
ACRONYMS AND ABBREVIATIONS

A/B	auxiliary building
CFR	Code of Federal Regulations
COL	Combined License
COLA	Combined License Application
CSDRS	certified seismic design response spectra
DBE	design basis event
DCD	Design Control Document
EAB	exclusion area boundary
FSAR	Final Safety Analysis Report
GMRS	ground motion response spectrum
HVAC	heating, ventilation, and air conditioning
LOCA	loss-of-coolant accident
LPZ	low-population zone
MCR	main control room
NUREG	NRC Nuclear Regulatory Commission
PGA	peak ground acceleration
PMF	probable maximum flood
PMP	probable maximum precipitation
PMWP	probable maximum winter precipitation
R/B	reactor building
<u>RCP</u>	<u>reactor coolant pump</u>
RG	Regulatory Guide
SRP	Standard Review Plan
SSE	safe-shutdown earthquake
T/B	turbine building
TS	technical specification
TSC	technical support center
UHS	ultimate heat sink
US	United States

MIC-03-02-0
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Table 2.3-1 Common Input Parameters for χ/Q Calculation of MCR and TSC

Common parameter for ARCON96	
Building area (m ²)	2000 ⁽¹⁾
Plant vent vertical velocity (m/s)	NA ⁽²⁾
Stack flow (m ³ /s)	0 ⁽³⁾
Stack radius (m)	0 ⁽⁴⁾
Elevation difference (m)	0

NOTES:

(1) According to the RG 1.194, the default value (2000 m²) is used to reasonably calculate.

(2) The plant vent vertical velocity is not used due to ground release.

(3) The stack flow is conservatively set to zero. (See the RG 1.194.)

(4) The stack radius is set to zero according to the RG 1.194 due to zero stack flow.

Table 2.3-2 Source Heights

Source	Height ⁽¹⁾ (m)
Containment	49.5
Plant Vent	69.9
Main Steam Line (East)	42.8 13.2
Main Steam Line (West)	26.3 2
Main Steam Relief Valve	40.7
Main Steam Safety Valve	38.8
Fuel Handling Area	5.9

NOTE:

(1) The distance is from the ground level (El. = 2'-7")

MIC-03-02-0
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MIC-03-02-0
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Table 2.3-3 Receptor Heights

Receptors	The height to the upper limit ⁽¹⁾ (m)	The height to the lower limit ⁽¹⁾ (m)
Main Control Room HVAC Intake (East and west are same altitude Level) ⁽²⁾	13.9	13.9
Reactor Auxiliary Building Door (West)	10 1.0	7 8.4
Class 1E electrical room HVAC intake (South-east and South-west are same altitude Level) ⁽²⁾	13.9	13.9
Class 1E electrical room HVAC intake (North-east and North-west are same altitude Level) ⁽²⁾	13.9	13.9
Auxiliary Building HVAC intake and Technical Support Center HVAC intake (North and South) ⁽³⁾	25.4	23.3

MIC-03-02-0
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NOTES

(1) The distances are from the ground level (El. = 2'-7")

(2) The height to the upper and lower limit are same because the opening area are only located on the under side of receptors.

(3) A/B and TSC HVAC intakes are treated as the same receptors, because their louvers are integrated.

Table 2.3.4-1 Combination of Sources and Receptors for Steam System Piping Failure Analysis (Sheet 1 of 12)

Accidents		Steam system piping failure									
		MCR									
		Main steam line break releases									
Sources	Locations ⁽¹⁾	5 of the East	5 of the West	5 of the East	5 of the West	Inleak					
	Release heights (m) ⁽²⁾	42.813.2	26.32	42.813.2		Intake		Inleak			
Receptors	Locations ⁽¹⁾	MCR HVAC intake	MCR HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁷⁾	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	5 of the West		
		a of the East	a of the West	d of the North-East	d of the South-East	d of the North-West	d of the South-West				
	Receptor heights (m) ⁽²⁾	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	101.0	
Horizontal distance Source to Receptor (m) ⁽³⁾		17	25	20	17	26	25				
Vertical distance (m) ⁽³⁾		0	-12	0	0	-12	-12	-12	-12		
Straight distance (m) ⁽³⁾		17	28	20	17	29	28				
Direction Receptor to Source (degree) ⁽⁴⁾		2520	956	2375	2520	1079	956				
Lateral diffusion coefficient (m)		0	0	0	0	0	0	0	0	0	
Vertical diffusion coefficient (m)		0	0	0	0	0	0	0	0	0	
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	1.9×10 ⁻²				1.9×10 ⁻²					
	8-24 hr	1.1×10 ⁻²				1.1×10 ⁻²					
	24-96 hr	7.1×10 ⁻³				7.1×10 ⁻³					
	96-720 hr	4.7×10 ⁻³				4.7×10 ⁻³					

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0004MIC-03-02-0
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2. SITE CHARACTERISTICS

US-APWR Design Control Document

Table 2.3.4-1 Combination of Sources and Receptors for Steam System Piping Failure Analysis (Sheet 2 of 12)

Accidents		Steam system piping failure							
		MCR							
		Main steam line break releases							
Sources	Locations ⁽¹⁾	5 of the West	5 of the East	5 of the West	5 of the East	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Reactor Auxiliary building door
Release heights (m) ⁽²⁾		26.32	42.813.2	26.32	42.813.2				
Receptors	Locations ⁽¹⁾	Intake		Inleak				d of the South-West	b
		MCR HVAC intake	MCR HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁷⁾	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake		
Receptor heights (m) ⁽²⁾		a of the East	a of the West	d of the North-East	d of the South-East	d of the North-West	d of the North-West		
Horizontal distance Source to Receptor ⁽³⁾		13.9	13.9	41	40	13.9	13.9	13.9	101.0
Vertical distance ⁽³⁾		40	49	-12	-12	49	50	49	5595
Straight distance ⁽³⁾		-12	0	-12	-12	0	0	0	-32
Direction Receptor to Source (degree) ⁽⁴⁾		42	49	43	42	50	50	49	5595
Lateral diffusion coefficient (m)		2676	967	2598	2676	103	103	967	14809
Vertical diffusion coefficient (m)		0	0	0	0	0	0	0	0
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	0	0	0	0	0	0	0	0
	8-24 hr	1.9×10 ⁻²	1.9×10 ⁻²	1.9×10 ⁻²	1.9×10 ⁻²	1.9×10 ⁻²	1.9×10 ⁻²	1.9×10 ⁻²	1.9×10 ⁻²
	24-96 hr	1.1×10 ⁻²	1.1×10 ⁻²	1.1×10 ⁻²	1.1×10 ⁻²	1.1×10 ⁻²	1.1×10 ⁻²	1.1×10 ⁻²	1.1×10 ⁻²
	96-720 hr	7.1×10 ⁻³	7.1×10 ⁻³	7.1×10 ⁻³	7.1×10 ⁻³	7.1×10 ⁻³	7.1×10 ⁻³	7.1×10 ⁻³	7.1×10 ⁻³

2. SITE CHARACTERISTICS

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Table 2.3.4-1 Combination of Sources and Receptors for Steam System Piping Failure Analysis (Sheet 6 of 12)

Accidents		Steam system piping failure					
		MCR					
Sources	Locations ⁽¹⁾	Main steam relief valve and safety valve releases					
	Release heights (m) ⁽²⁾	6 of the West (Main steam relief valve)	7 of the West (Main steam safety valve)				
Receptors		40.7	38.8	Inleak			
		Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Reactor Auxiliary building door	Reactor Auxiliary building door
	Locations ⁽¹⁾	d of the North-West	d of the South-West	b	d of the North-West	d of the South-West	b
	Receptor heights (m) ⁽²⁾	13.9	13.9	101.0	13.9	13.9	101.0
	Horizontal distance Source to Receptor (m) ⁽³⁾	27	29	2465	24	24	2465
Vertical distance (m) ⁽³⁾		-27	-27	-30	-25	-25	-208
Straight distance (m) ⁽³⁾		38	39	3971	35	35	3971
Direction Receptor to Source (degree) ⁽⁴⁾		61	57	8894	83	77	40499
Lateral diffusion coefficient (m)		0	0	0	0	0	0
Vertical diffusion coefficient (m)		0	0	0	0	0	0
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	5.3×10 ⁻³					
	8-24 hr	3.1×10 ⁻³					
	24-96 hr	2.0×10 ⁻³					
	96-720 hr	1.3×10 ⁻³					

MIC-03-02-0
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MIC-03-02-0
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MIC-03-02-0
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MIC-03-02-0
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MIC-03-02-0
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MIC-03-02-0
0004

2. SITE CHARACTERISTICS

US-APWR Design Control Document

Table 2.3.4-1 Combination of Sources and Receptors for Steam System Piping Failure Analysis (Sheet 8 of 12)

Accidents		Steam system piping failure					
		MCR					
		Main steam relief valve and safety valve releases					
Sources	Locations ⁽¹⁾	6 of the East (Main steam relief valve)		7 of the East (Main steam safety valve)			
	Release heights (m) ⁽²⁾	40.7		38.8			
Receptors	Locations ⁽¹⁾	Inleak					
		Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Class 1E electrical room HVAC intake ⁽⁸⁾	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	ReeeterAuxiliary building door
		d of the North-West	d of the South-West	b	d of the North-West	d of the South-West	b
	Receptor heights (m) ⁽²⁾	13.9	13.9	191.0	13.9	13.9	191.0
Horizontal distance Source to Receptor (m) ⁽³⁾		42	43	4481	41	41	4482
Vertical distance (m) ⁽³⁾		-27	-27	-30	-25	-25	-298
Straight distance (m) ⁽³⁾		50	51	6487	47	48	6486
Direction Receptor to Source (degree) ⁽⁴⁾		72	69	8993	86	82	967
Lateral diffusion coefficient (m)		0	0	0	0	0	0
Vertical diffusion coefficient (m)		0	0	0	0	0	0
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	5.3×10 ⁻³					
	8-24 hr	3.1×10 ⁻³					
	24-96 hr	2.0×10 ⁻³					
	96-720 hr	1.3×10 ⁻³					

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MIC-03-02-0
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MIC-03-02-0
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2. SITE CHARACTERISTICS

US-APWR Design Control Document

Table 2.3.4-1 Combination of Sources and Receptors for Steam System Piping Failure Analysis (Sheet 9 of 12)

Accidents		Steam system piping failure			
Sources	Locations ⁽¹⁾	TSC			
	Release heights (m) ⁽²⁾	Main steam line break releases			
		5 of the West			
Receptors	Locations ⁽¹⁾	26.32			
	Receptor heights (m) ⁽²⁾				
Horizontal distance Source to Receptor (m) ⁽³⁾		Intake		Inleak	
		TSC HVAC intake	TSC HVAC intake	Auxiliary building HVAC intake	Auxiliary building HVAC intake
		c of the North	c of the South	c of the North	c of the South
		25.4	25.4	25.4	25.4
		80	70	80	70
		-1	-1	-1	-1
		801	70	801	70
		129	117	129	117
		0	0	0	0
		0	0	0	0
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	1.4×10 ⁻³		1.4×10 ⁻³	
	8-24 hr	8.4×10 ⁻⁴		8.4×10 ⁻⁴	
	24-96 hr	5.3×10 ⁻⁴		5.3×10 ⁻⁴	
	96-720 hr	3.5×10 ⁻⁴		3.5×10 ⁻⁴	

MIC-03-02-0
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MIC-03-02-0
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2. SITE CHARACTERISTICS

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Table 2.3.4-1 Combination of Sources and Receptors for Steam System Piping Failure Analysis (Sheet 10 of 12)

Accidents		Steam system piping failure			
		TSC			
Locations ⁽¹⁾		Main steam line break releases			
Release heights (m) ⁽²⁾		5 of the East			
		42.813.2			
Receptors	Locations ⁽¹⁾	Intake		Inleak	
		TSC HVAC intake	TSC HVAC intake	Auxiliary building HVAC intake	Auxiliary building HVAC intake
		c of the North	c of the South	c of the North	c of the South
	Receptor heights (m) ⁽²⁾	23.3	23.3	23.3	23.3
Horizontal distance Source to Receptor (m) ⁽³⁾		101	93	101	93
Vertical distance (m) ⁽³⁾		10	10	10	10
Straight distance (m) ⁽³⁾		102	94	102	94
Direction Receptor to Source (degree) ⁽⁴⁾		122	112	122	112
Lateral diffusion coefficient (m)		0	0	0	0
Vertical diffusion coefficient (m)		0	0	0	0
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	1.4×10 ⁻³		1.4×10 ⁻³	
	8-24 hr	8.4×10 ⁻⁴		8.4×10 ⁻⁴	
	24-96 hr	5.3×10 ⁻⁴		5.3×10 ⁻⁴	
	96-720 hr	3.5×10 ⁻⁴		3.5×10 ⁻⁴	

MIC-03-02-0
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2. SITE CHARACTERISTICS

US-APWR Design Control Document

Table 2.3.4-2 Combination of Sources and Receptors for RCP Rotor Seizure Analysis (Sheet 4 of 8)

Accidents		RCP rotor seizure accident				
		MCR				
		Main steam relief valve and safety valve releases				
Sources	Locations ⁽¹⁾	6 of the West (Main steam relief valve)	7 of the West (Main steam relief <u>safety</u> valve)			
	Release heights (m) ⁽²⁾	40.7	38.8			
Receptors	Locations ⁽¹⁾	Inleak				
		Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Reactor Auxiliary <u>building</u> door
	Receptor heights (m) ⁽²⁾	13.9 d of the North-West	13.9 d of the South-West	13.9 d of the North-West	13.9 d of the South-West	101.0 b
Horizontal distance Source to Receptor (m) ⁽³⁾		27	29	24	24	2465 2465
Vertical distance (m) ⁽³⁾		-27	-27	-30	-25	-298 -298
Straight distance (m) ⁽³⁾		38	39	3971 3971	35	3871 3871
Direction Receptor to Source (degree) ⁽⁴⁾		61	57	83	77	40499 40499
Lateral diffusion coefficient (m)		0	0	0	0	0
Vertical diffusion coefficient (m)		0	0	0	0	0
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	5.3×10 ⁻³				
	8-24 hr	3.1×10 ⁻³				
	24-96 hr	2.0×10 ⁻³				
	96-720 hr	1.3×10 ⁻³				

MIC-03-02-0
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MIC-03-02-0
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MIC-03-02-0
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MIC-03-02-0
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MIC-03-02-0
0004

2. SITE CHARACTERISTICS

US-APWR Design Control Document

Table 2.3.4-2 Combination of Sources and Receptors for RCP Rotor Seizure Analysis (Sheet 6 of 8)

Accidents		RCP rotor seizure accident				
		MCR				
		Main steam relief valve and safety valve releases				
Sources	Locations ⁽¹⁾	6 of the East (Main steam relief valve)	7 of the East (Main steam relief <u>safety</u> valve)			
Release heights (m) ⁽²⁾		40.7	38.8			
Receptors	Locations ⁽¹⁾	Inleak				
		Class 1E electrical room HVAC intake ⁽⁸⁾	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Reactor Auxiliary building door	
Receptor heights (m) ⁽²⁾		d of the North-West	d of the South-West	d of the North-West	d of the South-West	
Horizontal distance Source to Receptor (m) ⁽³⁾		13.9	13.9	13.9	101.0 101.0	
Vertical distance (m) ⁽³⁾		42	43	41	44 81 4481	
Straight distance (m) ⁽³⁾		-27	-27	-25	-30 -298	
Direction Receptor to Source (degree) ⁽⁴⁾		50	51	47	54 87 5487	
Lateral diffusion coefficient (m)		72	69	86	80 93 8093	
Vertical diffusion coefficient (m)		0	0	0	0	
	0-8 hr	5.3×10 ⁻³				
χ/Q (s/m ³) ⁽⁶⁾	8-24 hr	3.1×10 ⁻³				
	24-96 hr	2.0×10 ⁻³				
	96-720 hr	1.3×10 ⁻³				

MIC-03-02-0
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MIC-03-02-0
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MIC-03-02-0
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MIC-03-02-0
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Table 2.3.4-3 Combination of Sources and Receptors for Rod Ejection Accident Analysis (Sheet 1 of 11)

Accidents		Rod Ejection Accident									
		MCR									
Sources	Locations ⁽¹⁾	Plant vent									
	Release heights (m) ⁽²⁾	9									
		69.9									
Receptors	Locations ⁽¹⁾	Intake		Inleak							
		MCR HVAC intake	MCR HVAC intake	Class 1E electrical room HVAC intake ⁽⁷⁾	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Auxiliary building HVAC intake	Auxiliary building HVAC intake	Reactor Auxiliary building door	
		a of the East	a of the West	d of the North-East	d of the South-East	d of the North-West	d of the South-West	c of the North	c of the South	b	
Receptor heights (m) ⁽²⁾		13.9	13.9	13.9	13.9	13.9	13.9	25.4	25.4	19.1.0	
Horizontal distance Source to Receptor (m) ⁽³⁾		68	53	66	68	51	53	61	55	3764	
Vertical distance (m) ⁽³⁾		-56	-56	-56	-56-	-56	-56	-45	-45	-4959	
Straight distance (m) ⁽³⁾		88	77	87	88	76	77	76	71	7987	
Direction Receptor to Source (degree) ⁽⁴⁾		318	19	316	318	20	19	81	81	2965	
Lateral diffusion coefficient (m)		0	0	0	0	0	0	0	0	0	
Vertical diffusion coefficient (m)		0	0	0	0	0	0	0	0	0	
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	1.1×10 ⁻³		1.4×10 ⁻³							
	8-24 hr	6.6×10 ⁻⁴		8.0×10 ⁻⁴							
	24-96 hr	4.2×10 ⁻⁴		5.1×10 ⁻⁴							
	96-720 hr	2.8×10 ⁻⁴		3.3×10 ⁻⁴							

MIC-03-02-0004

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MIC-03-02-0004

MIC-03-02-0004

2. SITE CHARACTERISTICS

US-APWR Design Control Document

Table 2.3.4-3 Combination of Sources and Receptors for Rod Ejection Accident Analysis (Sheet 2 of 11)

Accidents		Rod Ejection Accident									
		MCR									
		Ground level containment release point ⁽⁵⁾									
Sources	Locations ⁽¹⁾	2 of the East	2 of the West	1 of the East	2 of the East	1 of the West	42 of the West	3 of the North	3 of the South	4	
	Release heights (m) ⁽²⁾	49.5									
Receptors	Locations ⁽¹⁾	Intake		Inleak							
		MCR HVAC intake	MCR HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁷⁾	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Auxiliary building HVAC intake	Auxiliary building HVAC intake	Reactor Auxiliary building door	
		a of the East	a of the West	d of the North-East	d of the South-East	d of the North-West	d of the South-West	c of the North	c of the South	b	
		Receptor heights (m) ⁽²⁾	13.9	13.9	27	29	13.9	13.9	25.4	25.4	191.0
		Horizontal distance Source to Receptor (m) ⁽³⁾	29	29	27	29	27	29	46	48	4652
	Vertical distance (m) ⁽³⁾	-35	-35	-35	-35	-35	-35	-24	-24	-398	
	Straight distance (m) ⁽³⁾	46	46	44	46	44	46	52	54	4364	
	Direction Receptor to Source (degree) ⁽⁴⁾	322	38	320	322	40	38	91	76	5375	
	Lateral diffusion coefficient (m)	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	
	Vertical diffusion coefficient (m)	5.03	5.03	5.03	5.03	5.03	5.03	5.03	5.03	5.03	
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	2.2×10 ⁻³		2.4×10 ⁻³							
	8-24 hr	1.3×10 ⁻³		1.4×10 ⁻⁴							
	24-96 hr	8.3×10 ⁻⁴		9.1×10 ⁻⁴							
	96-720 hr	5.5×10 ⁻⁴		6.0×10 ⁻⁴							

Table 2.3.4-3 Combination of Sources and Receptors for Rod Ejection Accident Analysis (Sheet 6 of 11)

Accidents		Rod Ejection Accident				
		MCR				
		Main steam relief valve and safety valve releases				
Sources	Locations ⁽¹⁾	6 of the West (Main steam relief valve)	7 of the West (Main steam safety valve)			
	Release heights (m) ⁽²⁾	40.7	38.8			
Receptors	Locations ⁽¹⁾	Inleak				
		Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾ d of the South-West	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾ d of the North-West	Class 1E electrical room HVAC intake ⁽⁸⁾ d of the South-West
	Receptor heights (m) ⁽²⁾	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾ d of the South-West	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾ d of the South-West
Horizontal distance Source to Receptor (m) ⁽³⁾	Receptor heights (m) ⁽²⁾	13.9	13.9	13.9	13.9	13.9
	Receptor heights (m) ⁽²⁾	27	29	24	24	24
	Receptor heights (m) ⁽²⁾	-27	-27	-30	-25	-25
	Receptor heights (m) ⁽²⁾	38	39	35	35	35
Direction Receptor to Source (degree) ⁽⁴⁾	Receptor heights (m) ⁽²⁾	61	57	83	77	77
	Receptor heights (m) ⁽²⁾	0	0	0	0	0
	Receptor heights (m) ⁽²⁾	0	0	0	0	0
	Receptor heights (m) ⁽²⁾	0	0	0	0	0
χ/Q (s/m ³) ⁽⁶⁾	Receptor heights (m) ⁽²⁾	5.3×10 ⁻³				
	Receptor heights (m) ⁽²⁾	3.1×10 ⁻³				
	Receptor heights (m) ⁽²⁾	2.0×10 ⁻³				
	Receptor heights (m) ⁽²⁾	1.3×10 ⁻³				

MIC-03-02-0
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MIC-03-02-0
0004

2. SITE CHARACTERISTICS

US-APWR Design Control Document

Table 2.3.4-3 Combination of Sources and Receptors for Rod Ejection Accident Analysis (Sheet 8 of 11)

Accidents		Rod Ejection Accident					
		MCR					
		Main steam relief valve and safety valve releases					
Sources	Locations ⁽¹⁾	6 of the East (Main steam relief valve)		7 of the East (Main steam safety valve)			
	Release heights (m) ⁽²⁾	40.7		38.8			
Receptors	Locations ⁽¹⁾	Inleak					
		Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Reactor Auxiliary building door	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Reactor Auxiliary building door
	Receptor heights (m) ⁽²⁾	13.9	d of the North-West	b	d of the North-West	d of the South-West	b
Horizontal distance Source to Receptor (m) ⁽³⁾		42	43	191.0	41	13.9	191.0
Vertical distance (m) ⁽³⁾		-27	-27	-30	-25	-25	-298
Straight distance (m) ⁽³⁾		50	51	6487	47	48	6686
Direction Receptor to Source (degree) ⁽⁴⁾		72	69	9993	86	82	9997
Lateral diffusion coefficient (m)		0	0	0	0	0	0
Vertical diffusion coefficient (m)		0	0	0	0	0	0
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	5.3×10 ⁻³					
	8-24 hr	3.1×10 ⁻³					
	24-96 hr	2.0×10 ⁻³					
	96-720 hr	1.3×10 ⁻³					

MIC-03-02-0
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MIC-03-02-0
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MIC-03-02-0
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MIC-03-02-0
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MIC-03-02-0
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2. SITE CHARACTERISTICS

US-APWR Design Control Document

Table 2.3.4-4 Combination of Sources and Receptors for Failure of Small Lines Carrying Primary Coolant Outside Containment Analysis (Sheet 2 of 2)

MIC-03-02-0
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Accidents		Failure of Small Lines Carrying Primary Coolant Outside Containment					
		MCR			TSC		
Sources	Locations ⁽¹⁾	Plant vent			Plant vent		
		9			9		
		69.9			69.9		
Receptors	Locations ⁽¹⁾	Inleak		Intake		Inleak	
		Auxiliary building HVAC intake	Receptor Auxiliary building door	TSC HVAC intake	Auxiliary building HVAC intake	Auxiliary building HVAC intake	
		c of the North	c of the South	b	c of the North	c of the South	
Receptor heights (m) ⁽²⁾		25.4	25.4	101.0	25.4	25.4	25.4
Horizontal distance Source to Receptor (m) ⁽³⁾		55	61	3764	55	61	61
Vertical distance (m) ⁽³⁾		-45	-45	-6059	-45	-45	-45
Straight distance (m) ⁽³⁾		71	76	7087	71	76	76
Direction Receptor to Source (degree) ⁽⁴⁾		81	64	2065	81	64	64
Lateral diffusion coefficient (m)		0	0	0	0	0	0
Vertical diffusion coefficient (m)		0	0	0	0	0	0
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	1.4×10 ⁻³			1.4×10 ⁻³		1.4×10 ⁻³
	8-24 hr	8.0×10 ⁻⁴			8.0×10 ⁻⁴		8.0×10 ⁻⁴
	24-96 hr	5.1×10 ⁻⁴			5.1×10 ⁻⁴		5.1×10 ⁻⁴
	96-720 hr	3.3×10 ⁻⁴			3.3×10 ⁻⁴		3.3×10 ⁻⁴

MIC-03-02-0
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MIC-03-02-0
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2. SITE CHARACTERISTICS

US-APWR Design Control Document

**Table 2.3.4-5 Combination of Sources and Receptors for Steam Generator Tube Rupture (SGTR) Analysis
(Sheet 4 of 8)**

Accidents		SGTR					
		MCR					
		Main steam relief valve and safety valve releases					
Sources	Locations ⁽¹⁾	6 of the West (Main steam relief valve)		7 of the West (Main steam relief safety valve)			
	Release heights (m) ⁽²⁾	40.7		38.8			
Receptors	Locations ⁽¹⁾	Inleak					
		Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	ReactorAuxiliary building door	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	ReactorAuxiliary building door
	Receptor heights (m) ⁽²⁾	13.9	13.9	101.0	d of the North-West	d of the South-West	b
Horizontal distance Source to Receptor (m) ⁽³⁾		27	29	2465	24	24	2465
Vertical distance (m) ⁽³⁾		-27	-27	-30	-25	-25	-298
Straight distance (m) ⁽³⁾		38	39	3971	35	35	3971
Direction Receptor to Source (degree) ⁽⁴⁾		61	57	8894	83	77	40499
Lateral diffusion coefficient (m)		0	0	0	0	0	0
Vertical diffusion coefficient (m)		0	0	0	0	0	0
		5.3×10 ⁻³					
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr						
	8-24 hr	3.1×10 ⁻³					
	24-96 hr	2.0×10 ⁻³					
96-720 hr		1.3×10 ⁻³					

MIC-03-02-0
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2. SITE CHARACTERISTICS

US-APWR Design Control Document

**Table 2.3.4-5 Combination of Sources and Receptors for Steam Generator Tube Rupture (SGTR) Analysis
(Sheet 6 of 8)**

Accidents		SGTR					
		MCR					
		Main steam relief valve and safety valve releases					
Sources	Locations ⁽¹⁾	6 of the East (Main steam relief valve)	7 of the East (Main steam relief safety valve)				
	Release heights (m) ⁽²⁾	40.7	38.8				
Receptors	Locations ⁽¹⁾	Inleak					
		Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Reactor Auxiliary building door	
	Receptor heights (m) ⁽²⁾	d of the North-West	d of the South-West	b	d of the North-West	d of the South-West	b
Horizontal distance Source to Receptor (m) ⁽³⁾		13.9	13.9	101.0	13.9	13.9	101.0
Vertical distance (m) ⁽³⁾		-27	-27	-30	-25	-25	-208
Straight distance (m) ⁽³⁾		50	51	5487	47	48	5086
Direction Receptor to Source (degree) ⁽⁴⁾		72	69	8993	86	82	967
Lateral diffusion coefficient (m)		0	0	0	0	0	0
Vertical diffusion coefficient (m)		0	0	0	0	0	0
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	5.3×10 ⁻³					
	8-24 hr	3.1×10 ⁻³					
	24-96 hr	2.0×10 ⁻³					
	96-720 hr	1.3×10 ⁻³					

MIC-03-02-0
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Table 2.3.4-6 Combination of Sources and Receptors for LOCA Analysis (Sheet 1 of 3)

Accidents		LOCA							
Sources	Locations ⁽¹⁾	MCR							
	Release heights (m) ⁽²⁾	Plant vent							
		9							
Receptors	Locations ⁽¹⁾	69.9							
	Receptor heights (m) ⁽²⁾								
		Intake				Inleak			
		MCR HVAC intake	MCR HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake (7)	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake (8)	Receptor building door
		a of the East	a of the West	d of the North-East	d of the South-East	d of the North-West	d of the South-West		
Horizontal distance Source to Receptor (m) ⁽³⁾		13.9	13.9	13.9	13.9	13.9	13.9	13.9	191.0
Vertical distance (m) ⁽³⁾		68	53	66	68	51	53	53	3764
Straight distance (m) ⁽³⁾		-56	-56	-56	-56	-56	-56	-56	-6959
Direction Receptor to Source (degree) ⁽⁴⁾		88	77	87	88	76	77	77	7987
Lateral diffusion coefficient (m)		318	19	316	318	20	19	19	2865
Vertical diffusion coefficient (m)		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	1.1×10 ⁻³				1.3×10 ⁻³			
	8-24 hr	6.6×10 ⁻⁴				7.8×10 ⁻⁴			
	24-96 hr	4.2×10 ⁻⁴				4.9×10 ⁻⁴			
	96-720 hr	2.8×10 ⁻⁴				3.3×10 ⁻⁴			

MIC-03-02-0
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MIC-03-02-0
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2. SITE CHARACTERISTICS

US-APWR Design Control Document

Table 2.3.4-6 Combination of Sources and Receptors for LOCA Analysis (Sheet 2 of 3)

Accidents		LOCA						
		MCR						
		Ground level containment release point ⁽⁵⁾						
Sources	Locations ⁽¹⁾	2 of the East	2 of the West	1 of the East	2 of the East	1 of the West	2 of the West	4
	Release heights (m) ⁽²⁾	49.5						
Receptors	Locations ⁽¹⁾	Intake		Inleak				
		MCR HVAC intake	MCR HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁷⁾	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁸⁾	Reactor Auxiliary building door
		a of the East	a of the West	d of the North-East	d of the South-East	d of the North-West	d of the South-West	b
		13.9	13.9	13.9	13.9	13.9	13.9	10.1.0
Horizontal distance Source to Receptor (m) ⁽³⁾		29	29	27	29	27	29	46.52
Vertical distance (m) ⁽³⁾		-35	-35	-35	-35	-35	-35	-39.8
Straight distance (m) ⁽³⁾		46	46	44	46	44	46	43.64
Direction Receptor to Source (degree) ⁽⁴⁾		322	38	320	322	40	38	53.75
Lateral diffusion coefficient (m)		7.98	7.98	7.98	7.98	7.98	7.98	7.98
Vertical diffusion coefficient (m)		5.03	5.03	5.03	5.03	5.03	5.03	5.03
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	2.2×10 ⁻³		2.4×10 ⁻³				
	8-24 hr	1.3×10 ⁻³		1.4×10 ⁻³				
	24-96 hr	8.3×10 ⁻⁴		9.1×10 ⁻⁴				
	96-720 hr	5.5×10 ⁻⁴		6.0×10 ⁻⁴				

MIC-03-02-0004

MIC-03-02-0004

MIC-03-02-0004

MIC-03-02-0004

MIC-03-02-0004

MIC-03-02-0004

2. SITE CHARACTERISTICS

US-APWR Design Control Document

Table 2.3.4-7 Combination of Sources and Receptors for Fuel Handling Accident Analysis (Sheet 1 of 3)

Accidents		Fuel handling accident in the containment									
		MCR									
Sources	Locations ⁽¹⁾	Plant vent									
	Release heights (m) ⁽²⁾	9									
		69.9									
Receptors	Locations ⁽¹⁾	Intake		Inleak							
		MCR HVAC intake	MCR HVAC intake	Class 1E electrical room HVAC intake (7)	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake (8)	Auxiliary building HVAC intake	Auxiliary building HVAC intake	Receptor A auxiliary building door	
Receptor heights (m) ⁽²⁾	Locations ⁽¹⁾	a of the East	a of the West	d of the North-East	d of the South-East	d of the North-West	d of the South-West	c of the North	c of the South	b	
		13.9	13.9	13.9	13.9	13.9	13.9	25.4	25.4	10.1	
Horizontal distance Source to Receptor (m) ⁽³⁾		68	53	53	68	51	53	55	61	37.64	
Vertical distance (m) ⁽³⁾		-56	-56	-56	-56	-56	-56	-45	-45	-60.59	
Straight distance (m) ⁽³⁾		88	77	88	88	76	77	71	76	79.97	
Direction Receptor to Source (degree) ⁽⁴⁾		318	19	316	318	20	19	81	64	29.65	
Lateral diffusion coefficient (m)		0	0	0	0	0	0	0	0	0	
Vertical diffusion coefficient (m)		0	0	0	0	0	0	0	0	0	
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr	1.1×10 ⁻³									
	8-24 hr	6.6×10 ⁻⁴									
	24-96 hr	4.2×10 ⁻⁴									
	96-720 hr	2.8×10 ⁻⁴									

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2. SITE CHARACTERISTICS

US-APWR Design Control Document

Table 2.3.4-7 Combination of Sources and Receptors for Fuel Handling Accident Analysis (Sheet 2 of 3)

Accidents		Fuel handling accident in the containment										
		MCR										
Sources		Locations ⁽¹⁾	Fuel handling area									
		Release heights (m) ⁽²⁾	8									
			5.9									
Receptors	Locations ⁽¹⁾	Receptor heights (m) ⁽²⁾	Intake		Inleak							
			MCR HVAC intake	MCR HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake ⁽⁷⁾	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake	Class 1E electrical room HVAC intake (8)	Auxiliary building HVAC intake	Auxiliary building HVAC intake	
			a of the East	a of the West	d of the North-East	d of the South-East	d of the North-West	d of the South-West	c of the North	c of the South		
		Receptor heights (m) ⁽²⁾	13.9	13.9	13.9	13.9	13.9	13.9	13.9	23.3	23.3	b
Horizontal distance Source to Receptor (m) ⁽³⁾			78	104	76	78	102	104	104	119		78.4
Vertical distance (m) ⁽³⁾			8	8	8	8	8	8	8	17	17	94.122
Straight distance (m) ⁽³⁾			79	104	76	79	102	104	104	113	120	2
Direction Receptor to Source (degree) ⁽⁴⁾			2	41	2	2	42	41	41	71	63	94.122
Lateral diffusion coefficient (m)			0	0	0	0	0	0	0	0	0	0
Vertical diffusion coefficient (m)			0	0	0	0	0	0	0	0	0	0
χ/Q (s/m ³) ⁽⁶⁾	0-8 hr		1.1×10 ⁻³									
	8-24 hr		6.4×10 ⁻⁴									
	24-96 hr		4.1×10 ⁻⁴									
	96-720 hr		2.7×10 ⁻⁴									

MIC-03-02-0
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⬡ SOURCES

1. Containment Shell to Class 1E electrical room HVAC intake (As Diffuse Area Source)
2. Containment Shell to Main Control Room HVAC Intake and Class 1E electrical room HVAC Intake (As Diffuse Area Source)
3. Containment Shell to Auxiliary Building HVAC Intake and Technical Support Center HVAC intake (As Diffuse Area Source)
4. Containment Shell to Auxiliary Building Door (As Diffuse Area Source)
5. Main Steam Line (Source points are in the west and the east.)
6. Main Steam Relief Valve (Source points are in the west and the east.)
7. Main Steam Safety Valve (Source points are in the west and the east.)
8. Fuel Handling Area
9. Plant Vent

△ RECEPTORS

- a. Main Control Room HVAC Intake
- b. Auxiliary Building Door
- c. Auxiliary Building HVAC Intake and Technical Support Center HVAC Intake
- d. Class 1E electrical room HVAC intake

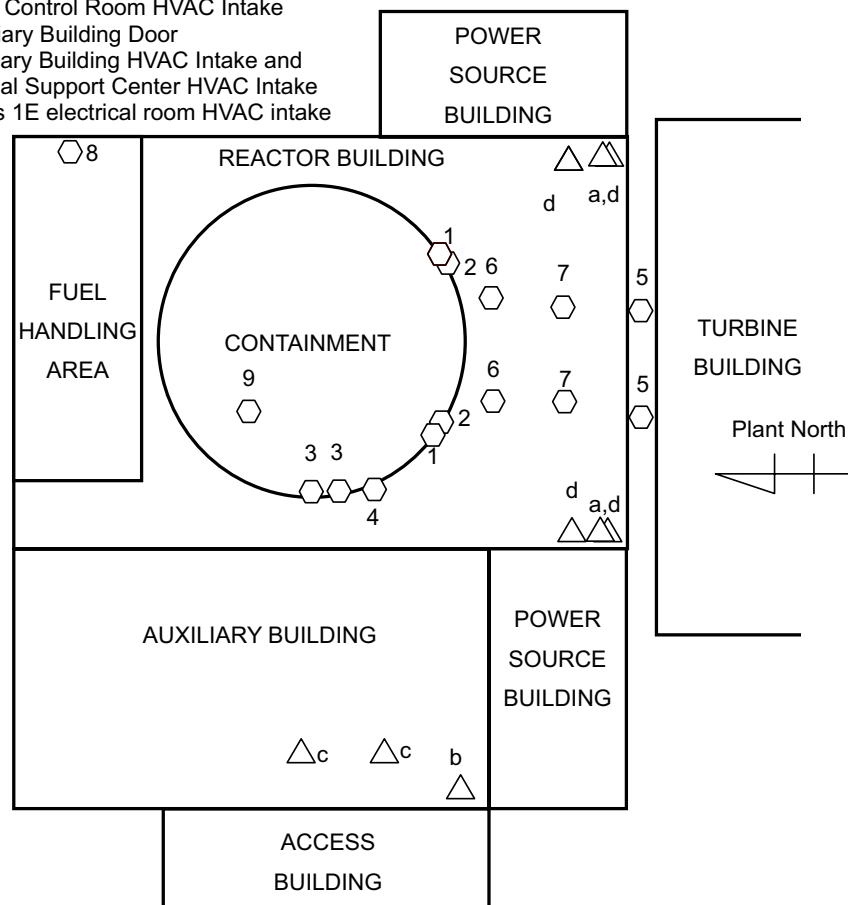


Figure 2.3-2 Site Plan with Release and Intake Locations