



ARKANSAS POWER & LIGHT COMPANY

Arkansas Nuclear One

MAGNITUDE OF RELEASE PROCEDURE

FORM 1000.06A

MAGNITUDE OF RELEASE - COMPUTER METHOD
2904.01 REV. 0

UN - Controlled Copy # III

RECORD OF CHANGES AND REVISIONS

PAGE	REVISION	CHANGE	PAGE	REVISION	CHANGE	PAGE	REVISION	CHANGE
1	0		19	0				
2	0		20	0				
3	0		21	0				
4	0		22	0				
5	0	PC-2	23	0				
6	0	PC-1	24	0				
7	0		25	0				
8	0		26	0				
9	0		27	0				
10	0	PC-2	28	0				
11	0		29	0				
12	0	PC-2	30	0				
13	0		31	0				
14	0		32	0				
15	0		33	0				
16	0		34	0				
17	0		35	0				
18	0		36	0				

8204130179 820331
PDR ADOCK 05000368
F PDR

APPROVED BY:

(GENERAL MANAGER)

APPROVAL DATE

3/19/82



PLANT MANUAL SECTION:
MAGNITUDE OF
RELEASE PROC.

PROCEDURE/WORK PLAN TITLE:

MAGNITUDE OF RELEASE - COMPUTER METHOD

NO:

2904.01

ARKANSAS NUCLEAR ONE

PAGE 5 of 36

REVISION 0 DATE 07/20/81

CHANGE PC-2 DATE 03/15/82

- 7.5.4 Rad Waste Area (2RITS-8542, 2FR-8315), Lines 12 and 13 respectively.
- 7.5.5 Hydrogen Purge (2RITS-8231-1, 2FI-8277-1), Lines 14 and 15 respectively.
- 7.5.6 Penetration Room (2RITS-8845-1), Lines 16 and 17, respectively.
- 7.5.7 Penetration Room (2RITS-8846-2), Lines 18 and 19, respectively.
- 7.5.8 "A" Steam Header (RI-1007), Line 20.
- 7.5.9 Number of safeties/atmospheric dumps open (this is only applicable if the steam generator has primary-to-secondary leakage; by using this method of calculation, the length of the release is not considered - it is only considered to be a portion of the instantaneous release rate for the time of the calculation), Line 21.
- 7.5.10 "B" Steam Header (RI-1057), Line 22.
- 7.5.11 Number of safeties/atmospheric dumps open (see note on Step 7.5.9), Line 23.
- 7.5.12 Pass Building
- A. At the Eberline control terminal, perform the following actions:
1. Insert the key into the "keyboard" switch and activate the terminal.
 2. Set the History Format select knob to "Release Rate".
- NOTE: A printout of 24 values will appear.
3. Depress the [HIST.MIN] pushbutton then enter "08" then enter either "05", "07" or "09" (low, medium and high range, respectively).
- NOTE: Use only the data from the lowest numbered channel which gives valid on-scale data.
4. Depress the [PRINT] then the [.FILE] and then the [ENTER] pushbuttons.
 5. Record the last value listed onto line 24.
- 7.6 Make the following determinations:
- 7.6.1 If this is the initial calculation, proceed to Section 8.0 (Data Conversion).
- 7.6.2 Compare the present readings to the values on which the latest projections have been made.
- A. If the values have not deviated from the most recently checked column on Form 2904.02A by more than the following list, it is not necessary to make new projections. New data should be taken as specified by the Duty Emergency Coordinator or the Dose Assessment Supervisor.



PLANT MANUAL SECTION:

MAGNITUDE OF
RELEASE PROC.

PROCEDURE/WORK PLAN TITLE:

MAGNITUDE OF RELEASE

NO:

COMPUTER METHOD

2904.01

ARKANSAS NUCLEAR ONE

PAGE 6 of 36

REVISION 0 DATE 07/20/81

CHANGE PC-1 DATE 03/15/82

IndicationAllowable Deviation

Wind Direction

+20 degrees

Wind Speed

+20%

 $\sigma\theta$

+ New Atmospheric Stability Category

 Δt

+ New Atmospheric Stability Category

CPM

+20%

Flow Rate

+20%

- B. When the data recorded changes more than the allowable deviation and a new projection is made on that data, you may identify the data by marking the parenthetic box "()" in the top of that column on Form 2904.01A.

8.0 DATA CONVERSION

8.1 Complete Form 2904.01B to determine the current meteorological conditions and applicable factors.

8.2 Complete Form 2904.01C to determine the gaseous release rate.

9.0 DETERMINATION OF DOSE RATES AND MAXIMUM PERMISSIBLE CONCENTRATION

9.1 Obtain the computer, overlays and map from the appropriate emergency kit:

9.1.1 Control Room

9.1.2 Technical Support Center

9.1.3 Emergency Control Center

9.2 Complete Form 2904.01D to indicate the following obtained information:

9.2.1 Whole body dose rate at the indicated distances.

9.2.2 Child thyroid dose rate at the indicated distances.

9.2.3 The ratio of the actual to the maximum permissible concentration of Xe-133 at the indicated distances.

9.3 If an Emergency Action Level is NOT indicated, return to Section 7.0. New data should be taken as specified by the Duty Emergency Coordinator or the Dose Assessment Supervisor.

9.4 If an Emergency Action Level is declared (initial projection only), identify, as necessary, the meteorological and effluent monitor data on Form 2904.01A which was used in making the projection by marking the parenthetic box "()" at the top of that column.

10.0 PLUME DEFINITION

NOTE: The attachments contained in this procedure are provided for ILLUSTRATION ONLY. The scaled overlays and maps necessary to do the actual calculations with are located in the emergency kits.

10.1 Select the overlay (Attachments 1-7) which corresponds to the existing atmospheric stability category (Form 2904.01B, Line 1.2).

10.2 Place the selected overlay on the ANO area map (Attachment 8) with the origin directly over the ANO site center and align plume centerline with the downwind direction.



PLANT MANUAL SECTION:
MAGNITUDE OF
~~RELEASE PROO~~

PROCEDURE/WORK PLAN TITLE:

NO:

ARKANSAS NUCLEAR ONE

MAGNITUDE OF RELEASE

COMPUTER METHOD

2904.01

PAGE 10 of 36

REVISION 0 DATE 07/20/81

CHANGE PC-2 DATE 03/15/82



ARKANSAS POWER & LIGHT COMPANY Arkansas Nuclear One

TITLE: EXISTING CONDITIONS SUMMARY

FORM NO. 2904.01A

REV. #0 PC # PC-2

LINE	ITEM	READING				
		() 1	() 2	() 3	() 4	() 5
1	DATE					
2	TIME (HMM)					
3	() σ θ (degrees) [or () Δt ($^{\circ}\text{C}$)] (AAR 9300)					
4	WIND DIRECTION (WDR 9300) FROM, IN DEGREES					
5	WIND SPEED (WSR 9300) MPH					
6	AUX. BLDG. EXTENSION (2RITS-7828) CPM					
7	AUX. BLDG. EXTENSION (2FR-7827) FLOW RATE (CFM)					
8	CONTAINMENT PURGE (2RITS-8233)					
9	CONTAINMENT PURGE (2FR-8315) FLOW RATE (CFM)					
10	FUEL HANDLING AREA (2RITS-8540) CPM					
11	FUEL HANDLING AREA (2FR-8315) FLOW RATE (CFM)					
12	RAD WASTE AREA (2RITS-8542) CPM					
13	RAD WASTE AREA (2FR-8315) FLOW RATE (CFM)					
14	HYDROGEN PURGE (2RITS-8231-1; GAS) CPM					
15	HYDROGEN PURGE (2FI-8277-1) FLOW RATE (CFM)					
16	PENETRATION ROOM (2RITS-8845-1) CPM					
17	PENETRATION ROOM FLOW RATE (2FIS-8827-1) CFM					
18	PENETRATION ROOM (2RITS-8846-2) CPM					
19	PENETRATION ROOM FLOW RATE (2FIS-8828-2) CFM					
20	"A" STEAM HEADER (2RI-1007) mR/hr NO. SAFETIES/ATMOSPHERIC DUMPS					
21	OPEN (HEADER "A")					
22	"B" STEAM HEADER (2RI-1057) mR/hr NO. SAFETIES/ATMOSPHERIC DUMPS					
23	OPEN (HEADER "B")					
24	PASS BLDG. [MONIT.08, CHAN. (.05) (.07) (.09) ($\mu\text{Ci}/\text{min}$)]					

REVIEWED BY _____



PLANT MANUAL SECTION:
MAGNITUDE OF
RELEASE PROC.

PROCEDURE/WORK PLAN TITLE:

MAGNITUDE OF RELEASE - COMPUTER METHOD

NO:

2904.01

ARKANSAS NUCLEAR ONE

PAGE 12 of 36

REVISION 0 DATE 07/20/81

CHANGE PC-2 DATE 03/15/82



ARKANSAS POWER & LIGHT COMPANY Arkansas Nuclear One

TITLE: GASEOUS RELEASE RATE WORKSHEET

FORM NO. 2904.01C

REV. # 0 PC # PC-2

PART 1 TOTAL GASEOUS RELEASE RATE

Item	System Name & Monitor Number	Column 1 Monitor Reading (cpm)	Column 2 Ventilation System Flow Rate (CFM)	Column 3 Monitor Calibration Conversion Factor	Column 4 Q_{gas} (Ci/s)
1	Aux. Bldg. Ext. (2RITS-7228; 2FR-7828)			1.9E-9	
2	Containment Purge (2RITS-8233; 2FR-8315)			XXX	
3	Fuel Handling Area (2RITS-8540; 2FR-8315)			5.0E-10	
4	Rad Waste Area (2RITS-8542; 2FR-8315)			3.9E-10	
5	Hydrogen Purge (2RITS-8231; 2FI-8271-1)			3.6E-10	
6	Penetration Room (2RITS-8845-1; 2FIS-8827-1)			5.7E-10	
7	Penetration Room (2RITS-8846-2; 2FIS-8828-2)			3.9E-10	
8	Aux. Bldg. Vent. Exhaust Emer. Rad. Monitor *	XXX	XXX	XXX	
9	"A" Steam Safe- ties/Atm. Dumps (2RI-1007) **	XXX	XXX	XXX	
10	"B" Steam Safe- ties/Atm. Dumps (2RI-1057) **	XXX	XXX	XXX	
11	Pass Bldg. +			XXX	
12	Total	XXX	XXX	XXX	

PART 2 NOTES

- *1. Determination of Gaseous Release Rate (Q_{gas}) = Column 1 * Column 2 * Column 3
- *2. Aux. Bldg. Vent. Exhaust Emergency Radiation Monitor Release Rate Data from Form 1904.03B, Column 9.
- **3. Net mR/hr * No. Steam Safeties/Atm. Dumps Open * 0.0371 $\frac{Ci/sec}{mR/hr}$ = Q_{gas}
OR
Net mR/hr * lb/hr Steam Exhausted * 2.46E-8 = Q_{gas}
OR
Net mR/hr * gpm EFW flow * 1.23E-5 = Q_{gas}
- *4. Total Gaseous Release Rate, Q_{gas} = sum of values in Column 4
- *5. Form A, Line 4 * 1.67E-8 = Ci/sec

Performed by: _____
INITIAL TIME

Reviewed by: _____



ARKANSAS POWER & LIGHT COMPANY

Arkansas Nuclear One

MAGNITUDE OF RELEASE PROCEDURE

FORM 1000.06A

MAGNITUDE OF RELEASE - UNIT 2
2904.02 REV. 3

UN - Controlled Copy # 111

RECORD OF CHANGES AND REVISIONS

PAGE	REVISION	CHANGE	PAGE	REVISION	CHANGE	PAGE	REVISION	CHANGE
1	3		19	3				
2	3		20	3				
3	3	PC-1	21	3				
4	3	PC-2	22	3				
5	3	PC-1	23	3				
6	3		24	3				
7	3							
8	3							
9	3	PC-2						
10	3							
11	3	PC-2						
12	3							
13	3							
14	3							
15	3							
16	3							
17	3							
18	3							

APPROVED BY:

J. P. O'Hanlon
(GENERAL MANAGER)

APPROVAL DATE

3/19/82



PLANT MANUAL SECTION:
MAGNITUDE OF
RELEASE PROCEDURE

PROCEDURE/WORK PLAN TITLE:

NO:

MAGNITUDE OF RELEASE - UNIT 2

2904.02

ARKANSAS NUCLEAR ONE

PAGE 3 of 24

REVISION 3 DATE 7/20/81

CHANGE PC-1 DATE 3/17/82

- 7.2 Record the $\sigma\theta$ from recorder AAR 9300 on Form 2904.02A, Line 3. If $\sigma\theta$ is not available, record the Δt from recorder AAR 9300 and note appropriately.
- 7.3 Record the prevailing wind direction (40' elev., if available) from recorder WDR 9300 on Form 2904.02A, Line 4.
- 7.4 Record the wind speed (40' elev., if available) from recorder WSR 9300 on Form 2904.02A, Line 5.
- 7.5 Record the net counts per minute and the corresponding system flow rates for each of the following monitors that are in service on Form 2904.02A.
- 7.5.1 Auxiliary Building Extension (2PITS-7828, 2FR-7827) Lines 6 and 7, respectively.
 - 7.5.2 Containment Purge (2RITS-8233, 2FR-8315), Lines 8 and 9 respectively.
 - 7.5.3 Fuel Handling Area (2RITS-8540, 2FR-8315), Lines 10 and 11 respectively.
 - 7.5.4 Rad Waste Area (2RITS-8542, 2FR-8315), Lines 12 and 13 respectively.
 - 7.5.5 Hydrogen Purge (2RITS-8231-1, 2FI-8277-1), Lines 14 and 15 respectively.
 - 7.5.6 Penetration Room (2RITS-8845-1), Lines 16 and 17, respectively.
 - 7.5.7 Penetration Room (2RITS-8846-2), Lines 18 and 19, respectively.
 - 7.5.8 "A" Steam Header (RI-1007), Line 20.
 - 7.5.9 Number of safeties/atmospheric dumps open (this is only applicable if the steam generator has primary-to-secondary leakage; by using this method of calculation, the length of the release is not considered - it is only considered to be a portion of the instantaneous release rate for the time of the calculation), Line 21.
 - 7.5.10 "B" Steam Header (RI-1057), Line 22.
 - 7.5.11 Number of safeties/atmospheric dumps open (see note on Step 7.5.9), Line 23.
 - 7.5.12 Pass Building
 - A. At the Eberline control terminal, perform the following actions:
 - 1. Insert the key into the "keyboard" switch and activate the terminal.
 - 2. Set the History Format select knob to "Release Rate".
 - NOTE: A printout of 24 values will appear.
 - 3. Depress the [HIST.MIN] pushbutton then enter "08" then enter either "05", "07" or "09" (low, medium and high range, respectively).



PLANT MANUAL SECTION:
MAGNITUDE OF
RELEASE PROCEDURE

PROCEDURE/WORK PLAN TITLE:

NO:

MAGNITUDE OF RELEASE - UNIT 2

2904.02

ARKANSAS NUCLEAR ONE

PAGE 4 of 24

REVISION 3 DATE 7/20/81

CHANGE PC-2 DATE 3/17/82

NOTE: Use only the data from the lowest numbered channel which gives valid on-scale data.

4. Depress the [PRINT] then the [.FILE] and then the [ENTER] pushbuttons.

5. Record the last value listed onto line 24.

7.6 Make the following determinations:

7.6.1 If this is the initial calculation, proceed to Section 8.0 (Data Conversion).

7.6.2 Compare the present readings to the values on which the latest projections have been made.

A. If the values have not deviated from the most recently checked column on Form 2904.02A by more than the following list, it is not necessary to make new projections. New data should be taken as specified by the Duty Emergency Coordinator or the Dose Assessment Supervisor.

<u>Indication</u>	<u>Allowable Deviation</u>
Wind Direction	+20 degrees
Wind Speed	+20%
$\sigma\theta$	+ New Atmospheric Stability Category
Δt	+ New Atmospheric Stability Category
CPM	+20%
Flow Rate	+20%

B. When the data recorded changes more than the allowable deviation and a new projection is made on that data, you may identify the data by marking the parenthetic box "()" in the top of that column on Form 2904.02A.

8.0 DATA CONVERSION

8.1 Complete Form 2904.02B to determine the atmospheric stability category and the downwind direction. If site meteorological data is unavailable, limited meteorological data may be obtained from the following groups:

NOTE: If the Pasquil Atmospheric Stability Category cannot be obtained, assume Category G (most conservative).

8.1.1 National Weather Service (meteorologist-in-Charge) [771-0971; or $\sqrt{\quad}$; or 771-1080 (recording)].

8.1.2 KARV Radio (968-1184).

8.1.3 MSS Dispatcher.

8.2 Complete Form 2904.02C to determine the gaseous release rate.

9.0 DETERMINATION OF DOSE RATE AND MAXIMUM PERMISSIBLE CONCENTRATION AT THE EXCLUSION AREA BOUNDARY

9.1 Complete Form 2904.02D to calculate the following information:

9.1.1 Whole body dose rate at the Exclusion Area Boundary.

9.1.2 Child thyroid dose rate at the Exclusion Area Boundary.



PLANT MANUAL SECTION:
MAGNITUDE OF
RELEASE PROCEDURE

PROCEDURE/WORK PLAN TITLE:

NO:

ARKANSAS NUCLEAR ONE

MAGNITUDE OF RELEASE - UNIT 2

2904.02

PAGE 5 of 24

REVISION 3 DATE 7/20/81

CHANGE PC-1 DATE 3/17/82

9.1.3 The ratio of the actual to the maximum permissible concentration of Xe-133.

9.2 If an Emergency Action Level is NOT indicated, return to Section 7.0. New data should be taken as specified by the Duty Emergency Coordinator or the Dose Assessment Supervisor.

9.3 If an Emergency Action Level is declared (initial projection only), identify, as necessary, the meteorological and effluent monitor data on Form 2904.02A which was used in making the projection by checking the parenthetic box "(" at the top of that column.

10.0 PLUME DEFINITION

NOTE: The attachments contained in this procedure are provided for ILLUSTRATION ONLY. The scaled overlays and maps necessary to do the actual calculations with are located in the following emergency kits:

- a. Control Room Kit
- b. Onsite Technical Support Center Kit
- c. Emergency Control Center Kit

10.1 Select the overlay (Attachments 1-7) which corresponds to the existing atmospheric stability category (Form 2904.02B, Line 1.2).

10.2 Place the selected overlay on the ANO area map (Attachment 8) with the origin directly over the ANO site center and align plume centerline with the downwind direction.

10.3 Complete Form 2904.02E to calculate the Plume Boundary, Whole Body Dose Rate and Child Thyroid Dose Rate at selected downwind distances.

NOTE: The maximum downwind extent of the affected area may also be determined by the extent of the plume boundary.

10.3.1 Locate the general vicinity of the plume boundary (from Form 2904.02E Line 2) on the overlay corresponding to the Atmospheric Stability Category.

- A. Any sectors which are contained (or partially contained) within the plume boundary line should be designated as an affected area.

NOTE: The following steps accounts for the uncertainty in the local wind direction caused by the Mt. Nebo/Spring Mountain terrain features.

- B. If the plume centerline lies in sector 10 and the plume boundary extends beyond 6 miles, the affected area should also include sectors 9, 10 and 11 (from subsector G to the projected extent of the plume).

- C. If the plume centerline lies in sector 11 and the plume boundary extends beyond 6 miles, the affected area should also include sectors 10, 11 and 12 (from subsector G to the projected extent of the plume).

10.3.2 If it is necessary to calculate plume arrival time (in hours) for a specific location, divide the distance (in miles) from the plant to the location by the windspeed (in mph).

10.3.3 If it is necessary to calculate the projected integrated dose (mR) for a specific location, multiply the local dose-rate (mR/hr) by the estimated duration of the release (hr).



PLANT MANUAL SECTION:
MAGNITUDE OF
RELEASE PROCEDURE

PROCEDURE/WORK PLAN TITLE:

MAGNITUDE OF RELEASE - UNIT 2

NO:

2904.02

ARKANSAS NUCLEAR ONE

PAGE 9 of 24

REVISION 3 DATE 7/20/81

CHANGE PC-2 DATE 3/17/82



ARKANSAS POWER & LIGHT COMPANY Arkansas Nuclear One

TITLE: EXISTING CONDITIONS SUMMARY

FORM NO. 2904.02A

REV. #3 PC # 2

Page 2 of 2

LINE	ITEM	READING				
		()	()	()	()	()
16	PENETRATION ROOM(2RITS-8845-1) CPM	1	2	3	4	5
	PENETRATION ROOM FLOW RATE					
17	(2FIS-8827-1) CFM					
18	PENETRATION ROOM(2RITS-8846-2) CPM					
	PENETRATION ROOM FLOW RATE					
19	(2FIS-8828-2) CFM					
20	"A" STEAM HEADER (2RI-1007) mR/hr					
	NO. SAFETIES/ATMOSPHERIC DUMPS					
21	OPEN (HEADER "A")					
22	"B" STEAM HEADER(2RI-1057) mR/hr					
	NO. SAFETIES/ATMOSPHERIC DUMPS					
23	OPEN (HEADER "B")					
	PASS BLDG. [MONIT.08, CHAN.					
24	()05 ()07 ()09] (pCi/Min)					

REVIEWED BY: _____



PLANT MANUAL SECTION:
MAGNITUDE OF
RELEASE PROCEDURE

PROCEDURE/WORK PLAN TITLE:

MAGNITUDE OF RELEASE - UNIT 2

NO:

2904.02

ARKANSAS NUCLEAR ONE

PAGE 11 of 24

REVISION 3 DATE 7/20/81

CHANGE PC-2 DATE 3/17/82



ARKANSAS POWER & LIGHT COMPANY Arkansas Nuclear One

TITLE: GASEOUS RELEASE RATE WORKSHEET

FORM NO. 2904.02C

REV. # 3 PC # 2

PART 1 TOTAL GASEOUS RELEASE RATE

Item	System Name & Monitor Number	Column 1	Column 2	Column 3	Column 4
		Monitor Reading (cpm)	Ventilation System Flow Rate (CFM)	Monitor Calibration Conversion Factor	Q_{gas} (Ci/s)
1	Aux. Bldg. Ext. (2RITS-7828; 2FR-7828)			1.9E-9	
2	Containment Purge (2RITS-8233; 2FR-8315)			XXX	
3	Fuel Handling Area (2RITS-8540; 2FR-8315)			5.0E-10	
4	Rad Waste Area (2RITS-8542; 2FR-8315)			3.9E-10	
5	Hydrogen Purge (2RITS-8231; 2FI-8277-1)			3.6E-10	
6	Penetration Room (2RITS-8845-1; 2FIS-8827-1)			5.7E-10	
7	Penetration Room (2RITS-8846-2; 2FIS-8828-2)			3.9E-10	
8	Aux. Bldg. Vent. Exhaust Emer. Rad. Monitor *				
9	"A" Steam Safe- ties/Atm. Dumps (2RI-1007) **				
10	"B" Steam Safe- ties/Atm. Dumps (2RI-1057) **				
11	Pass Bldg. +				
12	Total				

PART 2 NOTES

- * Determination of Gaseous Release Rate (Q_{gas}) = Column 1 * Column 2 * Column 3
- * Aux. Bldg. Vent. Exhaust Emergency Radiation Monitor Release Rate Data from Form 1904.03B, Column 9.
- ** Net mR/hr * No. Steam Safeties /Atmos. Dumps Open * 0.0371 $\frac{Ci/sec}{mR/hr}$ = Q_{gas}
OR
Net mR/hr * lb/hr Steam Exhausted * 2.46E-8 = Q_{gas}
OR
Net mR/hr * gpm EFW flow * 1.23E-5 = Q_{gas}
- + Total Gaseous Release Rate, Q_{gas} = Sum of Values in Column 4
5. Form A, Line 24 * 1.67E-8 = Ci/Sec

Performed By _____ / _____ Reviewed By _____
Initials Time



ARKANSAS POWER & LIGHT COMPANY

Arkansas Nuclear One

MAGNITUDE OF RELEASE PROCEDURE

FORM 1000.06A

MAGNITUDE OF RELEASE - GERMS
2904.04 REV. 0

Safety Related

UN - Controlled Copy # 111

RECORD OF CHANGES AND REVISIONS

PAGE	REVISION	CHANGE	PAGE	REVISION	CHANGE	PAGE	REVISION	CHANGE
1	0		19	0				
2	0		20	0				
3	0	PC-1	21	0				
4	0		22	0				
5	0		23	0				
6	0		24	0				
7	0							
8	0							
9	0	PC-1						
10	0							
11	0	PC-1						
12	0	PC-1						
13	0							
14	0							
15	0							
16	0							
17	0							
18	0							

APPROVED BY:

J. C. Hanton
(GENERAL MANAGER)

APPROVAL DATE

3/15/82



PLANT MANUAL SECTION:
MAGNITUDE OF RELEASE
PROCEDURE

PROCEDURE/WORK PLAN TITLE:

MAGNITUDE OF RELEASE - GERMS

NO:

2904.04

ARKANSAS NUCLEAR ONE

PAGE 3 of 24

REVISION 0 DATE 1/8/82

CHANGE PC-1 DATE 3/18/82

7.2 Record the $s\theta$ from recorder AAR 9300 on Form 2904.04A, Line 3. If $s\theta$ is not available, record the Wt from recorder AAR 9300 and note appropriately.

7.3 Record the prevailing wind direction (40' elev., if available) from recorder WDR 9300 on Form 2904.04A, Line 4.

7.4 Record the wind speed (40' elev., if available) from recorder WSR 9300 on Form 2904.04A, Line 5.

7.5 Record the radioactive release data as indicated on the Eberline CT2 for each of the following release points that are in service on Form 2904.04A:

7.5.1 At the Eberline Control Terminal (CT), insert the key into the "keyboard" switch and activate the control terminal.

7.5.2 Set the History Format select knob to "Release Rate."

7.5.3 For each of the channels to be interrogated, depress the [Hist. Min] pushbutton then enter the 2-digit monitor ID number and then the two digit channel ID. Then depress the [ENTER] pushbutton.

A. Radwaste Area [2RX-9825] (Monitor 01, Channels 05, 07 or 09; in $\mu\text{Ci/Min}$), Line 6.

B. Fuel Handling Area [2RX-9830] (Monitor 07, Channels 05, 07 or 90; in $\mu\text{Ci/Min}$), Line 7.

C. Penetration Room/Hydrogen Purge System [2RX-9835] (Monitor 05, Channels 05, 07 or 09; in $\mu\text{Ci/Min}$), Line 8.

D. Containment Purge [2RX-9820] (Monitor 02, Channels 05, 07 or 09; in $\mu\text{Ci/Min}$), Line 9.

E. PASS Building [2RX-9840] (Monitor 08, Channels 05, 07 or 09; in $\mu\text{Ci/Min}$), Line 10.

F. Auxiliary Building Extension [2RX-9845] (Monitor 10, Channels 05, 07 or 09; in $\mu\text{Ci/Min}$), Line 11.

NOTE: A printout of the 23 previous 10-minute averages plus the current value will appear.

7.5.4 Depress the [PRINT] then the [.FILE] and then the [ENTER] pushbuttons.



PLANT MANUAL SECTION:
MAGNITUDE OF RELEASE
PROCEDURE

PROCEDURE/WORK PLAN TITLE:

MAGNITUDE OF RELEASE - GERMS

NO:

2904.04

ARKANSAS NUCLEAR ONE

PAGE 9 of 24

REVISION 0 DATE 1/8/82

CHANGE PC-1 DATE 3/18/82



ARKANSAS POWER & LIGHT COMPANY Arkansas Nuclear One

TITLE: EXISTING CONDITIONS SUMMARY

FORM NO. 2904.04A

REV. # 0 PC # 1

LINE	ITEM	READING			
		() 1	() 2	() 3	() 4
1	DATE				
2	TIME (HHMM)				
3	θ (degrees) [or () Δt ($^{\circ}$ C)] (AAR-9300)				
4	WIND DIRECTION (WDR-9300) FROM, IN DEGREES [\sim 15 MIN. AVG.]				
5	WIND SPEED (WSR-9300) MPH [\sim 15 MIN AVG]				
6	RADWASTE AREA [MONITOR 01; CHANNEL ()05, ()07, ()09] μ Ci/Min				
7	FUEL HANDLING AREA [MONITOR 07; CHANNEL ()05, ()07, ()08, ()09] μ Ci/Min				
8	PENETRATION ROOM/HYDROGEN PURGE [MONITOR 05; Channel ()05, ()07, ()09] μ Ci/Min				
9	CONTAINMENT PURGE [MONITOR 02; CHANNEL ()05, ()07, ()09] μ Ci/Min				
10	PASS BUILDING [MONITOR 08; CHANNEL ()05, ()07, ()09] μ Ci/Min				
11	AUX. BLDG. EXTENSION [MONITOR 10; CHANNEL ()05, ()07, ()09] μ Ci/Min				
12	"A" STEAM HEADER, (2RI-1007) mR/hr				
13	NO. SAFETIES/ATMOSPHERIC DUMPS OPEN (HEADER "A")				
14	LB/HR STEAM EXHAUSTED (HEADER A)				
15	"B" STEAM HEADER, (2RI-1057) mR/hr				
16	NO. SAFETIES/ATMOSPHERIC DUMPS OPEN (HEADER "B")				
17	LB/HOUR STEAM EXHAUSTED (HEADER B)				
18	UNMONITORED RELEASE PATH(S), Ci/Sec				



PLANT MANUAL SECTION:
MAGNITUDE OF RELEASE
PROCEDURE

PROCEDURE/WORK PLAN TITLE:

MAGNITUDE OF RELEASE - GERMS

NO:

2904.04

ARKANSAS NUCLEAR ONE

PAGE 11 of 24

REVISION 0 DATE 1/8/82

CHANGE PC-1 DATE 3/18/82



ARKANSAS POWER & LIGHT COMPANY Arkansas Nuclear One

TITLE: GASEOUS RELEASE RATE WORKSHEET

FORM NO. 2904.04C

REV. # 0 PC # 1

LINE NO.	MONITOR NO.	DESIGNATION	(CIRCLE CHANNEL)	RELEASE RATE (μ Ci/Min)	RELEASE RATE (Ci/Sec)
1	01	RADWASTE	05 07 09		
2	07	FUEL HD.	05 07 09		
3	05	PEN RM/H ₂	05 07 09		
4	02	CONT. PRG.	05 07 09		
5	08	PASS BLDG.	05 07 09		
6	10	AUX. BLDG. EX.	05 07 09		
7		"A" STM. HDR.*			
8		"B" STM. HDR.*			
9		UNMONITOR.REL.			
10		TOTAL			

*1. Net mR/hr * No. Safeties Open * 0.0152 $\frac{\text{Ci/sec}}{\text{mR/hr}}$ = STEAM RELEASE RATE

+2. $\mu\text{Ci/Min} * 1.67E - 8 = \text{Ci/Sec}$

or

Net mR/hr * Lb./hr Steam Exhausted * 1.9E-8 = STEAM RELEASE RATE

Performed by: _____ / _____
Initial Time

Reviewed by: _____



PLANT MANUAL SECTION:
MAGNITUDE OF RELEASE
PROCEDURE

PROCEDURE/WORK PLAN TITLE:
MAGNITUDE OF RELEASE - GERMS

NO:
2904.04

ARKANSAS NUCLEAR ONE

PAGE 12 of 24
REVISION 0 DATE 1/8/82
CHANGE PC-1 DATE 3/18/82



ARKANSAS POWER & LIGHT COMPANY Arkansas Nuclear One

TITLE: EMERGENCY ACTION LEVEL DETERMINATION

FORM NO. 2904.04D

REV. # 0 PC # 1

Page 1 of 3

Column A

Column B

CALCULATION OF DOSE RATE
& MPC AT THE EXCLUSION
AREA BOUNDARY (0.65 MILES)

ANNUAL AVERAGE
CONDITIONS

EXISTING
CONDITIONS

Line

Category: N/A

Units

Category:

1.0 Enter the Total Gaseous Release
Rate (Ci/Sec) (From 2904.04C) in
Columns A & B.

Ci/Sec

2.0 Select and Enter the Whole Body
dose factor from the following list
which corresponds to the existing
Atmospheric Stability Category
(from 2904.04B) in Column B.

1.26

mR/hr
Ci/Sec

Atmospheric
Stability
Category

WB Dose Factor

A	1.83
B	9.3
C	19.9
D	42.5
E	64.1
F	92.3
G	153

3.0 Calculate the Uncorrected Whole
Body Dose Rate at the Exclusion
Area Boundary (Line 1.0 X
Line 2.0) and enter the products
in Column A and B, respectively.

mR/hr

4.0 Enter the existing windspeed
(from 2904.04B) in Column B.

XXXXXXXXXX

(mph)

5.0 Correct the Whole Body Dose Rate
for windspeed (Line 3B ÷ Line 4B)
and enter results in Column B.

XXXXXXXXXX

mR/hr