.	Day	793-1114
		Ext.	
		Jail	
		Week-end/Night	
	FBI - Dothan Office		792-7130
		Ext.	
	Ala. Dept. of Public Safety		983-4587
Plant Doctors	Dr. B. R. Byrd		794-3192
	Dr. D. H. Pope		794-3192
	Dr. J. H. Suggs		794-3192
	Dr. J. A. Robeson		794-3194
	Dr. W. F. Drewry		794-3194
	Dr. E. Mazyck		794-3192
Weather	Flight Service, U. S. Weather Service, Dothan (AL) Airport		983-3551
	Weather Bureau, Montgomery	(24 hr)	832-7460
	Weather Bureau, Birmingham (Forecasting Station)	(Day Only) (24 hr)	942-1811
	Great Southern Paper Co.		912-372-5541
		Lab	X
		Guard	

TABLE 3
APCO MANAGEMENT NOTIFICATION

EMERGENCY COORDINATOR/RECOVERY MANAGER

Name	APCO Ext.	Home Phone	Pageboy Code*	Radio Call Unit Number**
R. P. McDonald	4-6090			
H. O. Thrash	4-6178			
O. D. Kingsley, Jr.	4-6189			

RECOVERY SUPPORT DIRECTOR AND STAFF

Name	APCO Ext.	Home Phone	Pageboy Code*
H. O. Thrash	4-6178		
R. P. McDonald	4-6090		
O. D. Kingsley, Jr.	4-6189		
J. R. Campbell	4-6181		
J. G. Sims	4-6183		

TECHNICAL SUPPORT DIRECTOR AND [1]STAFF

Name	APCO Ext.	Home Phone	Pageboy Code*
O. D. Kingsley, Jr.	4-6189		
R. L. George	4-6194		
[1]W. M. Jackson	4-6198		

*To contact individual via beeper call one of the following numbers listed for the Birmingham area.

**To contact individual via car radio on frequency 37.86, call one of the numbers listed for the area in which the individual is located. Give the radio operator the message you wish to be relayed.

Area	APCo Ext.	Bell Number
Birmingham		252-9115 (ext.
Montgomery	(night)	
Eufaula (Day Only)		687-3521

PUBLIC INFORMATION MANAGER

Name	APCO Ext.	Home Phone	Pager Number
Neal Wade	3658		
Steven Z. Bradley	2243		

MEDICAL SUPPORT

Name	APCO Ext.	Home Phone	Ans. Serv.
Dr. C. H. Colvin	2028		871-4611
Dr. M. Bradley	2784		871-4611
Dr. E. B. Glenn	2784		871-4611
Dr. T. B. Patton	2784		871-4611

LEGAL SUPPORT

Name	APCO Ext.	Home Phone
R. A. Buettner	8-88-283	
H. H. Boles	8-88-271	
J. P. Scott, Jr.	8-88-267	

SAFETY DEPARTMENT

250-1000
Ext. 2214/2215/2216

EMERGENCY OPERATIONS FACILITY

Location	APCO Ext.	Bell Number	Other
Startup Trailer	427		ENN
	433	899-5171	
	434	X174 (Day Only)	
	456	X176 (Day Only)	
	457		
	3585		
	3586		

ALTERNATE TECHNICAL SUPPORT CENTER

Location	APCO Ext.	Bell Number	Other
Control Room	355	899-5156,	ENN
	437		NRC ring down (red phone)
	445	899-5171, X186,	NRC HP dial up
		X187 (Day Only)	
		X218, 265 (Day Only)	

OPERATIONS SUPPORT CENTERS

Maintenance Shop	Pax 440
Auditorium	Pax 236
CSC	Pax 438
Control Room	Pax 304
Switchhouse	Pax 321

INSURANCE SUPPORT

Name	APCo Ext.	Home Phone
Normal Horsley	2782	
H. K. Travis	2881	

TECHNICAL SUPPORT CENTER

Location	Extension
Communications Cabinet	ENN (State Hotline - White Phone) NRC Ring Down (Red Phone) PAX with speaker B'ham 3585 with speaker B'ham 3441
Communications Area	PAX 6014 (next to Communications Cabinet) Security radio Plant radio Division radio
Emergency Director	PAX
Operations Manager	PAX
Maintenance Manager	PAX
Technical Manager	PAX
Health Physics Manager	PAX
NRC	PAX PAX
Monitoring Area	PAX

TABLE 4
STATE NOTIFICATION

Organization	Name	Phone
STATE OF ALABAMA	During normal office hours	832-5990/5991,5992/ 5993
Dept. of Public Health	(week days 8:00 AM - 5:00PM)	
	At all other times notify one of the following:	
	Aubrey V. Godwin	*
	K. E. Whatley	*
	Archie Patterson	*
	James L. McNees	*
	William T. Willis	*
	If above unavailable, call	
	Ask operator to page No.	

The Local Agencies should be notified in case the Alabama Division of Radiological Health cannot be contacted within 10 minutes and a General Emergency has been declared. Use the Emergency Notification Network if operable, otherwise call the numbers listed below.

County	Director	Phone
Houston County, AL	J. W. Aldridge	794-9720 793-1114, Ext. 240 *
	Radiological Personnel Hotline	Room
	Operations (Local)	
	(State)	
	(State)	
	or Karen Gilley	
	or Brenda Traylor	
Blakely-Early County, GA	Don Temples	* *
	Ray Garrett	*
	No answer	
	Early Co. Ambulance Service	(912)723-4343
	Georgia Forestry	(912)723-3513
	Early Co. Jail	(912)723-3577

*Denotes home phone

Organization		Phone
STATE OF FLORIDA		
West Area Coordinator -	Robert R. Smith Defuniak Springs	(904)892-3196 *
State Warning Point Tallahassee	Duty Warning Officer	
Alternate Warning Point Tallahassee	Duty Como/Teletype Operator	
Division of Health Orlando	Wallace Johnson	(305)299-0580 *
	Jearold C. Eakins	(305)299-0580 *(
	Jere B. Dumas	(305)299-0580 *(
	Daniel W. Thoss	(305)299-0580 *(
	Pete Bailey	(305)299-0580 *(
Tallahassee DHRS -	Ulray Clark	(904)487-1004 *(
	Lyle Jarrett	*
Jacksonville	John P. Lanham	(904)359-6363 *(

Organization	Phone
‡STATE OF GEORGIA	
24 Hour No.	

If you are unable to reach this number - contact a member of the Environmental Protection Division - Environmental Radiation Program directly by starting at the top of this list and calling each number until you get a positive response. Always give your name and telephone number when calling.

Contact	Office Phone	Home Phone
Bill Cline	404/656-6905	
Clifford Blackman	404/656-6905	
Susan Adamovitz	404/894-2375	
Alphonsa Gooden	404/656-6905	
Clark Reynolds	404/656-6300	
Van Shrieves	404/656-6300	
Jim Setser	404/656-6905	

If you are unable to reach any of the above numbers, contact Georgia Civil Defense at the following 24-hour number:

‡Normal notification is through the State of Alabama, Department of Public Health.

TABLE 5
REGULATORY NOTIFICATION OR ASSISTANCE

Organization	Name	Phone
Nuclear Regulatory Commission, Region II	Office of Inspection and Enforcement 101 Marietta St. N.W. Suite 3100 Atlanta, Georgia 30303	(404)221-4503 (404)221-4504
	VIA Health Physics Network	23
	Paul Kellogg Chief, Reactor Projects, Section II	(404)221-5581 *(
	R. D. Martin	(404)221-5534 *(
	Western Union Telegraph	1-800-257-2241
Savannah River Operations Office	Duty Officer	(803)725-3333/ 2117 2729
NRC Headquarters, Bethesda, MD	Full Time Operator Public Affairs	(301)492-7000 or (301)492-7715
	VIA Health Physics Network	22
NRC On-Site Inspector	William H. Bradford	899-3386 (home) PAX 480

*Home Phone

TABLE 6
SUPPORT GROUPS

Organization	Name	Phone
American Nuclear Insurers (NEL-PIA)	(24 hrs)	and
	(office hours)	(203)677-7715
	(office hours)	(203)677-7308
Applied Physical Technology		(404)434-9889
	North Office	(404)434-9916
	Dr. Dave Walker	*
	Bob Hearn	*
Institute of Nuclear Power Operations (Switchboard)		(404)953-3600
Duty Officer (Emergency)		
Emergency Telecopier		
Nuclear Mutual Limited (NML)		(day)
		(night)
Oak Ridge Nat. Lab (Request through State of Alabama)		
University of Georgia		(Campus Police) Have police contact one of the following: Dr. John Noakes, Jim Spaulding
Southern Company Services, Inc.	J. R. Crane (Dept. Mgr)	
	J. B. Ford (Civil & Arch. P.E.)	
	W. R. Hill (Proj. Support Mgr)	
	D. E. Kendrick (Mech. P.E.)	
	F. D. Kuester (Sr. Eng.)	
	H. H. Stone (Elec. P.E.)	

*Home phone.

Organization	Name	Phone
Westinghouse See Attachment for Event Date Checklist	George Griffiths	* **
	Dave Richards	* **
	Bob Meyer	* **
	Joe Leblang	* **
	Frank Noon	* **
	John Miller	(*(**(
	Hank Ruppel	(* **
	Ron Lehr	* **
	Mike Mangan	* **

*Home Phone

**Home Hot Line - off hours emergency phone is a dedicated line and is NOT equipped with recording and automatic forwarding features.

Organization	Name	Phone
Westinghouse Farley Site Manager	Rod Baulig	(Home) (Pager)

TABLE 7
HEALTH PHYSICS SUPPORT

Name and Position	Phone
Nesbitt, C. D. C&HP Supervisor	
Mitchell, M. W. C&HP Sector Supervisor	
Farnsworth, P. E. C&HP Foreman	
Patton, B. P. C&HP Foreman	
Higginbotham, G. E. C&HP Foreman	
Walden, J. M. C&HP Sector Supervisor	
Bayne, W. R. C&HP Sector Supervisor	
Graves, O. M. C&HP Foreman	
Hostetter, D. A. Technician	
Bacon, W. F. Plant Instructor	
Maddox, N. M. C&HP Foreman	
Gripentog, W. G. C&HP Foreman	
Woodard, J. D. Assistant Plant Manager	

TABLE 8
TECHNICAL SUPPORT CENTER CALL LIST

The individuals listed below will serve as the "on-call" Managers for a seven day period (Monday through Sunday) on a rotating basis.

"On-call" is defined as:

a. At Farley Nuclear Plant, or

b. At the individual's home where he can be reached at his home phone number, or

c. At a specific location in the Dothan area other than the individual's home AND the control room has the phone number where the individual can be contacted, or

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3. After dialing, two rings will be followed by a high frequency tone; the caller then has 15 seconds to deliver a message. NOTE: The pager is a receiver only. It has no transmitting capability.

Name and Position	Home phone	Pager Number
Operations Manager		
1. R. D. Hill		
2. J. E. Odom		
3. T. H. Esteve		
Maintenance Manager		
1. W. B. Shipman		
2. H. R. Garland		
3. J. J. Thomas		
Technical Manager		
1. K. W. McCracken		
2. R. G. Berryhill		
3. R. D. Rogers		
Health Physics Manager		
1. C. D. Nesbitt		
2. M. W. Mitchell		
3. J. M. Walden		

TABLE 9

OIL SPILL NOTIFICATIONS

Organization	Name		Phone
U.S. Coast Guard National Response Center			(800)424-8802
Alabama Water Improvement Commision		(office)	277-3630
	John Williford		*
	Charles Horn		*
	James Warr		*
Environmental & Research Services	Steve Jones		OPX 4-6210 *
	Charles Biddinger		OPX 4-6207 *
Environmental Protection Agency	A. J. Smith	(office)	(404)881-3931
	R. D. Stonebraker	(24 hr)	(
	George Moeir		
	Allen Bartlett		
	Ray Wilkerson		
	Jim Rogers		
	Fred Stroud		
	Warren Dixon		
	Charles McPherson		
	Edward Hatcher		
Albany Waste Oil	Thomas Davis		
Great Southern Paper Co.	Darrel Smith		
	G. E. Rathel		
Tenneco Oil Co.	Cleo Savelle		

*Home Phone

ATTACHMENT

WESTINGHOUSE

INFORMATION

From: Farley Unit ____ Date: ____________

Taken By: ______________________ Time: ____________

EVENT DATA CHECKLIST

____________ PLANT ____________ EVENT

RCS PARAMETERS

1.	RCS Pressure	______ psia
2.	Trend	Up /Down /Stable
3.	Przr. Level	______ % Span
4.	Trend	Up /Down /Stable
5.	Przr. Liquid Temp./Steam Temp.	____ / ____ °F
6.	Przr. Heaters	On / Off

RCS MAKEUP FLOW STATUS

7.	Safety Injection, Flowrate	On / Off, ______ gpm
8.	RWST Level	E ——+—— F
9.	Normal Makeup, Flowrate In	On / Off, ______ gpm
10.	Letdown Flowrate	______ gpm/isolated

NSSS LOOP PARAMETERS

		LOOP A	LOOP B	LOOP C
11.	Wide Range T_h (°F)	____	____	____
12.	Wide Range T_c (°F)	____	____	____
13.	RCP Status (On/Off)	____	____	____
14.	S.G. Pressure (psia)	____	____	____
15.	Trend	Up	/Down	/Stable
16.	S.G. Level, Wide Range (% Span)	____	____	____
17.	S.G. Narrow Range (% Span)	____	____	____
18.	Trend	Up	/Down	/Stable
19.	Steam Flow (% Nominal	____	____	____
20.	MSIV Status Open/Closed	____	____	____
21.	Main Feedwater Flow (gpm)	____	____	____
22.	Auxiliary Feedwater Flow (gpm)	____	____	____
23.	Condensate Storage Tank Level	E ——+—— F		

CONTAINMENT PARAMETERS

24.	Containment Pressure, Temp.	______ psig ______ °F
25.	Containment Radiation	______
26.	Recirculation Sump Level	______
27.	Hydrogen Concentration	______ %

NOTES: ____________________________________

____

____

ALABAMA POWER COMPANY

NUCLEAR GENERATION SECTION-DIRECTIVE

NGS-01, EMERGENCY NOTIFICATION NETWORK

Effective Date September 17, 1980

Approved [signature]
General Manager Nuclear Generation

1.0 Purpose

This directive describes the locations and capabilities of the Emergency Notification Network (ENN) and establishes procedures for its use and testing.

2.0 Scope

This directive applies to all organizations and agencies on the ENN. Implementation of this directive will require that interfacing procedures be developed for each dispatcher station.

3.0 Description

An ENN unit is installed at the following locations:

FNP Technical Support Center (Temporary Location)
APCO Company Control Center
Alabama Department of Radiological Health*
Alabama Department of Civil Defense*
Alabama Department of Public Safety*
Houston County Sheriff Dispatcher
Houston County Office of Civil Defense
Houston County Office of Radiological Health
Early County (GA) Sheriff Dispatcher

*Located in Montgomery

Each ENN unit shall consist of a telephone and speaker. When all phones are cradled, all speakers are muted. If any one of the phones is lifted off the cradle all speakers are activated except the speaker associated with the phone taken off the hook. The phones do not ring. The person lifting the phone need only speak into the phone to be heard by the personnel at all the other ENN units. When any other ENN phone is taken off the hook the associated speaker will be muted and normal two way voice communication is established between the two parties. This communication will be transmitted through those speakers not muted, i.e. those with the associated phone cradled.

CAUTION

Upon completion of any transmission from a given station the phone must be returned to the cradle to activate the associated speaker. Do not leave phone unattended off the cradle.

4.0 Net Control

4.1 Initial Notification

In an emergency situation dictating the activation of the ENN, the Technical Support Center at Farley Nuclear Plant shall make initial notification using the following message:

"This is (Name and Title) at Farley Nuclear Plant. Please initiate your radiological notification procedure".

Dispatchers will acknowledge receipt of the above message and proceed in accordance with their procedures. No technical information will be given until the appropriate state and/or local agency(ies) are on the ENN.

4.2 False Notification

In the event of an attempted false notification or other misuse of the ENN, the speaker in the TSC at Farley Nuclear Plant will be activated and FNP personnel will receive the message transmitted. If the message is an attempt to cause a false notification, FNP supervisory personnel will lift the TSC phone and state "Negative, Negative, Negative" followed by "This is (Name and Title) acknowledge negative".

Dispatcher will acknowledge and proceed in accordance with their procedures.

4.3 Subsequent Communications

The ENN may also be used for the clear transmission of technical, radiological and meterological data and action statements and recommendations based on evaluation of this data.

The Technical Support Center (TSC) at the Farley Nuclear Plant shall be net control for all ENN communications. The TSC shall have priority in transmitting information and shall govern transmission by other organizations.

5.0 Communications Checks

The ENN will be tested on the first Tuesday of each month between 1:00 p.m. and 1:30 p.m. Dothan, Alabama time. The test will be performed as follows:

> The shift supervisor will remove the receiver from his phone and repeat, "This is ___(Name and Title)___ at Farley Nuclear Plant, this is a communications check, acknowledge". Acknowledgement should follow the order given in paragraph 3.0. The shift supervisor will verify that all ENN units are on the line or note any unit not responding and notify the appropriate organization by separate means.

6.0 System Security

The possibility for misuse and/or abuse of this type system is obvious. Therefore, each organization that has an ENN unit installed in locations not manned on a 24 hour basis shall provide adequate security measures to minimize the probability of misuse and abuse. Descriptions of the security measures established will be provided to Alabama Power Company.

APPENDIX 2

INITIAL MESSAGE

This is _______________, the Emergency Director at Farley Nuclear Plant.
(Name)

1. This is to inform you that an emergency classified as:

   ( ) Notification of Unusual Event
   ( ) Alert
   ( ) Site Emergency
   ( ) General Emergency

   has occurred involving Unit(s) _________.

2. ( ) A release is not in progress.
   ( ) A release may be in progress.
   ( ) A liquid release is in progress.
   ( ) An atmospheric release is in progress.

3. Atmospheric

   Release Point _______________

   Wind direction 35': (from) _____ °; (to) _____ °
   Wind direction 150': (from) _____ °; (to) _____ °
   Wind speed 35': _____mph ÷ 2 _______meter/sec
   Wind speed 150': _______mph ÷ 2 _______meter/sec

   Liquid

   Release Point___________
   Magnitude_______________

4. On-site situation (circle):

   a. Evacuation of on-site personnel: Yes No Some

   b. Recommended protective actions: None Shelter Evacuate

   c. Assistance needed: Fire Police Ambulance Other

   d. Prognosis of situation: Terminated Stable Worsening Other

Further information will be transmitted as soon as it is available.

APPENDIX 3

FOLLOW-UP MESSAGE

1. This is ______________ ____________________ at Farley Nuclear Plant.
   Name/Title

2. An incident occurred at __________(time) on _____________(date).

3. The incident was classified as (circle):

   a. Notification of Unusual Event

   b. Alert

   c. Site

   d. General

4. Type of release (circle):

   a. Airborne

   b. Waterborne

   c. Surface Spill

5. Estimated duration/impact times of release: ______________________________

   ____

6. Estimated quantity of release: ____

   ____

7. Height of release (circle):

   a. Ground elevation, EL 155

   b. Ventstack, EL 299

8. Description of released material (chemical & physical form, estimate of relative quantities of noble gases, particulating and iodines.)

   ____

   ____

9. Meterological conditions (heights given with respect to base at EL 182):

   a. Wind speed @ 35':_____ mph ÷ 2 = __ meter/sec

   b. Wind speed @ 150':_____ mph ÷ 2 = _____ meter/sec

   c. Wind direction @ 35': _____ degrees (from which wind is blowing)

   d. Downwind direction @ 35': _____ degrees (to which wind is blowing)

   e. Wind direction @ 150': _____ degrees (from which wind is blowing)

   f. Downwind direction @ 150': _____ degrees (to which wind is blowing)

   g. ΔT between 35' and 200': _____ degrees F

   h. Stability classification (check):

( )	A:	<-1.74°F		
( )	B:	-1.74	to	-1.56°F
( )	C:	-1.56	to	-1.38°F
( )	D:	-1.38	to	-0.46°F
( )	E:	-0.46	to	1.38°F
( )	F:	1.38	to	3.6°F
( )	G:	>3.6°F		

   i. Form of precipitation:_______________________________

10. Dose rates at site boundary (circle):

Actual   Projected Value: _______________mrem/hr

	Miles	2	5	10
	Meters	3,226	8,065	16,130
11. Projected dose rates at:		_____	_____	_____
Projected integrated dose at:		_____	_____	_____

12. Estimate of resulting offsite surface radioactive contamination:__________

____

13. Emergency response actions underway:_______________________

____

____

14. Recommended emergency actions/protective measures (circle):

None   Shelter   Evacuation

Other____

Appendix 3
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15. Request for needed onsite support by offsite authorities:___________

____

16. Prognosis of situation (circle):

Terminated Stable Worsening Other__________

Prepared by:______________/______________
Name/Title

Date/Time:__________/__________

Followup information provided to:

Name ______________ Org ______________ Date/Time______/______

Name ______________ Org ______________ Date/Time______/______

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Name ______________ Org ______________ Date/Time______/______

JOSEPH M. FARLEY NUCLEAR PLANT

NUCLEAR GENERATION DEPARTMENT

SERVICE BUILDING

TELEPHONE DIRECTORY

UPDATED

March 21, 1981

	NAME	CLASSIFICATION	PAX
640	AARON, JIMMY H.	APPRENTICE MECHANIC	242
481	ADAMSON, ROBERT E.	PLANT GUARD	438
544	ALDERSON, RICHARD B.	ASSISTANT PLANT OPERATOR	304
369	ALEXANDER, TIMOTHY W.	EQUIPMENT OPERATOR	303
256	ALFORD, HARRY W.	INSTRUMENT SERVICEMAN	239
516	ALLISON, JAMES L., JR.	APPRENTICE MECHANIC	242
1	AMAN, DONNIE	INSTRUMENT SERVICEMAN	239
257	ANDREWS, DAVID R.	PLANT OPERATOR	303
2	ARMSTRONG, GREGORY M.	ASSISTANT PLANT OPERATOR	303
3	ARUTE, THOMAS D.	PLANT OPERATOR	303
4	ASHLEY, DONNIE J.	PLANT OPERATOR	303
5	AUSLEY, JOE C.	MECHANIC	242

NAME	CLASSIFICATION	PAX
216 AVERY, WILLIAM E.	I&C FOREMAN	453

NAME	CLASSIFICATION	PAX
601 BABLE, GEORGE	PLANT GUARD	438
241 BACON, WALTER	PLANT INSTRUCTOR	477
258 BAILEY, RICHARD A.	ASSISTANT PLANT OPERATOR	303
274 BANKS, CALVIN MICHAEL	ASSISTANT PLANT OPERATOR	303
350 BARNETT, DONALD E.	ASSISTANT PLANT OPERATOR	303
6 BARR, ROBERT M.	PLANT OPERATOR	303
393 BASS, DAVID S.	PLANT GUARD - NUCLEAR	438
7 BAYNE, W. RODERICK	PLANT CHEMIST - NUCLEAR	467
391 BEADORE, GEORGE P.	PLANT GUARD - NUCLEAR	438
8 BEASLEY, COY J.	PLANT GUARD - NUCLEAR	438
467 BEDSOLE, HAROLD H.	NUCLEAR OPERATIVE	330

	NAME	CLASSIFICATION	PAX
602	BENNER, MICHELLE	PLANT GUARD	438
603	BENNETT, HAROLD EDWARD	PLANT GUARD	438
9	BERRYHILL, Robert G.	SYSTEMS/PERFORMANCE SUPERINTENDENT	218
362	BLACK, ALVIN J.	INSTRUMENT SERVICEMAN	239
10	BLAIR, LYNWARD E.	ASSISTANT PLANT OPERATOR	304
404	BLANKENSHIP, JOHN M.	ENGINEERING AIDE III	238
551	BLOUNT, JAMES L.	ELECTRICIAN	240
409	BLOUNT, THOMAS W.	EQUIPMENT OPERATOR	303
320	BOLTON, DAVID C.	APPRENTICE MECHANIC	242
365	BONDS, LARRY T.	ASSISTANT PLANT OPERATOR	303
11	BONNER, WAYNE	MECHANIC	242
517	BOOTH, DONALD C.	NUCLEAR OPERATIVE	330

NAME	CLASSIFICATION	PAX
249 BOUILLON, JOSEPH F.	C&HP TECHNICIAN	300
12 BOWEN, D. RICK	SHIFT SUPERVISOR	445
491 BOYLE, WALTER W.	INSTRUMENT SERVICEMAN	239
285 BRAMAN, ELVIN G.	MAINTENANCE FOREMAN	440
430 BRANNON, CHARLIE E., JR.	ASSISTANT C/HP TECHNICIAN	250&273
340 BRANNON, STEVE A.	PLANT GUARD - NUCLEAR	438
475 BRANTLEY, JAMES T.	GENERATING PLANT ENGINEER I	209
552 BRINKMAN, ROBERT E., JR.	CO-OP STUDENT	332
553 BRISTOW, BILLIE SUE	GENERAL CLERK II	333
13 BROOKS, ROSIE M.	GENERAL CLERK I	333
290 BROWN, THOMAS EARL	PLANT OPERATOR	303
14 BROWNE, MELVIN N.	SECTOR SUPERVISOR	215

	NAME	CLASSIFICATION	PAX
509	BROWNING, MICHAEL EUGENE	WAREHOUSEMAN	243
15	BRUNER, STRONG G. JR.	SHIFT SUPERVISOR	355
286	BRYAN, JAMES Q., JR.	C&HP TECHNICIAN	334
16	BRYANT, RICHARD E.	UTILITY FOREMAN	334&257
17	BUCHANAN, C. J.	WELDER	242
478	BUIE, DEBORAH D.	GENERAL CLERK II	201
445	BUIE, WILLIAM HERBERT	NUCLEAR OPERATIVE	330
534	BURKE, WILLIAM DEAN	MECHANIC	242
18	BURKETT, KENNETH R.	MECHANIC	242
554	BURNS, WILLIAM HERBERT	ASSISTANT PLANT OPERATOR	303
282	BURR, KENNETH	SECTOR SUPERVISOR/STARTUP	433
555	BURR, TIMOTHY MARK	ASSISTANT C/HP TECHNICIAN	334

	NAME	CLASSIFICATION	PAX
317	CAGLE, JOHNNY R.	ASST PLANT OPERATOR	303
321	CALHOUN, PRESTON L. SR.	PLANT GUARD-NUCLEAR	438
526	CAMMACK, CORRIE STANLEY	INSTRUMENT SERVICEMAN	239
466	CAMPBELL, CHARLES DAVID	ELECTRICIAN	240
19	CANADY, DON	SHIFT SUPERVISOR	445
20	CANNON, FRED D.	WAREHOUSEMAN	243
21	CARNLEY, MACEY	SECTOR SUPERVISOR/I&C	204
277	CARR, ROY O.	ASST INSTRUMENT SERVICEMAN	239
396	CARR, WAYNE C.	QUALITY ASSURANCE ENGINEER II	225
351	CARTER, LARRY W.	ASST PLANT OPERATOR	304
423	CARTER, PAUL C.	ASSISTANT C/HP TECHNICIAN	250&273
304	CAUTHEN, TERRY	ASST PLANT OPERATOR	303

NAME	CLASSIFICATION	PAX
326 CHADWICK, LLOYD D.	PLANT GUARD-NUCLEAR	438
22 CHANDLER, CARLOUS	APPRENTICE ELECTRICIAN	240
23 CHANDLER, RALPH LON	CONTROL TECHNICIAN	241
362 CHERRY, JAMES G.	NUCLEAR OPERATIVE	334&257
24 CHERRY, THOMAS W.	SECTOR SUPERVISOR	430
25 CLARK, JOHN J.	SHIFT SUPERVISOR	355
26 CLARK, PATRICK	ELECTRICIAN	240
27 CLEMENTS, ROBERT W.	SENIOR PLANT GUARD	438
400 COBB, CLEVELAND W.	PLANT GUARD - NUCLEAR	438
352 COBB, RAMONA	GENERAL CLERK I	333
228 COFER, DAVID W.	INSTRUMENT SERVICEMAN	239
556 COLE, JAMES FRED	APPRENTICE MECHANIC	242

	NAME	CLASSIFICATION	PAX
259	COLEMAN, BOBBY L.	PLANT GUARD - NUCLEAR	438
28	COLEMAN, R. MILES	SECTOR SUPERVISOR/MAINTENANCE	486
370	COLLIER, ROBERT H.	INSTRUMENT SERVICEMAN	239
477	COLLINS, KEITH R.	NUCLEAR OPERATIVE	330
508	COLLINS, RANDALL LEE	ASST PLANT OPERATOR	304
540	COOK, JOHNNY MACK	NUCLEAR OPERATIVE	330
29	COOLEY, WALTER T. JR.	TRAINING COORDINATOR	444
429	COOPER, ROY, JR.	WAREHOUSEMAN	243
302	CORK, JOHN W.	ASSISTANT PLANT OPERATOR	303
482	COVINGTON, SUSAN S.	GENERAL CLERK II	333
446	COX, ANTHONY KEITH	NUCLEAR OPERATIVE	330

NAME	CLASSIFICATION	PAX
460 CRINE, HARRY	ASSISTANT C/HP TECHNICIAN	334
557 CROOK, ROBERT ARTHUR, JR.	ASST PLANT OPERATOR	303
30 CRUMPLER, R. C.	ASSISTANT PLANT OPERATOR	304
100 CULP, ELAINE	GENERAL CLERK I	300
31 CULP, ROBERT H. JR.	MAINTENANCE FOREMAN	482
32 CULPEPPER, JOE	I&C FOREMAN	453
34 CUMBEE, WESLEY E.	PLANT OPERATOR	303
604 CUTCHEN, NOEL ANGUS	PLANT GUARD	438

NAME	CLASSIFICATION	PAX
558 DANBERRY, KENNETH DALE	ASST PLANT OPERATOR	303
402 DANFORD, JUDY P.	GENERAL CLERK II	229
250 DANIELS, JERRY	CONTROL TECHNICIAN	204
35 DANSBY, AARON D.	ASSISTANT PLANT OPERATOR	303
559 DANZIE, BILLY	NUCLEAR OPERATIVE	330
308 DAVENPORT, JOHN L.	APPRENTICE ELECTRICIAN	240
398 DAVENPORT, WILLIE E.	NUCLEAR OPERATIVE	257&334
36 DAVIDSON, AL	SHIFT SUPERVISOR	437
529 DAVIDSON, CHARLES, JR.	PLANT GUARD	438
37 DAVIDSON, STEVEN W.	MECHANIC	242
38 DAVIS, LAWSON	PLANT OPERATOR	303
336 DEAL, AMELIA	PLANT GUARD-NUCLEAR	438

	NAME	CLASSIFICATION	PAX
292	DEAL, HERBERT, III	ASSISTANT PLANT OPERATOR	303
39	DEAL, JASPER A. (JACK)	MAINTENANCE FOREMAN	440
40	DEAVERS, JOEL L.	SHIFT FOREMAN	445
407	DEESE, VICTOR T.	EQUIPMENT OPERATOR	304
548	DENNIS, ELWYNN B.	ASSISTANT C/HP TECHNICIAN	273
372	DICKEY, ROY D.	ASSISTANT PLANT OPERATOR	303
502	DORAN, BENJAMIN F., JR.	ASSISTANT PLANT OPERATOR	304
235	DORAN, LAWRENCE S.	INSTRUMENT SERVICEMAN	239
476	DOTHARD, MARK S.	NUCLEAR OPERATIVE	257&334
41	DOUGLAS, MICHAEL D.	ASSISTANT PLANT OPERATOR	303
518	DOYLE, SHANNON T.	NUCLEAR OPERATIVE	257&334

NAME	CLASSIFICATION	PAX
42 DOZIER, DAVID P.	CONTROL TECHNICIAN	482
204 DREW, BARBARA LYNN	C/HP TECHNICIAN	285
43 DREW, RONALD E.	PLANT OPERATOR	303
451 DRIVER, JERRY LEE	NUCLEAR OPERATIVE	330
44 DRIVER, LARRY G.	MECHANIC	242
45 DUNGAN, LARRY	MECHANIC	242
346 DUNGAN, VIVIAN L.	GENERAL CLERK I	333
46 DURR, BOBBY J.	ASST INSTRUMENT SERVICEMAN	239
382 DYKES, GHANI G.	GENERATING PLANT ENGINEER II	222
47 DYKES, NOLAN C.	I&C FOREMAN	453

NAME	CLASSIFICATION	PAX
48 EDWARDS, JAMES B.	PLANT GUARD - NUCLEAR	438
408 EDWARDS, STEPHEN R.	ASSISTANT PLANT OPERATOR	303
49 EIDSON, MICHAEL	PLANT INSTRUCTOR	481
50 ELLISON W. KEITH	RADIATION DETECTION MAN	334
322 ELLISON, FLOYD L.	PLANT GUARD-NUCLEAR	438
51 ENFINGER, LARRY	ADMINISTRATIVE SUPERINTENDENT	221
52 ERBSKORN, HANS D.	SECTOR SUPERVISOR/MAINTENANCE	483
366 ERLANDSON, KAREN E.	ASSISTANT C/HP TECHNICIAN	334
53 ESTEVE, TED	SECTOR SUPERVISOR/OPERATIONS	201
605 ETRESS, JERRY W., JR.	NUCLEAR OPERATIVE	330
327 EVANS, KENNETH G.	PLANT GUARD-NUCLEAR	438

NAME	CLASSIFICATION	PAY
54 EVANS, LARRY	MECHANIC	242
215 EVANS, LEONARD	GENERATING PLANT ENGINEER I	216
348 EXUM, JAMES WOODIE	ASSISTANT PLANT OPERATOR	304

	NAME	CLASSIFICATION	PAX
606	FALKNER, FRANCIS STUART	NUCLEAR OPERATIVE	330
560	FALKNER, JAMES MORRIS	NUCLEAR OPERATIVE	330
55	FARNSWORTH, PERRY	SHIFT SUPPORT SUPERVISOR	334
530	FAST, JOHN RANDALL	INSTRUMENT SERVICEMAN	239
447	FEARS, NICHOLAS HAROLD	ENGINEERING AIDE III	437
56	FENN, DANNY	WAREHOUSEMAN	243
561	FERGUSON, RICKY LYNDON	EQUIPMENT OPERATOR	304
57	FIRESTONE, MICHAEL	ELECTRICIAN	240
58	FLEMING, ASHLEY WAYNE	PLANT OPERATOR	303
59	FLETCHER, CHARLES	GENERATING PLANT ENGINEER I	215
361	FLOYD, BRENDA L.	GENERAL CLERK I	333
245	FLOYD, ROY D.	NUCLEAR OPERATIVE	330

	NAME	CLASSIFICATION	PAX
261	FLUKER, KENNETH	ELECTRICIAN	240
60	FORD, EDDIE JR.	INSTRUMENT SERVICEMAN	239
562	FORDHAM, DONNIE HUGH	GENERATING PLANT ENGINEER II	304
434	FORESTER, RICHARD E.	MAINTENANCE FOREMAN	440
260	FORRESTER, DANNY B.	ELECTRICIAN	240
61	FORRESTER, RICHARD C. JR.	ASSISTANT PLANT OPERATOR	303
62	FOSTER, GLENN A.	GENERATING PLANT ENGINEER I	220
464	FOX, MICHAEL DANA	INSTRUMENT SERVICEMAN	239
563	FREEMAN, BENJAMIN ALLEN	NUCLEAR OPERATIVE	330
63	FREEMAN, CECIL E.	EQUIPMENT OPERATOR	303
64	FREEMAN, ERSKINE A.	PAINTER	240
420	FRIDRICHSEN, JAN	JUNIOR ENGINEER	209

NAME	CLASSIFICATION	PAX
65 FRIEDRICH, JOE M.	UTILITY FOREMAN	330

NAME	CLASSIFICATION	PAX
378 GADDY, JESSE H.	PLANT GUARD - NUCLEAR	438
524 GAGNE, CHARLES	PLANT GUARD	438
66 GALLAGHER, SID	MAINTENANCE FOREMAN	434
377 GANEY, DON K.	APPRENTICE ELECTRICIAN	240
67 GARDNER, RONALD L.	PLANT STOREKEEPER	485
68 GARLAND, HAROLD R.	MAINTENANCE SUPERVISOR	207
607 GARLINGTON, JOHN EDWARD	PROJECT ENGINEER II	567
469 GATES, CARROLL J.	MECHANIC	242
368 GATES, SHARON ANN	GENERAL CLERK II	229
69 GAUSE, WILLIAM P. (Bill)	ASSISTANT PLANT OPERATOR	303
232 GEIGER, JAMES B.	C&HP TECHNICIAN	273
390 GETTLE, JESSE R.	PLANT GUARD - NUCLEAR	438

	NAME	CLASSIFICATION	PAX
485	GIBSON, CHARLES T.	ELECTRICIAN	240
470	GIBSON, JULIUS R.	ELECTRICIAN	240
498	GILBERT, WILLIAM DONALD	ENGINEERING AIDE III	437
328	GILLIAM, BOB JACK	C&HP TECHNICIAN	334
432	GIPSON, JAMES R., JI	ASSISTANT PLANT OPERATOR	303
70	GLASS, RODGER DALE	PLANT GUARD - NUCLEAR	438
648	GOODE, PAULA RAE	ASSISTANT C/HP TECHNICIAN	334
219	GOODIN, ARVEL	APPRENTICE MECHANIC	242
225	GOODSON, JAMES W.	ENGINEERING AIDE II	437
527	GOOLSBY, ROY EUGENE	PLANT GUARD	438
641	GOREE, JEFF	EQUIPMENT OPERATOR	304
71	GOSSETT, HERBERT D.	PLANT OPERATOR	303

	NAME	CLASSIFICATION	PAX
486	GOURLEY, BYRON E.	ASSISTANT PLANT OPERATOR	304
72	GRAHAM. RICHARD H.	SECURITY SUPERVISOR	329
608	GRANBERRY, TIMOTHY AARON	NUCLEAR OPERATIVE	330
73	GRAVES, O. MACK	C&HP FOREMAN	334
609	GRAY, NORRIS STEPHEN	C/HP TECHNICIAN	250&273
535	GREEN, JOHN EARL	MAINTENANCE FOREMAN	440
610	GREENMAN, HOWARD STANLEY	PLANT GUARD	438
74	GRIFFIN, C. D.	C/HP TECHNICIAN	334
75	GRIMSLEY, JOE	APPRENTICE ELECTRICIAN	240
611	GRIMSLEY. JOSEPH EDWARD	PLANT GUARD	438
379	GRIPENTOG, WILLIAM G.	SECTOR SUPERVISOR	233

NAME	CLASSIFICATION	PAX
458 GRISSETTE, DON E.	ASSISTANT C/HP TECHNICIAN	334

NAME	CLASSIFICATION	TAX
564 HACKMASTER, NELSON F.	ELECTRICIAN	240
293 HAGIE, JAMES EDWARD	MAINTENANCE FOREMAN	238
76 HAIRSTON, GEORGE	PLANT MANAGER	211
77 HALE, RON	SHIFT FOREMAN	445
120 HALL, CATHY R.	SENIOR GENERAL CLERK/STARTUP	457
281 HALL, DAVID DOUGLAS	PLANT OPERATOR	303
389 HALL, HAROLD J., JR.	WAREHOUSEMAN	243
78 HAMILTON, SAMUEL G.	SWITCHBOARD OPERATOR	321
79 HAMM, BILLY W.	CONTROL TECHNICIAN	265
612 HAMM, HENRY RANDALL	INSTRUMENT SERVICEMAN	239
80 HANCOCK, JESSIE T.	SHIFT SUPPORT SUPERVISOR	482
438 HANKINS, MILTON E.	MACHINIST	242

	NAME	CLASSIFICATION	PAX
565	HANKS, CRAIG EDWARD	INSTRUMENT SERVICEMAN	239
495	HANSON, FREDERICK	ASSISTANT PLANT OPERATOR	304
428	HARDIN, JACK, JR.	MECHANIC	242
566	HARDING, ROBERT F., JR.	ELECTRICIAN	240
81	HARDY, DONNIE C.	PLANT STOREKEEPER	485
82	HARDY, MICKEY T.	STAFF ASSISTANT	227
397	HARDY, P. TIMOTHY	GENERATING PLANT ENGINEER II	222
214	HARE, JEAN	GENERAL CLERK I	332
567	HARN, WILLIAM C., JR.	MECHANIC	242
83	HARPER, DEBRA K.	ASSISTANT INSTRUMENT SERVICEMAN	242
456	HARRIS, GARY W.	APPRENTICE MECHANIC	242
248	HARRISON, CHARLES	APPRENTICE MECHANIC	242

NAME	CLASSIFICATION	PAX
269 HARRISON, DONALD F.	MECHANIC	242
528 HARVEY, DONNIE RAY	PLANT GUARD	438
568 HATCHER, BILLY KENT	NUCLEAR OPERATIVE	330
84 HATTON, NICKY H.	ENGINEERING AIDE I	434
85 HATTON, RICKY	CONTROL TECHNICIAN	239
501 HAWKINS, DAVID V.	MECHANIC	240
439 HAWKINS, DOUGLAS L.	ASSISTANT PLANT OPERATOR	303
642 HAYES, JERRY P.	ENGINEERING AIDE I	238
375 HAYNES, BENJAMIN M.	APPRENTICE ELECTRICIAN	240
569 HENDERSON, JOSEPH M.	APPRENTICE MECHANIC	242
86 HENDERSON, LYNN	CONTROL TECHNICIAN	275
87 HENLEY, B. ED.	SWITCHBOARD OPERATOR	321

	NAME	CLASSIFICATION	PAX
549	HENLEY, RAYMOND DANIEL	TRAINING COORDINATOR	
88	HERRIN, DENNIS W.	GENERATING PLANT ENGINEER II	209
89	HERRON, CLARENCE R.	MECHANIC	242
270	HIGGINBOTHAM, JOSEPH P.	C&HP TECHNICIAN	285
298	HILL, RICHARD	OPERATIONS SUPERVISOR	231
90	HILLMAN, CURTIS L.	ASSISTANT SECURITY SUPERVISOR	319
91	HOLLEY, VAUDY	PLANT OPERATOR	303
437	HOLLIS, PHILLIP D.	MECHANIC	242
92	HOLLON, RODGER E.	ASST INSTRUMENT SERVICEMAN	239
93	HOLLOWAY, FRED	SHIFT SUPERVISOR	355
227	HOLMES, ROY D.	SHIFT FOREMAN-SECURITY	438

	NAME	CLASSIFICATION	PAX
613	HOLTZCLAW, SANDRA DEAN	PLANT GUARD	438
94	HOOLE, GERARD W.	SHIFT FOREMAN-SECURITY	438
614	HOOMES, BETTY JANE	PLANT GUARD	438
234	HORN, GENE R.	EQUIPMENT OPERATOR	303
95	HORN, JOHN G.	PLANT OPERATOR	303
96	HORNE, THOMAS E.	PLANT INSTRUCTOR	477
97	HORSLEY, MERRELL	APPRENTICE ELECTRICIAN	240
98	HOSTETTER, DWIGHT A.	C&HP TECHNICIAN	334
262	HOWE, David H.	ELECTRICIAN	240
99	HOWELL, PHILLIP	MECHANIC	242
329	HUDSPETH, JOEY B.	DOCUMENT CONTROL SUPERVISOR	422

	NAME	CLASSIFICATION	PAX
570	HUEY, LARRY DEAN	JUNIOR ENGINEER	333
571	HUFF, MILLARD SCOTT	MECHANIC	242
101	HUGHES, MARVIN K. (JAKE)	SENIOR PLANT GUARD	438
457	HUNTER, JIM	JUNIOR ENGINEER	457
271	HUSTED, EDWARD DAY, JR.	PLANT GUARD - NUCLEAR	438
572	HUTCHINS, THOMAS GARY	ELECTRICIAN	240
353	HUTTO, TERRI R.	GENERAL CLERK I	333

	NAME	CLASSIFICATION	PAX
411	INGRAM, BYRON F.	MECHANIC	242
102	INGRAM, JAMES E.	PLANT GUARD - NUCLEAR	438
573	INGRAM, LOUIS EDWIN, JR.	APPRENTICE MECHANIC	242
294	ISLER, JERRY L.	ASSISTANT PLANT OPERATOR	303

NAME	CLASSIFICATION	PAX
331 JACKSON, BOBBY R.	PLANT GUARD-NUCLEAR	438
103 JACKSON, CARL E.	PLANT GUARD - NUCLEAR	438
367 JACKSON, CHARLES M.	NUCLEAR OPERATIVE	257&334
416 JAMES, ARTHUR G., JR.	WAREHOUSEMAN	243
323 JAMES, FARMER LEE	PLANT GUARD-NUCLEAR	438
395 JEMISON, MICHAEL D.	WELDER	242
500 JENKINS, SAMMY L.	NUCLEAR OPERATIVE	330
330 JOHNSON, BENJAMIN	PLANT GUARD-NUCLEAR	438
104 JOHNSON, JOHN W. SR.	PAINTER	242
574 JONES, DONALD F.	ELECTRICIAN	240
519 JONES, HAROLD J.	ENGINEERING AIDE I	333
105 JONES, JOHN W	UTILITY FOREMAN	330

	NAME	CLASSIFICATION	PAX
106	JONES, LEROY KING	MATERIAL SUPERVISOR	237
107	JONES, MILTON	INSTRUMENT SERVICEMAN	239
541	JONES, ROGER GLENN	NUCLEAR OPERATIVE	330
412	JONES, SAMUEL T.	NUCLEAR OPERATIVE	257&334
108	JORDAN, NORRIS WAYNE	NUCLEAR OPERATIVE	330
474	JORDAN, SCOTTY D.	NUCLEAR OPERATIVE	330
254	JORDAN, WENDELL T.	RADIATION DETECTION MAN	334
109	JOSEY, ROY	CONTROL TECH	204
616	JOUVENAS, MARCI LYNN	PLANT GUARD	438

300 KALE, JACK	QUALITY ASSURANCE ENGINEER II	225
324 KARABIN, BERNARD L.	PLANT GUARD-NUCLEAR	438
325 KAY, JOEL ALLEN	PLANT GUARD-NUCLEAR	438
110 KEMP, STANLEY J.	ASST INSTRUMENT SERVICEMAN	239
617 KERSKER, JOHN SHELBY	PLANT GUARD	438
575 KEY, JAMES FRAZIER, JR.	ASSISTANT C/HP TECH	334
111 KILPATRICK, GREGORY	ASSISTANT PLANT OPERATOR	303
167 KING, MARY J.	GENERAL CLERK I	476
243 KINNEY, WILLIAM (BILL)	ASSISTANT PLANT OPERATOR	303
354 KNIGHT, MAURICE R.	WAREHOUSEMAN	243
418 KNIGHTON, TONY R.	NUCLEAR OPERATIVE	330

	NAME	CLASSIFICATION	PAX
417	KOLAR, DAVID K.	WAREHOUSEMAN	243
295	KOLONUSZ, LASZLO E.	PLANT GUARD - NUCLEAR	438
483	KOVACH, ROBERT S.	PLANT GUARD	438
490	KUESTER, MARY	ASSISTANT C/HP TECHNICIAN	334
576	KUNZOG, THEODORE MICHAEL	INSTRUMENT SERVICEMAN	239

373 LAND, BRUCE	ASSISTANT C/HP TECHNICIAN	250&273
112 LANGAN, M. J.	PLANT OPERATOR	303
618 LANGFORD, GEORGE MICHAEL	NUCLEAR OPERATIVE	330
113 LANGHAM, EDNA B.	SENIOR GENERAL CLERK	246
115 LAWRENCE, ARTHUR	INSTRUMENT SERVICEMAN	239
332 LAWYER, ROBERT W.	PLANT GUARD-NUCLEAR	438
114 LAYE, DOUGLAS B.	ASST INSTRUMENT SERVICEMAN	239
531 LAYTON, WILLIE E.	ENGINEERING AIDE III/I&C	439
619 LEACH. TERRY PAUL	PLANT GUARD	438
116 LEBARON, ROBERT J. (BOB)	PLANT OPERATOR	303
117 LEE, BRENDA E.	SENIOR GENERAL CLERK	237
118 LEE, WILLIAM W.	CONTROL TECHNICIAN	239

119 LEONARD, STEVE	MECHANIC	242
525 LERO, FOREST K.	ASSISTANT PLANT OPERATOR	303
121 LETSON, RONALD JOEL	WELDER	242
620 LEWIS, DONALD EUGENE	PLANT GUARD	438
577 LEWIS, ROBERT ANTONIO	NUCLEAR OPERATIVE	330
122 LIGHTNER, ALVIN	NUCLEAR OPERATIVE	330
123 LIPFORD, LOIS J.	SENIOR GENERAL CLERK	230
124 LITTLE, JAMES E.	UTILITY FOREMAN	330
240 LIVINGSTON, ROBERT (TONY)	C&HP TECHNICIAN	250&273
462 LOGAN, FRANCIS MATTHEW	PLANT GUARD	438
125 LONG, ERVIN B.	ASSISTANT PLANT OPERATOR	303

NAME	CLASSIFICATION	PAY
126 LOVETT, MARK H.	ASSISTANT PLANT OPERATOR	303
127 LOVVORN, ROBERT E.	MAINTENANCE FOREMAN	440
621 LOWE, TOMMY, JR.	NUCLEAR OPERATIVE	330
643 LOWERY, BYRAN	QUALITY ASSURANCE ENGINEER II	225
386 LUCK, T. WILSON	NUCLEAR OPERATIVE	257&334
229 LUCKIE, JOHN	ELECTRICIAN	240
244 LUKE, JANELLE	PLANT GUARD - NUCLEAR	438
284 LULLING, RICHARD CHARLES	PLANT OPERATOR	303
128 LYNN, CHARLES E.	MECHANIC	242

NAME	CLASSIFICATION	PAX
139 MACDONALD, WILLIAM S.	GENERATING PLANT ENGINEER I	276
239 MADDOX, MERRILL	C&HP FOREMAN	334
399 MAIER, LORAN J.	I&C FOREMAN	453
415 MALLEY, ALAN	ASSISTANT PLANT OPERATOR	303
129 MANSFIELD, DONALD E.	STARTUP SUPERINTENDENT	457
255 MANSFIELD, DONALD W.	ASST INSTRUMENT SERVICEMAN	239
448 MARION, MICHAEL LYNN	MECHANIC	242
130 MARLOW, RANDALL H.	SECTOR SUPERVISOR	276
355 MARTIN, ROSS T.	ASSISTANT PLANT OPERATOR	304
578 MARTIN, ROY RAYMOND, III	JUNIOR ENGINEER	
413 MASILLA, EDWARD S.	NUCLEAR OPERATIVE	257&334
356 MASK, DENNIS STEVE	ASSISTANT PLANT OPERATOR	303

NAME	CLASSIFICATION	PAX
220 MASTERS, TIM	ASST INSTRUMENT SERVICEMAN	239
376 MATHIS, SAMUEL A.	APPRENTICE ELECTRICIAN	240
222 MATTHEWS, HUGH	INSTRUMENT SERVICEMAN	239
520 MATTHEWS, PAUL	ASSISTANT C/HP TECHNICIAN	334
283 MAY, RANDY	GENERATING PLANT ENGINEER I	331
622 MAZE, DOUGLAS AARON	NUCLEAR OPERATIVE	330
314 MCCALL, TIMOTHY I.	PLANT GUARD-NUCLEAR	438
140 MCCLELLAN, HARRY M.	GEN. PLANT ENGR. I	209
236 MCCORD, MICHAEL D.	ASSISTANT PLANT OPERATOR	303
138 MCCRACKEN, KENNETH W.	TECHNICAL SUPERINTENDENT	216
141 MCDANIEL, SHERION G.	GENERATING PLANT ENGINEER I	276
623 MCDONALD, JAMES ALLAN	PLANT GUARD	438
453 MCDOUGALD, GARY	NUCLEAR OPERATIVE	330

	NAME	CLASSIFICATION	PAX
238	MCDOWELL, LARRY	APPRENTICE ELECTRICIAN	242
142	MCFILLIN, EDWARD J.	INSTRUMENT SERVICEMAN	239
644	MCGILVRAY, MAXON O'NEAL	ASSISTANT C/HP TECHNICIAN	250&273
440	MCGOWAN, ROBERT HAROLD	ELECTRICIAN	240
510	MCINNIS, WALTER	WELDER	242
579	MCKINNEY, FRED VERNON	ELECTRICIAN	240
143	MCLEAN, CHRIS	SHIFT SUPERVISOR	445
263	MCLENDON, RANDY	C&HP TECHNICIAN	250&273
276	MCPHERSON, W. C.	PLANT OPERATOR	303
333	MEDLEY, DAVID LEE	PLANT GUARD-NUCLEAR	438
246	MEINTS, GARY L.	ENGINEERING AIDE I	213
427	MEINTS, JUDY A.	PLANT GUARD	438

	NAME	CLASSIFICATION	PAX
422	MELTON, L. CLARK	NUCLEAR OPERATIVE	257&334
425	MILLER, BURT H.	PLANT INSTRUCTOR	477
309	MILLER, GREGORY E.	APPRENTICE MECHANIC	242
297	MILLER, ROBERT LESTER	INSTRUMENT SERVICEMAN	239
624	MILLS, JACK CLEVELAND	PLANT GUARD	438
224	MILLS, MIKE	WAREHOUSEMAN	243
131	MITCHELL, MARTIN W.	SECTOR SUPERVISOR/C&HP	235
497	MONTIJO, PAUL RAY	NUCLEAR OPERATIVE	330
649	MOORE, ANGELO J.	PLANT GUARD	438
625	MOORE, BRADFORD LEE	GENERATING PLANT ENGINEER I	
132	MOORE, GARRY H.	ELECTRICIAN	240

NAME	CLASSIFICATION	PAX
133 MOREY, DAVE	OPERATIONS SUPERINTENDENT	200
405 MORGAN, CHARLES E.	EQUIPMENT OPERATOR	257&334
134 MORRIS, JAMES STEVEN	MAINTENANCE FOREMAN	482
580 MORRIS, WILBERN WEST	PLANT GUARD	438
357 MORRISON, JAMES R.	MACHINIST	242
626 MORROW, DONALD EDWIN	MAINTENANCE FORMAN	440
135 MORROW, ROBERT K.	ENGINEERING AIDE I	482
522 MOTEN, ROBERT L., JR.	ASSISTANT PLANT OPERATOR	303
136 MURPHREE, JAMES L.	SWITCHBOARD OPERATOR	321
581 MURPHY, VINCENT, JR.	GENERATING PLANT ENGINEER II	
543 MYERS, MARK DAVID	ASSISTANT PLANT OPERATOR	304
137 MYRICK, CURTIS L.	SHIFT FOREMAN-SECURITY	438

	NAME	CLASSIFICATION	PAX
546	NALL, CHARLES SIDNEY	SHIFT FOREMAN	445
233	NALL, JAMES D.	ASSISTANT PLANT OPERATOR	303
480	NEEL, THOMAS G.	MECHANIC	240
374	NEHER, ROBERT G.	C/HP TECHNICIAN	334
582	NELSON, DONALD BRYAN	ASSISTANT C/HP TECHNICIAN	334
144	NESBITT, CHARLES D.	C&HP SUPERVISOR	232
394	NEWELL, DONALD T.	NUCLEAR OPERATIVE	330
499	NOLAN, CHARLES RICHARD	ASSISTANT C/HP TECHNICIAN	250&273
442	NOLAN, NELDA ANN (WATFORD)	ASSISTANT C/HP TECHNICIAN	250&273
503	NORRIS, ROGER A.	MECHANIC	240

NAME	CLASSIFICATION	PAX
145 ODOM, JAMES E.	SECTOR SUPERVISOR/OPERATIONS	201
146 ODOM, RANDY P.	ASSISTANT PLANT OPERATOR	303
230 OFFET, JOEL	APPRENTICE ELECTRICIAN	240
147 OSTERHOLTZ, JOHN	GENERATING PLANT ENGINEER I	445
487 OWENS, ALDEN R.	NUCLEAR OPERATIVE	330

	NAME	CLASSIFICATION	PAX
545	PARKER, JAMES BRADFORD	ASSISTANT PLANT OPERATOR	304
264	PARKER, JAMES L.	EQUIPMENT OPERATOR	242
148	PARKS, DAVID B.	I&C FOREMAN	453
536	PARNELL, LINDSEY	APPRENTICE MECHANIC	242
515	PATRICK, JERRY NATHAN	WAREHOUSEMAN	242
542	PATTERSON, RAYMOND LEE	ASSISTANT PLANT OPERATOR	304
414	PATTERSON, REUBEN H.	PLANT GUARD	438
492	PATTON, DAVID P.	NUCLEAR OPERATIVE	330
149	PATTON, PRINCE	PLANT HEALTH PHYSICIST	466
150	PENCE, JOHN W.	MECHANIC	242
151	PEYER, PAUL	PLANT STOREKEEPER	485
627	PHILLIPS, GEORGE MONROE	PLANT INSTRUCTOR	477

NAME	CLASSIFICATION	PAX
403 PHILLIPS, LARRY J.	MECHANIC	242
488 PIKE, BRIAN K.	NUCLEAR OPERATIVE	330
152 PIKE, JERRY F.	BUILDINGS & GROUNDS SUPERVISOR	330
454 PITTMAN, DAVID W.	NUCLEAR OPERATIVE	330
288 POOLE, BENNY HENRY	ASSISTANT PLANT OPERATOR	303
650 POOLE, EDMON S.	ASSISTANT PLANT OPERATOR	303
468 POPE, SILAS A.	ELECTRICIAN	240
450 PORLIER, JAMES RAY	ASSISTANT C/HP TECHNICIAN	250&273
484 PORTERFIELD, CINDY D.	GENERAL CLERK II	333
153 POWELL, JOE M.	PLANT OPERATOR	303
628 PRICE, DOROTHY TERESA	PLANT GUARD	438

	NAME	CLASSIFICATION	PAX
154	PRICE, GEORGE G.	INSTRUMENT SERVICEMAN	239
155	PRUITT, E. LAMAR	MAINTENANCE FOREMAN	286
156	PRUITT, LLOYD B.	I&C FOREMAN	453
157	PURNELL, WILLIAM G.	SWITCHBOARD OPERATOR	321
583	PURVIS, DALE WARD	APPRENTICE MECHANIC	240
629	PYFROM, JOHN ELISHA	ASSISTANT C/HP TECHNICIAN	334

NAME	CLASSIFICATION	PAX
341 RABON, BILLY R.	PLANT GUARD - NUCLEAR	438
436 RAFINER, ROY R.	ELECTRICIAN	240
532 RAMBO, RAYMOND CHARLES	MECHANIC	242
645 RASMUSSEN, KLAUS	PLANT GUARD	438
489 RAY, JAMES L.	NUCLEAR OPERATIVE	330
514 RAY, TERRY B.	ENGINEERING AIDE I	237
159 REDDICK, CHARLES M.	ELECTRICIAN	240
158 REESE, TYRUS A.	PLANT OPERATOR	303
160 RENEAU, CHARLES	MECHANIC	242
280 RENNHACK, TOM K.	APPRENTICE ELECTRICIAN	240
318 REYNOLDS, JOHNNIE H.	APPRENTICE MECHANIC	240
584 RHAMES, LYNWOOD	INSTRUMENT SERVICEMAN	239

	NAME	CLASSIFICATION	PAX
433	RICHARDS, JOHN L.	ASSISTANT PLANT OPERATOR	303
383	RICHINS, EARL D.	PLANT GUARD - NUCLEAR	438
550	RICKS, BETTY SUE	GENERAL CLERK II	333
161	RICKS, WILLIAM R.	MECHANIC	242
632	RIEGO, RUSSELL RAY	WAREHOUSEMAN	243
585	RILEY, KEVIN CLAY	ASSISTANT C/HP TECHNICIAN	334
162	RILEY, STANLEY	ASSISTANT PLANT OPERATOR	303
164	ROBBINS, JOE	PLANT STOREKEEPER	475
163	ROBERTSON, JOHN C.	SHIFT SUPPORT SUPERVISOR	481
419	ROBINSON, EDWARD R.	C/HP FOREMAN	334
231	ROBINSON, JOEL R.	C&HP TECHNICIAN	273&250
358	RODEN, WOODROW W.	MACHINIST	242

NAME	CLASSIFICATION	PAX
342 ROGERS, RODNEY D.	TECHNICAL SUPERVISOR	217
388 ROLLINS, MONA GAIL	GENERAL CLERK I	237
242 ROPER, WAYNE	RADIATION DETECTION MAN	334
441 ROSSER, HELEN IRENE	ASSISTANT C/HP TECHNICIAN	334
586 ROUSE, BOBBY	WAREHOUSEMAN	243
587 RUSTON, MILTON K.	APPRENTICE ELECTRICIAN	242
463 RYAN, JAMES PATRICK	ASSISTANT PLANT OPERATOR	304
165 RYAN, THOMAS G.	EQUIPMENT OPERATOR	303

	NAME	CLASSIFICATION	PAX
424	SANDERS, BARNEY R.	WAREHOUSEMAN	243
166	SANDERS, EUGENE A.	GENERATING PLANT ENGINEER I	426
272	SANDERS, JACK I.	EQUIPMENT OPERATOR	303
251	SAPP, NOEL D.	PLANT GUARD - NUCLEAR	438
521	SCALES, JAMES R.	INSTRUMENT SERVICEMAN	239
168	SCHAMP, ROBERT LOUIS	ASSISTANT PLANT OPERATOR	303
169	SCHAULE, CHARLES D.	SENIOR PLANT GUARD	438
265	SCHILDGEN, GERALD F.	MECHANIC	242
170	SCHMITT, ANTHONY P.	INSTRUMENT SERVICEMAN	239
493	SCHUELER, SUSAN C.	ASST PLANT OPERATOR	304
287	SEABURN, LINDA L.	GENERAL CLERK I	438
171	SEAVEY, WALTER	MECHANIC	242

	NAME	CLASSIFICATION	PAX
507	SEXTON, THOMAS	MECHANIC	240
172	SHAFFER, DOUGLAS B.	SHIFT FOREMAN	445
173	SHANNON, JOE	CHIEF CLERK	228
334	SHEALY, DON WILLIAM	PLANT GUARD-NUCLEAR	438
473	SHEAROUSE, GEORGE M. IV	C/HP TECHNICIAN	334
523	SHERER, GEORGE D.	MECHANIC	242
385	SHERER, JAMES	APPRENTICE MECHANIC	242
494	SHEW, JEFFREY C.	NUCLEAR OPERATIVE	330
174	SHIPMAN, W. B. (Bill)	MAINTENANCE SUPERINTENDENT	206
444	SHIVER, TOM	SWITCHBOARD OPERATOR	321
465	SIMS, JACK ROBERT, JR.	ASSISTANT C/HP TECHNICIAN	334
175	SINGLETON, JOE	MAINTENANCE FOREMAN	440

NAME	CLASSIFICATION	PAX
176 SKIPPER, JERRY S.	PLANT GUARD - NUCLEAR	438
177 SLAUGHTER, JOHNNY L.	MECHANIC	242
178 SMITH, CLIFTON WAYNE	MECHANIC	242
471 SMITH, HENRY D.	NUCLEAR OPERATIVE	330
547 SMITH, JAMES LEE	ASSISTANT C/HP TECHNICIAN	334
335 SMITH, MICHAEL P.	MECHANIC	242
33 SMITH, NEDRA M.	GENERAL CLERK I	333
237 SMITH, RONALD	MECHANIC	242
512 SMITH, WILLIAM RAYMOND	NUCLEAR OPERATIVE	330
179 SMITH, YANCY TIPTON	ASST INSTRUMENT SERVICEMAN	239
180 SNELLGROVE, CHARLOTTE	SENIOR GENERAL CLERK	487

NAME	CLASSIFICATION	PAX
452 SNELLGROVE, DAWN	GENERAL CLERK II	208
533 SORENSEN, ALAN	MECHANIC	242
181 SOTHERLAND, DENNIS J.	MAINTENANCE FOREMAN	440
247 SOULT, GENE G.	SHIFT FOREMAN	445
588 SPARKMAN, WESLEY ALAN	CO-OP STUDENT	
279 SPEIGNER, CHARLES R.	SENIOR PLANT GUARD	438
615 SPEIGNER, TINA	GENERAL CLERK II	237
182 SPRAYBERRY, TERRY	WAREHOUSEMAN	243
337 STAGGS, RONALD E.	PLANT GUARD-NUCLEAR	438
343 STANFIELD, SAMUEL M.	APPRENTICE MECHANIC	242
289 STARLING, MICHAEL R.	RADIATION DETECTION MAN	334

	NAME	CLASSIFICATION	PAX
183	STEPHENSON, ED	SECTOR SUPERVISOR	433
633	STEPHENSON, JOHN CHARLEY	PLANT GUARD	438
634	STETZ, BERNARD DAVID	ASSISTANT C/HP TECHINICIAN	250&273
266	STEVENS, JAMES	SENIOR PLANT GUARD	438
449	STEWART, JAMES ROBERT	MECHANIC	242
184	STINSON, L. M.	SYSTEMS/PERFORMANCE SUPERVISOR	219
185	STIVERS, CLAUDE A.	SHIFT FOREMAN-SECURITY	438
646	STOWE, TERRY E.	EQUIPMENT OPERATOR	304
410	STRAWDER, CHARLES R.	INSTRUMENT SERVICEMAN	239
651	STRICKLAND, JERRY DON	PLANT GUARD	438
186	STRICKLAND, ROBERT M	INSTRUMENT SERVICEMAN	239
589	STRICKLAND, SARA JANE	GENERAL CLERK II	229

	NAME	CLASSIFICATION	PAX
315	STROWD, CHARLES J.	ASST INSTRUMENT SERVICEMAN	239
338	STROWD, MICHAEL E.	ASST INSTRUMENT SERVICEMAN	239
303	STROWD, ROBERT W.	NUCLEAR OPERATIVE	257&334
187	STURKIE, LEWIS C.	WELDER	242
421	STUTCHMAN, JAMES RAE	INSTRUMENT SERVICEMAN	239
590	STYRES, DON ANDREW	CO-OP STUDENT	334
312	SULLIVAN, JAMES M.	POWER PLANT SPECIALIST	213
635	SWAILS, JAMES LAMAR	PLANT GUARD	438
479	SWANN, ROBERT L.	WELDER	240
188	SWIFT, ROBERT L.	SHIFT SUPERVISOR	355
253	SWIFT, TOMMY L.	APPRENTICE ELECTRICIAN	240

NAME	CLASSIFICATION	PAY
636 TAPLEY, FRANKLIN BENNET	ASSISTANT PLANT OPERATOR	303
221 TAUNTON, LARRY	WAREHOUSEMAN	240
273 TAYLOR, FREDDY M.	ELECTRICIAN	240
347 TAYLOR, LURIE	GENERAL CLERK I	229
217 TAYLOR, RICKY	ASSISTANT PLANT OPERATOR	303
591 TAYLOR, RONNIE NATHAN	NUCLEAR OPERATIVE	330
301 TAYLOR, SAMUEL L.	ENGINEERING AIDE I	240
310 TAYLOR, SCOTTY L.	ELECTRICIAN	240
189 TEAT, DAVID	CONTROL TECHNICIAN	265
384 TEAT, E. DENNIS	NUCLFAR OPERATIVE	257&334
637 TEEM, RONALD KENNETH	NUCLEAR OPERATIVE	330
426 TEIPEL, RICHARD R.	ENGINEERING AIDE I	332

	NAME	CLASSIFICATION	PAX
190	THOMAS, J. J.	I&C SUPERVISOR	205
496	THOMAS, KELLY	ASSISTANT C/HP TECHNICIAN	334
291	THOMAS, ROY FRANK	NUCLEAR OPERATIVE	330
506	TIGGS, IZIAH	NUCLEAR OPERATIVE	330
339	TRAPP, BARRY D.	PLANT GUARD-NUCLEAR	438
191	TRIPLETT, MIKE	WAREHOUSEMAN	243
401	TUCKER, HAROLD W., JR.	ASSISTANT PLANT OPERATOR	303
638	TURVIN, ROGER ALLEN	PLANT GUARD	438

NAME	CLASSIFICATION	PAX
192 UPCHURCH, JAMES E.	SHIFT SUPERVISOR	355

	NAME	CLASSIFICATION	PAX
435	VANCIL, DONALD E.	ASSISTANT PLANT OPERATOR	303
592	VANDERSLICE, STEVEN RAY	INSTRUMENT SERVICEMAN	239
193	VANLANDINGHAM, BOYD W.	SHIFT SUPERVISOR	355
593	VARANTI, KARL RICHARD	ENGINEERING AIDE I	
594	VEAZEY, ROBERT EUGENE	MAINTENANCE FOREMAN	240
537	VINCENT, DAVID R.	MECHANIC	242
226	VINCENT, ELMORE G. JR.	SENIOR PLANT GUARD	438

NAME	CLASSIFICATION	PAX
511 WAGNER, THOMAS H.	NUCLEAR OPERATIVE	330
595 WAGONER, DAVID EARL	PLANT GUARD	438
472 WALDEN, JAMES M.	NUCLEAR OPERATIVE	330
194 WALDEN, JOE M.	RAD WASTE SUPERVISOR	465
305 WALKER, FRANCIS LEE	EQUIPMENT OPERATOR	303
313 WALKER, HARRY G.	PLANT GUARD-NUCLEAR	438
195 WALKER, T. M. (TIM)	SHIFT FOREMAN-SECURITY	438
196 WALKER, WILLIE GEORGE	ASST INSTRUMENT SERVICEMAN	239
596 WALTERS, WILLIAM PERRY	APPRENTICE MECHANIC	242
359 WAMBLE, LARRY N.	WAREHOUSEMAN	243
639 WARD, GREGORY TYSON	ELECTRICIAN	240
380 WARD, JAMES	WAREHOUSEMAN	243

NAME	CLASSIFICATION	PAX
597 WARD, JOHN WESLEY	PLANT GUARD	438
598 WARD, LEWIS A.	PLANNING SUPERVISOR	332
197 WARD, RON	PLANT INSTRUCTOR	481
199 WARDEN, CHUCK	CONTROL TECHNICIAN	276
198 WARE, ANTHONY B.	INSTRUMENT SERVICEMAN	239
459 WARREN, WADE	C/HP TECHNICIAN	334
200 WATFORD, FRANK G.	FIRE MARSHALL	213
201 WATSON, STEVE E.	ASST INSTRUMENT SERVICEMAN	239
344 WAYMIRE, GEORGIANN S.	GENERATING PLANT ENGINEER III	215
267 WEBB, PETER	GENERATING PLANT ENGINEER II	276
539 WELDON, RONALD W.	NUCLEAR OPERATIVE	330
202 WHEELER, JAMES E.	ELECTRICIAN	240
203 WHIDDON, O. W. JR. (BO)	INSTRUMENT SERVICEMAN	239

	CLASSIFICATION	PAX
364 WHIGHAM, GREGORY E.	ASSISTANT C/HP TECHNICIAN	250&273
306 WHITE, MALVIN C.	INSTRUMENT SERVICEMAN	239
268 WHITE, STEVEN B.	INSTRUMENT SERVICEMAN	239
455 WHITE, WILLIAM MICHAEL	GENERATING PLANT ENGINEER I	276
349 WHITEHEAD, RONNIE W.	C/HP TECHNICIAN	250&273
205 WIGER, LESLIE (LES)	GENERATING PLANT ENGINEER I	433
206 WIGGINS, RANDY	SECTOR SUPERVISOR	477
278 WIGGINS, WILLIAM C.	PLANT GUARD - NUCLEAR	438
223 WILBURN, GERALD	WAREHOUSEMAN	243
296 WILES, DOUGLAS E.	I&C FOREMAN	241
316 WILKES, JOHNNY C.	APPRENTICE MECHANIC	242
599 WILKINSON, ALFRED LAMAR	NUCLEAR OPERATIVE	330

NAME	CLASSIFICATION	PAX
311 WILKS, DONALD R.	APPRENTICE ELECTRICIAN	240
381 WILKS, JAMES M.	ASST PLANT OPERATOR	303
392 WILLIAMS, DENNIS R.	EQUIPMENT OPERATOR	303
630 WILLIAMS, DON EDWARD	WAREHOUSEMAN	243
207 WILLIAMS, LEE S.	TRAINING SUPERINTENDENT	476
406 WILLIAMS, QUINTON A.	MAINTENANCE FOREMAN	242
647 WILLIAMS, RICHARD E.	APPRENTICE MECHANIC	242
443 WILLINGHAM, DAVID	ASSISTANT PLANT OPERATOR	304
208 WILLIS, PEGGY	PLANT GUARD - NUCLEAR	438
360 WILLIS, PRESTON F.	ASSISTANT PLANT OPERATOR	303
275 WILSON, EDWARD BLAINE	ASSISTANT PLANT OPERATOR	303
218 WILSON, JERRY	SENIOR PLANT GUARD	438

	NAME	CLASSIFICATION	PAX
631	WIMBERLY, CHARLES KENNETH	NUCLEAR OPERATIVE	330
387	WIMBERLY, DONNA M.	GENERAL CLERK I	475
345	WINDHAM, MARTIN A.	ASST INSTRUMENT SERVICEMAN	239
538	WINDSOR, TIMOTHY DALE	NUCLEAR OPERATIVE	330
600	WOLFE, JOHNNY RAY	APPRENTICE MECHANIC	242
504	WOLFSON, KARL A., JR.	ENGINEERING AIDE I	240
209	WOOD, ROBERT L. (BOBBY)	PLANT OPERATOR	303
210	WOOD, ROBERT T. III	C&HP FOREMAN	467
211	WOODARD, JACK	ASSISTANT PLANT MANAGER	212
461	WOODRUFF, RICH	MECHANIC	242
513	WORLEY, WILLIAM DAVID	ASSISTANT C/HP TECHNICIAN	250&273
431	WRIGHT, BILLY W.	ASSISTANT C/HP TECHNICIAN	250&273

	NAME	CLASSIFICATION	PAX
371	WRIGHT, RICHARD	NUCLEAR OPERATIVE	257&334
319	WRIGHT. RICKEY LYNN	APPRENTICE MECHANIC	242
212	WRIGHT, TROY	MECHANIC	242
299	WUESTER, FRANK	GENERATING PLANT ENGINEER I	445
252	WYNN, ALLEN	ASSISTANT PLANT OPERATOR	303

	NAME	CLASSIFICATION	PAX
307	YANCE, B. REX	SECTOR SUPERVISOR/MAINTENANCE	208
505	YANCE, BILLY JOE	ENGINEERING AIDE III	303

NAME	CLASSIFICATION	PAX
213 YOUNG, ROBERT WES	ASSISTANT PLANT OPERATOR	303

FARLEY NUCLEAR PLANT

EMERGENCY PLAN IMPLEMENTING PROCEDURE

FNP-0-EIP-9

SAFETY RELATED

RADIATION EXPOSURE ESTIMATION AND CLASSIFICATION OF EMERGENCIES

Approved:

W. G. Hairston III
Plant Manager

Date Issued: 3-31-81

Date of Implementation: 4-1-81

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Diskette EIP-6

RADIATION EXPOSURE ESTIMATION AND CLASSIFICATION OF EMERGENCIES

1.0 Purpose

To provide a method for rapid projection of estimated offsite radiation exposures as a result of a release of radioactive material and to provide the basis for classifying the emergency.

2.0 References

2.1 Joseph M. Farley Nuclear Plant Emergency Plan

2.2 FNP-0-RCP-25, C&HP Activities During A Radiological Accident

2.3 FNP-0-EIP-4, Chemistry and Health Physics Support to the Emergency Plan

2.4 FNP-0-M-007, Emergency Dose Calculational Manual

2.5 FNP-0-EIP-29, Long Term Dose Assessment

3.0 General

3.1 This procedure provides for the classification of an emergency based on plant status criteria and/or based on short term radiological hazards, i.e. direct radiation hazards and inhalation hazards that may be presented by the passage of a cloud of radioactive material released from the plant. NOTE: Assessment of radioactive liquid releases will be referred to the Chemistry and Health Physics Supervisor.

3.2 Repair time is defined as the projected release time, i.e., the period of time from the initiation of the release to the projected termination of the release.

3.3 The direction of the wind as read from the control room recorder is the direction from which the wind is blowing. The downwind direction is 180^0 from the wind direction.

3.4 Dose projections for iodine originating in the containment may be high by a factor of 100 or more if containment spray is operating and the Rad Gun (RCP-25) is used to measure stack effluent activity.

4.0 Procedure

4.1 Short Term Dose Assessment

4.1.1 Obtain meteorological information on wind speed, wind direction, and atmospheric stability (ΔT) from plant meteorological instruments using Tab 1.

4.1.2 If at least one value for wind speed, one value for wind direction, and one value for atmospheric stability are not available from 4.1.1 above, obtain the unavailable information from the following offsite sources in the order listed until all information needed is obtained:

4.1.2.1 Dothan Flight Service

4.1.2.2 National Weather Bureau - Montgomery

4.1.2.3 National Weather Bureau - Birmingham

Additional information (wind speed and wind direction) is available from Great Southern Paper Company. Refer to Tab 2 for specific instructions.

4.1.3 Once the atmospheric stability class has been determined per 4.1.1 or 4.1.2 , determine dose rates, projected doses, projected plume boundaries, and projected plume arrival times for plant releases by using the appropriate tab listed below:

Atmospheric Stability Class	Tab
A	A
B	B
C	C
D	D
E	E
F	F
G	G

4.2 Emergency Classification Based on Dose Projections

4.2.1 General Emergency

4.2.1.1 Criteria: Based on lower limit of projected individual exposure at site boundary.

5 rem whole body exposure, or 10 rem thyroid exposure

4.2.1.2 Refer to EIP-19, General Emergency.

4.2.2 Site Emergency

4.2.2.1 Criteria: Based on lower limit of projected individual exposure at site boundary.

1.0 rem whole body exposure, or 2.5 rem thyroid exposure

4.2.2.2 Refer to EIP-18, Site Emergency.

4.2.3 Alert

4.2.3.1 Criteria: 1 mr/hr at site boundary.

4.2.3.2 Refer to EIP-12, Alert

4.3 Emergency Classification Based on Plant Condition.

Refer to the Tab 3 for general criteria for classifying plant conditions. Refer to the indicated EIP for the exact criteria:

EIP-17, Notification of Unusual Event
EIP-12, Alert
EIP-18, Site Emergency
EIP-19, General Emergency

4.4 Repeat steps 4.1 - 4.3 as necessary every hour; following any significant change in release rate; or if sample results indicate a significant change in dose factors (refer to RCP-25) until the release is terminated, or until the dose assessment responsibility is assumed by the TSC staff.

TAB 1

PLANT METEOROLOGICAL TOWER INFORMATION

TAB 1

PLANT METEOROLOGICAL TOWER INFORMATION

Obtain the following meterological information from the control room met recorder and enter data on CHP Form 112, Meteorological Information - Farley Meteorology Tower (Figure 1).

1. Average wind speed over the last 15 minutes (three of the smallest time divisions on the recorder paper) at the 35 ft. elevation in mph (if 35 ft. reading is not available, record a one minute average wind speed for 150 ft. elevation).

   NOTE: Recorder reading is 0 to 100% of full scale range. Ranges are: 35' elevation: 0-25 mph
   150' elevation: 0-50 mph

2. Average wind direction over the last 15 minutes (three of the smallest time divisions on the recorder paper) at the 35 ft. elevation (if 35 ft. reading is not available, record wind direction for 150 ft. elevation). From the wind direction, determine the <u>downwind</u> direction by:

   A. Adding 180° if the wind direction is <180°

   B. Subracting 180° if the wind direction is >180°

   NOTE: 0° and 360° are the same; 180° and 540° are the same. Each division on the wind direction scale on the recorder is 6°.

3. Delta temperature (ΔT) for Channel 1 and Channel 2 in °F. Determine the stability class for each channel from the information below.

ΔT (°F)	Stability Class
<-1.74	A
-1.74 to -1.56	B
-1.56 to -1.38	C
-1.38 to -0.46	D
-0.46 to 1.38	E
1.38 to 3.6	F
>3.6	G

   If the two channels do not indicate the same stability class, use the most conservative channel (class closest to G) for dose assessment calculations. If only one channel is available, use the available value to determine the stability class.

4. From the stability class determined in paragraph (3), refer to the appropriate Tab as listed below:

Atmospheric Stability Class	Tab
A	A
B	B
C	C
D	D
E	E
F	F
G	G

FIGURE 1
METEOROLOGY INFORMATION
FARLEY METEOROLOGY TOWER

☐Date____________ Time ________CENTRAL Performed by:_______________

☐ Wind Speed Determination:

Recorder value (% of full scale):______ ( ) 35' [0-25 mph]
( ) 150' [0-50 mph]

Wind speed _______________mph

☐ Wind direction (W.D.)___________(from which the wind is blowing)
(6° per chart divison)
( ) + 180° (if W.D. <180°)
( ) 35' ( ) 150'
( ) - 180° (if W.D. >180°)

Downwind direction: __________ (wind direction plus/minus 180°)

☐ ΔTemperature (200' minus 35') - Channel 1 ________°F

ΔTemperature (200' minus 35') - Channel 2 ________°F

☐ Stability Class for dose assessment (use most conservative class-closest to G):________

ΔT(°F)	Channel 1	Channel 2
<-1.74	( ) A	( ) A
-1.74 to -1.56	( ) B	( ) B
-1.56 to -1.38	( ) C	( ) C
-1.38 to -0.46	( ) D	( ) D
-0.46 to 1.38	( ) E	( ) E
1.38 to 3.6	( ) F	( ) F
>3.6	( ) G	( ) G

FOR INFORMATION ONLY:

A. Meteorological instrument elevations are given with respect to the met tower base slab at 182' MSL

B. Plant vent releases are at elevation 299' MSL

C. Steam jet air ejector releases are at elevation 272' MSL.

D. Steam generator atmospheric/safety relief valve releases are at elevation 214' MSL.

CHP Form 112
March 1981

TAB 2

METEOROLOGICAL INFORMATION

OFFSITE SOURCES

TAB 2

METEOROLOGICAL INFORMATION OFFSITE SOURCES

If either wind speed, wind direction, or atmospheric stability is not available from the plant meteorology tower, backup information can be obtained from Dothan Flight Service (Great Southern Paper Company also has wind speed and wind direction), National Weather Bureau - Montgomery, and National Weather Bureau - Birmingham (See EIP-8). Dothan Flight Service is the preferable source. If information is requested from either Montgomery or Birmingham, request data for Zone 15.

Request the following information and record on CHP Form 113, Meteorology Information - Offsite Sources (Figure 2A).

1. Wind speed in knots or mph (if plant wind speed is not available).

2. Wind direction in degrees or compass point (if plant wind direction is not available). If wind direction is given as a compass point, use the following information to convert to degrees:

Compass Point	Degrees
N	0°
NNE	22°
NE	45°
ENE	67°
E	90°
ESE	112°
SE	135°
SSE	157°
S	180°
SSW	202°
SW	225°
WSW	247°
W	270°
WNW	292°
NW	315°
NNW	337°

3. From the wind direction, determine the downwind direction by:

   A. Adding 180° if the wind direction is <180°

   B. Subtracting 180° if the wind direction is >180°

4. Cloud cover at FNP in percent or tenths (i.e. 40% = 4/10) (if plant atmospheric stability is not available). If the information is to be obtained from the Weather Bureau, ask for information for Zone 15.

5. Cloud ceiling height at FNP in feet (if plant atmospheric stability is not available). If the information is to be obtained from the Weather Bureau, ask for information for Zone 15.

6. If the atmospheric stability class can not be determined due to the plant meterological tower's ΔT not being available, determine the stability class as follows:

   A. Determine Net Radiation Index (NRI) as follows:

      1. For Daytime or Nighttime, if % cloud cover is 100% (10/10) and ceiling height is ≤7,000 ft., set NRI = 0 and go to step B.

      2. For nighttime (one hour before sunset to one hour after sunrise)

         a. If % cloud cover ≤40% (≤4/10) set NRI = -2 and go to step B.

         b. If % cloud cover >40% (>4/10) set NRI = -1 and go to step B.

      3. For Daytime

         a. Determine Insolation Class Number (ICN) from Figure 2B.

         b. If % cloud cover ≤ 50% (≤5/10), set NRI = ICN and go to step B.

         c. If % cloud cover >50% (>5/10), modify the ICN value as follows:

            (1) If ceiling height is <7,000 ft., subtract 2.

            (2) If ceiling height is ≥7,000 ft. but <16,000 ft., subtract 1.

            (3) If % cloud cover is 100% (10/10), subtract 1 again.

            (4) If Modified ICN value is <1, set Modified ICN = 1.

(5) Set NRI = Modified ICN and go to step B.

B. Using the Net Radiation Index obtained in Step A and the existing wind speed, determine stability class from Figure 2C, Turner Stability Class as a Function of Net Radiation and Wind Speed.

FIGURE 2A
METEOROLOGICAL INFORMATION
OFFSITE SOURCES

□ Date __________ Time_________CENTRAL Performed by:________ ____________

□ Data obtained from: ( ) Dothan Flight Service
( ) National Weather Bureau, Montgomery (Zone 15)
( ) National Weather Bureau, Birmingham (Zone 15)
( ) Great Southern Paper Company

□ Wind speed: ________ knots x 1.1516 = ________________mph

□ *Wind direction ______________ (compass point) or _________ (degrees) (From which wind is blowing)

Downwind direction _________ (degrees) (Wind direction plus/minus 180°)

*Compass Point	Degrees	*Compass Point	Degrees
N	0°/360°	S	180°
NNE	22°	SSW	202°
NE	45°	SW	225°
ENE	67°	WSW	247°
E	90°	W	270°
ESE	112°	WNW	292°
SE	135°	NW	315°
SSE	157°	NNW	337°

□ Percent cloud cover:_______________% or __________/10

□ Cloud ceiling height: _____________ft.

□ Determine Net Radiation (NRI) from criteria below:_______________NRI

( ) Night**:

Cloud Cover	Cloud Ceiling Height	NRI
100% (10/10)	≤7,000 ft.	0
100% (10/10)	≥7,000 ft.	-1
>40 to 99% (>4/10 to 9.9/10)	Not Applicable	-1
≤40% (≤4/10)	Not Applicable	-2

( ) Day***

Insolation Class Number (ICN) for DAYTIME ONLY (Figure 2B):____________

Cloud Cover	Cloud Ceiling Height	Use Insolation Class Number (ICN) Fig. 2B	NRI
100%	≤7,000 ft.	No	0
100%	≥7,000 to 16,000 ft.	Yes	****ICN minus 2
100%	>16,000 ft.	Yes	****ICN minus 1
>50% to 99%	<7,000 ft.	Yes	****ICN minus 2
>50% to 99%	≥7,000 to 16,000 ft.	Yes	****ICN minus 1
>50% to 99%	≥16,000 ft.	Yes	ICN
≤50%	Not Applicable	Yes	ICN

□ Stability Class from Figure 2C:____; refer to Tab with the same stability class letter.

**Night-one hour before sunset to one hour after sunrise

***Day-one hour after sunrise to one hour before sunset

****If result value <1, set NRI = 1.

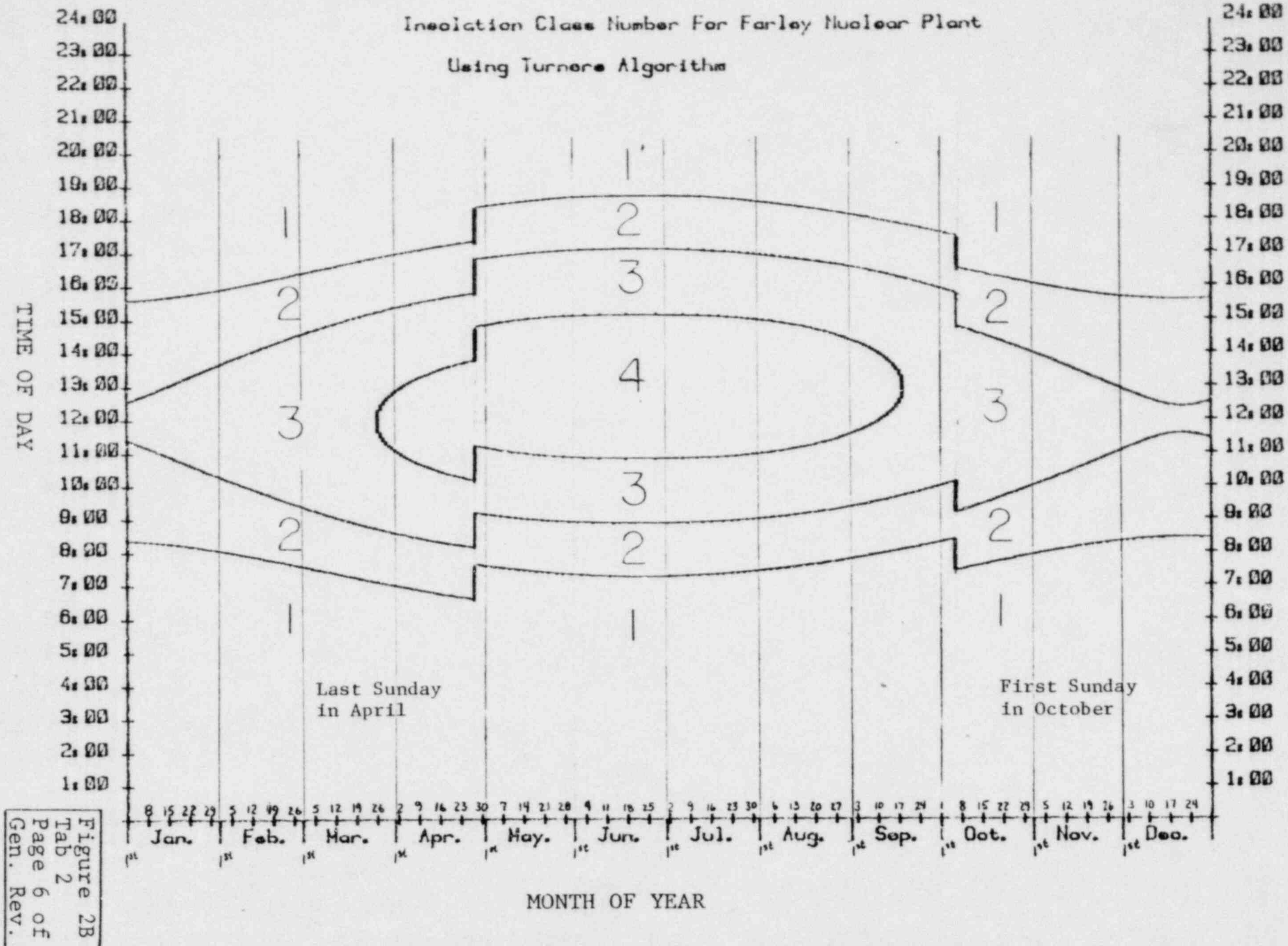


Figure 2B
Tab 2
Page 6 of 7
Gen. Rev. 8

FNP-0-EIP-9

FIGURE 2C

TURNER STABILITY CLASS AS A FUNCTION OF NET RADIATION INDEX AND WIND SPEED

Wind Speed (mph)	Wind Speed (knots)	NET RADIATION INDEX 4	3	2	1	0	-1	-2
0 - 1.6	0-1	A	A	B	C	D	F	G
1.7 - 3.9	2-3	A	B	B	C	D	F	G
4.0 - 6.2	4-5	A	B	C	D	D	E	F
6.3 - 7.4	6	B	B	C	D	D	E	F
7.5 - 8.5	7	B	B	C	D	D	D	E
8.6 - 10.8	8-9	B	C	C	D	D	D	E
10.9 - 12.0	10-11	C	C	D	D	D	D	E
12.1 - 13.1	12	C	C	D	D	D	D	D
≥13.2	>12	C	D	D	D	D	D	D

	Loss of Reactor Coolant	Loss of Secondary Coolant	S/G Tube Rupture	Degraded Core	Effluent	Security	Loss of Electrical Power
Notification of Unusual Event EIP-17		Outside Ctmt. with ECCS activation		Core < 10°F subcooled	Radiological T.S. limits exceeded	Attempted sabotage or unauthorized entry	Both trains of AC or all diesels
Alert EIP-12	50gpm leakage (unisolatable)	Inside Ctmt. or outside Ctmt. with MSIV failure or outside Ctmt. with 10 gpm S/G tube leakage.	With ECCS activation or >10gpm leak with steam break outside Ctmt.	Clad damage indicated by RCS activity. >300 μCi/gm equiv. I-131.	>10 times radiological T.S. exceeded or either R-14, R-21, or R-22 reading offscale (sampling confirms) or [illegible handwritten addition] boundary	Actual or imminent threat of sabotage	LOSP and loss of all diesels for <15 min. or loss of Aux. bldg. .C. for < 15 min.
Site EIP-18	With Ctmt. press. >27 psig or Rupture of a control rod housing.	Outside Ctmt. with >50gpm tube leakage and RCS activity >T.S. limit.	With LOSP and ECCS actuation.	RCS ΔT> 64° and increasing or core exit temp. >1200°F.	Projected offsite dose 1.0 Rem W.B. or 2.5 Rem Thyroid	Imminent takeover of plant	LOSP and loss of all diesels for >15 min. or loss of both trains of aux. bldg. DC for > 15 min.
General EIP-19	With fuel damage and potential loss of Ctmt. or loss of Ctmt. integ. and potential fuel damage			With LOCA and potential loss of Ctmt. integ. or with loss of Ctmt. integrity and potential LOCA	Projected offsite dose > 5 Rem WB or 10 Rem Thyroid	Loss of physical control of plant.	

	Loss of Control Room Indication	Hi RCS Activity	ESF Equip. Failure	Fuel Damage/Inadvertent Loading	Natural Emergencies	Hazards	Miscellaneous
Notification of Unusual Event EIP-17	Loss of MCB indication or annunciation to an extent requiring shutdown.	Exceeds Tech. Spec.		Inadvertent loading of fuel causing Fq to exceed tech. spec. limit.	Any of following which affect site: Earthquake Tornado Hurricane Unusual River level	Any of following on site or <1 mile from site plant, affects ops: Aircraft crash Exp. or fire Toxic gas Flamm. gas	Ctmt. integ. tech. spec. exceeded. Loss of forced flow-3 loops. ECCS actuated. Safety or PORV fail to close (prz or S/G). Contam. indiv. transported.
Alert EIP-12	Loss of all MCB annunciators	>300 μCi/gm equiv. I-131	Loss of Both trains of either AFW, RHR, SW, CCW or failure of SSPS to initiate & complete trip.	Fuel damage with either R-2, R-11, R-12, R25 A or B reading off scale.	Earthquake> OBE. Tornado striking fac. Hurricane winds near 115 mph. Unusual river level affecting ops.	Any of following affecting ops: Aircraft crash Toxic gas Flamm. gas or Fire potentially affecting ECCS.	Rod ejection at power.
Site EIP-18	Loss of all MCB annunciators for >15 min. when either not in CSD or a significant transient is in progress.	Fission product activity in RCS > 300 μCi/gm with potential loss of RCS or ctmt. integ.	Loss of functions required to achieve HSB	Fuel damage with projected dose 1.0 Rem WB or 2.5 Rem Thyroid	Earthquake > SSE Winds > 115 mph River level > or < design basis.	Any of following with plant not in CSD: Aircraft crash affecting vital structures. Toxic or flamm. gas into vital areas. Fire or expl. affecting ECCS or SSD equip.	Evacuation of Control Room
General EIP-19		>300 μCi/gm with LOCA & poten. loss of ctmt. integ. or Loss of ctmt. int. & potential LOCA.					

TAB 3

TAB A

STABILITY CLASS A DOSE ASSESSMENT

TAB A
STABILITY CLASS A

STABILITY CLASS A DOSE ASSESSMENT

I. Determine the factors for determining the source term for each affected effluent path:

A. Plant Vent Stack Release

1. Enter the flowrate in cfm from the plant vent stack flow recorder (Unit 1 - next to RE-14 monitor; Unit 2 - on BOP) on Figure A-8, Stability Class A Dose Assessment or by using the following information if the recorder is <u>not</u> operating:

a. One aux. bldg. fan............75,000 cfm
b. One aux. bldg. fan & RE-025 tripped...................79,000 cfm
c. Two aux. bldg. fans..........150,000 cfm
Two aux. bldg. fans & RE-025 tripped...........154,000 cfm

2. If RE-29B (SPING-4 readout located in the Unit 2 Gross Failed Fuel Detector rack) is <u>operating</u> (if necessary, have counting room personnel refer to FNP-0-RCP-704):

a. Enter on Figure A-8 the µCi/ml for noble gas and the noble gas dose factor from Figure A-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use a noble gas dose factor of 2.4E+02.

b. Enter on Figure A-8 the µCi/ml for iodine and the <u>infant</u> iodine dose factor from Figure A-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use an <u>infant</u> iodine dose factor of 6.0E+05.

3. If RE-29B (SPING-4) is <u>not operating</u>, perform (a) OR (b) below:

a. Use the RAD-GUN per RCP-25 to determine the µCi/ml, and record the same µCi/ml value on Figure A-8 for both the noble gas and iodine concentration. Use

Figure A-2 to determine the noble gas and infant iodine dose factors and record on Figure A-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.3E+02
Iodine: 1.4E+04

b. Obtain a grab sample to determine the μCi/ml for noble gas and iodine and enter on Figure A-8 the values for both noble gas and iodine. Use Figure A-1 to determine the the noble gas and infant iodine dose factors and record on Figure A-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.4E+02
Iodine: 6.0E+05

B. Steam Generator atmospheric relief and/or safety release.

1. Determine the flow from the atmospheric reliefs and/or safety reliefs as follows:

a. Obtain the current pressure (psig) and loop TAVG(°F) readings for each steam generator of the affected unit. Record values on Figure A-4.

b. Determine the flow in pounds mass per hour (lbm/hr) that is possible from a safety/atmospheric relief valve by using Figure A-5. The value obtained is the flow that will be discharged from each safety or atmospheric relief valve that is open.

c. Determine the number of valves that are open for each steam generator using the data below:

Pressure of Steam Gen. (psig)	Valves Open
<1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

d. Determine the specific volume (ft^3-hr/min-lbm) by using the loop TAVG(°F) and the information below and record on Figure A-4 for each steam generator (use the closest TAVG value):

TAVG(°F)	SPECIFIC VOLUME $\left[\frac{ft^3\text{-}hr}{min\text{-}lbm}\right]$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

e. Determine the total flow in cfm from each generator by multiplying the flow (lbm/hr) times number of valves open times the specific volume for each generator.

f. Determine the total flow of the release in cfm from all generators by summing the values obtained for each generator per I.B.1.e.

g. Record this value on Figure A-4 and on Figure A-8 for both iodine and noble gas.

2. Determine the effluent concentration in μCi/ml by using RCP-25 and by performing either (a) OR (b) below:

a. Use a portable dose rate instrument and record the same μCi/ml value on Figure A-8 for both noble gas and iodine. Determine the noble gas and infant iodine dose factors using Figure A-3 and record on Figure A-8. The "Elapsed Time

Since Shutdown (Hours)" applies to the reactor.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure A-8. Determine the noble gas and infant iodine dose factors using Figure A-1 and record on Figure A-8.

C. Steam jet air ejector release

1. Enter a flow rate of 1050 cfm on Figure A-8 for both the noble gas and iodine flowrate.

2. Determine the effluent concentration in μCi/ml by using RCP-25 and by performing either (a) OR (b) below:

a. Use a portable dose rate instrument and record the same μCi/ml value on Figure A-8 for both noble gas and iodine. Determine the noble gas and infant iodine dose factors and record on Figure A-8 as follows:

(1) Use Figure A-2 if the SJAE filters are in service.

(2) Use Figure A-3 if the SJAE filters are not in service.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure A-8. Determine the noble gas and infant iodine dose factors from Figure A-1 and record on Figure A-8.

II. Determine the source term for each effluent path for noble gas and iodine by using the following equation and the values entered on Figure A-8:

[flowrate (cfm)] X [conc. (μCi/ml)] X [dose factor] =[source term]

III. Determine the total noble gas source term on Figure A-8 by summing the noble gas source terms calculated for each effluent path.

IV. Determine the total iodine source term on Figure A-8 by summing the iodine source terms calculated for each effluent path.

V. Enter the total noble gas source term, total iodine source term, and the wind speed in mph in the appropriate boxes on Figure A-8. Determine the dose rate in mRem/hr at the site boundary from noble gas and from iodine by using the following equation:

$$\left(\frac{\text{Total Source Term}}{\text{Wind Speed, mph}}\right) \times \left(\frac{\bar{U}\chi}{Q}\right) = \text{mRem/hr at site boundary (S.B.)}$$

VI. If the projected noble gas or iodine dose rate ≥ 1 mRem/hr, proceed to step VII; if not, the estimated whole body or thyroid dose does not meet the minimum criteria for classifying the emergency according to paragraph 4.2 in the main body of this procedure and no further calculations are required at this time. Go to step XIV.

VII. Determine the estimated repair time or release duration in hours and record on Figure A-8. Use 14 hours if this value is unknown.

VIII Determine the projected whole body dose in Rem at the site boundary using the following equation and record on Figure A-8:

$$\underset{\text{Whole Body}}{\text{Dose (Rem)}} = \left(\text{Dose rate, site boundary } \frac{\text{mrem}}{\text{hr}}\right) \left(\text{Release/repair time, hr}\right) \left(\frac{1 \text{ Rem}}{1000 \text{mRem}}\right)$$

IX. Determine the projected thyroid dose from iodine in Rem at the site boundary by using the following equation and record on Figure A-8:

$$\underset{\text{thyroid}}{\text{Dose } I_2 \text{ (Rem)}} = \left(\text{Dose rate, site boundary } \frac{\text{mRem}}{\text{hr}}\right) \left(\text{Release/repair time, hr.}\right) \left(\frac{1 \text{ Rem}}{1000 \text{ mRem}}\right)$$

X. Determine the total thyroid dose in Rem by summing the results from steps VIII and IX.

XI. Determine the classification of the emergency using the values from steps VIII and X and comparing them to the criteria of paragraph 4.2 in the main body of this procedure.

XII. Determine the affected downwind areas in the 10-mile emergency planning zone (EPZ) by placing Figure A-6, "Relative Dose Rate Plume Boundary For Stability Class A" on the 10-mile EPZ map and by orienting the plume centerline on the downwind direction vector. The lines on Figure A-6 are isodose/isodose rate lines. The

dose/dose rate values on each of the lines can be obtained by multiplying the values by the site boundary dose/dose rate. The value at the intersection of the 10 mile arc and the plume centerline times the site boundary centerline dose/dose rate gives the dose/dose rate at that point. Mark the centerline on the map with a grease pencil and record the date, time, and stability class to aid in projecting accumulated doses and affected areas.

XIII Determine the arrival times in minutes for the site boundary, and each mile arc out to 10 miles or to where the dose rate <1 mRem/hr using Figure A-7 "Arrival Time versus Wind Speed." Record data on Figure A-8.

XIV. Refer to step 4.4 in the main body of this procedure.

FIGURE A-1

FAILED FUEL

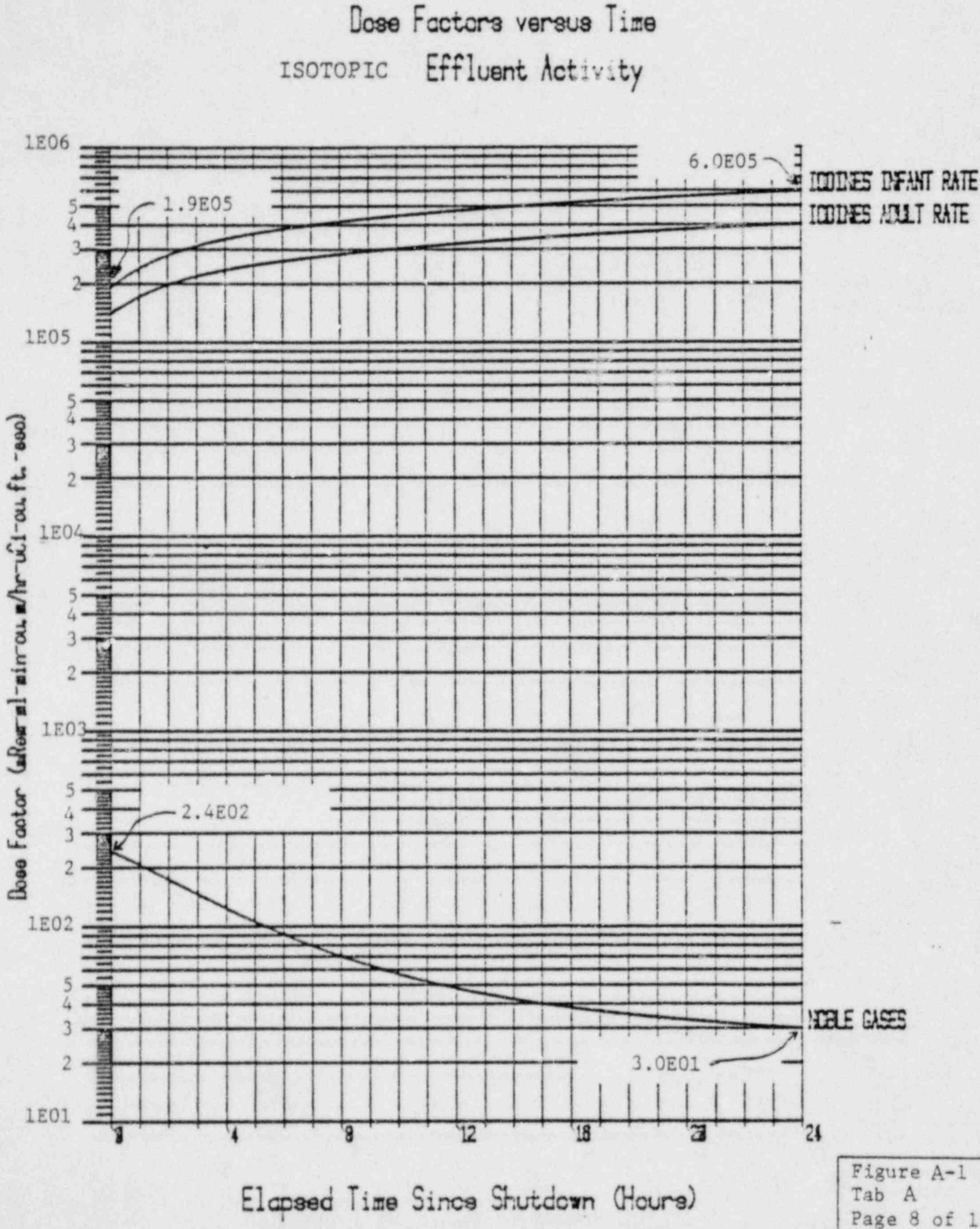


FIGURE A-2

FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Filtered Iodines

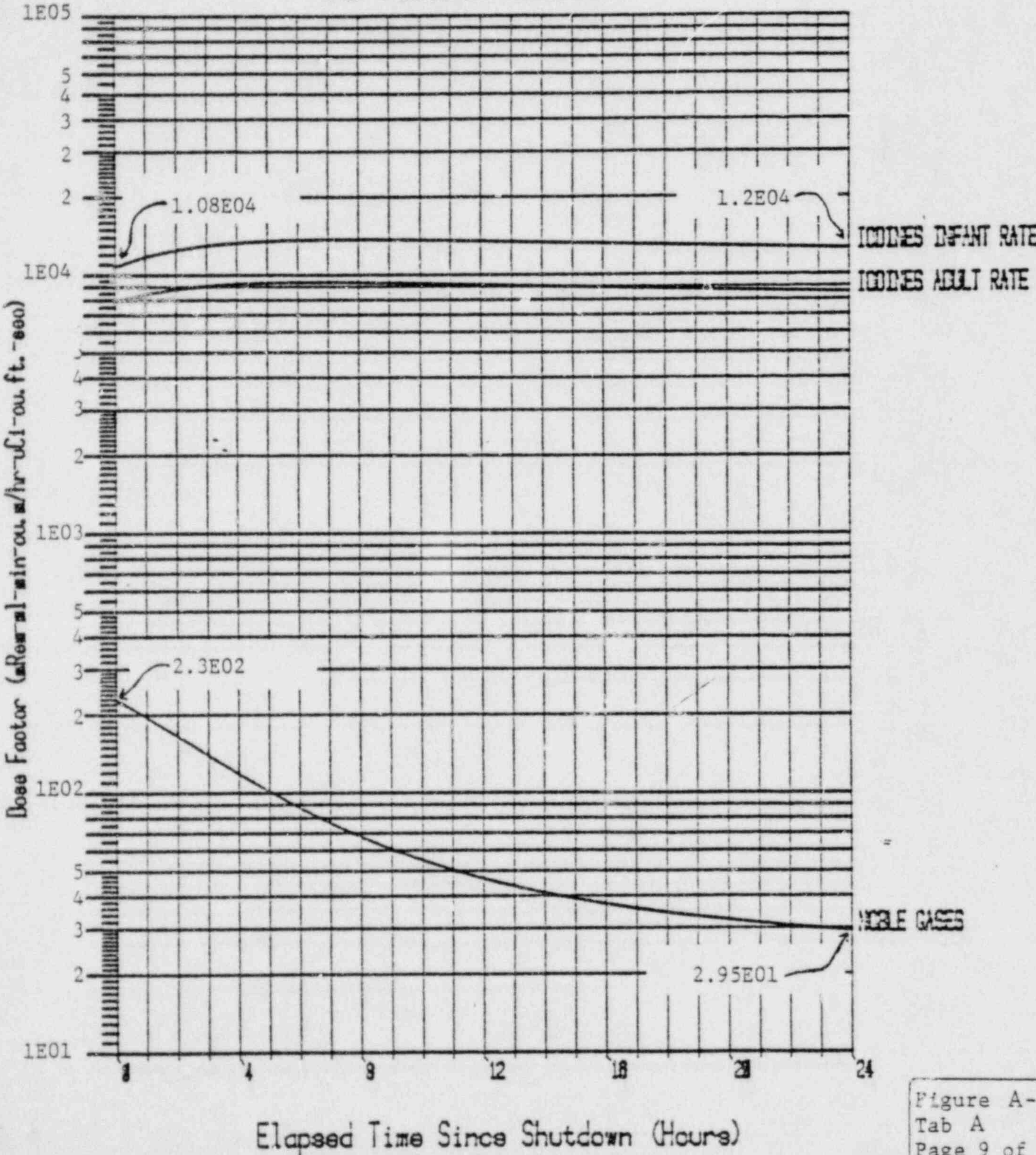


FIGURE A-3
FAILED FUEL

Dose Factors versus Time
Gross Effluent Activity
For Unfiltered Iodines

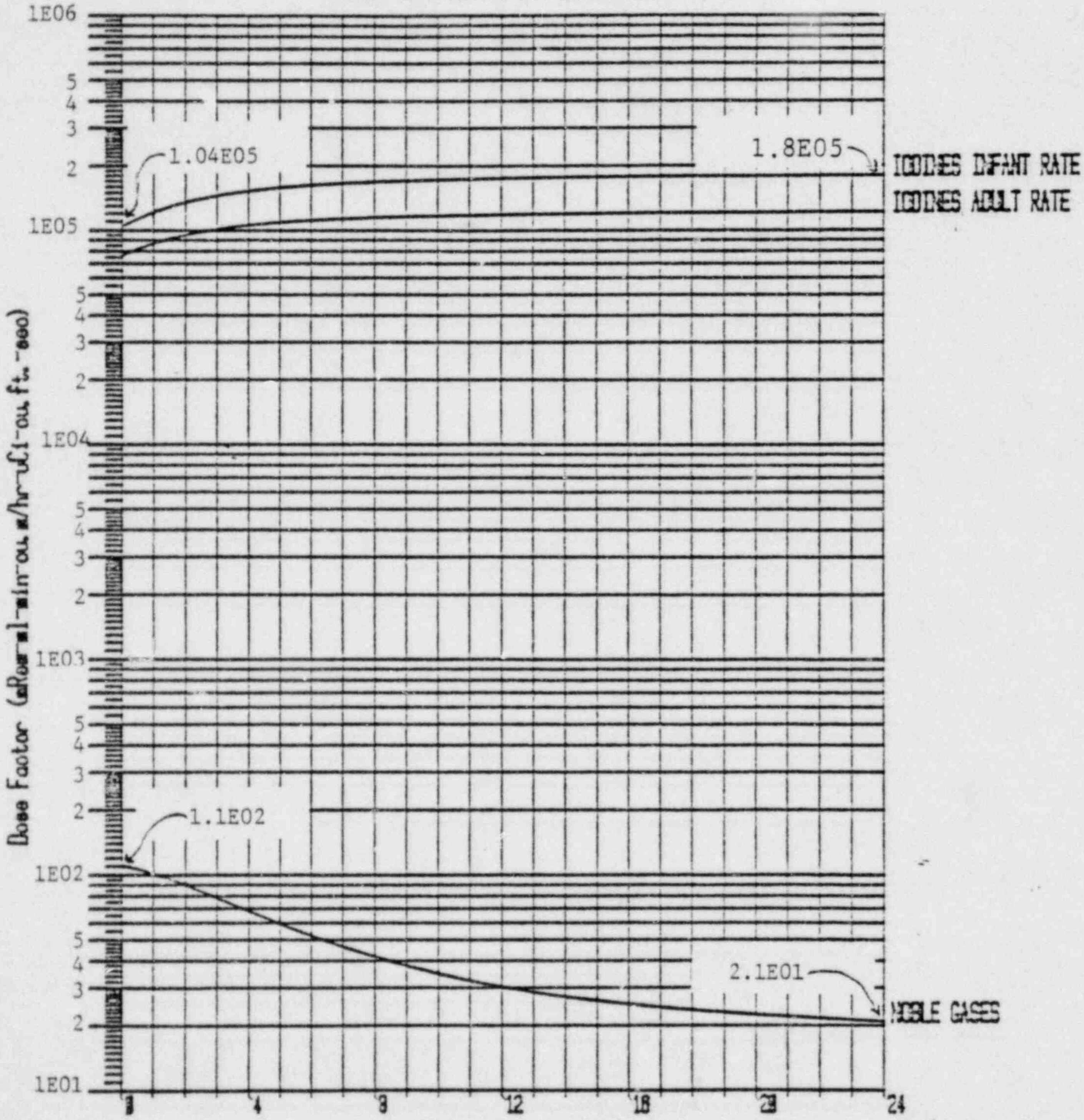


FIGURE A-4
STEAM ATMOSPHERIC/SAFETY RELIEF VALVE
FLOW CALCULATION SHEET

SG Press (pisg)	No. Valves Open
<1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

TAVG(°F)	SPECIFIC VOLUME $\left[\frac{ft^3\text{-}hr}{min\text{-}lbm}\right]$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

Date/Time	Unit SG	Press. (psig)	Loop TAVG (°F)	lb m/hr (Fig A-5)	X	# valves open	X	specific volume	=	cfm per SG	cfm per Unit	Remarks
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX								sum of cfm per SG
XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX								sum of cfm per SG
XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX								sum of cfm per SG
XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXX

FIGURE A-5
MAXIMUM FLOW PAST VALVE vs STEAM GENERATOR PRESSURE

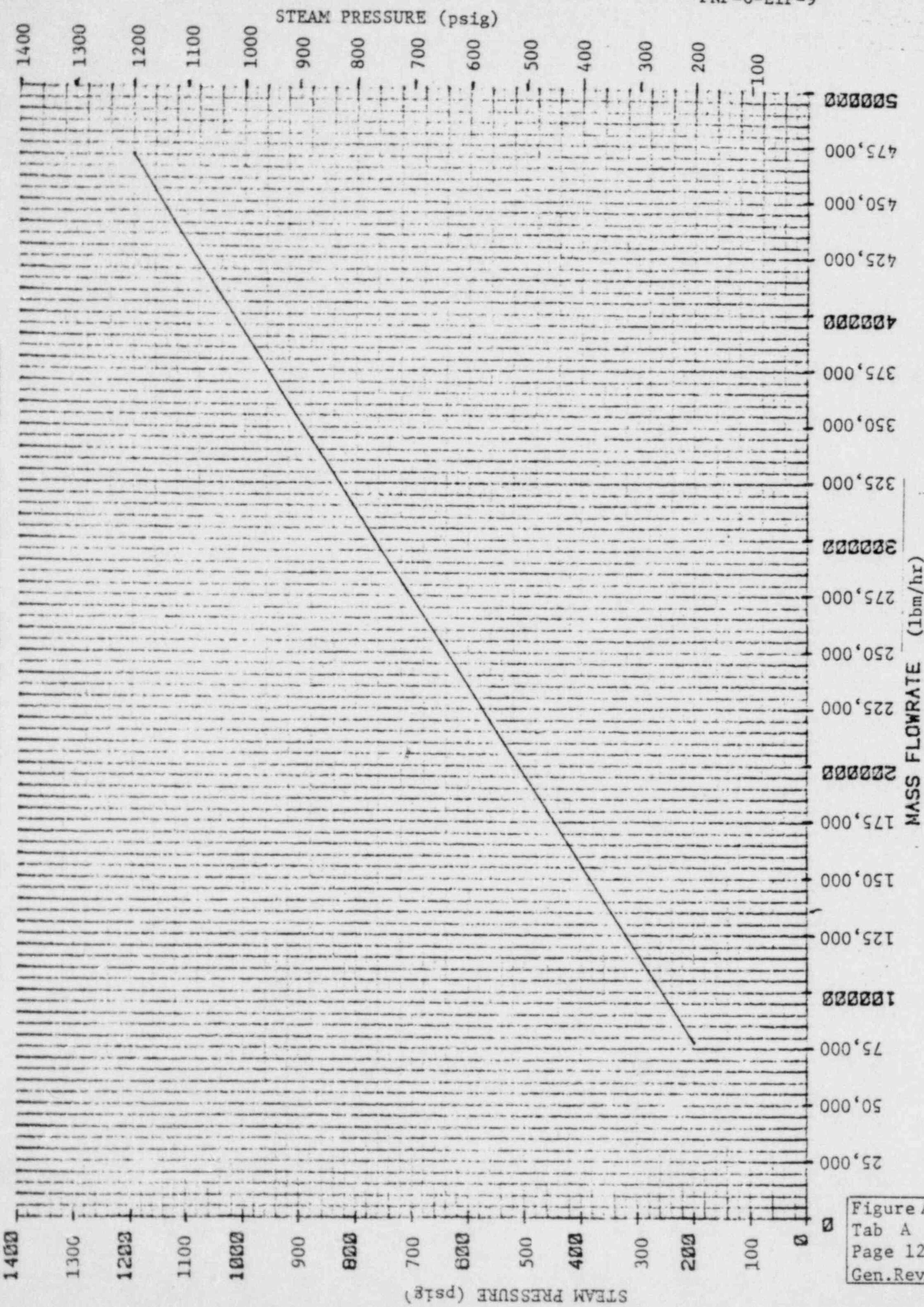


FIGURE A-6

Relative Dose Rate Plume Boundary
For stability class A
mixing height = 4104ft.

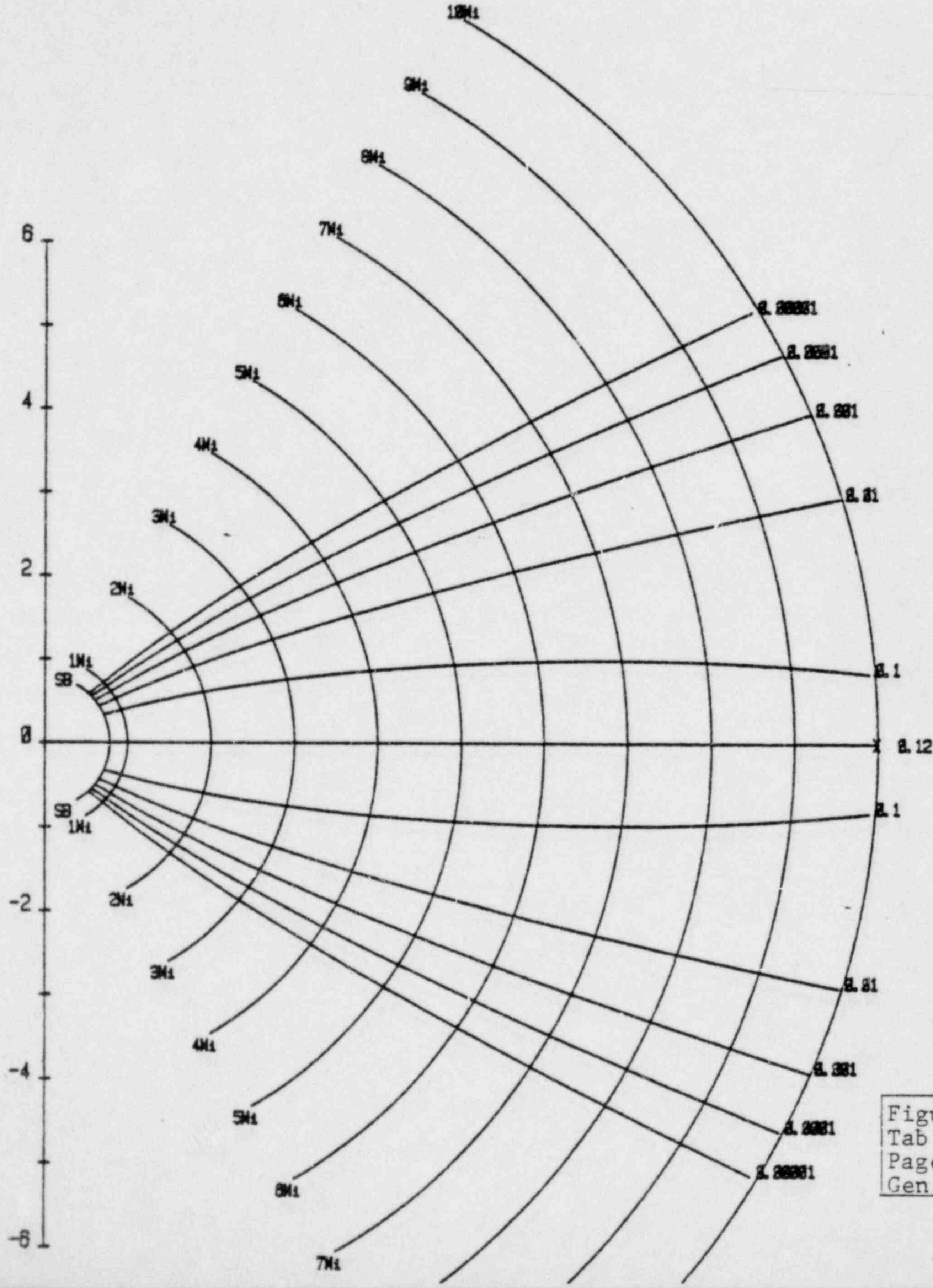


Figure A-7
Travel Time (Minutes) versus Wind Speed (MPH)

Wind Speed (MPH)	Distance (Miles)										
	sb	1	2	3	4	5	6	7	8	9	10
1	47.0	60.0	120.0	180.0	240.0	300.0	360.0	420.0	480.0	540.0	600.0
2	23.5	30.0	60.0	90.0	120.0	150.0	180.0	210.0	240.0	270.0	300.0
3	15.7	20.0	40.0	60.0	80.0	100.0	120.0	140.0	160.0	180.0	200.0
4	11.8	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0	150.0
5	9.4	12.0	24.0	36.0	48.0	60.0	72.0	84.0	96.0	108.0	120.0
6	7.8	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0
7	6.7	8.6	17.1	25.7	34.3	42.9	51.4	60.0	68.6	77.1	85.7
8	5.9	7.5	15.0	22.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0
9	5.2	6.7	13.3	20.0	26.7	33.3	40.0	46.7	53.3	60.0	66.7
10	4.7	6.0	12.0	18.0	24.0	30.0	36.0	42.0	48.0	54.0	60.0
11	4.3	5.5	10.9	16.4	21.8	27.3	32.7	38.2	43.6	49.1	54.5
12	3.9	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
13	3.6	4.6	9.2	13.8	18.5	23.1	27.7	32.3	36.9	41.5	46.2
14	3.4	4.3	8.6	12.9	17.1	21.4	25.7	30.0	34.3	38.6	42.9
15	3.1	4.0	8 0	12.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0
16	2.9	3.8	7.5	11.3	15.0	18.8	22.5	26.3	30.0	33.8	37.5
17	2.8	3.5	7.1	10.6	14.1	17.6	21.2	24.7	28.2	31.8	35.3
18	2.6	3.3	6.7	10.0	13.3	16.7	20.0	23.3	26.7	30.0	33.3
19	2.5	3.2	6.3	9.5	12.6	15.8	18.9	22.1	25.3	28.4	31.6
20	2.4	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0
21	2.2	2.9	5.7	8.6	11.4	14.3	17.1	20.0	22.9	25.7	28.6
22	2.1	2.7	5.5	8.2	10.9	13.6	16.4	19.1	21.8	24.5	27.3
23	2.0	2.6	5.2	7.8	10.4	13.0	15.7	18.3	20.9	23.5	26.1
24	2.0	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0
25	1.9	2.4	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0
26	1.8	2.3	4.6	6.9	9.2	11.5	13.8	16.2	18.5	20.8	23.1

FIGURE A-8
STABILITY CLASS A DOSE ASSESSMENT

□Date ______ □Time ______ CENTRAL □Performed by: ______

NOBLE GAS (N.G.) SOURCE TERM

	Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
□Plant Vent:	____	X	____E	X	____E	=	____E
□SG:	____	X	____E	X	____E	=	____E
□SJAE:	1.05E+3	X	____E	X	____E	=	____E
□Other:	____	X	____E	X	____E	=	____E

Total N.G. Source Term = ____E

IODINE SOURCE TERM

Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
____	X	____E	X	____E	=	____E
____	X	____E	X	____E	=	____E
1.05E+3	X	____E	X	____E	=	____E
____	X	____E	X	____E	=	____E

Total Iodine Source Term = ____E

Total N.G. ____E / Wind Speed ____mph X 1.23E-06 = ____E mRem/hr N.G. @ Site Boundary*

Total Iodine ____E / Wind Speed ____mph X 1.23E-06 = ____E mRem/hr Iodine @ Site Boundary*

____E mRem/hr N.G. @ Site Boundary* X ____hr repair, release time** X 1/1000 = ____E Rem W.B.

____E mRem/hr Iodine @ Site Boundary* X ____hr repair, release time** X 1/1000 = ____E Rem Iodine

Rem W.B. + Rem Iodine → ____E total Rem to thyroid

*If dose rate at site boundary >1 mRem/hr, complete remaining calculations.
**Use 14 hr, if value is unknown.

□Emergency classification:
( ) GENERAL (>5 Rem W.B. OR >10 Rem Thyroid)
( ) SITE (>1 Rem W.B. OR >2.5 Rem Thyroid)
( ) ALERT (>1mRem/hr N.G. or Iodine)

□Arrival times at S.B., and each mile are out to 10 miles or to location <1mRem/hr (whichever is less) based on the release/change occuring at ____hr. CENTRAL on ______(date):

SB	1 mi.	2 mi.	3 mi.	4mi.	5 mi.	6 mi.	7 mi.	8 mi.	9 mi.	10 mi.
____	____	____	____	____	____	____	____	____	____	____

TAB B

STABILITY CLASS B DOSE ASSESSMENT

TAB B
STABILITY CLASS B

STABILITY CLASS B DOSE ASSESSMENT

I. Determine the factors for determining the source term for each affected effluent path:

A. Plant Vent Stack Release

1. Enter the flowrate in cfm from the plant vent stack flow recorder (Unit 1 - next to RE-14 monitor; Unit 2 - on BOP) on Figure B-8, Stability Class A Dose Assessment or by using the following information if the recorder is not operating:

a. One aux. bldg. fan............75,000 cfm
b. One aux. bldg. fan & RE-025 tripped....................79,000 cfm
c. Two aux. bldg. fans..........150,000 cfm
Two aux. bldg. fans & RE-025 tripped............154,000 cfm

2. If RE-29B (SPING-4 readout located in the Unit 2 Gross Failed Fuel Detector rack) is operating (if necessary, have counting room personnel refer to FNP-0-RCP-704):

a. Enter on Figure B-8 the μCi/ml for noble gas and the noble gas dose factor from Figure B-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use a noble gas dose factor of 2.4E+02.

b. Enter on Figure B-8 the μCi/ml for iodine and the infant iodine dose factor from Figure B-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use an infant iodine dose factor of 6.0E+05.

3. If RE-29B (SPING-4) is not operating, perform (a) OR (b) below:

a. Use the RAD-GUN per RCP-25 to determine the μCi/ml, and record the same μCi/ml value on Figure B-8 for both the noble gas and iodine concentration. Use

Figure B-2 to determine the noble gas and infant iodine dose factors and record on Figure B-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.3E+02
Iodine: 1.4E+04

b. Obtain a grab sample to determine the µCi/ml for noble gas and iodine and enter on Figure B-8 the values for both noble gas and iodine. Use Figure B-1 to determine the the noble gas and infant iodine dose factors and record on Figure B-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.4E+02
Iodine: 6.0E+05

B. Steam Generator atmospheric relief and/or safety release.

1. Determine the flow from the atmospheric reliefs and/or safety reliefs as follows:

a. Obtain the current pressure (psig) and loop TAVG(°F) readings for each steam generator of the affected unit. Record values on Figure B-4.

b. Determine the flow in pounds mass per hour (lbm/hr) that is possible from a safety/atmospheric relief valve by using Figure B-5. The value obtained is the flow that will be discharged from each safety or atmospheric relief valve that is open.

c. Determine the number of valves that are open for each steam generator using the data below:

Pressure of Steam Gen. (psig)	Valves Open
≤1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

d. Determine the specific volume (ft^3-hr/min-lbm) by using the loop TAVG(°F) and the information below and record on Figure B-4 for each steam generator (use the closest TAVG value):

TAVG(°F)	SPECIFIC VOLUME $\left[\frac{ft^3\text{-hr}}{\text{min-lbm}}\right]$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

e. Determine the total flow in cfm from each generator by multiplying the flow (lbm/hr) times number of valves open times the specific volume for each generator.

f. Determine the total flow of the release in cfm from all generators by summing the values obtained for each generator per I.B.1.e.

g. Record this value on Figure B-4 and on Figure B-8 for both iodine and noble gas.

2. Determine the effluent concentration in µCi/ml by using RCP-25 and by performing either (a) OR (b) below:

a. Use a portable dose rate instrument and record the same µCi/ml value on Figure B-8 for both noble gas and iodine. Determine the noble gas and infant iodine dose factors using Figure B-3 and record on Figure B-8. The "Elapsed Time

Since Shutdown (Hours)" applies to the reactor.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure B-8. Determine the noble gas and <u>infant</u> iodine dose factors using Figure B-1 and record on Figure B-8.

C. Steam jet air ejector release

1. Enter a flow rate of 1050 cfm on Figure B-8 for both the noble gas and iodine flowrate.

2. Determine the effluent concentration in μCi/ml by using RCP-25 and by performing either (a) <u>OR</u> (b) below:

a. Use a portable dose rate instrument and record the same μCi/ml value on Figure B-8 for both noble gas and iodine. Determine the noble gas and <u>infant</u> iodine dose factors and record on Figure B-8 as follows:

(1) Use Figure B-2 if the SJAE filters are <u>in service</u>.

(2) Use Figure B-3 if the SJAE filters are <u>not in service</u>.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure B-8. Determine the noble gas and <u>infant</u> iodine dose factors from Figure B-1 and record on Figure B-8.

II. Determine the source term for each effluent path for noble gas and iodine by using the following equation and the values entered on Figure B-8:

[flowrate (cfm)] X [conc. (μCi/ml)] X [dose factor] =[source term]

III. Determine the <u>total</u> noble gas source term on Figure B-8 by summing the noble gas source terms calculated for each effluent path.

IV. Determine the <u>total</u> iodine source term on Figure B-8 by summing the iodine source terms calculated for each effluent path.

V. Enter the total noble gas source term, total iodine source term, and the wind speed in mph in the appropriate boxes on Figure B-8. Determine the dose rate in mRem/hr at the site boundary from noble gas and from iodine by using the following equation:

$$\left(\frac{\text{Total Source Term}}{\text{Wind Speed, mph}}\right) \times \left(\frac{\bar{U}\chi}{Q}\right) = \text{mRem/hr at site boundary (S.B.)}$$

VI. If the projected noble gas or iodine dose rate $\geq$1 mRem/hr, proceed to step VII; if not, the estimated whole body or thyroid dose does not meet the minimum criteria for classifying the emergency according to paragraph 4.2 in the main body of this procedure and no further calculations are required at this time. Go to step XIV.

VII. Determine the estimated repair time or release duration in hours and record on Figure B-8. Use 14 hours if this value is unknown.

VIII Determine the projected whole body dose in Rem at the site boundary using the following equation and record on Figure B-8:

$$\underset{\text{Whole Body}}{\text{Dose (Rem)}} = \left(\text{Dose rate, site boundary } \frac{\text{mrem}}{\text{hr}}\right)\left(\text{Release/repair time, hr}\right)\left(\frac{\text{1 Rem}}{\text{1000mRem}}\right)$$

IX. Determine the projected thyroid dose from iodine in Rem at the site boundary by using the following equation and record on Figure B-8:

$$\underset{\text{thyroid}}{\text{Dose } I_2 \text{ (Rem)}} = \left(\text{Dose rate, site boundary } \frac{\text{mRem}}{\text{hr}}\right)\left(\text{Release/repair time, hr.}\right)\left(\frac{\text{1 Rem}}{\text{1000 mRem}}\right)$$

X. Determine the total thyroid dose in Rem by summing the results from steps VIII and IX.

XI. Determine the classification of the emergency using the values from steps VIII and X and comparing them to the criteria of paragraph 4.2 in the main body of this procedure.

XII. Determine the affected downwind areas in the 10-mile emergency planning zone (EPZ) by placing Figure B-6, "Relative Dose Rate Plume Boundary For Stability Class A" on the 10-mile EPZ map and by orienting the plume centerline on the downwind direction vector. The lines on Figure B-6 are isodose/isodose rate lines. The

dose/dose rate values on each of the lines can be obtained by multiplying the values by the site boundary dose/dose rate. The value at the intersection of the 10 mile arc and the plume centerline times the site boundary centerline dose/dose rate gives the dose/dose rate at that point. Mark the centerline on the map with a grease pencil and record the date, time, and stability class to aid in projecting accumulated doses and affected areas.

XIII Determine the arrival times in minutes for the site boundary, and each mile arc out to 10 miles or to where the dose rate <1 mRem/hr using Figure B-7 "Arrival Time versus Wind Speed." Record data on Figure B-8.

XIV. Refer to step 4.4 in the main body of this procedure.

FIGURE 3-1
FAILED FUEL

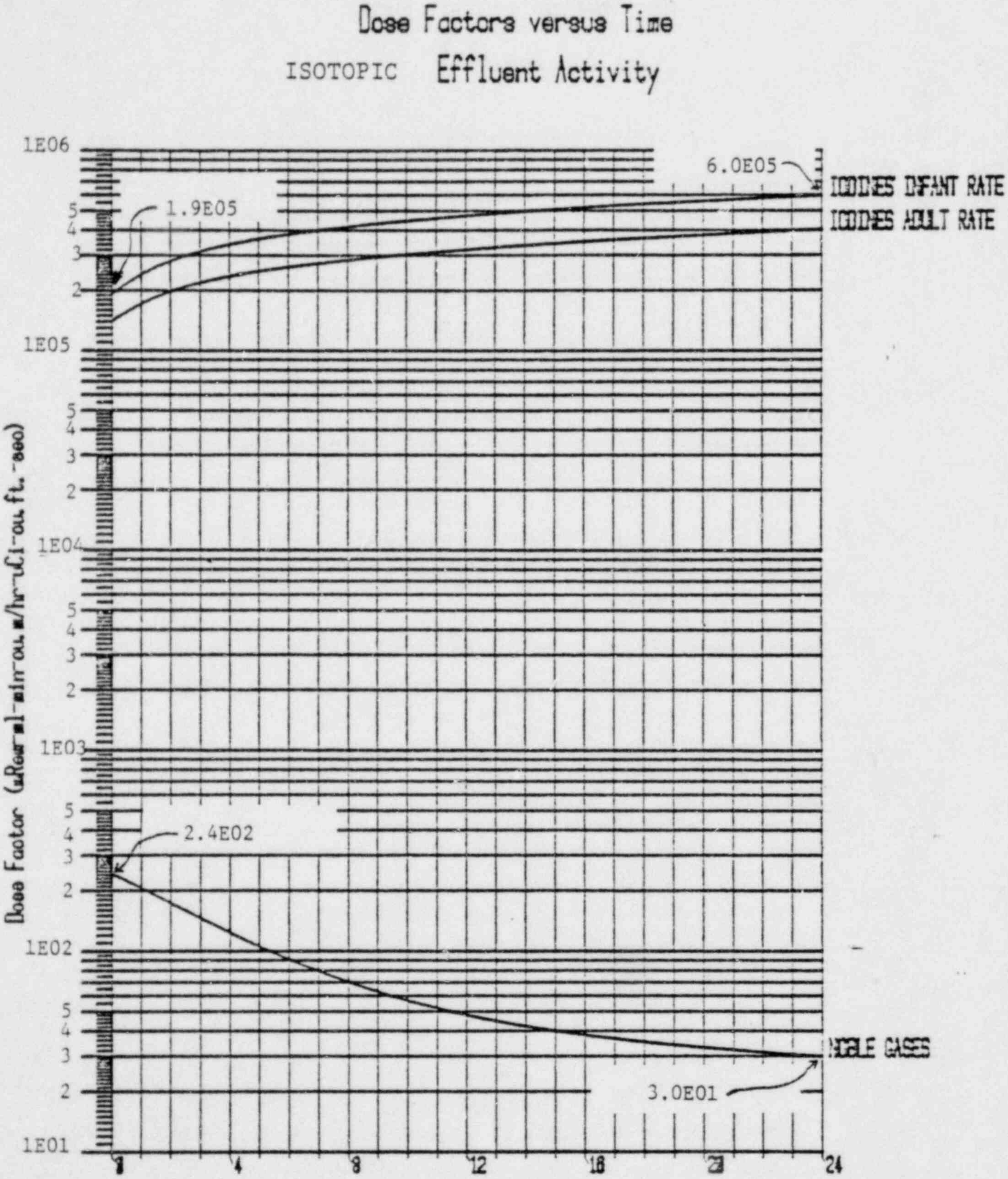


FIGURE B-2

FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Filtered Iodines

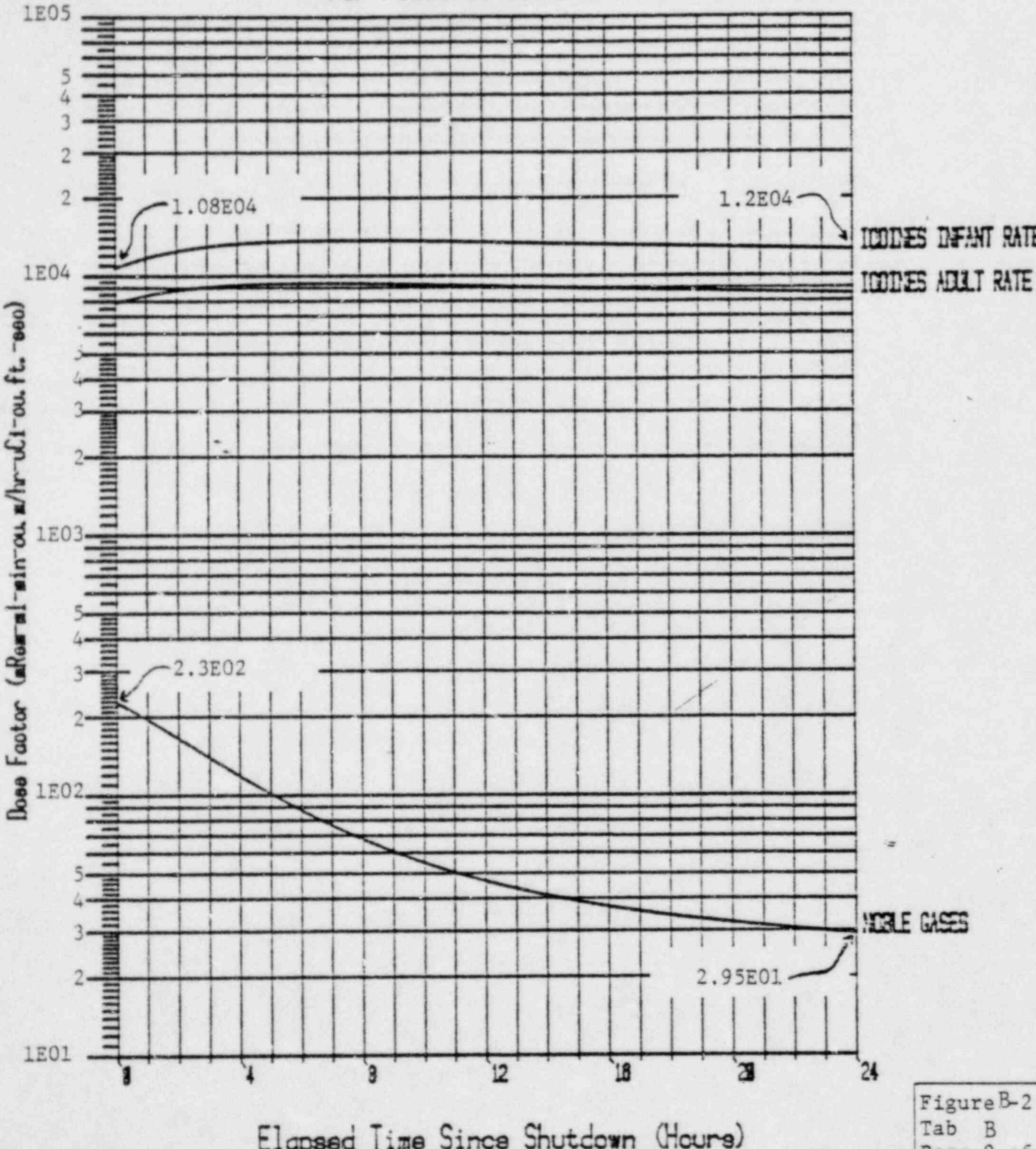


FIGURE B-3

FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Unfiltered Iodines

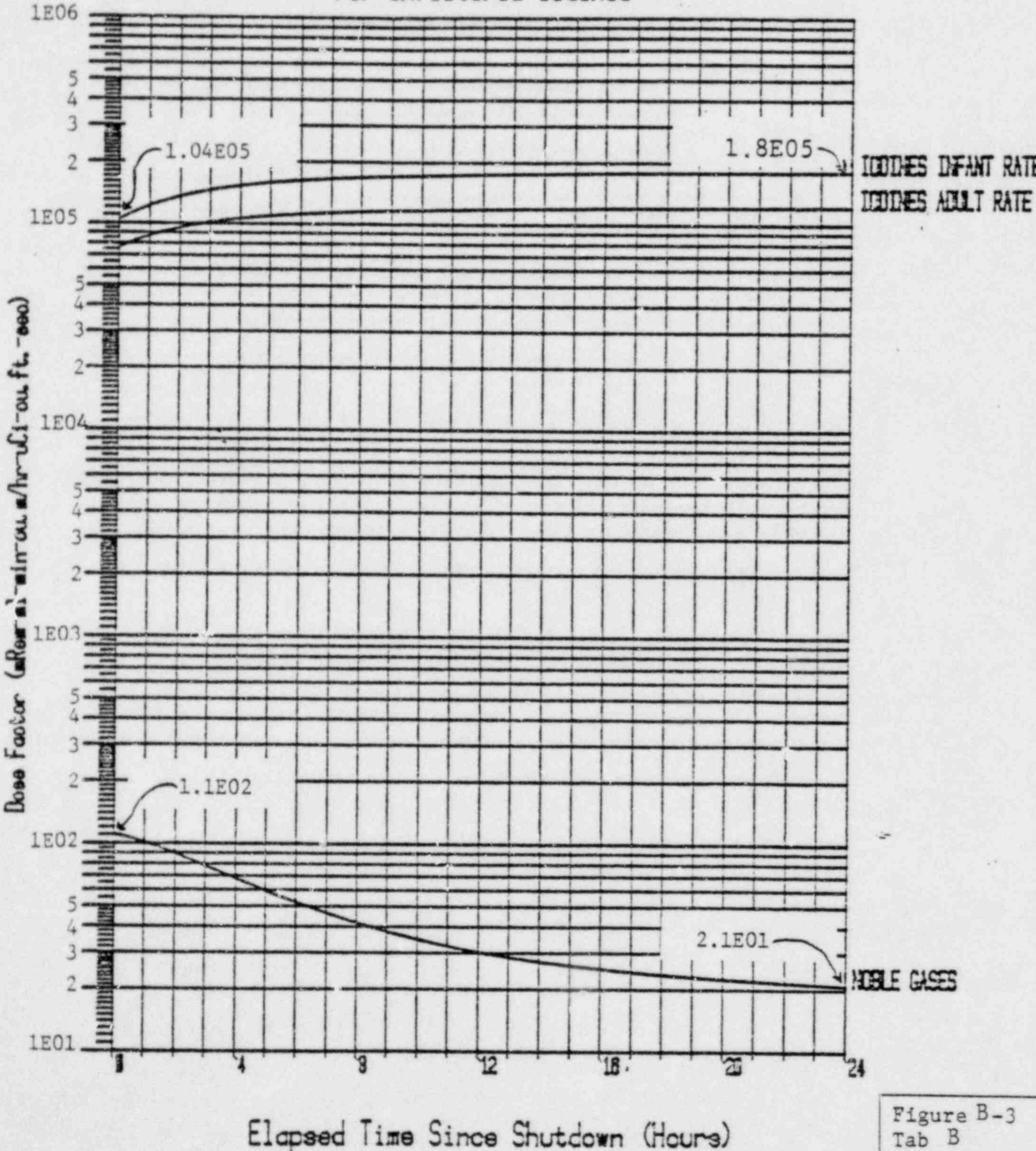


FIGURE B-4
STEAM ATMOSPHERIC/SAFETY RELIEF VALVE
FLOW CALCULATION SHEET

SG Press (pisg)	No. Valves Open
<1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

TAVG(°F)	SPECIFIC VOLUME $\frac{ft^3\text{-}hr}{min\text{-}lbm}$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

Date/Time	Unit SG	Press. (psig)	Loop TAVG (°F)	lb m/hr (Fig B-5)	X	# valves open	X	specific volume	=	cfm per SG	cfm per Unit	Remarks
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						→		sum of cfm per SG
XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXXX	XXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						→		sum of cfm per SG
XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXXX	XXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						→		sum of cfm per SG
XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXXX	XXXXXXXXXXXXXXXXXXX

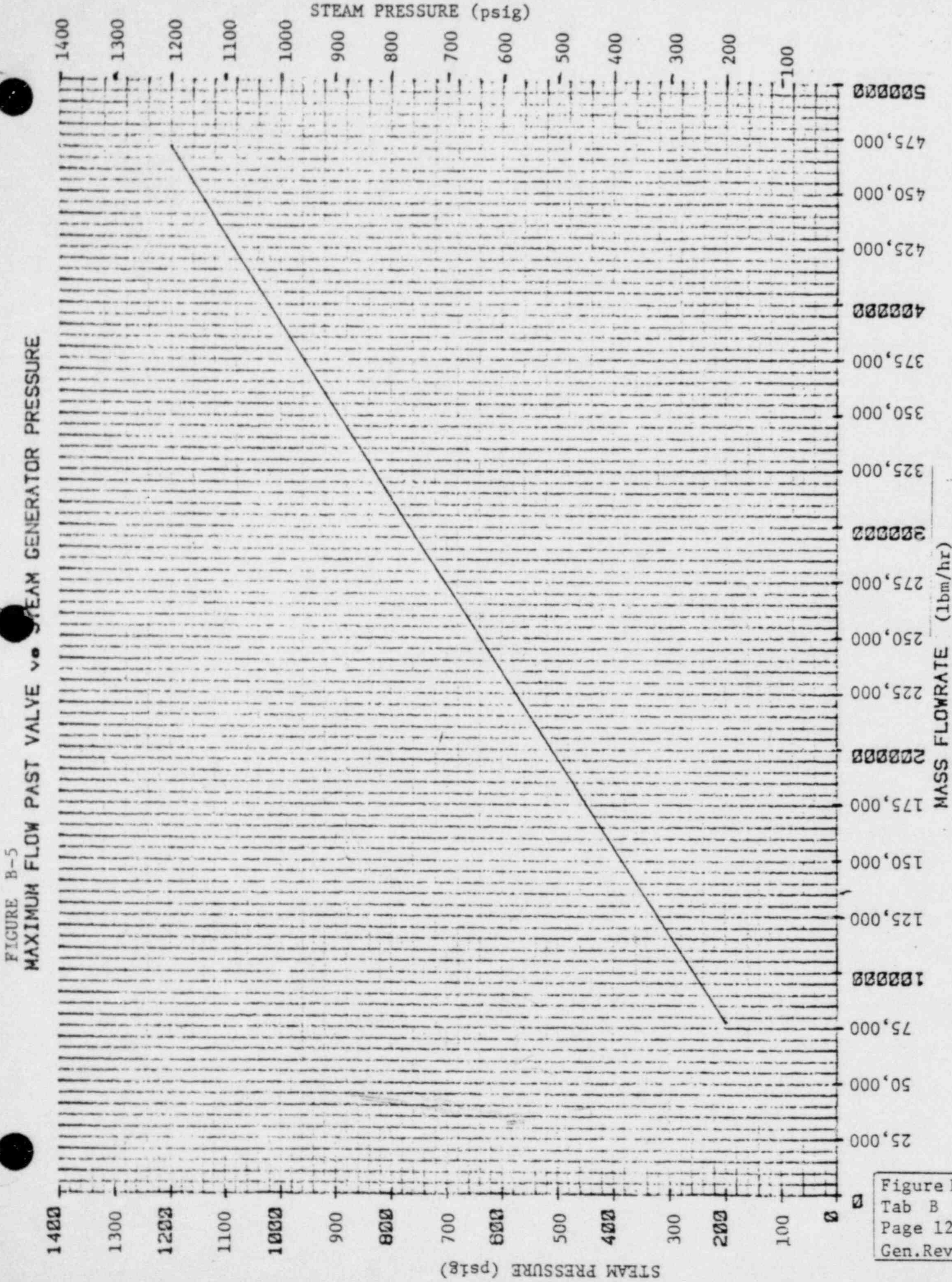


FIGURE B-5
MAXIMUM FLOW PAST VALVE vs STEAM GENERATOR PRESSURE
STEAM PRESSURE (psig)
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
MASS FLOWRATE (lbm/hr)
500000
475,000
450,000
425,000
400000
375,000
350,000
325,000
300000
275,000
250,000
225,000
200000
175,000
150,000
125,000
100000
75,000
50,000
25,000
0

FIGURE B-6

Relative Dose Rate Plume Boundary
For stability class B
mixing height = 4100ft.

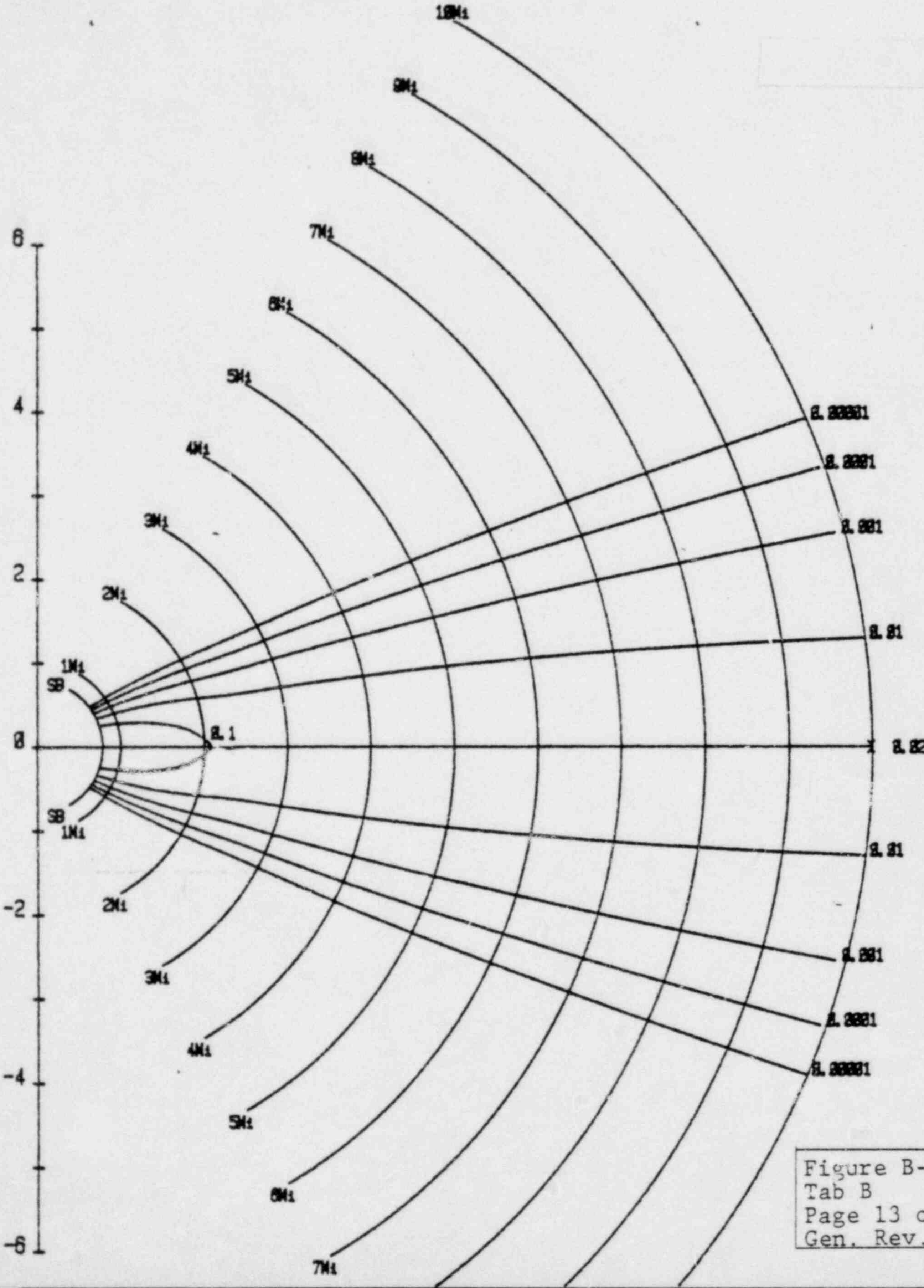


Figure B-7
Travel Time (Minutes) versus Wind Speed (MPH)

Wind Speed (MPH)	Distance (Miles) sb	1	2	3	4	5	6	7	8	9	10
1	47.0	60.0	120.0	180.0	240.0	300.0	360.0	420.0	480.0	540.0	600.0
2	23.5	30.0	60.0	90.0	120.0	150.0	180.0	210.0	240.0	270.0	300.0
3	15.7	20.0	40.0	60.0	80.0	100.0	120.0	140.0	160.0	180.0	200.0
4	11.8	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0	150.0
5	9.4	12.0	24.0	36.0	48.0	60.0	72.0	84.0	96.0	108.0	120.0
6	7.8	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0
7	6.7	8.6	17.1	25.7	34.3	42.9	51.4	60.0	68.6	77.1	85.7
8	5.9	7.5	15.0	22.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0
9	5.2	6.7	13.3	20.0	26.7	33.3	40.0	46.7	53.3	60.0	66.7
10	4.7	6.0	12.0	18.0	24.0	30.0	36.0	42.0	48.0	54.0	60.0
11	4.3	5.5	10.9	16.4	21.8	27.3	32.7	38.2	43.6	49.1	54.5
12	3.9	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
13	3.6	4.6	9.2	13.8	18.5	23.1	27.7	32.3	36.9	41.5	46.2
14	3.4	4.3	8.6	12.9	17.1	21.4	25.7	30.0	34.3	38.6	42.9
15	3.1	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0
16	2.9	3.8	7.5	11.3	15.0	18.8	22.5	26.3	30.0	33.8	37.5
17	2.8	3.5	7.1	10.6	14.1	17.6	21.2	24.7	28.2	31.8	35.3
18	2.6	3.3	6.7	10.0	13.3	16.7	20.0	23.3	26.7	30.0	33.3
19	2.5	3.2	6.3	9.5	12.6	15.8	18.9	22.1	25.3	28.4	31.6
20	2.4	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0
21	2.2	2.9	5.7	8.6	11.4	14.3	17.1	20.0	22.9	25.7	28.6
22	2.1	2.7	5.5	8.2	10.9	13.6	16.4	19.1	21.8	24.5	27.3
23	2.0	2.6	5.2	7.8	10.4	13.0	15.7	18.3	20.9	23.5	26.1
24	2.0	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0
25	1.9	2.4	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0
26	1.8	2.3	4.6	6.9	9.2	11.5	13.8	16.2	18.5	20.8	23.1

FIGURE B-8
STABILITY CLASS B DOSE ASSESSMENT

☐Date ________________ ☐Time ________________ CENTRAL ☐Performed by: ______________________

NOBLE GAS (N.G.) SOURCE TERM

	Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
☐Plant Vent:	____	X	____ E	X	____ E	=	____ E
☐SG:	____	X	____ E	X	____ E	=	____ E
☐SJAE:	1.05E+3	X	____ E	X	____ E	=	____ E
☐Other:	____	X	____ E	X	____ E	=	____ E

Total N.G. Source Term = ____ E

IODINE SOURCE TERM

	Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
☐Plant Vent:	____	X	____ E	X	____ E	=	____ E
☐SG:	____	X	____ E	X	____ E	=	____ E
☐SJAE:	1.05E+3	X	____ E	X	____ E	=	____ E
☐Other:	____	X	____ E	X	____ E	=	____ E

Total Iodine Source Term = ____ E

Total N.G. ____ E / Wind Speed ____ mph X 8.94E-06 = ____ E mRem/hr N.G. @ Site Boundary*

Total Iodine ____ E / Wind Speed ____ mph X 8.94E-06 = ____ E mRem/hr Iodine @ Site Boundary*

____ E mRem/hr N.G. @ Site Boundary* X ____ hr repair, release time** X 1/1000 = ____ E Rem W.B.

____ E mRem/hr Iodine @ Site Boundary* X ____ hr repair, release time** X 1/1000 = ____ E Rem Iodine

Rem W.B. + Rem Iodine → ____ E total Rem to thyroid

*If dose rate at site boundary ≥1 mRem/hr, complete remaining calculations.

**Use 14 hr, if value is unknown.

☐Emergency classification:
( ) GENERAL (≥5 Rem W.B. OR ≥10 Rem Thyroid)
( ) SITE (≥1 Rem W.B. OR ≥2.5 Rem Thyroid)
( ) ALERT (≥1mRem/hr N.G. or Iodine)

☐Arrival times at S.B., and each mile are out to 10 miles or to location <1mRem/hr (whichever is less) based on the release/change occuring at ______ hr. CENTRAL on __________ (date):

SB	1 mi.	2 mi.	3 mi.	4mi.	5 mi.	6 mi.	7 mi.	8 mi.	9 mi.	10 mi.
____	____	____	____	____	____	____	____	____	____	____

TAB C

STABILITY CLASS C DOSE ASSESSMENT

TAB C
STABILITY CLASS C

STABILITY CLASS C DOSE ASSESSMENT

I. Determine the factors for determining the source term for each affected effluent path:

A. Plant Vent Stack Release

1. Enter the flowrate in cfm from the plant vent stack flow recorder (Unit 1 - next to RE-14 monitor; Unit 2 - on BOP) on Figure C-8, Stability Class A Dose Assessment or by using the following information if the recorder is not operating:

a. One aux. bldg. fan............75,000 cfm
b. One aux. bldg. fan & RE-025 tripped....................79,000 cfm
c. Two aux. bldg. fans..........150,000 cfm
Two aux. bldg. fans & RE-025 tripped............154,000 cfm

2. If RE-29B (SPING-4 readout located in the Unit 2 Gross Failed Fuel Detector rack) is operating (if necessary, have counting room personnel refer to FNP-0-RCP-704):

a. Enter on Figure C-8 the μCi/ml for noble gas and the noble gas dose factor from Figure C-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use a noble gas dose factor of 2.4E+02.

b. Enter on Figure C-8 the μCi/ml for iodine and the infant iodine dose factor from Figure C-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use an infant iodine dose factor of 6.0E+05.

3. If RE-29B (SPING-4) is not operating, perform (a) OR (b) below:

a. Use the RAD-GUN per RCP-25 to determine the μCi/ml, and record the same μCi/ml value on Figure C-8 for both the noble gas and iodine concentration. Use

Figure C-2 to determine the noble gas and infant iodine dose factors and record on Figure C-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.3E+02
Iodine: 1.4E+04

b. Obtain a grab sample to determine the µCi/ml for noble gas and iodine and enter on Figure C-8 the values for both noble gas and iodine. Use Figure C-1 to determine the the noble gas and infant iodine dose factors and record on Figure C-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.4E+02
Iodine: 6.0E+05

B. Steam Generator atmospheric relief and/or safety release.

1. Determine the flow from the atmospheric reliefs and/or safety reliefs as follows:

a. Obtain the current pressure (psig) and loop TAVG(°F) readings for each steam generator of the affected unit. Record values on Figure C-4.

b. Determine the flow in pounds mass per hour (lbm/hr) that is possible from a safety/atmospheric relief valve by using Figure C-5. The value obtained is the flow that will be discharged from each safety or atmospheric relief valve that is open.

c. Determine the number of valves that are open for each steam generator using the data below:

Pressure of Steam Gen. (psig)	Valves Open
≤1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

d. Determine the specific volume (ft^3-hr/min-lbm) by using the loop TAVG(°F) and the information below and record on Figure C-4 for each steam generator (use the closest TAVG value):

TAVG(°F)	SPECIFIC VOLUME $\left[\frac{ft^3\text{-hr}}{\text{min-lbm}}\right]$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

e. Determine the total flow in cfm from each generator by multiplying the flow (lbm/hr) times number of valves open times the specific volume for each generator.

f. Determine the total flow of the release in cfm from all generators by summing the values obtained for each generator per I.B.1.e.

g. Record this value on Figure C-4 and on Figure C-8 for both iodine and noble gas.

2. Determine the effluent concentration in µCi/ml by using RCP-25 and by performing either (a) OR (b) below:

a. Use a portable dose rate instrument and record the same µCi/ml value on Figure C-8 for both noble gas and iodine. Determine the noble gas and infant iodine dose factors using Figure C-3 and record on Figure C-8. The "Elapsed Time

Since Shutdown (Hours)" applies to the reactor.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure C-8. Determine the noble gas and infant iodine dose factors using Figure C-1 and record on Figure C-8.

C. Steam jet air ejector release

1. Enter a flow rate of 1050 cfm on Figure C-8 for both the noble gas and iodine flowrate.

2. Determine the effluent concentration in μCi/ml by using RCP-25 and by performing either (a) OR (b) below:

a. Use a portable dose rate instrument and record the same μCi/ml value on Figure C-8 for both noble gas and iodine. Determine the noble gas and infant iodine dose factors and record on Figure C-8 as follows:

(1) Use Figure C-2 if the SJAE filters are in service.

(2) Use Figure C-3 if the SJAE filters are not in service.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure C-8. Determine the noble gas and infant iodine dose factors from Figure C-1 and record on Figure C-8.

II. Determine the source term for each effluent path for noble gas and iodine by using the following equation and the values entered on Figure C-8:

[flowrate (cfm)] X [conc. (μCi/ml)] X [dose factor] =[source term]

III. Determine the total noble gas source term on Figure C-8 by summing the noble gas source terms calculated for each effluent path.

IV. Determine the total iodine source term on Figure C-8 by summing the iodine source terms calculated for each effluent path.

V. Enter the total noble gas source term, total iodine source term, and the wind speed in mph in the appropriate boxes on Figure C-8. Determine the dose rate in mRem/hr at the site boundary from noble gas and from iodine by using the following equation:

$$\left(\frac{\text{Total Source Term}}{\text{Wind Speed, mph}}\right) \times \left(\frac{\bar{U}\chi}{Q}\right) = \text{mRem/hr at site boundary (S.B.)}$$

VI. If the projected noble gas or iodine dose rate ≥ 1 mRem/hr, proceed to step VII; if not, the estimated whole body or thyroid dose does not meet the minimum criteria for classifying the emergency according to paragraph 4.2 in the main body of this procedure and no further calculations are required at this time. Go to step XIV.

VII. Determine the estimated repair time or release duration in hours and record on Figure C-8. Use 14 hours if this value is unknown.

VIII Determine the projected whole body dose in Rem at the site boundary using the following equation and record on Figure C-8:

$$\underset{\substack{\text{(Rem)}\\ \text{Whole}\\ \text{Body}}}{\text{Dose}} = \left(\text{Dose rate, site boundary } \frac{\text{mrem}}{\text{hr}}\right)\left(\text{Release/repair time, hr}\right)\left(\frac{1\text{ Rem}}{1000\text{mRem}}\right)$$

IX. Determine the projected thyroid dose from iodine in Rem at the site boundary by using the following equation and record on Figure C-8:

$$\underset{\substack{\text{(Rem)}\\ \text{thyroid}}}{\text{Dose } I_2} = \left(\text{Dose rate, site boundary } \frac{\text{mRem}}{\text{hr}}\right)\left(\text{Release/repair time, hr.}\right)\left(\frac{1\text{ Rem}}{1000\text{ mRem}}\right)$$

X. Determine the total thyroid dose in Rem by summing the results from steps VIII and IX.

XI. Determine the classification of the emergency using the values from steps VIII and X and comparing them to the criteria of paragraph 4.2 in the main body of this procedure.

XII. Determine the affected downwind areas in the 10-mile emergency planning zone (EPZ) by placing Figure C-6, "Relative Dose Rate Plume Boundary For Stability Class A" on the 10-mile EPZ map and by orienting the plume centerline on the downwind direction vector. The lines on Figure C-6 are isodose/isodose rate lines. The

dose/dose rate values on each of the lines can be obtained by multiplying the values by the site boundary dose/dose rate. The value at the intersection of the 10 mile arc and the plume centerline times the site boundary centerline dose/dose rate gives the dose/dose rate at that point. Mark the centerline on the map with a grease pencil and record the date, time, and stability class to aid in projecting accumulated doses and affected areas.

XIII Determine the arrival times in minutes for the site boundary, and each mile arc out to 10 miles or to where the dose rate <1 mRem/hr using Figure C-7 "Arrival Time versus Wind Speed." Record data on Figure C-8.

XIV. Refer to step 4.4 in the main body of this procedure.

FIGURE C-1
FAILED FUEL

Dose Factors versus Time
ISOTOPIC Effluent Activity

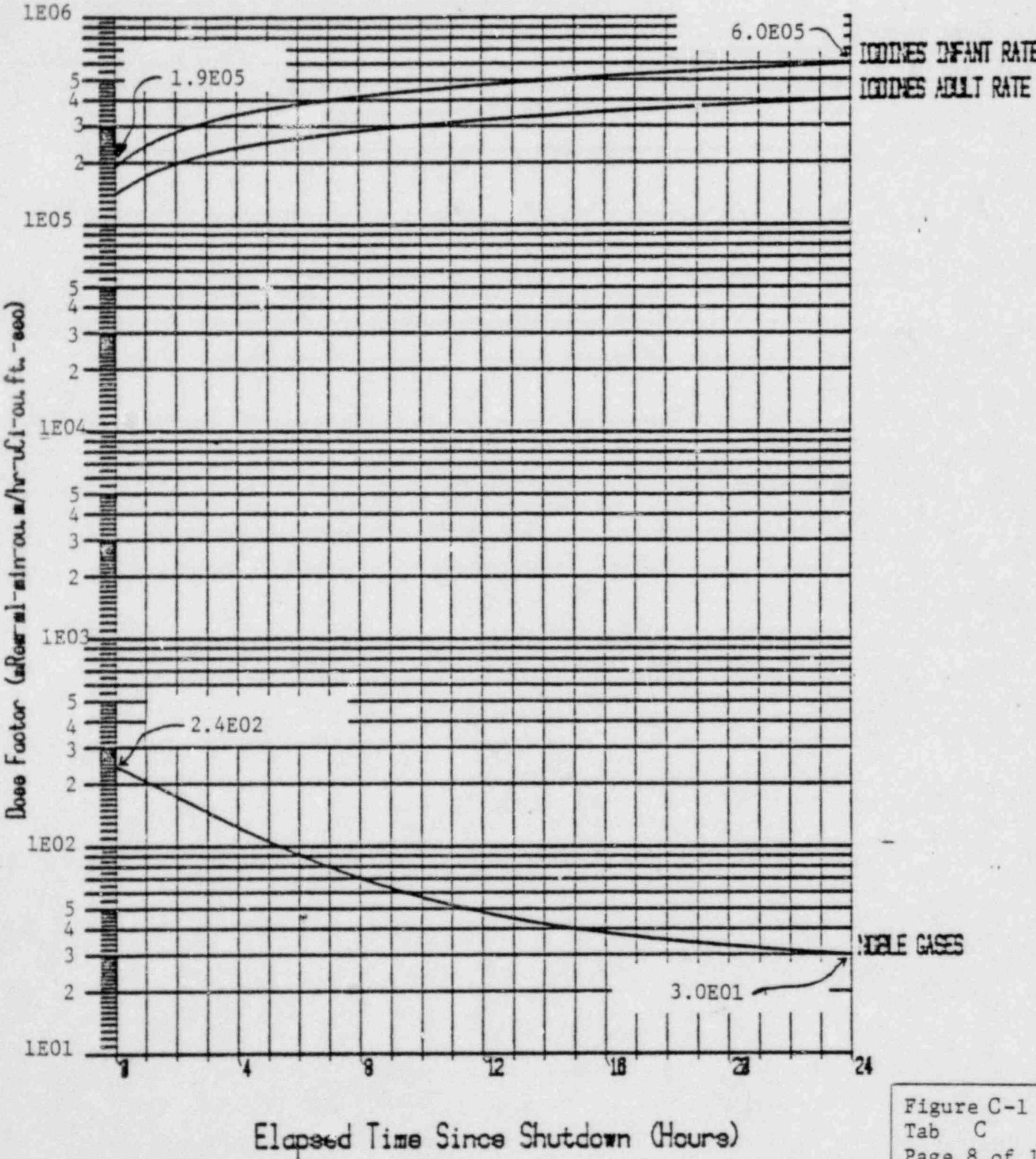


FIGURE C-2

FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Filtered Iodines

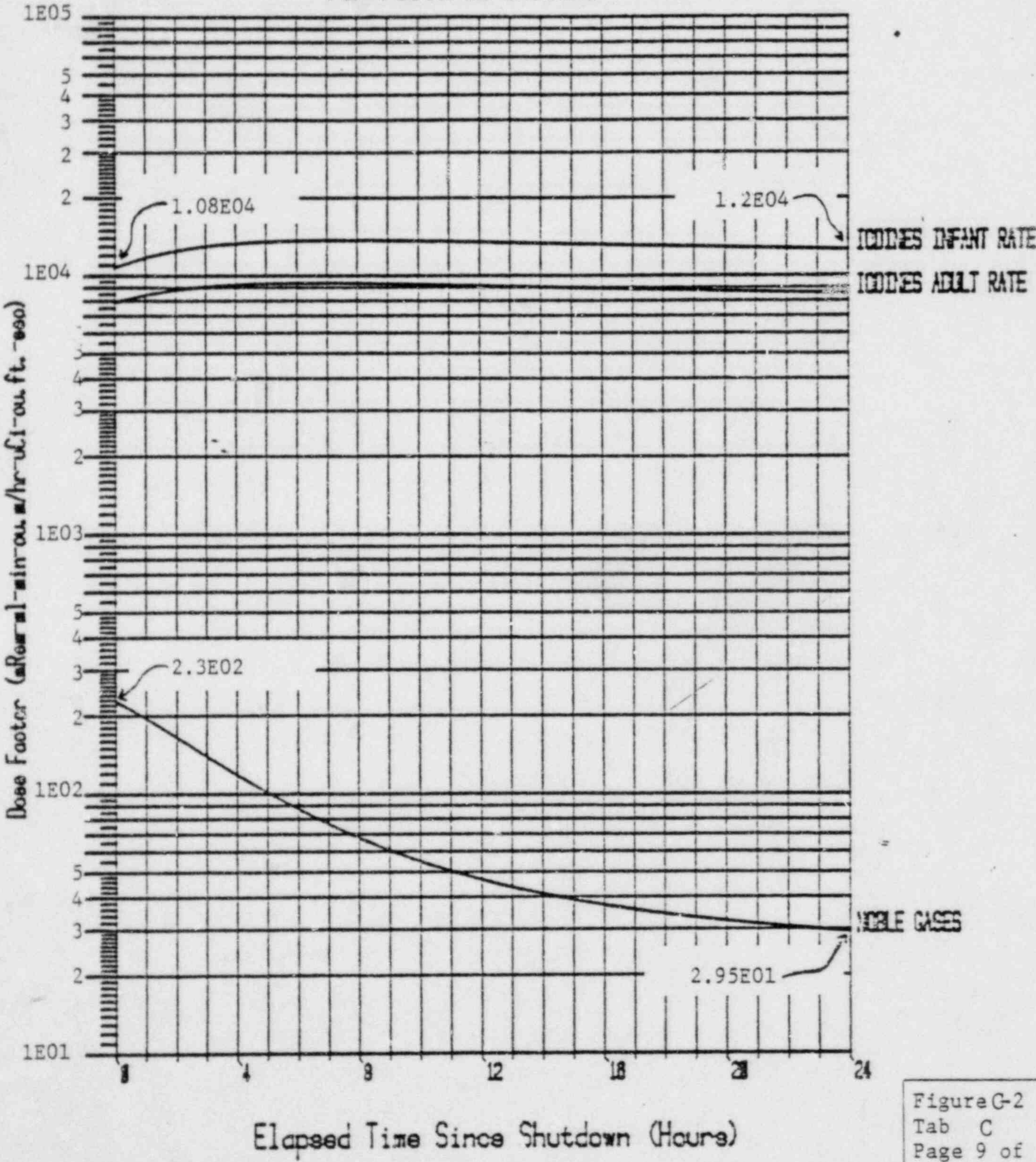


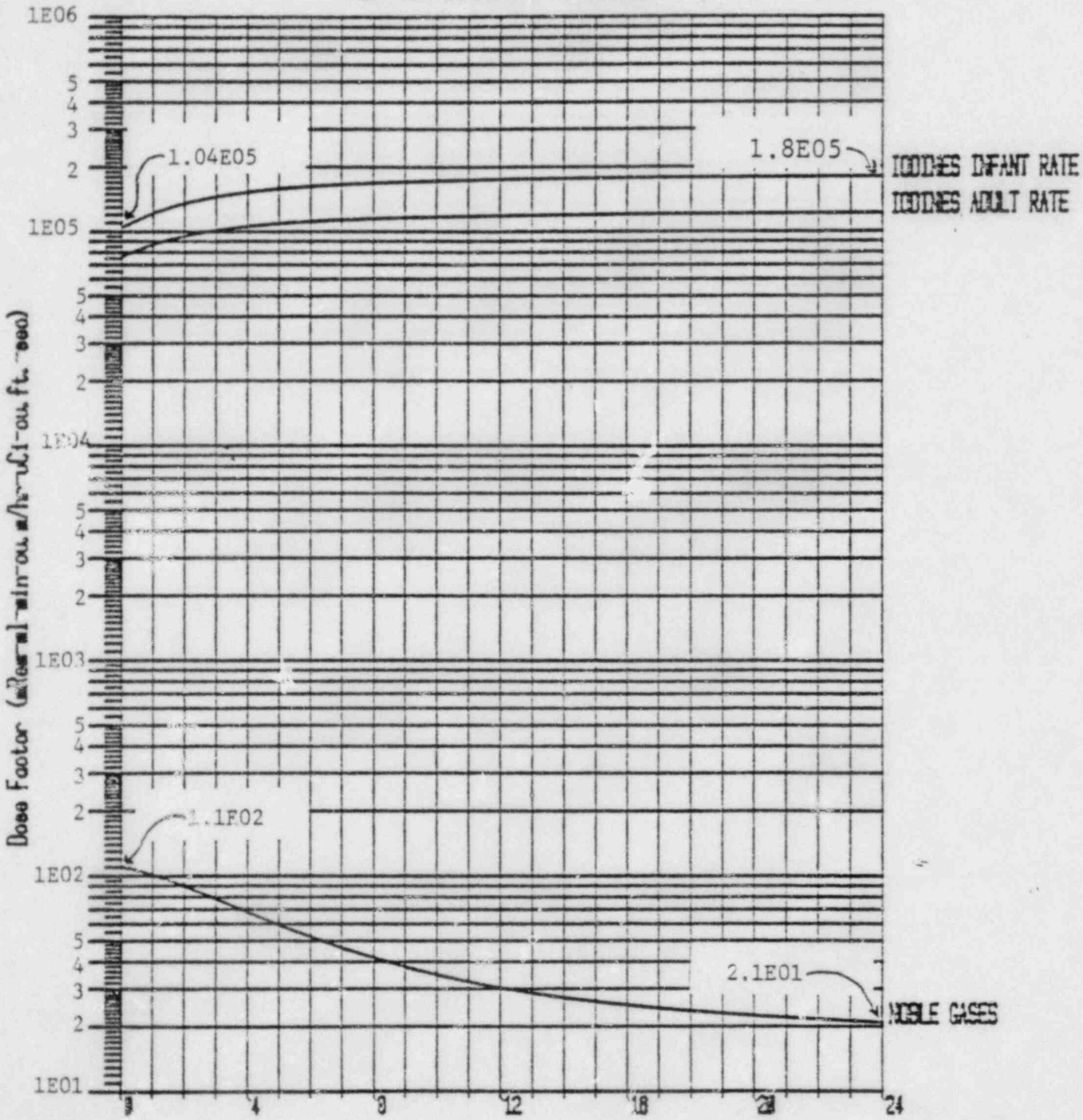
FIGURE C-3

FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Unfiltered Iodines



Elapsed Time Since Shutdown (Hours)

FIGURE C-4
STEAM ATMOSPHERIC/SAFETY RELIEF VALVE
FLOW CALCULATION SHEET

SG Press (pisg)	No. Valves Open
<1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

TAVG(°F)	SPECIFIC VOLUME $\frac{ft^3\text{-}hr}{min\text{-}lbm}$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

Date/Time	Unit SG	Press. (psig)	Loop TAVG (°F)	lb m/hr (Fig C-5)	X	# valves open	X	specific volume	=	cfm per SG	cfm per Unit	Remarks
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX					→			sum of cfm per SG
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX					→			sum of cfm per SG
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX					→			sum of cfm per SG
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX

FIGURE C-5
MAXIMUM FLOW PAST VALVE vs STEAM GENERATOR PRESSURE

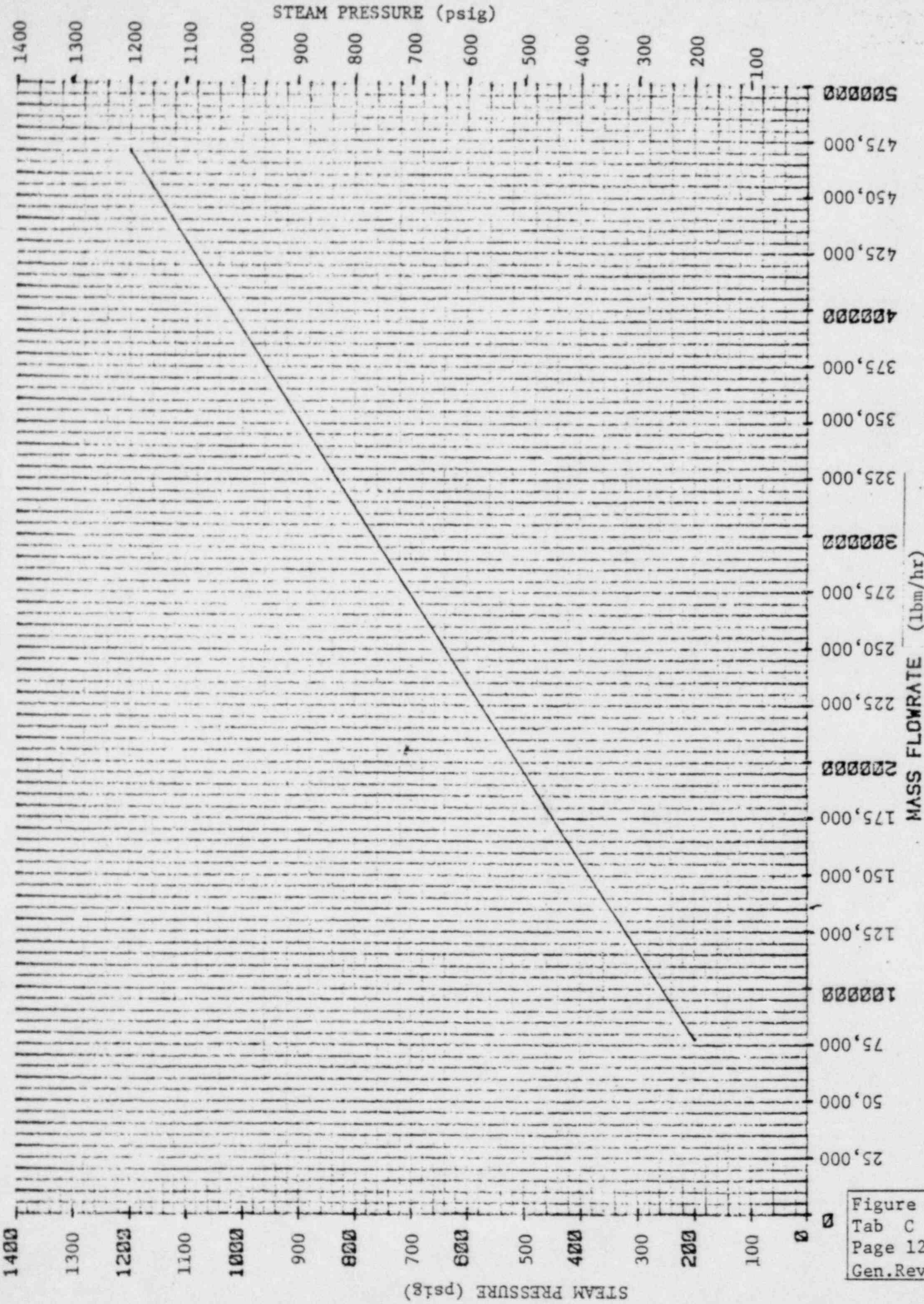


FIGURE C-6

Relative Dose Rate Plume Boundary
For stability class C
mixing height = 4104ft.

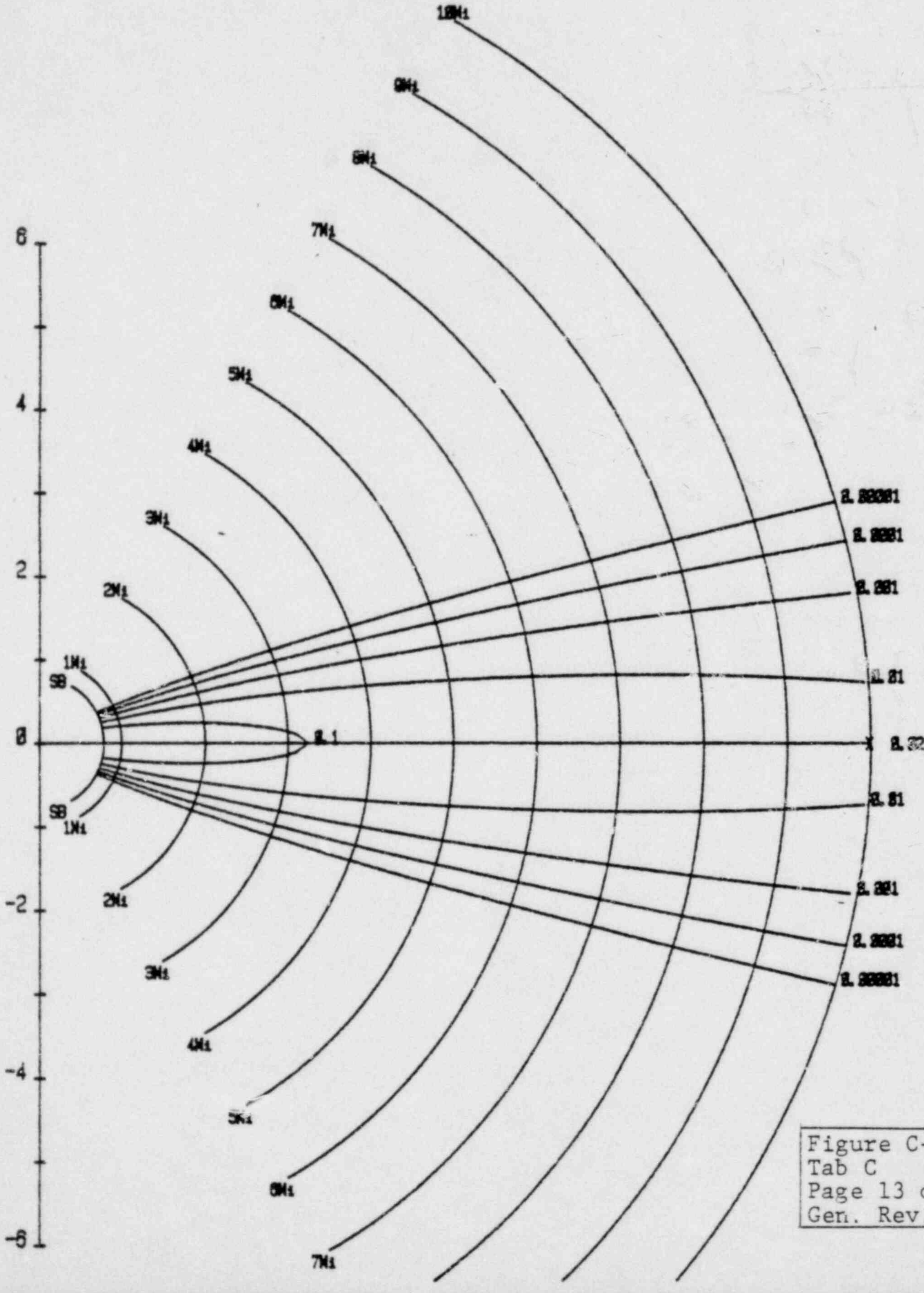


Figure C-7

Travel Time (Minutes) versus Wind Speed (MPH)

Wind Speed (MPH)	Distance (Miles)										
	sb	1	2	3	4	5	6	7	8	9	10
1	47.0	60.0	120.0	180.0	240.0	300.0	360.0	420.0	480.0	540.0	600.0
2	23.5	30.0	60.0	90.0	120.0	150.0	180.0	210.0	240.0	270.0	300.0
3	15.7	20.0	40.0	60.0	80.0	100.0	120.0	140.0	160.0	180.0	200.0
4	11.8	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0	150.0
5	9.4	12.0	24.0	36.0	48.0	60.0	72.0	84.0	96.0	108.0	120.0
6	7.8	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0
7	6.7	8.6	17.1	25.7	34.3	42.9	51.4	60.0	68.6	77.1	85.7
8	5.9	7.5	15.0	22.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0
9	5.2	6.7	13.3	20.0	26.7	33.3	40.0	46.7	53.3	60.0	66.7
10	4.7	6.0	12.0	18.0	24.0	30.0	36.0	42.0	48.0	54.0	60.0
11	4.3	5.5	10.9	16.4	21.8	27.3	32.7	38.2	43.6	49.1	54.5
12	3.9	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
13	3.6	4.6	9.2	13.8	18.5	23.1	27.7	32.3	36.9	41.5	46.2
14	3.4	4.3	8.6	12.9	17.1	21.4	25.7	30.0	34.3	38.6	42.9
15	3.1	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0
16	2.9	3.8	7.5	11.3	15.0	18.8	22.5	26.3	30.0	33.8	37.5
17	2.8	3.5	7.1	10.6	14.1	17.6	21.2	24.7	28.2	31.8	35.3
18	2.6	3.3	6.7	10.0	13.3	16.7	20.0	23.3	26.7	30.0	33.3
19	2.5	3.2	6.3	9.5	12.6	15.8	18.9	22.1	25.3	28.4	31.6
20	2.4	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0
21	2.2	2.9	5.7	8.6	11.4	14.3	17.1	20.0	22.9	25.7	28.6
22	2.1	2.7	5.5	8.2	10.9	13.6	16.4	19.1	21.8	24.5	27.3
23	2.0	2.6	5.2	7.8	10.4	13.0	15.7	18.3	20.9	23.5	26.1
24	2.0	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0
25	1.9	2.4	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0
26	1.8	2.3	4.6	6.9	9.2	11.5	13.8	16.2	18.5	20.8	23.1

FIGURE C-8
STABILITY CLASS C DOSE ASSESSMENT

□Date ____________ □Time ____________ CENTRAL □Performed by: ____________

NOBLE GAS (N.G.) SOURCE TERM

	Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
□Plant Vent:	____	X	____E____	X	____E____	=	____E____
□SG:	____	X	____E____	X	____E____	=	____E____
□SJAE:	1.05E+3	X	____E____	X	____E____	=	____E____
□Other:	____	X	____E____	X	____E____	=	____E____

Total N.G. Source Term = ____E____

IODINE SOURCE TERM

	Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
□Plant Vent:	____	X	____E____	X	____E____	=	____E____
□SG:	____	X	____E____	X	____E____	=	____E____
□SJAE:	1.05E+3	X	____E____	X	____E____	=	____E____
□Other:	____	X	____E____	X	____E____	=	____E____

Total Iodine Source Term = ____E____

Total N.G. ____E____ / Wind Speed ____mph____ X 2.71E-05 = ____E____ mRem/hr N.G. @ Site Boundary*

Total Iodine ____E____ / Wind Speed ____mph____ X 2.71E-05 = ____E____ mRem/hr Iodine @ Site Boundary*

____E____ mRem/hr N.G. @ Site Boundary* X ____hr repair, release time** X 1/1000 = ____E____ Rem W.B.

____E____ mRem/hr Iodine @ Site Boundary* X ____hr repair, release time** X 1/1000 = ____E____ Rem Iodine

Rem W.B. + Rem Iodine → ____E____ total Rem to thyroid

*If dose rate at site boundary ≥1 mRem/hr, complete remaining calculations.

**Use 14 hr, if value is unknown.

□Emergency classification:
( ) GENERAL (≥5 Rem W.B. OR ≥10 Rem Thyroid)
( ) SITE (≥1 Rem W.B. OR ≥2.5 Rem Thyroid)
( ) ALERT (≥1mRem/hr N.G. or Iodine)

□Arrival times at S.B., and each mile are out to 10 miles or to location <1mRem/hr (whichever is less) based on the release/change occuring at ______hr. CENTRAL on __________(date):

SB	1 mi.	2 mi.	3 mi.	4mi.	5 mi.	6 mi.	7 mi.	8 mi.	9 mi.	10 mi.
____	____	____	____	____	____	____	____	____	____	____

TAB D

STABILITY CLASS D DOSE ASSESSMENT

TAB D
STABILITY CLASS D

STABILITY CLASS D DOSE ASSESSMENT

I. Determine the factors for determining the source term for each affected effluent path:

A. Plant Vent Stack Release

1. Enter the flowrate in cfm from the plant vent stack flow recorder (Unit 1 - next to RE-14 monitor; Unit 2 - on BOP) on Figure D-8, Stability Class A Dose Assessment or by using the following information if the recorder is not operating:

a. One aux. bldg. fan............75,000 cfm
b. One aux. bldg. fan & RE-025 tripped...................79,000 cfm
c. Two aux. bldg. fans..........150,000 cfm
Two aux. bldg. fans & RE-025 tripped............154,000 cfm

2. If RE-29B (SPING-4 readout located in the Unit 2 Cross Failed Fuel Detector rack) is operating (if necessary, have counting room personnel refer to FNP-0-RCP-704):

a. Enter on Figure D-8 the µCi/ml for noble gas and the noble gas dose factor from Figure D-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use a noble gas dose factor of 2.4E+02.

b. Enter on Figure D-8 the µCi/ml for iodine and the infant iodine dose factor from Figure D-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use an infant iodine dose factor of 6.0E+05.

3. If RE-29B (SPING-4) is not operating, perform (a) OR (b) below:

a. Use the RAD-GUN per RCP-25 to determine the µCi/ml, and record the same µCi/ml value on Figure D-8 for both the noble gas and iodine concentration. Use

Figure D-2 to determine the noble gas and infant iodine dose factors and record on Figure D-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.3E+02
Iodine: 1.4E+04

b. Obtain a grab sample to determine the µCi/ml for noble gas and iodine and enter on Figure D-8 the values for both noble gas and iodine. Use Figure D-1 to determine the the noble gas and infant iodine dose factors and record on Figure D-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.4E+02
Iodine: 6.0E+05

B. Steam Generator atmospheric relief and/or safety release.

1. Determine the flow from the atmospheric reliefs and/or safety reliefs as follows:

a. Obtain the current pressure (psig) and loop TAVG(°F) readings for each steam generator of the affected unit. Record values on Figure D-4.

b. Determine the flow in pounds mass per hour (lbm/hr) that is possible from a safety/atmospheric relief valve by using Figure D-5. The value obtained is the flow that will be discharged from each safety or atmospheric relief valve that is open.

c. Determine the number of valves that are open for each steam generator using the data below:

Pressure of Steam Gen. (psig)	Valves Open
≤1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

d. Determine the specific volume (ft^3-hr/min-lbm) by using the loop TAVG(°F) and the information below and record on Figure D-4 for each steam generator (use the closest TAVG value):

TAVG(°F)	SPECIFIC VOLUME $\left[\frac{ft^3\text{-}hr}{min\text{-}lbm}\right]$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

e. Determine the total flow in cfm from each generator by multiplying the flow (lbm/hr) times number of valves open times the specific volume for each generator.

f. Determine the total flow of the release in cfm from all generators by summing the values obtained for each generator per I.B.1.e.

g. Record this value on Figure D-4 and on Figure D-8 for both iodine and noble gas.

2. Determine the effluent concentration in µCi/ml by using RCP-25 and by performing either (a) OR (b) below:

a. Use a portable dose rate instrument and record the same µCi/ml value on Figure D-8 for both noble gas and iodine. Determine the noble gas and infant iodine dose factors using Figure D-3 and record on Figure D-8. The "Elapsed Time

Since Shutdown (Hours)" applies to the reactor.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure D-8. Determine the noble gas and infant iodine dose factors using Figure D-1 and record on Figure D-8.

C. Steam jet air ejector release

1. Enter a flow rate of 1050 cfm on Figure D-8 for both the noble gas and iodine flowrate.

2. Determine the effluent concentration in μCi/ml by using RCP-25 and by performing either (a) OR (b) below:

a. Use a portable dose rate instrument and record the same μCi/ml value on Figure D-8 for both noble gas and iodine. Determine the noble gas and infant iodine dose factors and record on Figure D-8 as follows:

(1) Use Figure D-2 if the SJAE filters are in service.

(2) Use Figure D-3 if the SJAE filters are not in service.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure D-8. Determine the noble gas and infant iodine dose factors from Figure D-1 and record on Figure D-8.

II. Determine the source term for each effluent path for noble gas and iodine by using the following equation and the values entered on Figure D-8:

[flowrate (cfm)] X [conc. (μCi/ml)] X [dose factor] =[source term]

III. Determine the total noble gas source term on Figure D-8 by summing the noble gas source terms calculated for each effluent path.

IV. Determine the total iodine source term on Figure D-8 by summing the iodine source terms calculated for each effluent path.

V. Enter the total noble gas source term, total iodine source term, and the wind speed in mph in the appropriate boxes on Figure D-8. Determine the dose rate in mRem/hr at the site boundary from noble gas and from iodine by using the following equation:

$$\left(\frac{\text{Total Source Term}}{\text{Wind Speed, mph}}\right) \times \left(\frac{\bar{U}\chi}{Q}\right) = \text{mRem/hr at site boundary (S.B.)}$$

VI. If the projected noble gas or iodine dose rate ≥ 1 mRem/hr, proceed to step VII; if not, the estimated whole body or thyroid dose does not meet the minimum criteria for classifying the emergency according to paragraph 4.2 in the main body of this procedure and no further calculations are required at this time. Go to step XIV.

VII. Determine the estimated repair time or release duration in hours and record on Figure D-8. Use 14 hours if this value is unknown.

VIII Determine the projected whole body dose in Rem at the site boundary using the following equation and record on Figure D-8:

$$\text{Dose (Rem) Whole Body} = \left(\text{Dose rate, site boundary } \frac{\text{mrem}}{\text{hr}}\right)\left(\text{Release/repair time, hr}\right)\left(\frac{\text{1 Rem}}{\text{1000mRem}}\right)$$

IX. Determine the projected thyroid dose from iodine in Rem at the site boundary by using the following equation and record on Figure D-8:

$$\text{Dose } I_2 \text{ (Rem) thyroid} = \left(\text{Dose rate, site boundary } \frac{\text{mRem}}{\text{hr}}\right)\left(\text{Release/repair time, hr.}\right)\left(\frac{\text{1 Rem}}{\text{1000 mRem}}\right)$$

X. Determine the total thyroid dose in Rem by summing the results from steps VIII and IX.

XI. Determine the classification of the emergency using the values from steps VIII and X and comparing them to the criteria of paragraph 4.2 in the main body of this procedure.

XII. Determine the affected downwind areas in the 10-mile emergency planning zone (EPZ) by placing Figure D-6, "Relative Dose Rate Plume Boundary For Stability Class A" on the 10-mile EPZ map and by orienting the plume centerline on the downwind direction vector. The lines on Figure D-6 are isodose/isodose rate lines. The

dose/dose rate values on each of the lines can be obtained by multiplying the values by the site boundary dose/dose rate. The value at the intersection of the 10 mile arc and the plume centerline times the site boundary centerline dose/dose rate gives the dose/dose rate at that point. Mark the centerline on the map with a grease pencil and record the date, time, and stability class to aid in projecting accumulated doses and affected areas.

XIII Determine the arrival times in minutes for the site boundary, and each mile arc out to 10 miles or to where the dose rate <1 mRem/hr using Figure D-7 "Arrival Time versus Wind Speed." Record data on Figure D-8.

XIV. Refer to step 4.4 in the main body of this procedure.

FIGURE D-1
FAILED FUEL

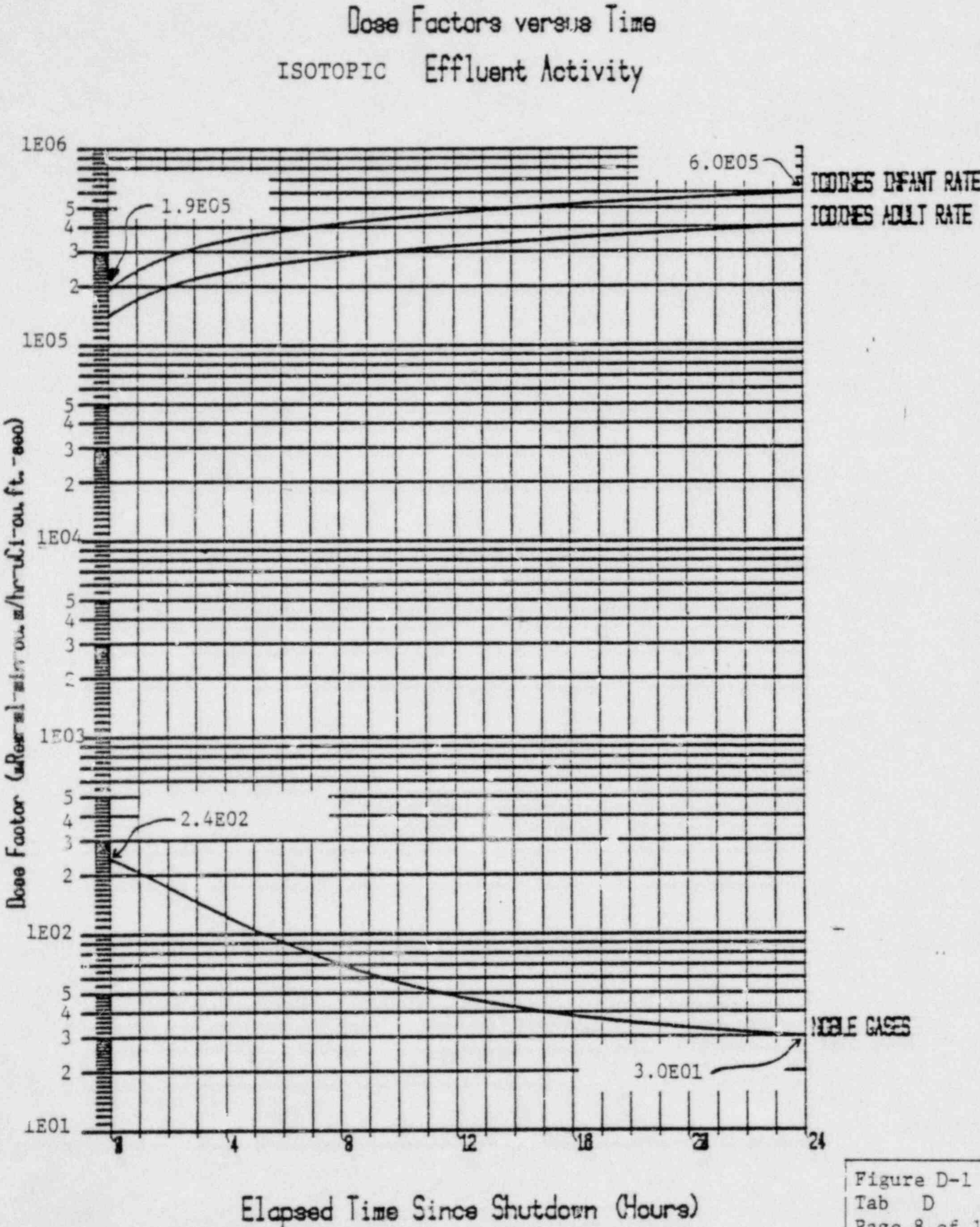


FIGURE D-2

FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Filtered Iodines

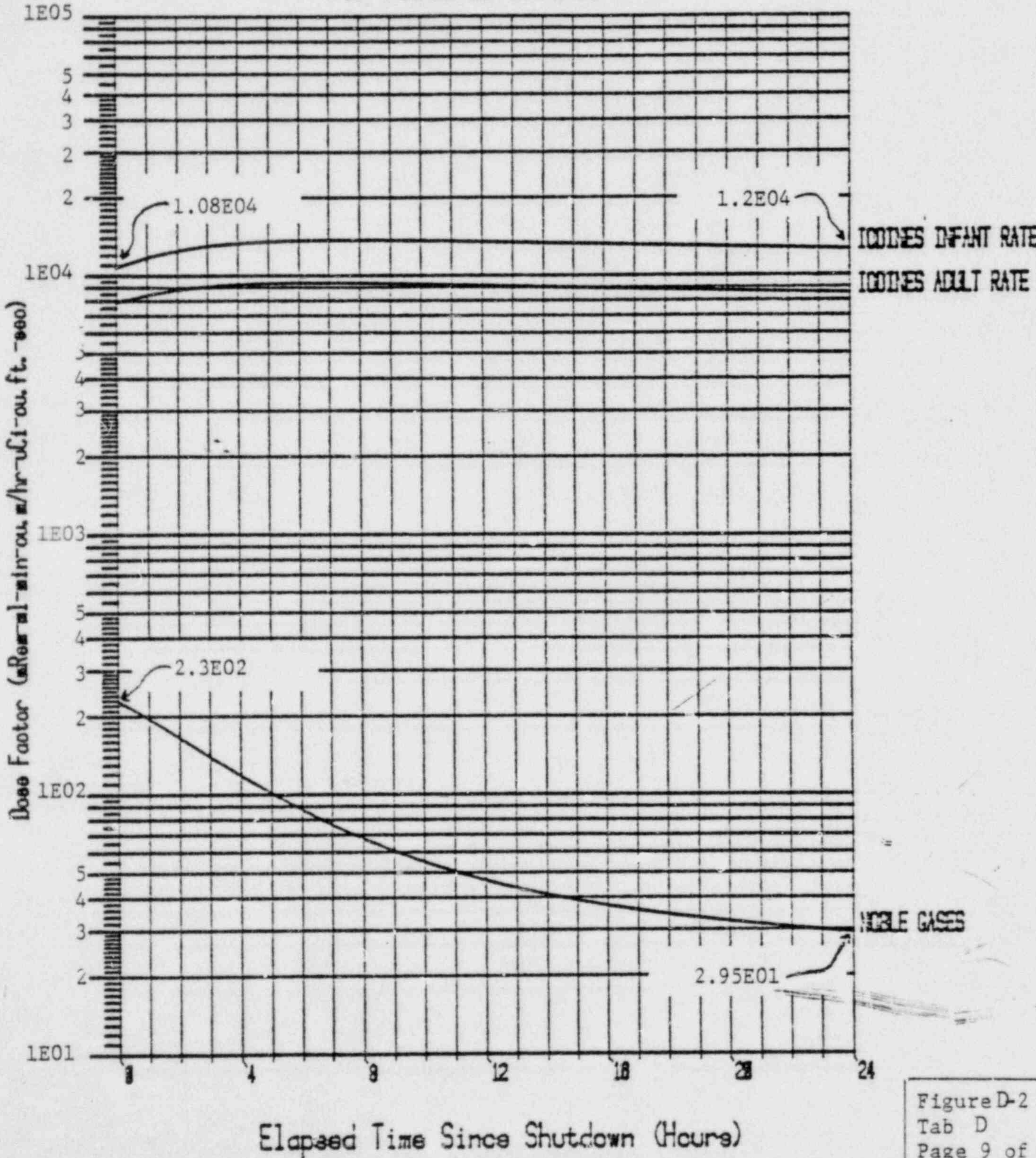


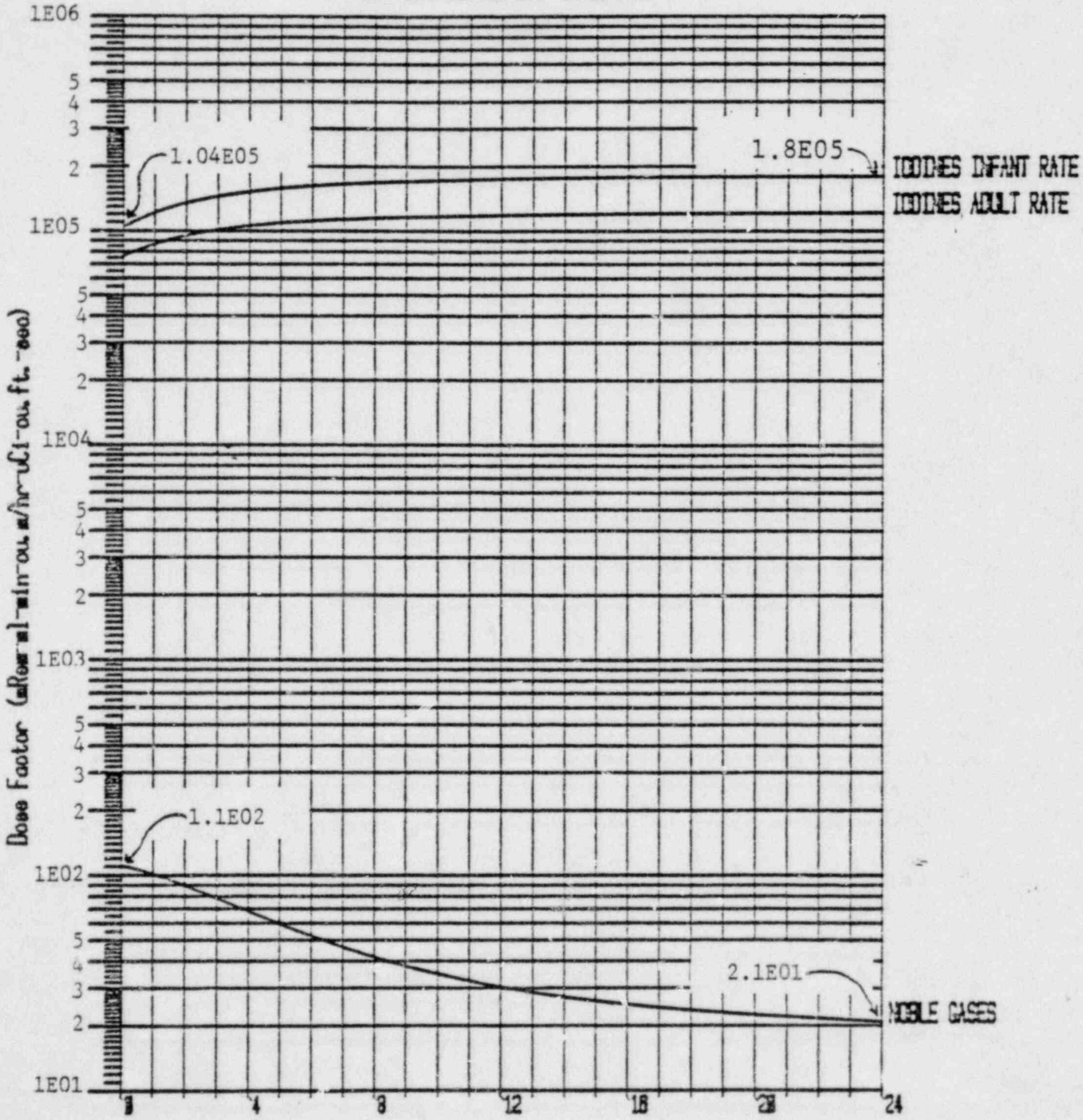
FIGURE D-3

FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Unfiltered Iodines



Elapsed Time Since Shutdown (Hours)

FIGURE D-4
STEAM ATMOSPHERIC/SAFETY RELIEF VALVE
FLOW CALCULATION SHEET

SG Press (pisg)	No. Valves Open
<1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

TAVG(°F)	SPECIFIC VOLUME $\frac{ft^3\text{-}hr}{min\text{-}lbm}$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

Date/Time	Unit SG	Press. (psig)	Loop TAVG (°F)	lb m/hr (Fig D-5)	X	# valves open	X	specific volume	=	cfm per SG	cfm per Unit	Remarks
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXX	XXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX					→			sum of cfm per SG
XXXXXXXXX	XXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXX	XXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX					→			sum of cfm per SG
XXXXXXXXX	XXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXX	XXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX					→			sum of cfm per SG
XXXXXXXXX	XXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX

FIGURE D-5
MAXIMUM FLOW PAST VALVE vs STEAM GENERATOR PRESSURE

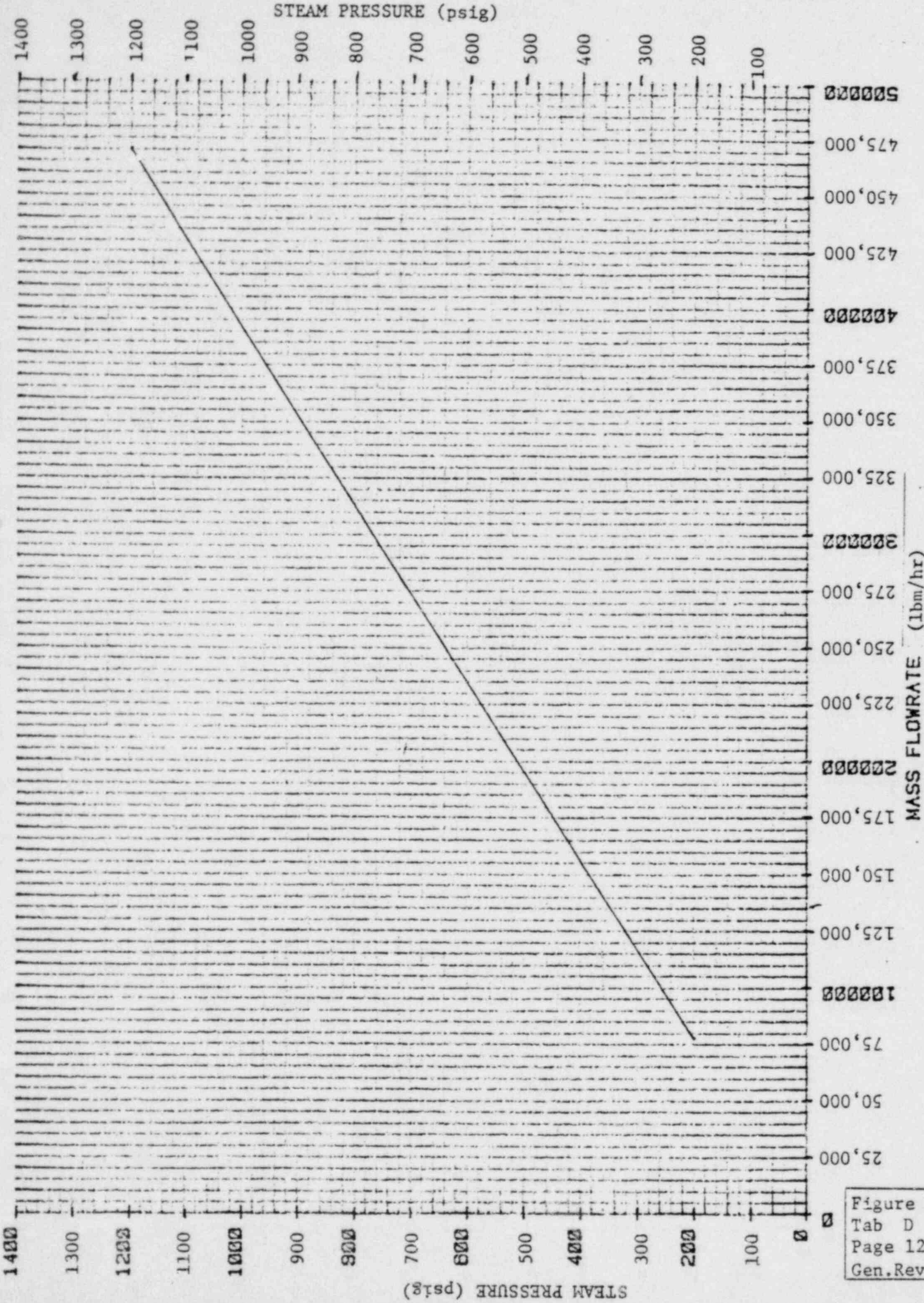


FIGURE D-6

Relative Dose Rate Plume Boundary
For stability class D
mixing height = 4104ft.

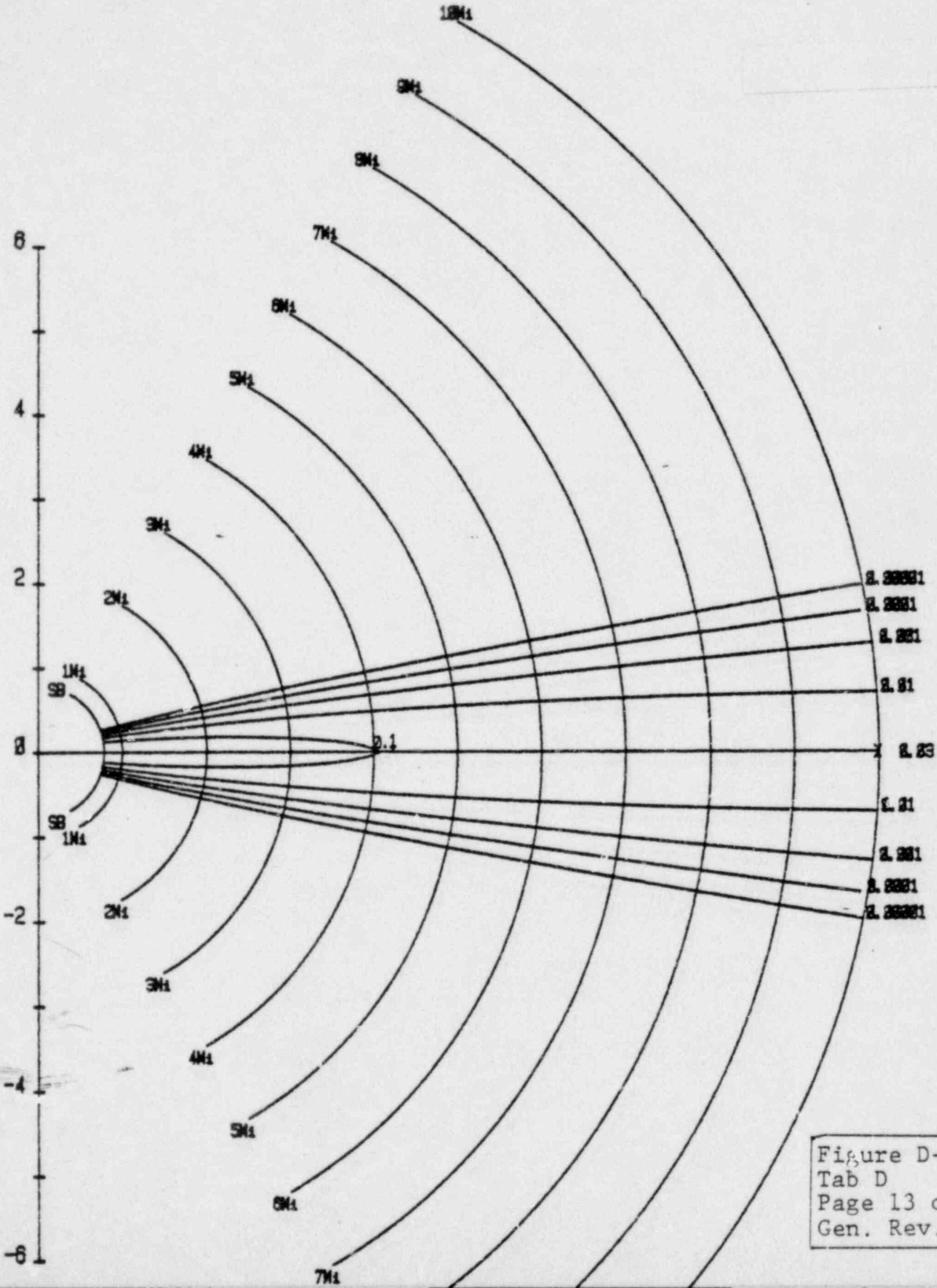


Figure D-7

Travel Time (Minutes) versus Wind Speed (MPH)

Wind Speed (MPH)	Distance (Miles)										
	sb	1	2	3	4	5	6	7	8	9	10
1	47.0	60.0	120.0	180.0	240.0	300.0	360.0	420.0	480.0	540.0	600.0
2	23.5	30.0	60.0	90.0	120.0	150.0	180.0	210.0	240.0	270.0	300.0
3	15.7	20.0	40.0	60.0	80.0	100.0	120.0	140.0	160.0	180.0	200.0
4	11.8	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0	150.0
5	9.4	12.0	24.0	36.0	48.0	60.0	72.0	84.0	96.0	108.0	120.0
6	7.8	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0
7	6.7	8.6	17.1	25.7	34.3	42.9	51.4	60.0	68.6	77.1	85.7
8	5.9	7.5	15.0	22.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0
9	5.2	6.7	13.3	20.0	26.7	33.3	40.0	46.7	53.3	60.0	66.7
10	4.7	6.0	12.0	18.0	24.0	30.0	36.0	42.0	48.0	54.0	60.0
11	4.3	5.5	10.9	16.4	21.8	27.3	32.7	38.2	43.6	49.1	54.5
12	3.9	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
13	3.6	4.6	7.2	13.8	18.5	23.1	27.7	32.3	36.9	41.5	46.2
14	3.4	4.3	8.6	12.9	17.1	21.4	25.7	30.0	34.3	38.6	42.9
15	3.1	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0
16	2.9	3.8	7.5	11.3	15.0	18.8	22.5	26.3	30.0	33.8	37.5
17	2.8	3.5	7.1	10.6	14.1	17.6	21.2	24.7	28.2	31.8	35.3
18	2.6	3.3	6.7	10.0	13.3	16.7	20.0	23.3	26.7	30.0	33.3
19	2.5	3.2	6.3	9.5	12.6	15.8	18.9	22.1	25.3	28.4	31.6
20	2.4	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0
21	2.2	2.9	5.7	8.6	11.4	14.3	17.1	20.0	22.9	25.7	28.6
22	2.1	2.7	5.5	8.2	10.9	13.6	16.4	19.1	21.8	24.5	27.3
23	2.0	2.6	5.2	7.8	10.4	13.0	15.7	18.3	20.9	23.5	26.1
24	2.0	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0
25	1.9	2.4	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0
26	1.8	2.3	4.6	6.9	9.2	11.5	13.8	16.2	18.5	20.8	23.1

FIGURE D-8

STABILITY CLASS D DOSE ASSESSMENT

Date ____________ ☐Time ____________ CENTRAL ☐Performed by: ____________

NOBLE GAS (N.G.) SOURCE TERM

	Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
Plant Vent:	____	X	____ E	X	____ E	=	____ E
SG:	____	X	____ E	X	____ E	=	____ E
SJAE:	1.05E+3	X	____ E	X	____ E	=	____ E
Other:	____	X	____ E	X	____ E	=	____ E

Total N.G. Source Term = ____ E

IODINE SOURCE TERM

	Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
Plant Vent:	____	X	____ E	X	____ E	=	____ E
SG:	____	X	____ E	X	____ E	=	____ E
SJAE:	1.05E+3	X	____ E	X	____ E	=	____ E
Other:	____	X	____ E	X	____ E	=	____ E

Total Iodine Source Term = ____ E

Total N.G. ____ E / Wind Speed ____ mph X 8.41E-05 = ____ E mRem/hr N.G. @ Site Boundary*

Total Iodine ____ E / Wind Speed ____ mph X 8.41E-05 = ____ E mRem/hr Iodine @ Site Boundary*

____ E mRem/hr N.G. @ Site Boundary* X ____ hr repair, release time** X 1/1000 = ____ E Rem W.B.

____ E mRem/hr Iodine @ Site Boundary* X ____ hr repair, release time** X 1/1000 = ____ E Rem Iodine

Rem W.B. + Rem Iodine = ____ E total Rem to thyroid

*If dose rate at site boundary ≥1 mRem/hr, complete remaining calculations.

**Use 14 hr, if value is unknown.

Emergency classification:
- ( ) GENERAL (≥5 Rem W.B. OR ≥10 Rem Thyroid)
- ( ) SITE (≥1 Rem W.B. OR ≥2.5 Rem Thyroid)
- ( ) ALERT (≥1mRem/hr N.G. or Iodine)

Arrival times at S.B., and each mile are out to 10 miles or to location <1mRem/hr (whichever is less) based on the release/change occuring at ______ hr. CENTRAL on ________ (date):

SB	1 mi.	2 mi.	3 mi.	4mi.	5 mi.	6 mi.	7 mi.	8 mi.	9 mi.	10 mi.
____	____	____	____	____	____	____	____	____	____	____

STABILITY CLASS E

TAB E

STABILITY CLASS E DOSE ASSESSMENT

TAB E
STABILITY CLASS E

STABILITY CLASS E DOSE ASSESSMENT

I. Determine the factors for determining the source term for each affected effluent path:

A. Plant Vent Stack Release

1. Enter the flowrate in cfm from the plant vent stack flow recorder (Unit 1 - next to RE-14 monitor; Unit 2 - on BOP) on Figure E-8, Stability Class A Dose Assessment or by using the following information if the recorder is not operating:

a. One aux. bldg. fan............75,000 cfm
b. One aux. bldg. fan & RE-025 tripped....................79,000 cfm
c. Two aux. bldg. fans..........150,000 cfm
Two aux. bldg. fans & RE-025 tripped...........154,000 cfm

2. If RE-29B (SPING-4 readout located in the Unit 2 Gross Failed Fuel Detector rack) is operating (if necessary, have counting room personnel refer to FNP-0-RCP-704):

a. Enter on Figure E-8 the μCi/ml for noble gas and the noble gas dose factor from Figure E-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use a noble gas dose factor of 2.4E+02.

b. Enter on Figure E-8 the μCi/ml for iodine and the infant iodine dose factor from Figure E-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use an infant iodine dose factor of 6.0E+05.

3. If RE-29B (SPING-4) is not operating, perform (a) OR (b) below:

a. Use the RAD-GUN per RCP-25 to determine the μCi/ml, and record the same μCi/ml value on Figure E-8 for both the noble gas and iodine concentration. Use

Figure E-2 to determine the noble gas and infant iodine dose factors and record on Figure E-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.3E+02
Iodine: 1.4E+04

b. Obtain a grab sample to determine the μCi/ml for noble gas and iodine and enter on Figure E-8 the values for both noble gas and iodine. Use Figure E-1 to determine the the noble gas and infant iodine dose factors and record on Figure E-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.4E+02
Iodine: 6.0E+05

B. Steam Generator atmospheric relief and/or safety release.

1. Determine the flow from the atmospheric reliefs and/or safety reliefs as follows:

a. Obtain the current pressure (psig) and loop TAVG(°F) readings for each steam generator of the affected unit. Record values on Figure E-4.

b. Determine the flow in pounds mass per hour (lbm/hr) that is possible from a safety/atmospheric relief valve by using Figure E-5. The value obtained is the flow that will be discharged from each safety or atmospheric relief valve that is open.

c. Determine the number of valves that are open for each steam generator using the data below:

Pressure of Steam Gen. (psig)	Valves Open
<1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

d. Determine the specific volume (ft^3-hr/min-lbm) by using the loop TAVG(°F) and the information below and record on Figure E-4 for each steam generator (use the closest TAVG value):

TAVG(°F)	SPECIFIC VOLUME $\left[\frac{ft^3\text{-}hr}{min\text{-}lbm}\right]$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

e. Determine the total flow in cfm from <u>each</u> generator by multiplying the flow (lbm/hr) times number of valves open times the specific volume for each generator.

f. Determine the total flow of the release in cfm from <u>all</u> generators by summing the values obtained for <u>each</u> generator per I.B.1.e.

g. Record this value on Figure E-4 and on Figure E-8 for both iodine and noble gas.

2. Determine the effluent concentration in μCi/ml by using RCP-25 and by performing either (a) <u>OR</u> (b) below:

a. Use a portable dose rate instrument and record the same μCi/ml value on Figure E-8 for both noble gas and iodine. Determine the noble gas and <u>infant</u> iodine dose factors using Figure E-3 and record on Figure E-8. The "Elapsed Time

Since Shutdown (Hours)" applies to the reactor.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure E-8. Determine the noble gas and infant iodine dose factors using Figure E-1 and record on Figure E-8.

C. Steam jet air ejector release

1. Enter a flow rate of 1050 cfm on Figure E-8 for both the noble gas and iodine flowrate.

2. Determine the effluent concentration in µCi/ml by using RCP-25 and by performing either (a) OR (b) below:

a. Use a portable dose rate instrument and record the same µCi/ml value on Figure E-8 for both noble gas and iodine. Determine the noble gas and infant iodine dose factors and record on Figure E-8 as follows:

(1) Use Figure E-2 if the SJAE filters are in service.

(2) Use Figure E-3 if the SJAE filters are not in service.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure E-8. Determine the noble gas and infant iodine dose factors from Figure E-1 and record on Figure E-8.

II. Determine the source term for each effluent path for noble gas and iodine by using the following equation and the values entered on Figure E-8:

[flowrate (cfm)] X [conc. (µCi/ml)] X [dose factor] =[source term]

III. Determine the total noble gas source term on Figure E-8 by summing the noble gas source terms calculated for each effluent path.

IV. Determine the total iodine source term on Figure E-8 by summing the iodine source terms calculated for each effluent path.

V. Enter the total noble gas source term, total iodine source term, and the wind speed in mph in the appropriate boxes on Figure E-8. Determine the dose rate in mRem/hr at the site boundary from noble gas and from iodine by using the following equation:

$$\left(\frac{\text{Total Source Term}}{\text{Wind Speed, mph}}\right) \times \left(\frac{\bar{U}\chi}{Q}\right) = \text{mRem/hr at site boundary (S.B.)}$$

VI. If the projected noble gas or iodine dose rate ≥ 1 mRem/hr, proceed to step VII; if not, the estimated whole body or thyroid dose does not meet the minimum criteria for classifying the emergency according to paragraph 4.2 in the main body of this procedure and no further calculations are required at this time. Go to step XIV.

VII. Determine the estimated repair time or release duration in hours and record on Figure E-8. Use 14 hours if this value is unknown.

VIII Determine the projected whole body dose in Rem at the site boundary using the following equation and record on Figure E-8:

$$\underset{\text{Whole Body}}{\text{Dose (Rem)}} = \left(\text{Dose rate, site boundary } \frac{\text{mrem}}{\text{hr}}\right)\left(\text{Release/repair time, hr}\right)\left(\frac{1 \text{ Rem}}{1000\text{mRem}}\right)$$

IX. Determine the projected thyroid dose from iodine in Rem at the site boundary by using the following equation and record on Figure E-8:

$$\underset{\text{thyroid}}{\text{Dose } I_2 \text{ (Rem)}} = \left(\text{Dose rate, site boundary } \frac{\text{mRem}}{\text{hr}}\right)\left(\text{Release/repair time, hr.}\right)\left(\frac{1 \text{ Rem}}{1000 \text{ mRem}}\right)$$

X. Determine the total thyroid dose in Rem by summing the results from steps VIII and IX.

XI. Determine the classification of the emergency using the values from steps VIII and X and comparing them to the criteria of paragraph 4.2 in the main body of this procedure.

XII. Determine the affected downwind areas in the 10-mile emergency planning zone (EPZ) by placing Figure E-6, "Relative Dose Rate Plume Boundary For Stability Class A" on the 10-mile EPZ map and by orienting the plume centerline on the downwind direction vector. The lines on Figure E-6 are isodose/isodose rate lines. The

dose/dose rate values on each of the lines can be obtained by multiplying the values by the site boundary dose/dose rate. The value at the intersection of the 10 mile arc and the plume centerline times the site boundary centerline dose/dose rate gives the dose/dose rate at that point. Mark the centerline on the map with a grease pencil and record the date, time, and stability class to aid in projecting accumulated doses and affected areas.

XIII Determine the arrival times in minutes for the site boundary, and each mile arc out to 10 miles or to where the dose rate <1 mRem/hr using Figure E-7 "Arrival Time versus Wind Speed." Record data on Figure E-8.

XIV. Refer to step 4.4 in the main body of this procedure.

FIGURE E-1
FAILED FUEL

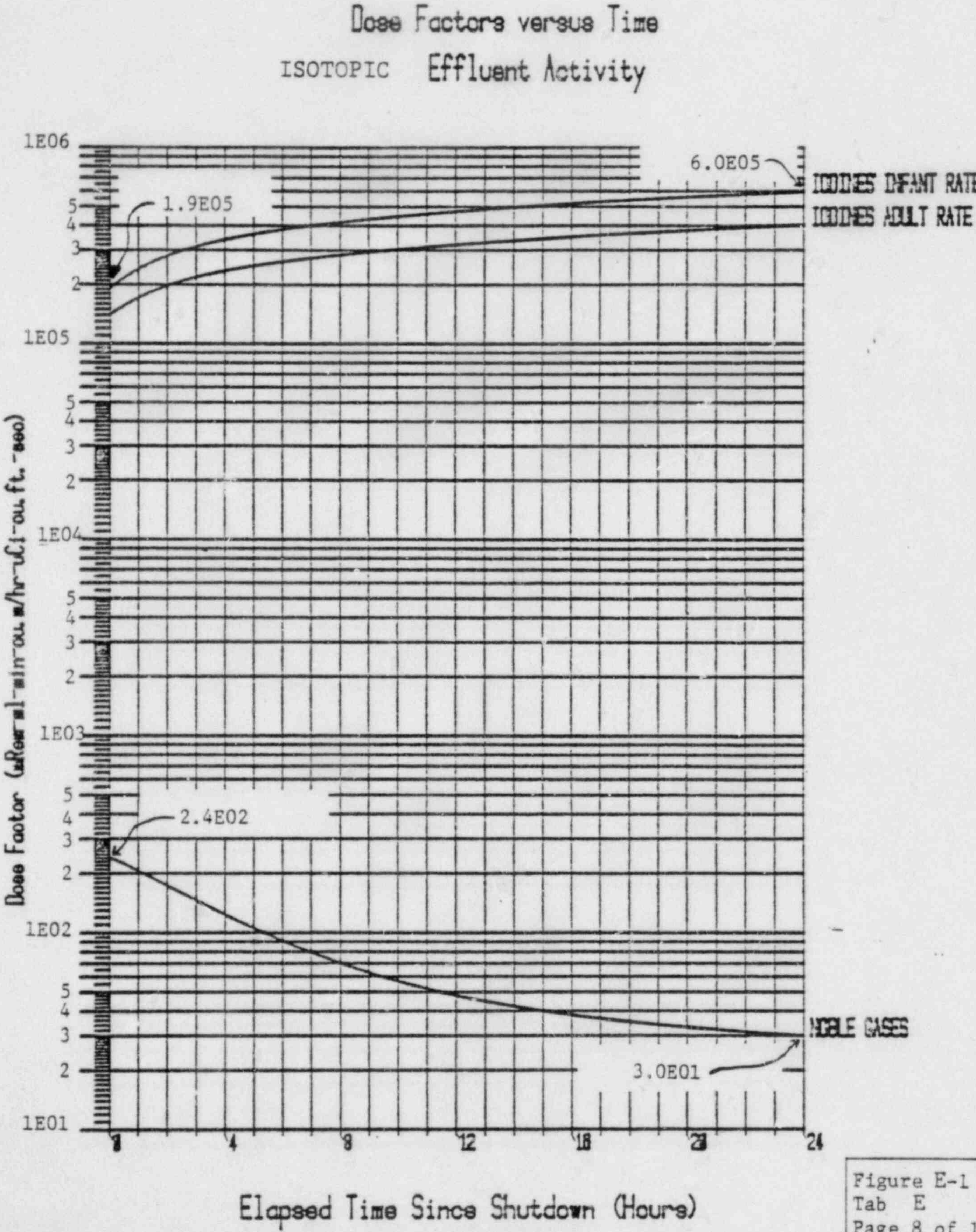


FIGURE E-2

FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Filtered Iodines

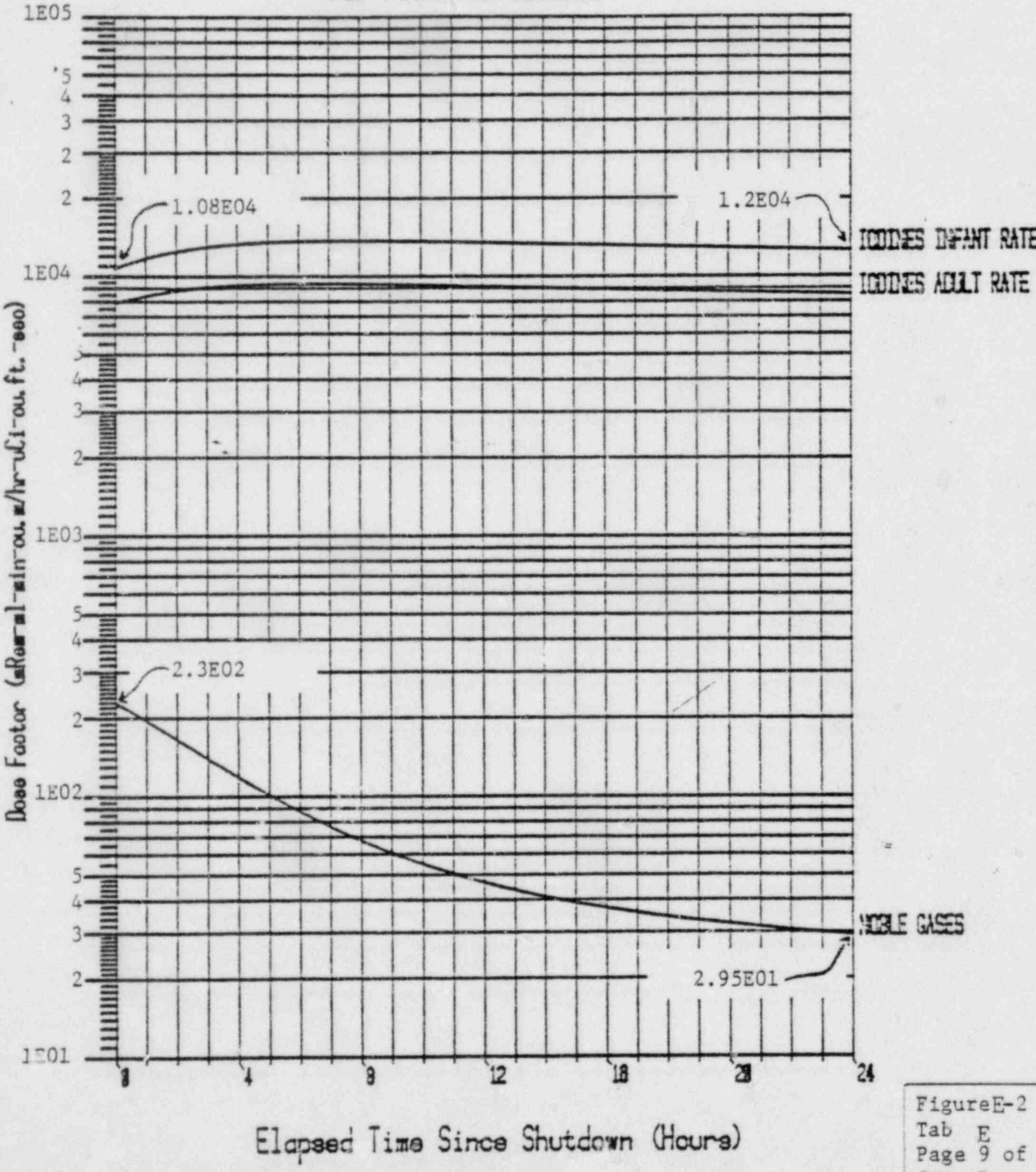


FIGURE E-3

FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Unfiltered Iodines

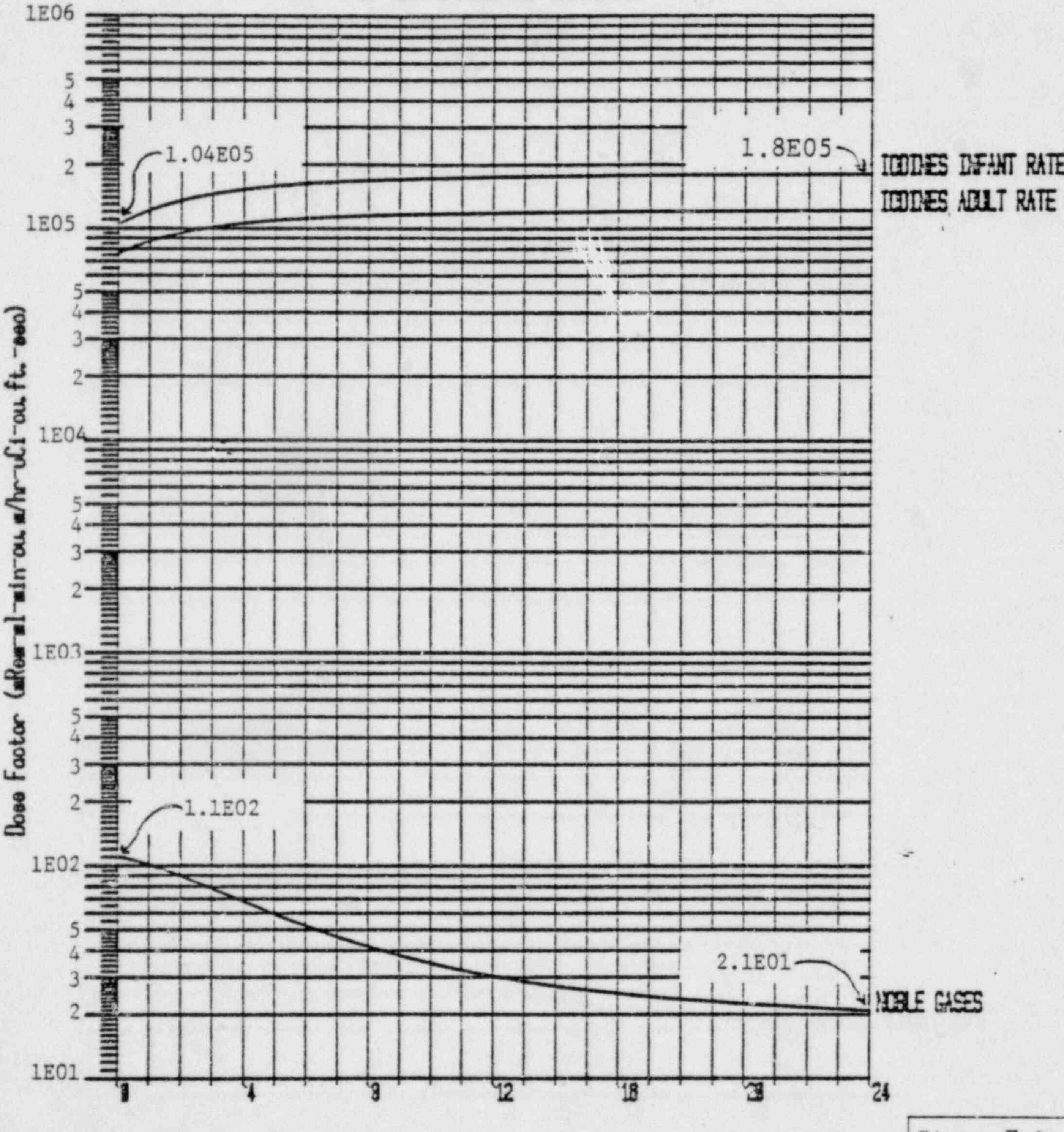


FIGURE E-4
STEAM ATMOSPHERIC/SAFETY RELIEF VALVE
FLOW CALCULATION SHEET

SG Press (pisg)	No. Valves Open
<1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

TAVG(°F)	SPECIFIC VOLUME $\frac{ft^3\text{-}hr}{min\text{-}lbm}$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

Date/Time	Unit SG	Press. (psig)	Loop TAVG (°F)	lb m/hr (Fig E-5)	X	# valves open	X	specific volume	=	cfm per SG	cfm per Unit	Remarks
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXXX	XXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX								sum of cfm per SG
XXXXXXXXXX	XXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXXX	XXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX								sum of cfm per SG
XXXXXXXXXX	XXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXXX	XXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX								sum of cfm per SG
XXXXXXXXXX	XXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX

FIGURE E-5
MAXIMUM FLOW PAST VALVE vs STEAM GENERATOR PRESSURE

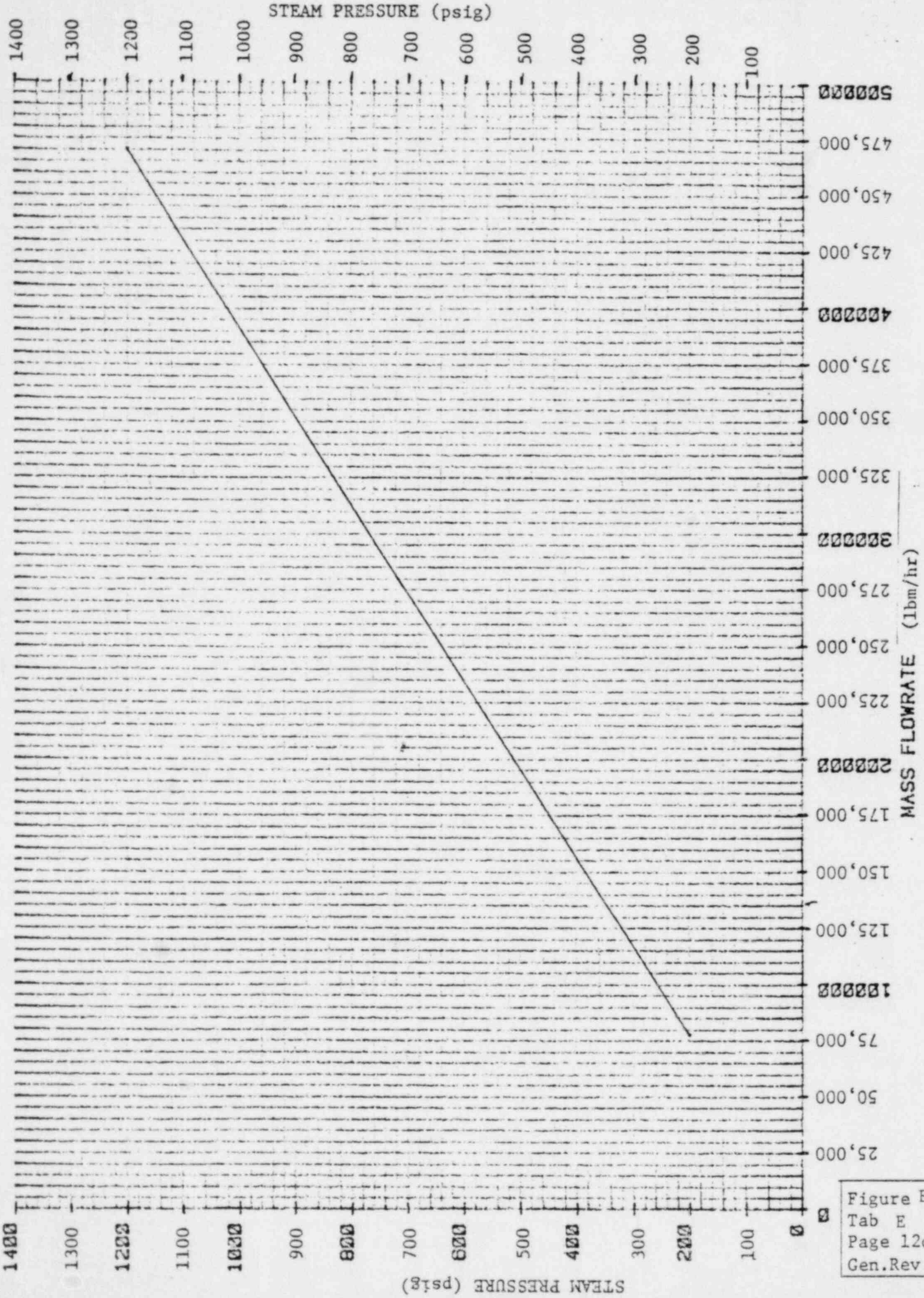


FIGURE E-6

Relative Dose Rate Plume Boundary
For stability class E
mixing height = 41Ø4ft.

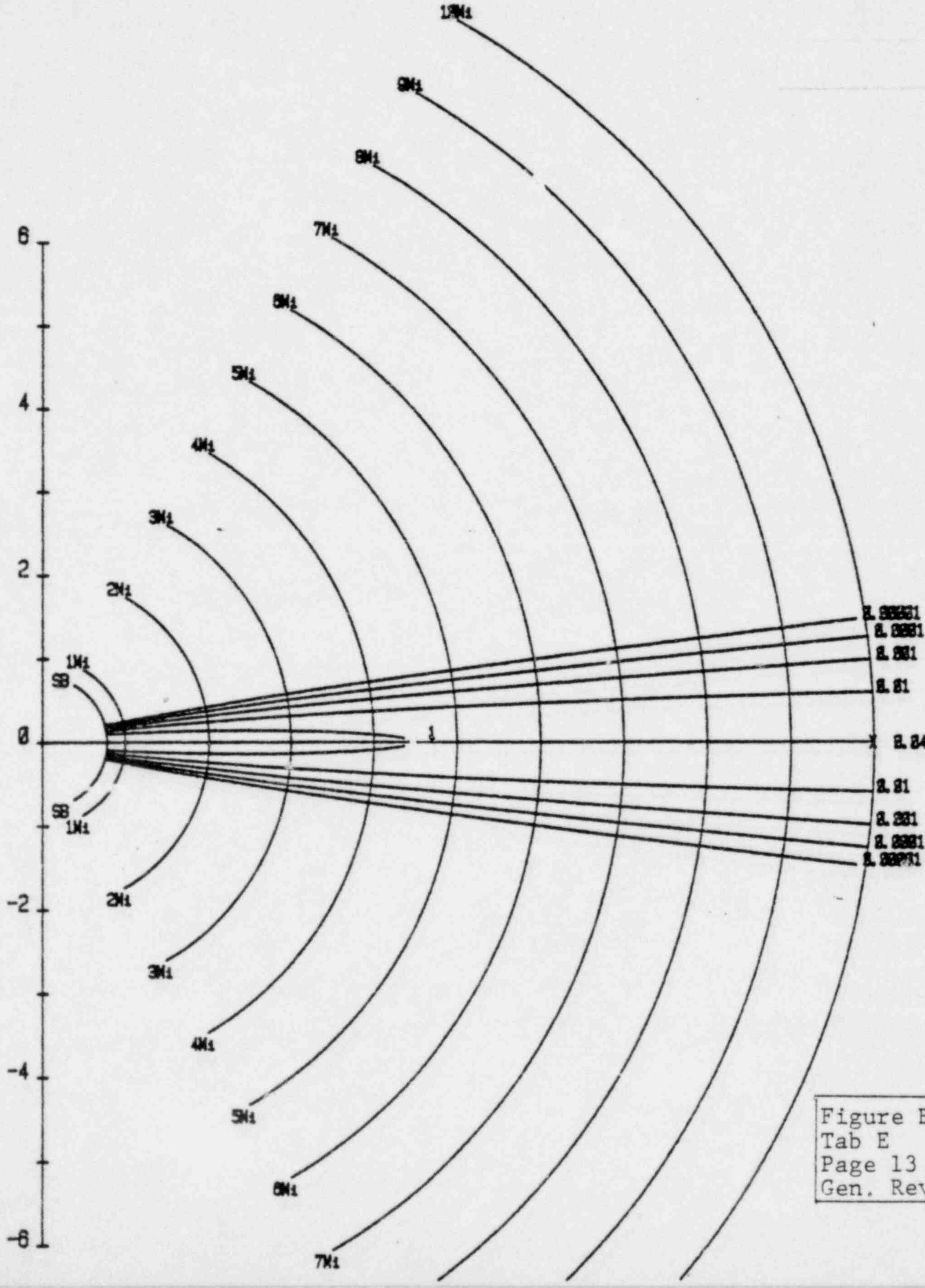


Figure E-7
Travel Time (Minutes) versus Wind Speed (MPH)

Wind Speed (MPH)	Distance (Miles) sb	1	2	3	4	5	6	7	8	9	10
1	47.0	60.0	120.0	180.0	240.0	300.0	360.0	420.0	480.0	540.0	600.0
2	23.5	30.0	60.0	90.0	120.0	150.0	180.0	210.0	240.0	270.0	300.0
3	15.7	20.0	40.0	60.0	80.0	100.0	120.0	140.0	160.0	180.0	200.0
4	11.8	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0	150.0
5	9.4	12.0	24.0	36.0	48.0	60.0	72.0	84.0	96.0	108.0	120.0
6	7.8	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0
7	6.7	8.6	17.1	25.7	34.3	42.9	51.4	60.0	68.6	77.1	85.7
8	5.9	7.5	15.0	22.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0
9	5.2	6.7	13.3	20.0	26.7	33.3	40.0	46.7	53.3	60.0	66.7
10	4.7	6.0	12.0	18.0	24.0	30.0	36.0	42.0	48.0	54.0	60.0
11	4.3	5.5	10.9	16.4	21.8	27.3	32.7	38.2	43.6	49.1	54.5
12	3.9	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
13	3.6	4.6	9.2	13.8	18.5	23.1	27.7	32.3	36.9	41.5	46.2
14	3.4	4.3	8.6	12.9	17.1	21.4	25.7	30.0	34.3	38.6	42.9
15	3.1	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0
16	2.9	3.8	7.5	11.3	15.0	18.8	22.5	26.3	30.0	33.8	37.5
17	2.8	3.5	7.1	10.6	14.1	17.6	21.2	24.7	28.2	31.8	35.3
18	2.6	3.3	6.7	10.0	13.3	16.7	20.0	23.3	26.7	30.0	33.3
19	2.5	3.2	6.3	9.5	12.6	15.8	18.9	22.1	25.3	28.4	31.6
20	2.4	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0
21	2.2	2.9	5.7	8.6	11.4	14.3	17.1	20.0	22.9	25.7	28.6
22	2.1	2.7	5.5	8.2	10.9	13.6	16.4	19.1	21.8	24.5	27.3
23	2.0	2.6	5.2	7.8	10.4	13.0	15.7	18.3	20.9	23.5	26.1
24	2.0	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0
25	1.9	2.4	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0
26	1.8	2.3	4.6	6.9	9.2	11.5	13.8	16.2	18.5	20.8	23.1

FIGURE E-8
STABILITY CLASS E DOSE ASSESSMENT

☐Date ______________ ☐Time ______________ CENTRAL ☐Performed by: ______________

NOBLE GAS (N.G.) SOURCE TERM

	Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
☐Plant Vent:	____	X	____E	X	____E	=	____E
☐SG:	____	X	____E	X	____E	=	____E
☐SJAE:	1.05E+3	X	____E	X	____E	=	____E
☐Other:	____	X	____E	X	____E	=	____E

Total N.G. Source Term = ____E

IODINE SOURCE TERM

	Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
☐Plant Vent:	____	X	____E	X	____E	=	____E
☐SG:	____	X	____E	X	____E	=	____E
☐SJAE:	1.05E+3	X	____E	X	____E	=	____E
☐Other:	____	X	____E	X	____E	=	____E

Total Iodine Source Term = ____E

Total N.G. ____E / Wind Speed ____mph X 1.44E-04 = ____E mRem/hr N.G. @ Site Boundary*

Total Iodine ____E / Wind Speed ____mph X 1.44E-04 = ____E mRem/hr Iodine @ Site Boundary*

____E mRem/hr N.G. @ Site Boundary* X ____hr repair, release time** X 1/1000 = ____E Rem W.B.

____E mRem/hr Iodine @ Site Boundary* X ____hr repair, release time** X 1/1000 = ____E Rem Iodine

Rem W.B. + Rem Iodine → ____E total Rem to thyroid

*If dose rate at site boundary >1 mRem/hr, complete remaining calculations.
**Use 14 hr, if value is unknown.

☐Emergency classification:
( ) GENERAL (>5 Rem W.B. OR >10 Rem Thyroid)
( ) SITE (>1 Rem W.B. OR >2.5 Rem Thyroid)
( ) ALERT (>1mRem/hr N.G. or Iodine)

☐Arrival times at S.B., and each mile are out to 10 miles or to location <1mRem/hr (whichever is less) based on the release/change occuring at ______hr. CENTRAL on ________(date):

SB	1 mi.	2 mi.	3 mi.	4mi.	5 mi.	6 mi.	7 mi.	8 mi.	9 mi.	10 mi.
____	____	____	____	____	____	____	____	____	____	____

STABILITY CLASS F

TAB F

STABILITY CLASS F DOSE ASSESSMENT

TAB F
STABILITY CLASS F

STABILITY CLASS F DOSE ASSESSMENT

I. Determine the factors for determining the source term for each affected effluent path:

A. Plant Vent Stack Release

1. Enter the flowrate in cfm from the plant vent stack flow recorder (Unit 1 - next to RE-14 monitor; Unit 2 - on BOP) on Figure F-8, Stability Class A Dose Assessment or by using the following information if the recorder is not operating:

a. One aux. bldg. fan............75,000 cfm
b. One aux. bldg. fan & RE-025 tripped....................79,000 cfm
c. Two aux. bldg. fans..........150,000 cfm
Two aux. bldg. fans & RE-025 tripped............154,000 cfm

2. If RE-29B (SPING-4 readout located in the Unit 2 Gross Failed Fuel Detector rack) is operating (if necessary, have counting room personnel refer to FNP-0-RCP-704):

a. Enter on Figure F-8 the μCi/ml for noble gas and the noble gas dose factor from Figure F-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use a noble gas dose factor of 2.4E+02.

b. Enter on Figure F-8 the μCi/ml for iodine and the infant iodine dose factor from Figure F-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use an infant iodine dose factor of 6.0E+05.

3. If RE-29B (SPING-4) is not operating, perform (a) OR (b) below:

a. Use the RAD-GUN per RCP-25 to determine the μCi/ml, and record the same μCi/ml value on Figure F-8 for both the noble gas and iodine concentration. Use

Figure F-2 to determine the noble gas and infant iodine dose factors and record on Figure F-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.3E+02
Iodine: 1.4E+04

b. Obtain a grab sample to determine the μCi/ml for noble gas and iodine and enter on Figure F-8 the values for both noble gas and iodine. Use Figure F-1 to determine the the noble gas and infant iodine dose factors and record on Figure F-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.4E+02
Iodine: 6.0E+05

B. Steam Generator atmospheric relief and/or safety release.

1. Determine the flow from the atmospheric reliefs and/or safety reliefs as follows:

a. Obtain the current pressure (psig) and loop TAVG(°F) readings for each steam generator of the affected unit. Record values on Figure F-4.

b. Determine the flow in pounds mass per hour (lbm/hr) that is possible from a safety/atmospheric relief valve by using Figure F-5. The value obtained is the flow that will be discharged from each safety or atmospheric relief valve that is open.

c. Determine the number of valves that are open for each steam generator using the data below:

Pressure of Steam Gen. (psig)	Valves Open
<1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

d. Determine the specific volume (ft^3-hr/min-lb^m) by using the loop TAVG(°F) and the information below and record on Figure F-4 for each steam generator (use the closest TAVG value):

TAVG(°F)	SPECIFIC VOLUME $\left[\frac{ft^3\text{-}hr}{min\text{-}lbm}\right]$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

e. Determine the total flow in cfm from each generator by multiplying the flow (lbm/hr) times number of valves open times the specific volume for each generator.

f. Determine the total flow of the release in cfm from all generators by summing the values obtained for each generator per I.B.1.e.

g. Record this value on Figure F-4 and on Figure F-8 for both iodine and noble gas.

2. Determine the effluent concentration in µCi/ml by using RCP-25 and by performing either (a) OR (b) below:

a. Use a portable dose rate instrument and record the same µCi/ml value on Figure F-8 for both noble gas and iodine. Determine the noble gas and infant iodine dose factors using Figure F-3 and record on Figure F-8. The "Elapsed Time

Since Shutdown (Hours)" applies to the reactor.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure F-8. Determine the noble gas and <u>infant</u> iodine dose factors using Figure F-1 and record on Figure F-8.

C. Steam jet air ejector release

1. Enter a flow rate of 1050 cfm on Figure F-8 for both the noble gas and iodine flowrate.

2. Determine the effluent concentration in μCi/ml by using RCP-25 and by performing either (a) <u>OR</u> (b) below:

a. Use a portable dose rate instrument and record the same μCi/ml value on Figure F-8 for both noble gas and iodine. Determine the noble gas and <u>infant</u> iodine dose factors and record on Figure F-8 as follows:

(1) Use Figure F-2 if the SJAE filters are <u>in service</u>.

(2) Use Figure F-3 if the SJAE filters are <u>not in service</u>.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure F-8. Determine the noble gas and <u>infant</u> iodine dose factors from Figure F-1 and record on Figure F-8.

II. Determine the source term for each effluent path for noble gas and iodine by using the following equation and the values entered on Figure F-8:

[flowrate (cfm)] X [conc. (μCi/ml)] X [dose factor] =[source term]

III. Determine the <u>total</u> noble gas source term on Figure F-8 by summing the noble gas source terms calculated for each effluent path.

IV. Determine the <u>total</u> iodine source term on Figure F-8 by summing the iodine source terms calculated for each effluent path.

V. Enter the total noble gas source term, total iodine source term, and the wind speed in mph in the appropriate boxes on Figure F-8. Determine the dose rate in mRem/hr at the site boundary from noble gas and from iodine by using the following equation:

$$\left(\frac{\text{Total Source Term}}{\text{Wind Speed, mph}}\right) X \left(\frac{\bar{U}\chi}{Q}\right) = \text{mRem/hr at site boundary (S.B.)}$$

VI. If the projected noble gas or iodine dose rate $\geq$1 mRem/hr, proceed to step VII; if not, the estimated whole body or thyroid dose does not meet the minimum criteria for classifying the emergency according to paragraph 4.2 in the main body of this procedure and no further calculations are required at this time. Go to step XIV.

VII. Determine the estimated repair time or release duration in hours and record on Figure F-8. Use 14 hours if this value is unknown.

VIII Determine the projected whole body dose in Rem at the site boundary using the following equation and record on Figure F-8:

$$\begin{array}{l}\text{Dose} \\ \text{(Rem)} \\ \text{Whole} \\ \text{Body}\end{array} = \left(\begin{array}{l}\text{Dose rate,} \\ \text{site boundary}\end{array} \frac{\text{mrem}}{\text{hr}}\right)\left(\begin{array}{c}\text{Release/repair} \\ \text{time, hr}\end{array}\right)\left(\frac{1\ \text{Rem}}{1000\text{mRem}}\right)$$

IX. Determine the projected thyroid dose from iodine in Rem at the site boundary by using the following equation and record on Figure F-8:

$$\begin{array}{l}\text{Dose } I_2 \\ \text{(Rem)} \\ \text{thyroid}\end{array} = \left(\begin{array}{l}\text{Dose rate,} \\ \text{site boundary}\end{array} \frac{\text{mRem}}{\text{hr}}\right)\left(\begin{array}{c}\text{Release/repair} \\ \text{time, hr.}\end{array}\right)\left(\frac{1\ \text{Rem}}{1000\ \text{mRem}}\right)$$

X. Determine the total thyroid dose in Rem by summing the results from steps VIII and IX.

XI. Determine the classification of the emergency using the values from steps VIII and X and comparing them to the criteria of paragraph 4.2 in the main body of this procedure.

XII. Determine the affected downwind areas in the 10-mile emergency planning zone (EPZ) by placing Figure F-6, "Relative Dose Rate Plume Boundary For Stability Class A" on the 10-mile EPZ map and by orienting the plume centerline on the downwind direction vector. The lines on Figure F-6 are isodose/isodose rate lines. The

dose/dose rate values on each of the lines can be obtained by multiplying the values by the site boundary dose/dose rate. The value at the intersection of the 10 mile arc and the plume centerline times the site boundary centerline dose/dose rate gives the dose/dose rate at that point. Mark the centerline on the map with a grease pencil and record the date, time, and stability class to aid in projecting accumulated doses and affected areas.

XIII Determine the arrival times in minutes for the site boundary, and each mile arc out to 10 miles or to where the dose rate <1 mRem/hr using Figure F-7 "Arrival Time versus Wind Speed." Record data on Figure F-8.

XIV. Refer to step 4.4 in the main body of this procedure.

FIGURE F-1
FAILED FUEL

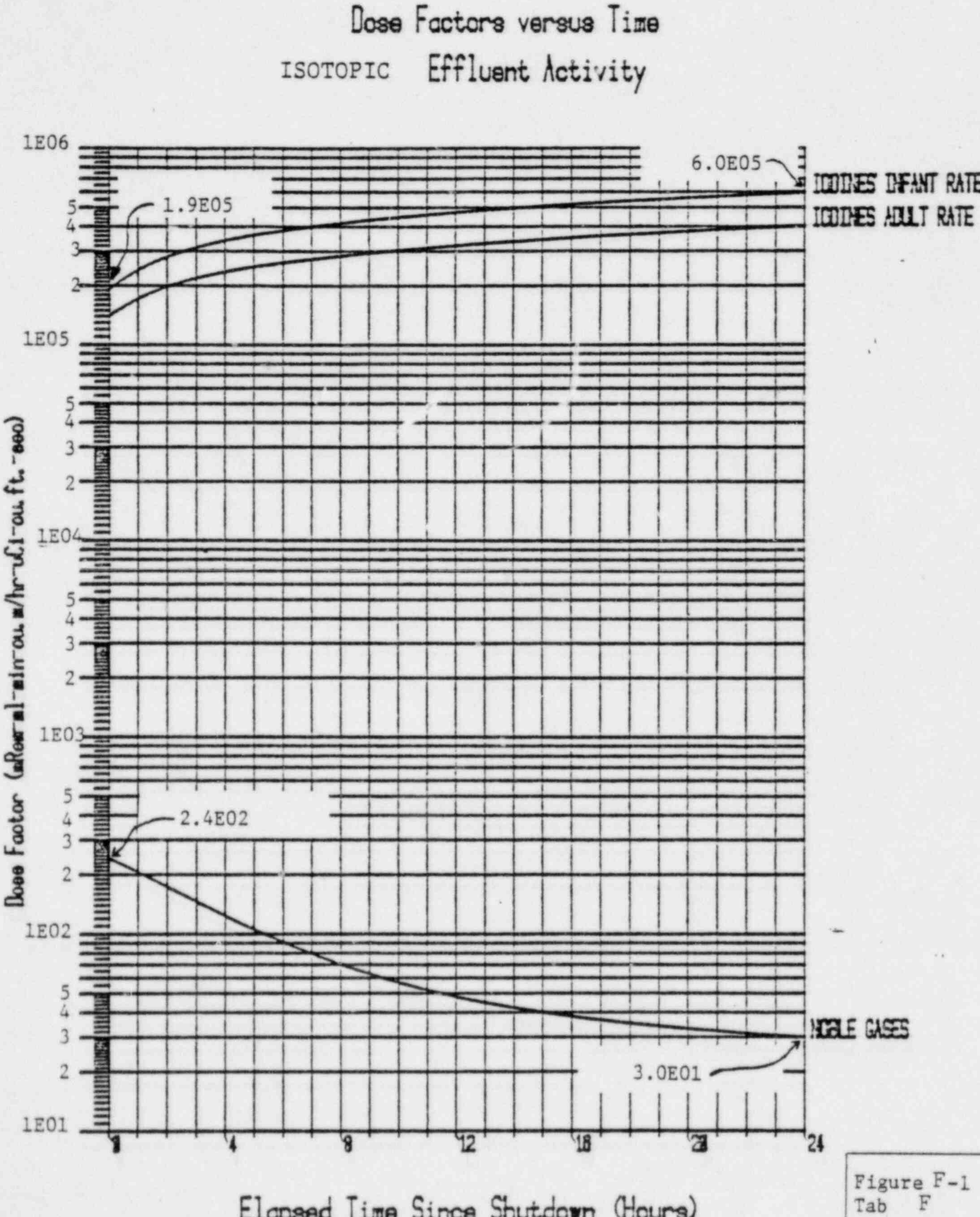


FIGURE F-2

FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Filtered Iodines

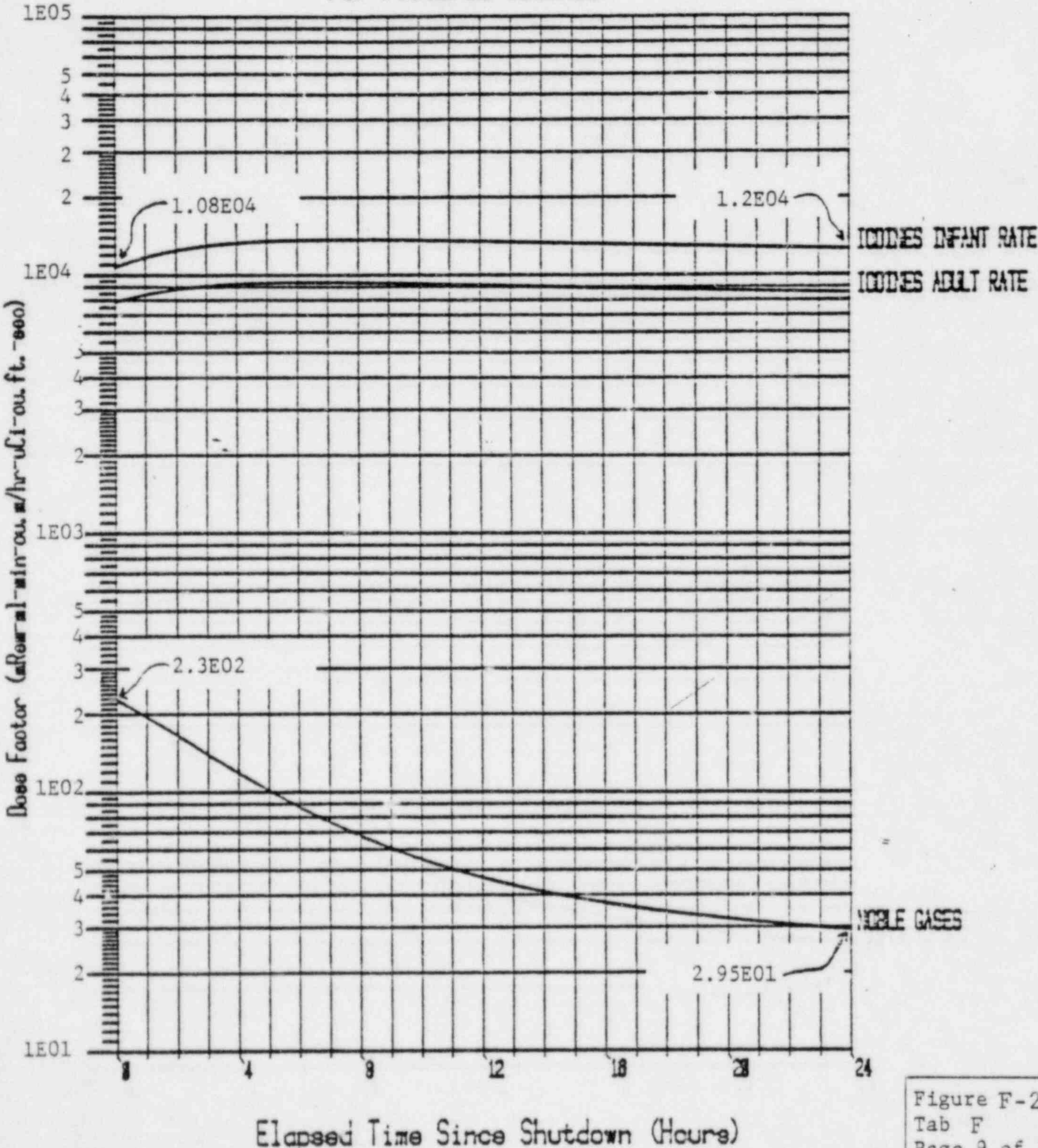


FIGURE F-3

FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Unfiltered Iodines

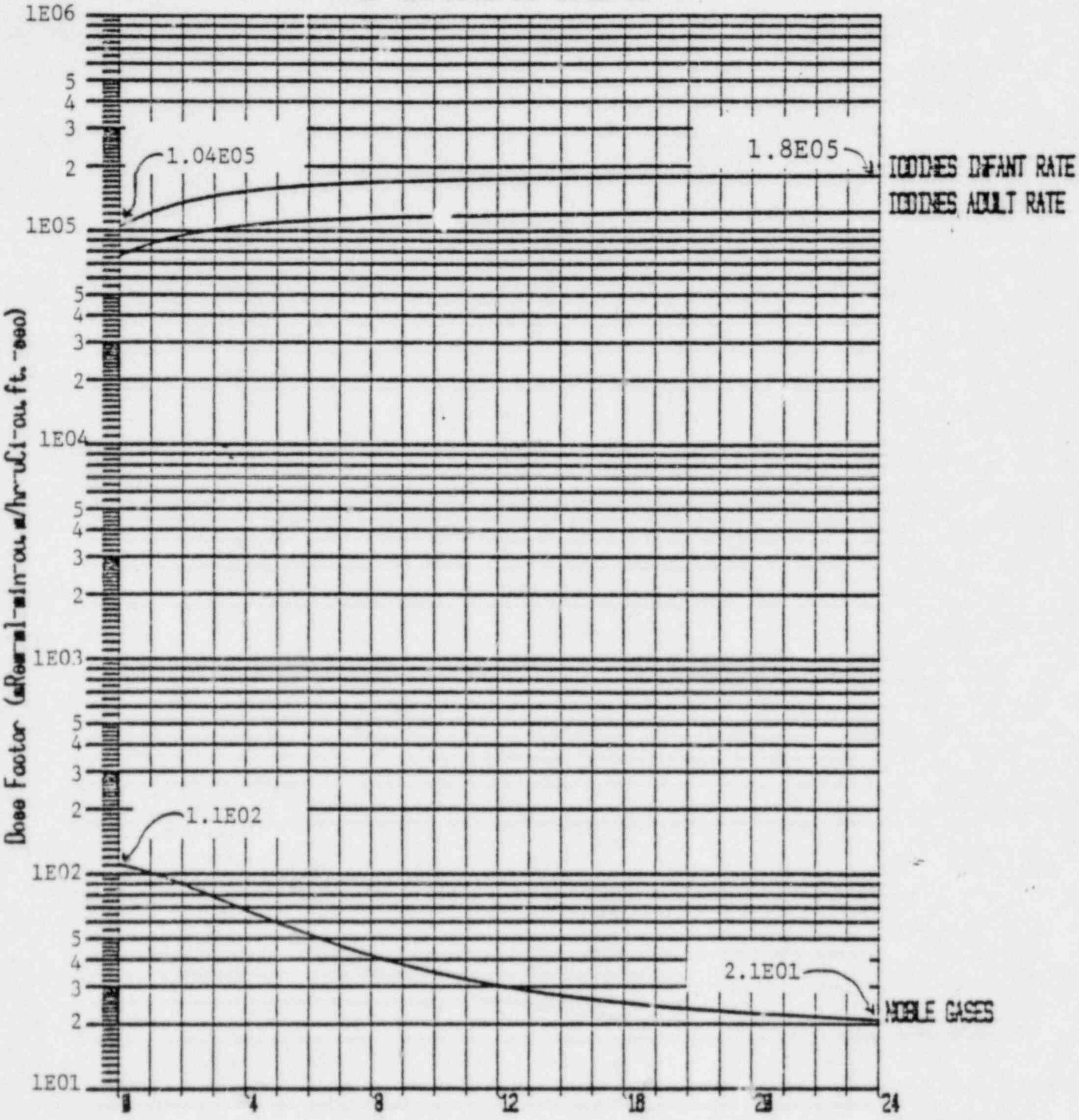


FIGURE F-4
STEAM ATMOSPHERIC SAFETY RELIEF VALVE
FLOW CALCULATION SHEET

SG Press (pisg)	No. Valves Open	TAVG(°F)	SPECIFIC VOLUME $\frac{ft^3\text{-}hr}{min\text{-}lbm}$
<1035	0		
1035-1075	1	550	0.67
1075-1089	2	500	0.63
1089-1102	3	450	0.60
1102-1116	4	400	0.57
1116-1129	5	350	0.53
>1129	6	300	0.50
		250	0.47
		212	0.45

Date/Time	Unit SG	Press. (psig)	Loop TAVG (°F)	lb m/hr (Fig F-5)	X	# valves open	X	specific volume	=	cfm per SG	cfm per Unit	Remarks
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX			XXXXXXXXXXXXX		→		sum of cfm per SG
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX			XXXXXXXXXXXXX		→		sum of cfm per SG
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX			XXXXXXXXXXXXX		→		sum of cfm per SG
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXX

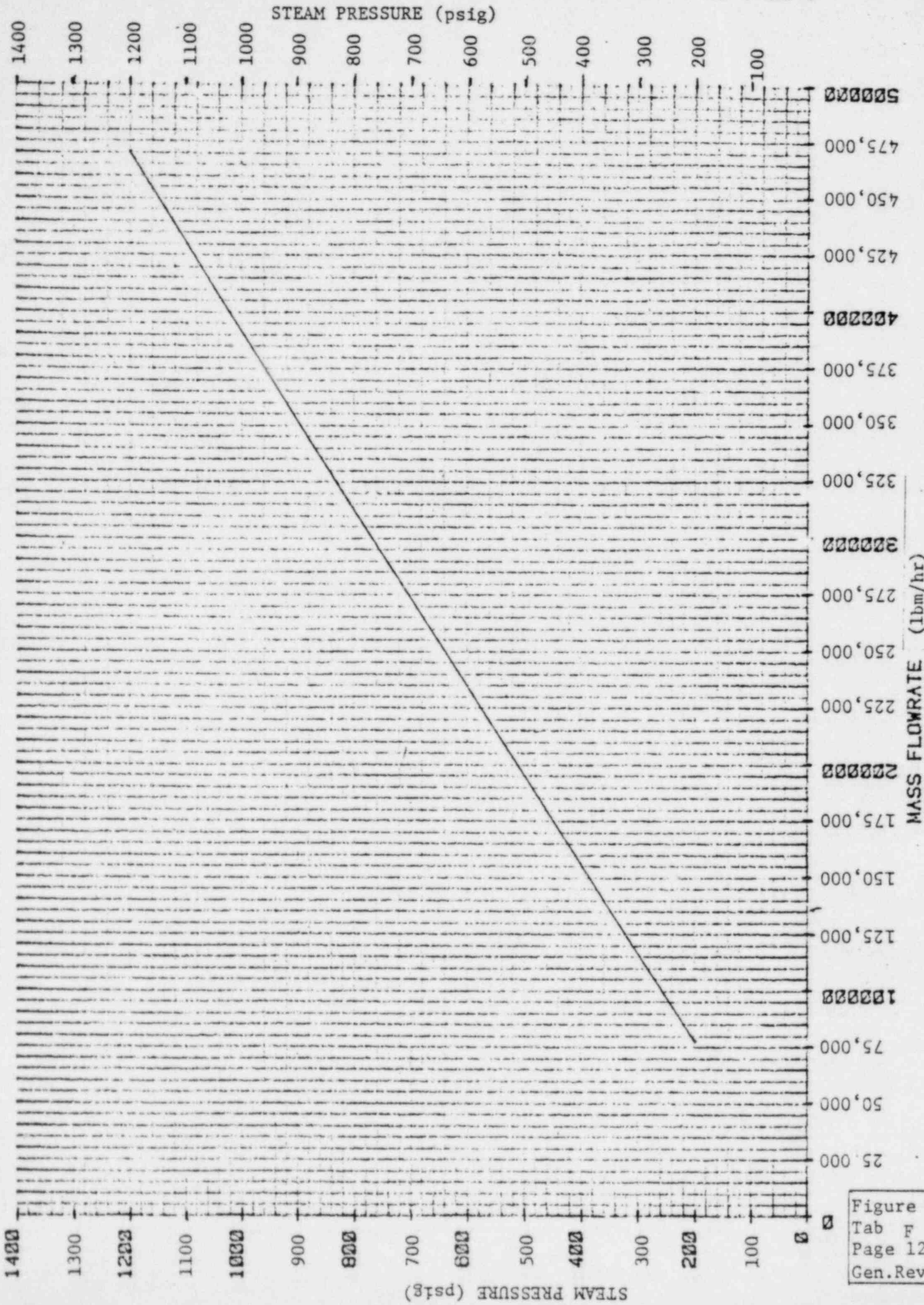


FIGURE F-5
MAXIMUM FLOW PAST VALVE vs STEAM GENERATOR PRESSURE

FIGURE F-6

Relative Dose Rate Plume Boundary
For stability class F
mixing height = 4104ft.

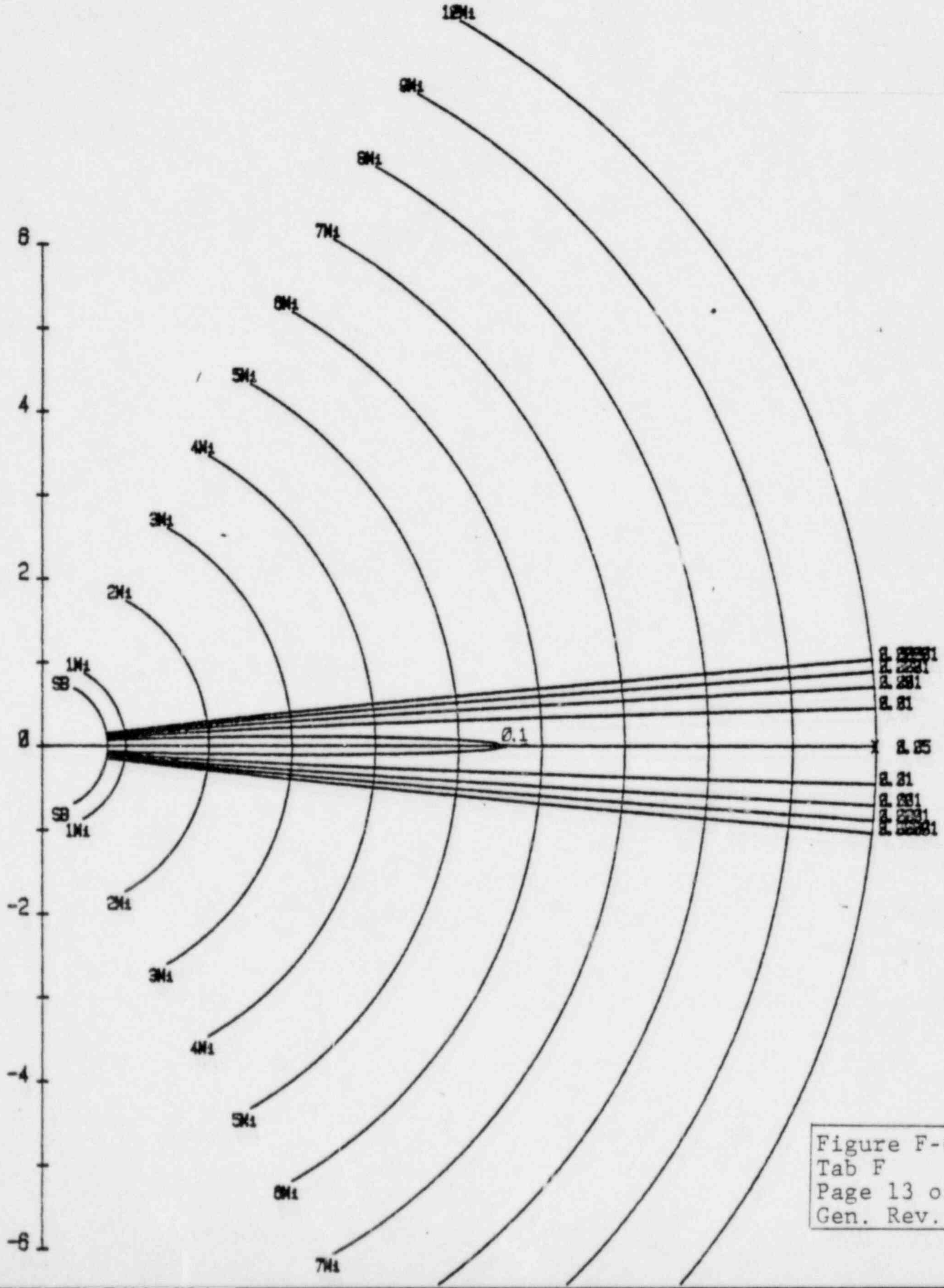


Figure F-7

Travel Time (Minutes) versus Wind Speed (MPH)

Wind Speed (MPH)	Distance (Miles) sb	1	2	3	4	5	6	7	8	9	10
1	47.0	60.0	120.0	180.0	240.0	300.0	360.0	420.0	480.0	540.0	600.0
2	23.5	30.0	60.0	90.0	120.0	150.0	180.0	210.0	240.0	270.0	300.0
3	15.7	20.0	40.0	60.0	80.0	100.0	120.0	140.0	160.0	180.0	200.0
4	11.8	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0	150.0
5	9.4	12.0	24.0	36.0	48.0	60.0	72.0	84.0	96.0	108.0	120.0
6	7.8	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0
7	6.7	8.6	17.1	25.7	34.3	42.9	51.4	60.0	68.6	77.1	85.7
8	5.9	7.5	15.0	22.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0
9	5.2	6.7	13.3	20.0	26.7	33.3	40.0	46.7	53.3	60.0	66.7
10	4.7	6.0	12.0	18.0	24.0	30.0	36.0	42.0	48.0	54.0	60.0
11	4.3	5.5	10.9	16.4	21.8	27.3	32.7	38.2	43.6	49.1	54.5
12	3.9	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
13	3.6	4.6	9.2	13.8	18.5	23.1	27.7	[illegible]	36.9	41.5	46.2
14	3.4	4.3	8.6	12.9	17.1	21.4	25.7	[illegible]	34.3	38.6	42.9
15	3.1	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0
16	2.9	3.8	7.5	11.3	15.0	18.8	22.5	26.3	30.0	33.8	37.5
17	2.8	3.5	7.1	10.6	14.1	17.6	21.2	24.7	28.2	31.8	35.3
18	2.6	3.3	6.7	10.0	13.3	16.7	20.0	23.3	26.7	30.0	33.3
19	2.5	3.2	6.3	9.5	12.6	15.8	18.9	22.1	25.3	28.4	31.6
20	2.4	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0
21	2.2	2.9	5.7	8.6	11.4	14.3	17.1	20.0	22.9	25.7	28.6
22	2.1	2.7	5.5	8.2	10.9	13.6	16.4	19.1	21.8	24.5	27.3
23	2.0	2.6	5.2	7.8	10.4	13.0	15.7	18.3	20.9	23.5	26.1
24	2.0	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0
25	1.9	2.4	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0
26	1.8	2.3	4.6	6.9	9.2	11.5	13.8	16.2	18.5	20.8	23.1

FIGURE F-8
STABILITY CLASS F DOSE ASSESSMENT

☐Date ________ ☐Time ________ CENTRAL ☐Performed by: ________

NOBLE GAS (N.G.) SOURCE TERM

	Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
☐Plant Vent:	____	X	____E	X	____E	=	____E
☐SG:	____	X	____E	X	____E	=	____E
☐SJAE:	1.05E+3	X	____E	X	____E	=	____E
☐Other:	____	X	____E	X	____E	=	____E

Total N.G. Source Term = ____E

IODINE SOURCE TERM

Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
____	X	____E	X	____E	=	____E
____	X	____E	X	____E	=	____E
1.05E+3	X	____E	X	____E	=	____E
____	X	____E	X	____E	=	____E

Total Iodine Source Term = ____E

Total N.G. ____E / Wind Speed ____ mph X 2.78E-04 = ____E mRem/hr N.G. @ Site Boundary*

____E mRem/hr N.G. @ Site Boundary* X ____hr repair, release time** X 1/1000 = ____E Rem W.B.

Total Iodine ____E / Wind Speed ____ mph X 2.78E-04 = ____E mRem/hr Iodine @ Site Boundary*

____E mRem/hr Iodine @ Site Boundary* X ____hr repair, release time** X 1/1000 = ____E Rem Iodine

Rem W.B. + Rem Iodine → ____E total Rem to thyroid

*If dose rate at site boundary ≥1 mRem/hr, complete remaining calculations.

**Use 14 hr, if value is unknown.

☐Emergency classification:
( ) GENERAL (≥5 Rem W.B. OR ≥10 Rem Thyroid)
( ) SITE (≥1 Rem W.B. OR ≥2.5 Rem Thyroid)
( ) ALERT (≥1mRem/hr N.G. or Iodine)

☐Arrival times at S.B., and each mile are out to 10 miles or to location <1mRem/hr (whichever is less) based on the release/change occuring at ______hr. CENTRAL on ________(date):

SB	1 mi.	2 mi.	3 mi.	4mi.	5 mi.	6 mi.	7 mi.	8 mi.	9 mi.	10 mi.
____	____	____	____	____	____	____	____	____	____	____

TAB G

STABILITY CLASS G DOSE ASSESSMENT

TAB G
STABILITY CLASS G

STABILITY CLASS G DOSE ASSESSMENT

I. Determine the factors for determining the source term for each affected effluent path:

A. Plant Vent Stack Release

1. Enter the flowrate in cfm from the plant vent stack flow recorder (Unit 1 - next to RE-14 monitor; Unit 2 - on BOP) on Figure G-8, Stability Class A Dose Assessment or by using the following information if the recorder is not operating:

a. One aux. bldg. fan............75,000 cfm
b. One aux. bldg. fan & RE-025 tripped....................79,000 cfm
c. Two aux. bldg. fans..........150,000 cfm
Two aux. bldg. fans & RE-025 tripped............154,000 cfm

2. If RE-29B (SPING-4 readout located in the Unit 2 Gross Failed Fuel Detector rack) is operating (if necessary, have counting room personnel refer to FNP-0-RCP-704):

a. Enter on Figure G-8 the μCi/ml for noble gas and the noble gas dose factor from Figure G-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use a noble gas dose factor of 2.4E+02.

b. Enter on Figure G-8 the μCi/ml for iodine and the infant iodine dose factor from Figure G-1. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank, use an infant iodine dose factor of 6.0E+05.

3. If RE-29B (SPING-4) is not operating, perform (a) OR (b) below:

a. Use the RAD-GUN per RCP-25 to determine the μCi/ml, and record the same μCi/ml value on Figure G-8 for both the noble gas and iodine concentration. Use

Figure G-2 to determine the noble gas and infant iodine dose factors and record on Figure G-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.3E+02
Iodine: 1.4E+04

b. Obtain a grab sample to determine the µCi/ml for noble gas and iodine and enter on Figure G-8 the values for both noble gas and iodine. Use Figure G-1 to determine the the noble gas and infant iodine dose factors and record on Figure G-8. The "Elapsed Time Since Shutdown (Hours)" applies to the reactor. If the release is from a waste gas decay tank use the following dose factors:

Noble Gas: 2.4E+02
Iodine: 6.0E+05

B. Steam Generator atmospheric relief and/or safety release.

1. Determine the flow from the atmospheric reliefs and/or safety reliefs as follows:

a. Obtain the current pressure (psig) and loop TAVG(°F) readings for each steam generator of the affected unit. Record values on Figure G-4.

b. Determine the flow in pounds mass per hour (lbm/hr) that is possible from a safety/atmospheric relief valve by using Figure G-5. The value obtained is the flow that will be discharged from each safety or atmospheric relief valve that is open.

c. Determine the number of valves that are open for each steam generator using the data below:

Pressure of Steam Gen. (psig)	Valves Open
≤1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

d. Determine the specific volume (ft^3-hr/min-lbm) by using the loop TAVG(°F) and the information below and record on Figure G-4 for each steam generator (use the closest TAVG value):

TAVG(°F)	SPECIFIC VOLUME $\left[\frac{ft^3\text{-hr}}{\text{min-lbm}}\right]$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

e. Determine the total flow in cfm from each generator by multiplying the flow (lbm/hr) times number of valves open times the specific volume for each generator.

f. Determine the total flow of the release in cfm from all generators by summing the values obtained for each generator per I.B.1.e.

g. Record this value on Figure G-4 and on Figure G-8 for both iodine and noble gas.

2. Determine the effluent concentration in μCi/ml by using RCP-25 and by performing either (a) OR (b) below:

a. Use a portable dose rate instrument and record the same μCi/ml value on Figure G-8 for both noble gas and iodine. Determine the noble gas and infant iodine dose factors using Figure G-3 and record on Figure G-8. The "Elapsed Time

Since Shutdown (Hours)" applies to the reactor.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure G-8. Determine the noble gas and <u>infant</u> iodine dose factors using Figure G-1 and record on Figure G-8.

C. Steam jet air ejector release

1. Enter a flow rate of 1050 cfm on Figure G-8 for both the noble gas and iodine flowrate.

2. Determine the effluent concentration in μCi/ml by using RCP-25 and by performing either (a) <u>OR</u> (b) below:

a. Use a portable dose rate instrument and record the same μCi/ml value on Figure G-8 for both noble gas and iodine. Determine the noble gas and <u>infant</u> iodine dose factors and record on Figure G-8 as follows:

(1) Use Figure G-2 if the SJAE filters are <u>in service</u>

(2) Use Figure G-3 if the SJAE filters are <u>not in service</u>.

b. Obtain a grab sample and analyze for noble gas and iodine. Record concentrations on Figure G-8. Determine the noble gas and <u>infant</u> iodine dose factors from Figure G-1 and record on Figure G-8.

II. Determine the source term for each effluent path for noble gas and iodine by using the following equation and the values entered on Figure G-8:

[flowrate (cfm)] X [conc. (μCi/ml)] X [dose factor] =[source term]

III. Determine the <u>total</u> noble gas source term on Figure G-8 by summing the noble gas source terms calculated for each effluent path.

IV. Determine the <u>total</u> iodine source term on Figure G-8 by summing the iodine source terms calculated for each effluent path.

V. Enter the <u>total noble gas</u> source term, <u>total iodine</u> source term, and the <u>wind speed</u> in mph in the appropriate boxes on Figure G-8. Determine the dose rate in mRem/hr at the site boundary from noble gas and from iodine by using the following equation:

$$\left(\frac{\text{Total Source Term}}{\text{Wind Speed, mph}}\right) \times \left(\frac{\bar{U}\chi}{Q}\right) = \text{mRem/hr at site boundary (S.B.)}$$

VI. If the projected noble gas or iodine <u>dose rate</u> $\geq$1 mRem/hr, proceed to step VII; if not, the estimated whole body or thyroid dose does not meet the minimum criteria for classifying the emergency according to paragraph 4.2 in the main body of this procedure and no further calculations are required at this time. Go to step XIV.

VII. Determine the estimated repair time or release duration in hours and record on Figure G-8. Use 14 hours if this value is unknown.

VIII Determine the projected <u>whole body</u> dose in <u>Rem</u> at the site boundary using the following equation and record on Figure G-8:

$$\text{Dose (Rem) Whole Body} = \left(\text{Dose rate, site boundary } \frac{\text{mrem}}{\text{hr}}\right)\left(\text{Release/repair time, hr}\right)\left(\frac{1\text{ Rem}}{1000\text{mRem}}\right)$$

IX. Determine the projected <u>thyroid dose from iodine</u> in <u>Rem</u> at the <u>site boundary</u> by using the following equation and record on Figure G-8:

$$\text{Dose } I_2 \text{ (Rem) thyroid} = \left(\text{Dose rate, site boundary } \frac{\text{mRem}}{\text{hr}}\right)\left(\text{Release/repair time, hr.}\right)\left(\frac{1\text{ Rem}}{1000\text{ mRem}}\right)$$

X. Determine the <u>total</u> thyroid dose in <u>Rem</u> by summing the results from steps VIII and IX.

XI. Determine the classification of the emergency using the values from steps VIII and X and comparing them to the criteria of paragraph 4.2 in the main body of this procedure.

XII. Determine the affected downwind areas in the 10-mile emergency planning zone (EPZ) by placing Figure G-6, "Relative Dose Rate Plume Boundary For Stability Class A" on the 10-mile EPZ map and by orienting the plume centerline on the downwind direction vector. The lines on Figure G-6 are isodose/isodose rate lines. The

dose/dose rate values on each of the lines can be obtained by multiplying the values by the site boundary dose/dose rate. The value at the intersection of the 10 mile arc and the plume centerline times the site boundary centerline dose/dose rate gives the dose/dose rate at that point. Mark the centerline on the map with a grease pencil and record the date, time, and stability class to aid in projecting accumulated doses and affected areas.

XIII Determine the arrival times in minutes for the site boundary, and each mile arc out to 10 miles or to where the dose rate <1 mRem/hr using Figure G-7 "Arrival Time versus Wind Speed." Record data on Figure G-8.

XIV. Refer to step 4.4 in the main body of this procedure.

FIGURE G-1
FAILED FUEL

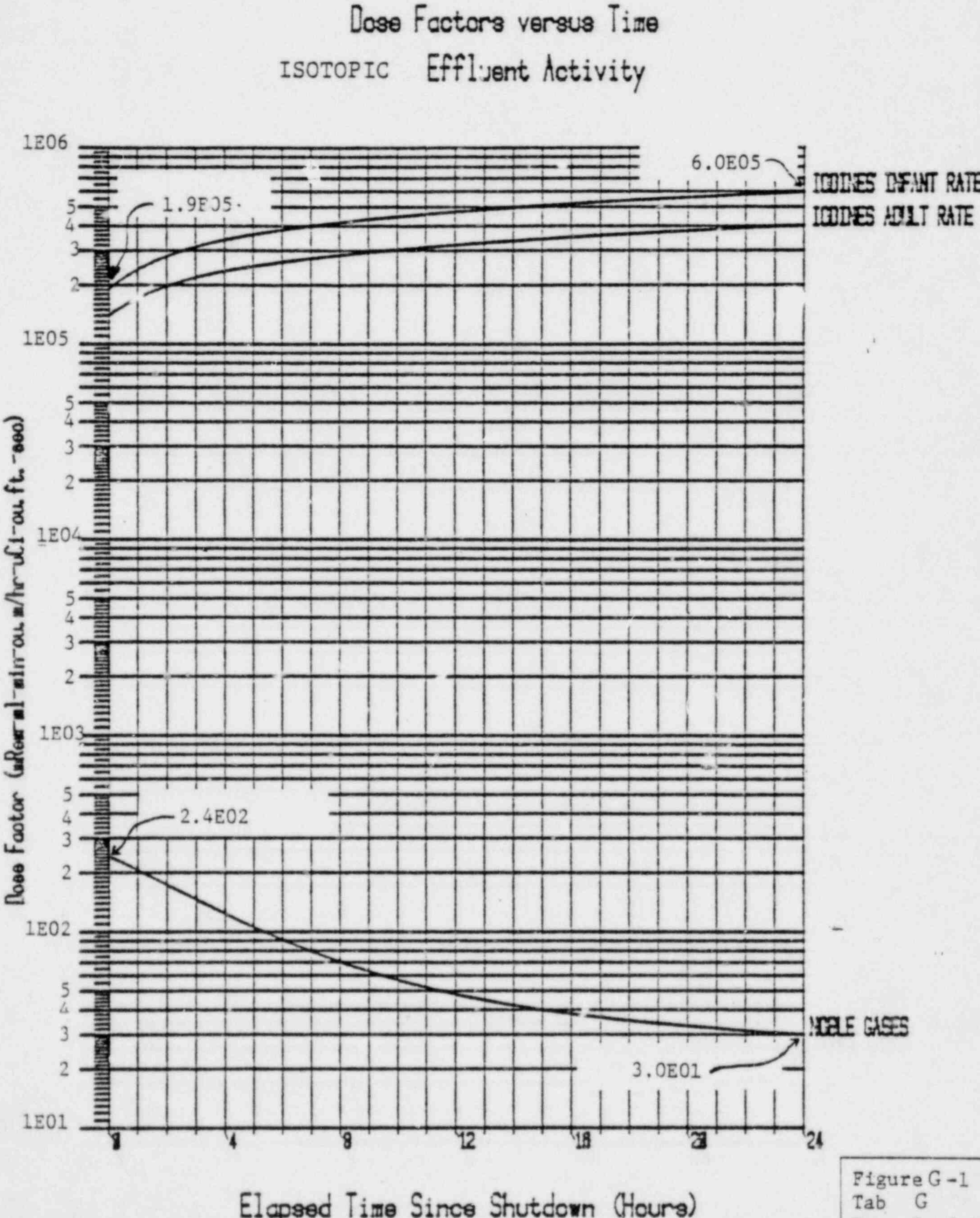


FIGURE G-2

FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Filtered Iodines

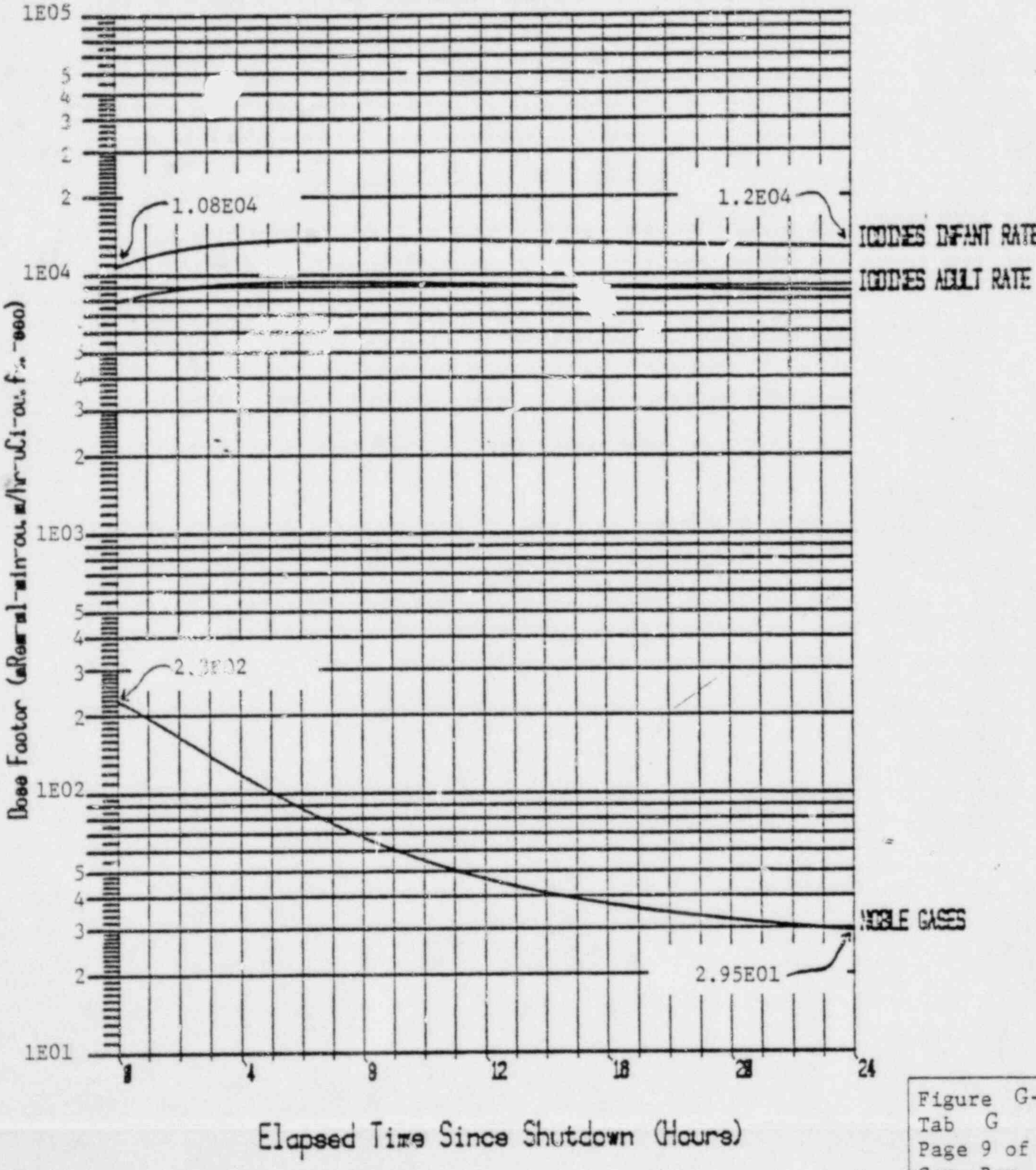


FIGURE G-3
FAILED FUEL

Dose Factors versus Time

Gross Effluent Activity

For Unfiltered Iodines

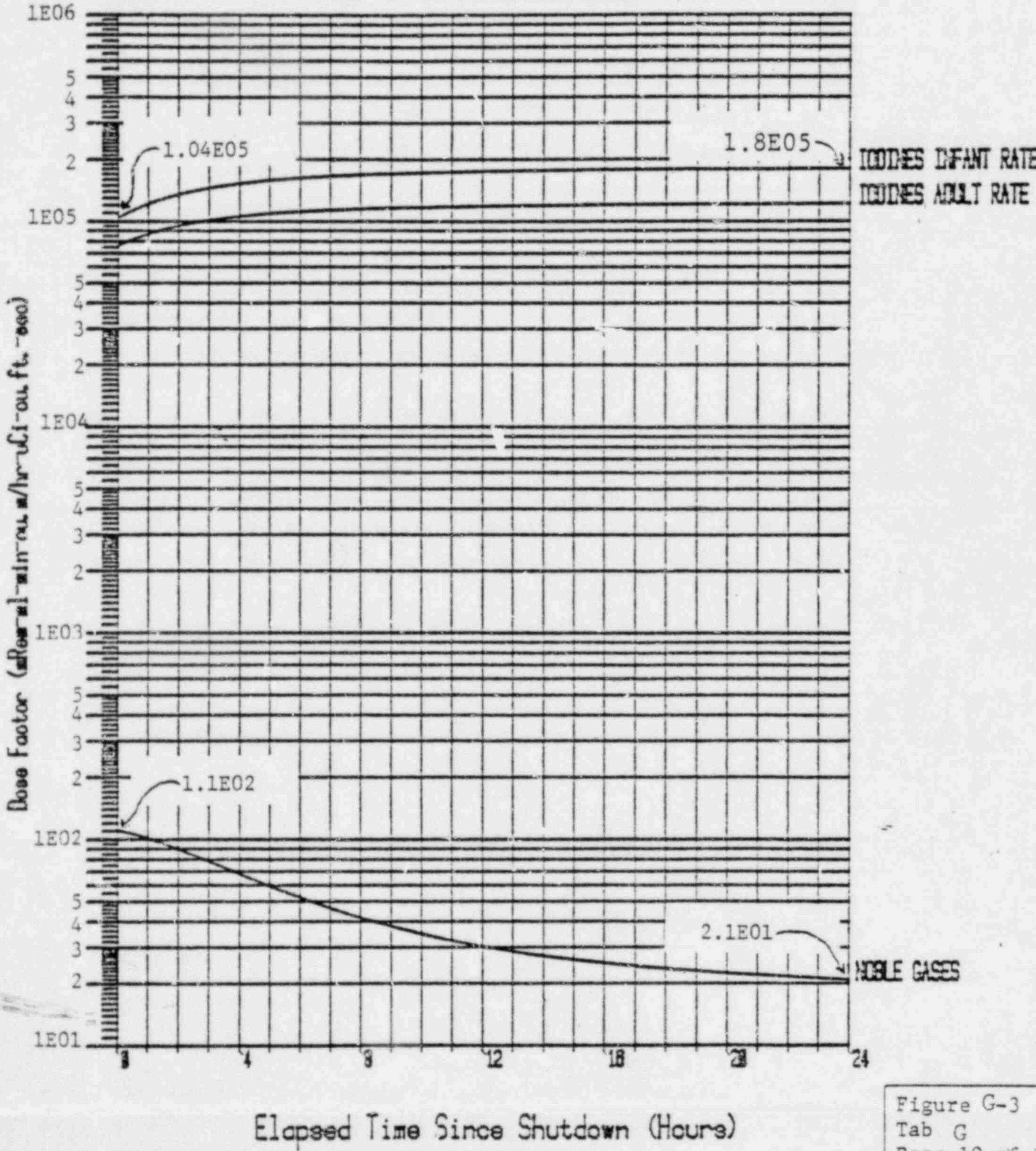


FIGURE G-4
STEAM ATMOSPHERIC SAFETY RELIEF VALVE
FLOW CALCULATION SHEET

SG Press (pisg)	No. Valves Open
<1035	0
1035-1075	1
1075-1089	2
1089-1102	3
1102-1116	4
1116-1129	5
>1129	6

TAVG(°F)	SPECIFIC VOLUME $\frac{ft^3\text{-}hr}{min\text{-}lbm}$
550	0.67
500	0.63
450	0.60
400	0.57
350	0.53
300	0.50
250	0.47
212	0.45

Date/Time	Unit SG	Press. (psig)	Loop TAVG (°F)	lb m/hr (Fig G-5)		# valves open		specific volume		cfm per SG	cfm per Unit	Remarks
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						→		sum of cfm per SG
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						→		sum of cfm per SG
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXX
	A				X		X		=		XXXXXXXXXX	
	B				X		X		=		XXXXXXXXXX	
	C				X		X		=		XXXXXXXXXX	
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						→		sum of cfm per SG
XXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX							XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXX

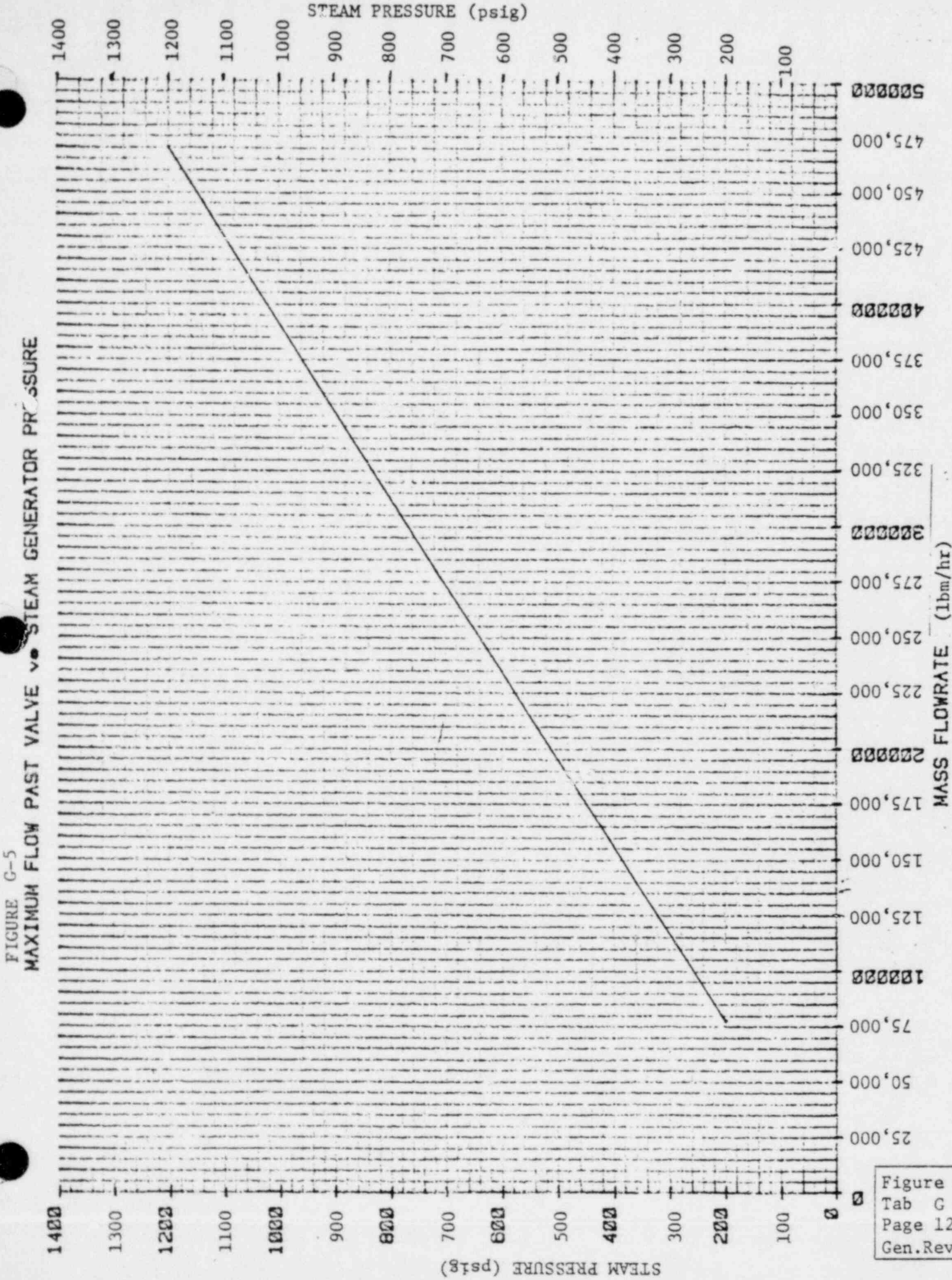

STEAM PRESSURE (psig)
1400 1300 1200 1100 1000 900 800 700 600 500 400 300 200 100
FIGURE G-5
MAXIMUM FLOW PAST VALVE vs STEAM GENERATOR PRESSURE
MASS FLOWRATE (lbm/hr)
500000 475,000 450,000 425,000 400000 375,000 350,000 325,000 300000 275,000 250,000 225,000 200000 175,000 150,000 125,000 100000 75,000 50,000 25,000 0
STEAM PRESSURE (psig)
1400 1300 1200 1100 1000 900 800 700 600 500 400 300 200 100 0

FIGURE G-6

Relative Dose Rate Plume Boundary
For stability class G
mixing height = 41Ø4ft.

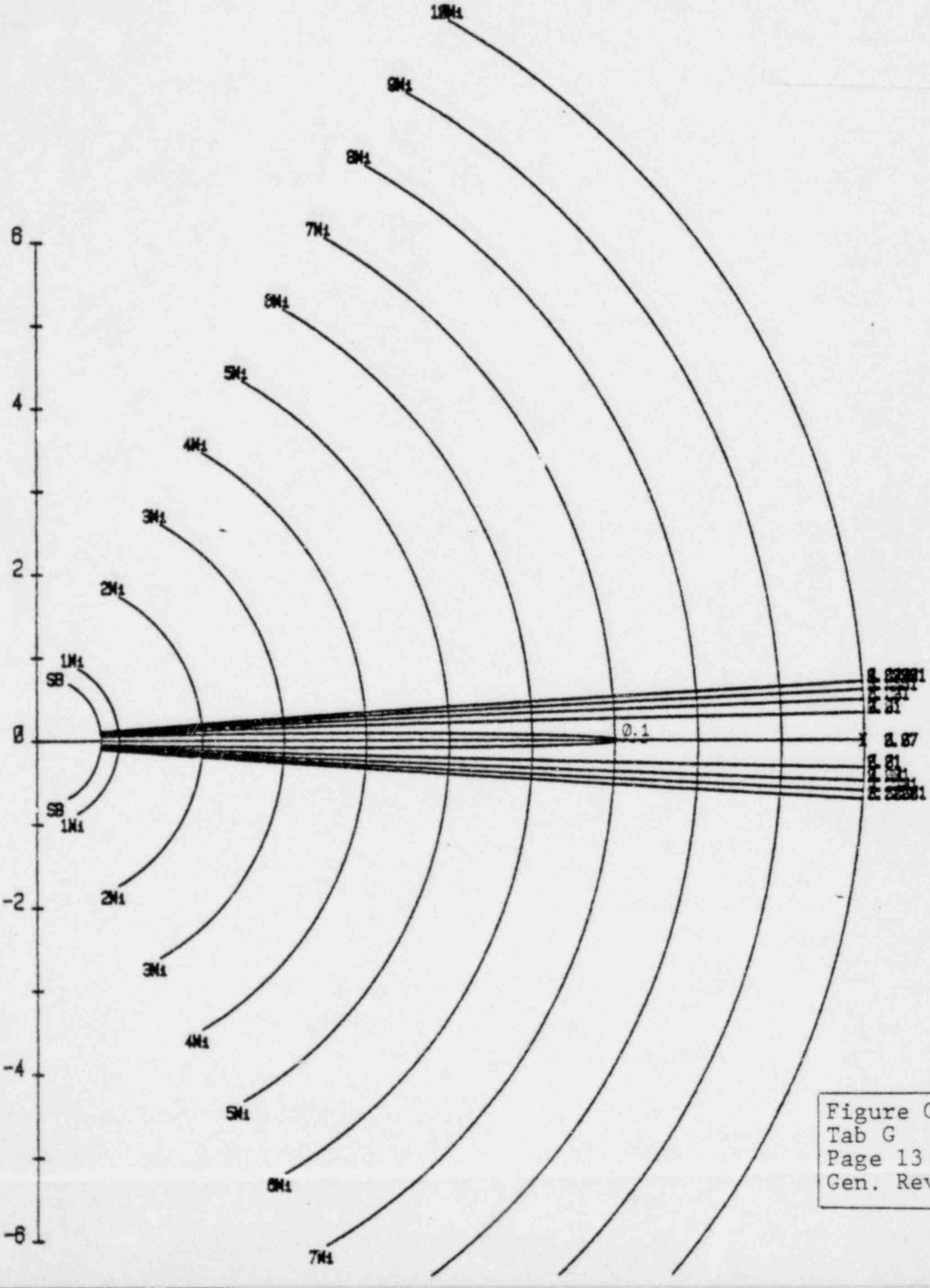


Figure G-7

Travel Time (Minutes) versus Wind Speed (MPH)

Wind Speed (MPH)	Distance (Miles) sb	1	2	3	4	5	6	7	8	9	10
1	47.0	60.0	120.0	180.0	240.0	300.0	360.0	420.0	480.0	540.0	600.0
2	23.5	30.0	60.0	90.0	120.0	150.0	180.0	210.0	240.0	270.0	300.0
3	15.7	20.0	40.0	60.0	80.0	100.0	120.0	140.0	160.0	180.0	200.0
4	11.8	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0	150.0
5	9.4	12.0	24.0	36.0	48.0	60.0	72.0	84.0	96.0	108.0	120.0
6	7.8	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0
7	6.7	8.6	17.1	25.7	34.3	42.9	51.4	0.0	68.6	77.1	85.7
8	5.9	7.5	15.0	22.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0
9	5.2	6.7	13.3	20.0	26.7	33.3	40.0	46.7	53.3	60.0	66.7
10	4.7	6.0	12.0	18.0	24.0	30.0	36.0	42.0	48.0	54.0	60.0
11	4.3	5.5	10.9	16.4	21.8	27.3	32.7	38.2	43.6	49.1	54.5
12	3.9	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
13	3.6	4.6	9.2	13.8	18.5	23.1	27.7	32.3	36.9	41.5	46.2
14	3.4	4.3	8.6	12.9	17.1	21.4	25.7	30.0	34.3	38.6	42.9
15	3.1	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0
16	2.9	3.8	7.5	11.3	15.0	18.8	22.5	26.3	30.0	33.8	37.5
17	2.8	3.5	7.1	10.6	14.1	17.6	21.2	24.7	28.2	31.8	35.3
18	2.6	3.3	6.7	10.0	13.3	16.7	20.0	23.3	26.7	30.0	33.3
19	2.5	3.2	6.3	9.5	12.6	15.8	18.9	[illegible]2.1	25.3	28.4	31.6
20	2.4	3.0	6.0	9.0	12.0	15.0	18.0	[illegible].0	24.0	27.0	30.0
21	2.2	2.9	5.7	8.6	11.4	14.3	17.1	2[illegible].0	22.9	25.7	28.6
22	2.1	2.7	5.5	8.2	10.9	13.6	16.4	1[illegible].1	21.8	24.5	27.3
23	2.0	2.6	5.2	7.8	10.4	13.0	15.7	1[illegible].3	20.9	23.5	26.1
24	2.0	2.5	5.0	7.5	10.0	12.5	15.0	1[illegible].5	20.0	22.5	25.0
25	1.9	2.4	4.8	7.2	9.6	12.0	14.4	1[illegible].8	19.2	21.6	24.0
26	1.8	2.3	4.6	6.9	9.2	11.5	13.8	1[illegible].2	18.5	20.8	23.1

FIGURE G-8
STABILITY CLASS A DOSE ASSESSMENT

☐Date ________ ☐Time ________ CENTRAL ☐Performed by: ________

NOBLE GAS (N.G.) SOURCE TERM

	Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
☐Plant Vent:	____	X	____E	X	____E	=	____E
☐SG:	____	X	____E	X	____E	=	____E
☐SJAE:	1.05E+3	X	____E	X	____E	=	____E
☐Other:	____	X	____E	X	____E	=	____E
					Total N.G. Source Term	=	____E

IODINE SOURCE TERM

	Flow rate (cfm)		Conc. (μCi/ml)		Dose Factor		Source Term
☐Plant Vent:	____	X	____E	X	____E	=	____E
☐SG:	____	X	____E	X	____E	=	____E
☐SJAE:	1.05E+3	X	____E	X	____E	=	____E
☐Other:	____	X	____E	X	____E	=	____E
					Total Iodine Source Term	=	____E

Total N.G. ____E / Wind Speed ____mph X 4.77E-04 = ____E mRem/hr N.G. @ Site Boundary*

____E mRem/hr N.G. @ Site Boundary* X ____hr repair, release time** X 1/1000 = ____E Rem W.B.

Total Iodine ____E / Wind Speed ____mph X 4.77E-04 = ____E mRem/hr Iodine @ Site Boundary*

____E mRem/hr Iodine @ Site Boundary* X ____hr repair, release time** X 1/1000 = ____E Rem Iodine

Rem W.B. + Rem Iodine → ____E total Rem to thyroid

*If dose rate at site boundary ≥1 mRem/hr, complete remaining calculations.

**Use 14 hr, if value is unknown.

☐Emergency classification:
( ) GENERAL (>5 Rem W.B. OR >10 Rem Thyroid)
( ) SITE (>1 Rem W.B. OR ≥2.5 Rem Thyroid)
( ) ALERT (≥1mRem/hr N.G. or Iodine)

☐Arrival times at S.B., and each mile are out to 10 miles or to location <1mRem/hr (whichever is less) based on the release/change occuring at ______hr. CENTRAL on ________(date):

SB	1 mi.	2 mi.	3 mi.	4mi.	5 mi.	6 mi.	7 mi.	8 mi.	9 mi.	10 mi.
____	____	____	____	____	____	____	____	____	____	____