

COMANCHE PEAK STEAM ELECTRIC STATION

PERSON-MOTION STUDY  
OF POST ACCIDENT SAMPLING ACTIVITIES  
TO DEMONSTRATE COMPLIANCE  
WITH GDC-19 AND  
NUREG 0737 ITEM II.B.3

DECEMBER 1982

TEXAS UTILITIES SERVICES INC.

NUCLEAR ENGINEERING

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## I. STATEMENT OF PROBLEM

This evaluation demonstrates that all the activities necessary to acquire, retrieve, and analyze post-accident samples of reactor coolant and containment air can be performed without exceeding the exposure limits of General Design Criterion 19 (GDC-19) in Appendix A to 10CFR Part 50.

It also shows that, by a coordinated effort of several individuals, the required post-accident samples can be acquired, retrieved and analyzed within the 3 hour time limit established by NUREG-0737, Item II.B.3 (Ref. 1).

This evaluation was performed to satisfy the licensing requirement to provide a summary of person-motion studies which verify compliance with GDC-19. this requirement was imposed in Supplement 2 to the CPSES Safety Evaluation Report (Ref. 2).

## II. ASSUMPTIONS

The assumptions made in this evaluation are as follows:

1. The source terms used are those listed in Section II.B.2 of the CPSES FSAR. These source terms exceed Regulatory Guide 1.4 release quantities (Ref.3).
2. Post-accident background dose rates are as shown in Figures II.B.2-1 through II.B.2-24 (Ref. 4). For the purposes of this evaluation, the approximate mid-range value for each Zone Classification in Figure II.B.2-1 (at a time 1 hour after the accident) is used. The dose rates for each Zone are therefore assumed to be as follows:

Zone I	≡	0 Rem/hr	Zone III	≡	5.0 Rem/hr
Zone II	≡	5.0 Rem/hr	Zone IV	≡	50 Rem/hr

3. For dose evaluation purposes, two persons perform all the required activities. One person is stationed at the location of the PASS Remote Operating Modules (see Figure 1). This person performs all activities which require manipulation or observation of this equipment. The second individual performs all other required activities.

This is a conservative assumption for demonstrating compliance with GDC-19. It is expected that several individuals would be involved in a coordinated post-accident sample acquisition, retrieval, and analytic process.

The evaluation of compliance with the 3 hour criteria of NUREG-0737 takes credit for the coordinated involvement of several individuals.

4. The walking speed of an individual is 4.0 ft/sec, unless the individual is pulling a transport cart, in which case the rate is set at 2.0 ft/sec.
5. The time required to obtain clearance past a security door is 10 seconds. All other doors require 2 seconds for passage.
6. Anti-contamination clothing and/or equipment is "put-on" and "taken-off" in a Zone II post accident radiation area. The time allotted for each of these activities is 5 minutes.
7. Samples of depressurized reactor coolant, reactor coolant off-gas, and containment air are captured, retrieved, and analyzed.
8. The dose contribution from shielded micro-volume samples in transit is insignificant and set at 0.0 mrem/hr.

### III. REFERENCES

1. NUREG-0737, Clarification of TMI Action Plan Requirements, U. S. Nuclear Regulatory Commission, November, 1980.
2. NUREG-0797, Safety Evaluation Report Related to the Operation of Comanche Peak Steam Electric Station, Units 1 and 2, Supplement 2, U. S. Nuclear Regulatory Commission, January, 1982, page 22-3.
3. Regulatory Guide 1.4, Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss of Coolant Accident for Pressurized Waters, Revision 2, U. S. Nuclear Regulatory Commission, June 1974.
4. Final Safety Analysis Report, Comanche Peak SES, Texas Utilities Generating Company, Sections II.B.2 and II.B.3.
5. Reactor Coolant PASS Technical Manual, Appendix B, Radiological Assessment-Retrieval of Samples, General Dynamics-Reactor Plant Services, September, 1982 (Preliminary copy).
6. Containment Air PASS Technical Manual, Appendix A, Radiological Assessment-Retrieval of Samples, General Dynamics-Reactor Plant Services, September, 1982 (Preliminary copy).

#### IV. RESULTS

The activities necessary to obtain post accident samples of depressurized reactor coolant, reactor coolant off-gas, and containment air are listed in Table 1. The estimated doses received by the two individuals assumed to perform these activities are itemized in Table 2. Table 2 also presents conservative estimates of the time required to perform each activity. The continuity of each activity in the overall sampling process is considered in Table 2 and is noted by the activities which are shown to occur concurrently with others.

Based on the information presented in Tables 1 & 2, the two individuals involved in the sampling process receive a total whole body dose of 4.34 person-rem. The individual who is stationed at the PASS Remote Operating Module location receives an estimated 1,387 mrem from the room background. The other individual, who is assumed to perform all retrieval and analytical activities receives an estimated 2,957 mrem. This second individual is estimated to receive an extremity dose of 3.35 Rem. Each of these doses is well within the limits of GDC-19, as is the person-rem total for all activities.

As shown in Table 2, all required sample acquisition, retrieval, and analysis are conservatively estimated to take approximately 2 hours and 47 minutes to perform. This is within the 3 hour requirement of NUREG-0737.

As demonstrated herein personnel at the Comanche Peak Steam Electric Station have the capability to obtain and analyze all required post-accident samples within the time restraints of NUREG-0737 while maintaining compliance with General Design Criterion 19.

TABLE 1

Post Accident Sampling - Required Activities

<u>ACTIVITY #</u>	<u>DESCRIPTION OF ACTIVITY</u>
1	Decision to take RCS and Containment air samples. Energize PASS equipment.
2	Enter Sample Room via path A (see Figures 1 and 2) to perform activities 2(a) - 2(c).
2(a)	<p><u>Position</u> the following valves as indicated:</p> <p>CLOSE valves 1PS-054 and 1PS-055 OPEN valves 1CC-1014 and 1CC-1015</p> <p>These operations align safeguards Component Cooling Water (CCW) to RC PASS Sample Cooler and "valves out" the non-safeguards CCW flow path.</p>
2(b)	<p><u>Verify</u> the position of these valves:</p> <p>1PS-038 and 1PS-039 must be CLOSED 1PS-040 must be OPEN</p> <p>These valve positions will permit the flow of reactor coolant, or Containment sump water to the RC PASS Sample Module (and blocks the normal sampling path) when the sample acquisition process is begun. (see Activity 7(a) ).</p>
2(c)	<p><u>Verify</u> the position of these valves:</p> <p>1PS-056 and 1PS-059 must be OPEN</p> <p>These positions will assure the operational capability of the RC PASS Sample Module spray system and drain system, respectively.</p>

<u>ACTIVITY #</u>	<u>DESCRIPTION OF ACTIVITY</u>
3	Exit the Sample Room via path B (see Figures 1 and 2).
4	Verify the flow of safeguards CCW to the RC PASS Sample Cooler by observing the indications provided by the temperature, pressure, and flow instrumentation on the CCW inlet and outlet piping. These indications are displayed on the RC PASS Auxiliary Module.
5	Verify the availability of nitrogen gas to the RC PASS and CA PASS Remote Operating Modules from the local supply.
6	Position the valves in the RC PASS Flush and Diversion Manifold in the sampling mode (i.e.- FDP-1 and FDP-2 should be open; FDP-3 and FDP-4 should be closed). These valves are actuated by controls on the RC PASS Auxiliary Module.
7(a)	<p>Request that the Control Room operator(s) transfer control of the sampling Containment isolation valves to the PASS Isolation Valve Control Panel (PIVCP). Inform the Control Room that Containment Isolation (if present) will be overridden.</p> <p>Initiate the reactor coolant sampling process by opening the proper RC PASS Containment Isolation valves (listed in Table 3). These activities are performed at the PASS Isolation Valve Control Panel (PIVCP), see Figure 1).</p>
7(b)	Initiate the containment air sampling process by opening the proper CA PASS Containment Isolation valves (see Table 3) at the PIVCP.



TABLE 1  
Post Accident Sampling - Required Activities

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<u>ACTIVITY #</u>	<u>DESCRIPTION OF ACTIVITY</u>
8(a)	Purge the RC PASS Sample Module until a representative sample can be acquired.
8(b)	Purge the CA PASS Sample Module until a representative sample can be acquired.
9(a)	Verify flow of reactor coolant thru the RC PASS Sample Module by observing the indications provided by the temperature, pressure, flow and radiation monitoring instrumentation located in the RC PASS Sample Module. These indications are displayed on the RC PASS Remote Operating Module.
9(b)	Verify flow of containment air thru the CA PASS Sample Module by observing the indications provided by the temperature, pressure, flow, and radiation monitoring instrumentation located in the CA PASS Sample Module. These indications are displayed on the CA PASS Remote Operating Module.
10(a)	Capture undiluted samples of depressurized coolant and reactor coolant off-gas in the RC PASS Sample Module via operations at the RC PASS Remote Operating Module.
10(b)	Capture undiluted samples of Containment air as well as Containment air iodine and particulate samples in the CA PASS Sample Module, via operations at the CA PASS Remote Operating Module.

<u>ACTIVITY #</u>	<u>DESCRIPTION OF ACTIVITY</u>
11	Calculate the amount of total dissolved gas in the reactor coolant by comparing initial and final temperature and pressure readings in the gas loop of the RC PASS Sample Module. These indications are displayed on the RC PASS Remote Operating Module.
12(a)	<p>CLOSE the RC PASS INFLUENT Containment Isolation valves at the PIVCP. (See Table 3).</p> <p>The RC PASS EFFLUENT Containment valves (downstream of the RC PASS Sample Module) remain open.</p>
12(b)	CLOSE the CA PASS INFLUENT Containment Isolation Valves (see Table 3). The CA PASS EFFLUENT Containment Isolation valves remain open.
13(a)	Position the valves in the RC PASS Flush and Diversion Manifold in the flush mode (i.e., FDP-1, FDP-2, FDP-3, and FDP-4 should be open). These valves are operated at the RC PASS Auxiliary Module.
13(b)	Position valve CAP-10 (in the CA PASS Sample Diversion Valve Module) to the flush position. This valve is operated from the CA PASS Remote Operating Module.
14	Verify that the RC PASS Flush Module is filled with demineralized water and that a supply of make-up water is available. See Figure 1 for the location of the RC PASS Flush Module.

TABLE 1  
Post Accident Sampling - Required Activities

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<u>ACTIVITY #</u>	<u>DESCRIPTION OF ACTIVITY</u>
15(a)	Initiate the RC PASS flushing process by switching on the positive displacement pump which is part of the RC PASS Flush Module. This pump is activated by a switch located on the RC PASS Auxiliary Module.
15(b)	Initiate the CA PASS flushing process by opening the nitrogen purge supply valve (CAP-11). This valve is operated from the CA PASS Remote Operating Module.
16(a)	<p>Complete the flushing of piping in the RC PASS Sample Module such that the only sources of radiation in the Sample Module are from the shielded vessels which contain small volumes (5 ml) of depressurized reactor coolant and reactor coolant off-gas.</p> <p>Indications of the temperature, pressure, radiation monitoring, pH, and conductivity instrumentation allow a determination that the flushing process has been completed. These indications are displayed on the RC PASS Remote Operating Module.</p>
16(b)	<p>Complete the flushing of CA PASS Sample Module piping such that the only sources of radiation in the sample module are from the shielded vessel containing about 10ml of containment air and the filter cartridges for iodines and particulates.</p> <p>Indications of the temperature, pressure, and radiation monitoring instrumentation allow a determination that the flushing process has been completed. These indications are displayed on the CA PASS Remote Operating Module.</p>

<u>ACTIVITY #</u>	<u>DESCRIPTION OF ACTIVITY</u>
17(a)	CLOSE the RC PASS EFFLUENT Containment Isolation Valves downstream of the RC PASS Sample Module (see Table 3) by operation at the PIVCP. All RC PASS Containment Isolation Valves are now closed.
17(b)	CLOSE the CA PASS EFFLUENT Containment Isolation valves (see Table 3) by operation at the PIVCP. All CA PASS Containment Isolation Valves are now closed.
18	Prepare hot laboratory, hot cell, and counting room for delivery of samples; assure all instrumentation and equipment is in proper working order.
19	Prepare to enter sample room. Obtain the necessary sample micro-syringes, septum-equipped vials, shielded containers, and transport cart.
20	Enter the sample room via Path A, (see Figures 1 and 2) and prepare to obtain the samples.
21(a)	Obtain a 50 $\mu$ l depressurized reactor coolant sample and a 10 $\mu$ l sample of reactor coolant off-gas. Inject each into shielded vials.
21(b)	Obtain 100 $\mu$ l sample of containment air, a 10 $\mu$ sample of containment air (which is injected into a shielded vial) and remove the iodine/particulate filter cartridges.

TABLE 1  
Post Accident Sampling - Required Activities

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<u>ACTIVITY #</u>	<u>DESCRIPTION OF ACTIVITY</u>
22	Leave the Sample Room via Path C, and transport the samples to the hot cell.
23	Prepare samples for the various analyses described in FSAR Section II.B.3.4.
24	Remove the sample(s) which require radiological analyses from the Hot Cell and transport these to the counting room, via the shielded pass-thru window.
25	Perform the required chemical analyses by the methods described in Section II.B.3.4.
26	Perform the required radiological analyses by the methods described in Section II.B.3.4.
27	Transmit results.

TABLE 2  
POST ACCIDENT SAMPLING-DOSE ASSESSMENT

ACTIVITY # (see Table 1)	TIME REQUIRED (min:sec)	TOTAL ELAPSED TIME (min:sec)	DOSE DUE TO ACTIVITY (mrem)	REMARKS
1	0:00	0:00	N/A	
2	7:17	7:17	245	See Table 2A
2(a)	1:00	8:17	83.3	Zone II
2(b)	1:00	9:17	83.3	Zone II
2(c)	1:00	10:17	83.3	Zone II
3	7:17	17:34	232	See Table 2B
4	(<5.00)	-	*	Zone II; Concurrent with 2(a)-3.
5	(<1.00)	-	*	Zone II; Concurrent with 2-3.
6	(<2:00)	-	*	Zone II; Concurrent with 2-3.
7(a)	5:00	17:34	0	Zone I; Activity 7 started before comple- tion of 3. See Table 2B, footnote (b).
7(b)	5:00	22:34	0	Zone I
8(a)	30:00	52:34	*	Zone II
8(b)	30:00	-	N/A	Concurrent with 8(a) & 10(a)
9(a)	(<5:00)	-	N/A	Concurrent with 8(a)
9(b)	(<5.00)	-	N/A	Concurrent with 8(b)
10(a)	10:00	62:34	*	Zone II
10(b)	7:30	70:04	*	Zone II
11	(<10:00)	-	N/A	Performed independent of later activities.

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\*See Note 6

TABLE 2  
POST ACCIDENT SAMPLING-DOSE ASSESSMENT

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ACTIVITY # (See Table 1)	TIME REQUIRED (min:sec)	TOTAL ELAPSED TIME (min:sec)	DOSE DUE TO ACTIVITY (mrem)	REMARKS
12(a)	(<4:00)	-	0	Zone I; Concurrent with 10(b)
12(b)	4:00	74:04	0	Zone I
13(a)	(<2:00)	-	N/A	Concurrent with 12(b)
13(b)	(<2:00)	-	N/A	Concurrent with 12(b)
14	(<5:00)	-	N/A	Concurrent with 8(a)
15	1:00	75:04	*	Zone II
15(b)	1:00	76:04	*	Zone II
16(a)	15:00	91:04	*	Zone II
16(b)	15:00	96:04	*	Zone II. Activity 16(b) is started 5 minutes after 16(a) is begun.
17(a)	(<4:00)	-	N/A	Concurrent with 16(b)
17(b)	3:00	99:04	0	Zone I
18	(<60:00)	-	250	Concurrent with 2-17(b). Assumes 30 min. in Hot Laboratory (Zone II)
19	(<10:00)		83.3	Zone II; Concurrent with 16(a) and 16(b)
20	9:12	102:22	453	Preparation for entry partially completed during activity 10(b). See Table 2C.

\*See Note 6

TABLE 2  
POST ACCIDENT SAMPLING-DOSE ASSESSMENT

Page 3 of 4

ACTIVITY # (see Table 1)	TIME REQUIRED (min:sec)	TOTAL ELAPSED TIME (min:sec)	DOSE DUE TO ACTIVITY (mrem)	REMARKS
21(a)	2:20	104:42	267	See Note 1
21(b)	2:45	107:27	234	See Note 2
22	12:12	119:39	440	See Table 2D and Note 3
23	25:00	138:27	241	Activity 23 started prior to completion of 22. See Table 2D, footnote (c) and Note 4.
24	2:00	140:27	16.7	Zone II
25	25:00	165:27	236	Zone II; See Note 5
26	20:00	-	0	Zone I; Concurrent with activity 25
27	1:00	166:27		Zone II
TOTALS:		166:27	2957	

\*See Note 6



NOTES TO TABLE 2:

1. Dose due to background in the Sample Room (Zone III) is 194 mrem.  
Dose due to the presence of the RC PASS sample and the acquisition thereof is 73 mrem whole body. The extremity dose due to sample acquisition is 936 mrem. (Ref. 5)
2. Dose due to background in the Sample Room is 229 mrem.  
Dose due to the presence of the CA PASS sample and the acquisition thereof is 5 mrem whole body and 58 mrem to the extremities. (Ref. 6)
4. For the 25 minutes allotted for sample preparation, all of the samples are assumed to be inside the hot cell for 20 minutes. The samples requiring radiological analysis are assumed to be removed for counting immediately upon dilution. Doses from these samples are negligible. The samples requiring chemical analyses are assumed to be outside the hot cell for 5 minutes. Contact with these samples which will result in extremity doses are estimated to occur for 1 minute per sample source. The extremity dose due to these activities is estimated to be 731 mrem.
5. During the 25 minutes allotted for sample analysis, the samples required for chemical analysis are assumed to be outside the hot cell, resulting in an estimated whole body dose of 22.9 mrem. The extremity dose assumes contact with these sources for 2 minutes each. The extremity dose due to these activities is estimated to be 1463 mrem.
6. The dose due to the activities denoted by \* are attributed to the individual stationed at the PASS Remote Operating Module location (see Assumption 3). This individual is assumed to be in this location for the duration of the sampling process. During this period (2:46:27) the dose received by this individual is conservatively estimated to be 1,387 mrem.

TABLE 2A  
PASS DOSE ASSESSMENT  
Entry to Sample Room, Without Cart (a)

Area (See Figs. 1&2)	Distance Traveled(ft)	Radiation Zone	Time Req'd (min:sec)	Dose (mrem)	Remarks
31	144	II	0:36	5.0	
31	-0-	II	0:02	0.3	door entry
24	52	II	0:13	1.8	
24	-0-	II	0:02	0.3	door entry
25	32	II	0:08	1.1	
33	-0-	II	5:00	41.7	anti-C cloth- ing station, pre-entry.
25	116	II	0:29	4.0	
25	-0-	II	0:10	1.4	security door entry
207	12	III	0:03	4.2	
207	-0-	III	0:02	2.8	door entry
82	56	III	0:14	19.4	
82	36	IV	0:09	125	
82	-0-	IV	0:02	27.8	door entry
78	28	III	0:07	9.7	
TOTALS			7:17	244.5	

(a) Corresponds to Activity 2 in Tables 1 & 2.

TABLE 2B  
PASS DOSE ASSESSMENT (a)

Exit From Sample Room, Without Cart(a)

Area # (See Figs. 1 & 2)	Distance Traveled(ft)	Radiation Zone	Time Req'd (min:sec)	Dose (mrem)	Remarks
78	28	III	0:07	9.7	
78	-0-	III	0:02	2.8	door exit
82	36	IV	0:09	125	
82	56	III	0:14	19.4	
82	-0-	III	0:02	2.8	door exit
207	12	III	0:03	4.2	
207	-0-	III	0:10	14.0	security door exit
25	88	II	0:22	3.1	
22	-0-	II	5:00(b)	41.7	anti-C clothing station, post- entry
25	60	II	0:15	2.1	
25	-0-	II	0:02	0.3	door exit
24	52	II	0:13	1.8	
24	-0-	II	0:02	0.3	door exit
31	144	II	0:36	5.0	
TOTALS			7:17	232.2	

(a) Corresponds to Activity 3 in Tables 1 & 2.

(b) Activity 7(a) (see Tables 1 & 2) begins 1 minute after the start of this step.

Total elapsed time attributed to Activity 7(a) is 0:00.

TABLE 2C  
PASS DOSE ASSESSMENT  
Entry to Sample Room, With Cart(a)

Area # (See Figs. 1 & 2)	Distance Traveled (ft)	Radiation Zone	Time Req'd (min:sec)	Dose (mrem)	Remarks
			1:12	10.0	
31	144	II	0:02	0.3	door entry
31	-0-	II	0:26	3.6	
24	52	II	0:02	0.3	door entry
24	-0-	II	0:16	2.2	
25	32	II	5:00(b)	41.7	anti-C cloth- ing station, pre-entry
33	-0-	II			
		II	0:58	8.0	
25	116	II	0:10	1.4	security door entry
25	-0-				
		III	0:06	8.3	
207	12	III	0:05	7.0	door entry
207	-0-	III	0:28	38.8	
82	56	III	0:18	250	
82	36	IV	0:05	70.0	door entry
82	-0-	IV	0:08	11.2	
78	16	III			
TOTALS			9:12	452.8	

(a) Corresponds to Activity 20 in Tables 1 & 2.

(b) The amount of elapsed time attributed to Activity 20 starts 4 minutes into this step. Steps prior to this are performed concurrently with Activities 16(a) and 16(b).

Total elapsed time attributed to Activity 20 is 3:18.

TABLE 2D  
PASS DOSE ASSESSMENT  
Exit From Sample Room, With Cart(a)

Area # (See Figs. 1)	Distance Traveled(ft)	Radiation Zone	Time Req'd (min:sec)	Dose (mrem)	Remarks
78	16	III	0:08	11.2	
78	-0-	III	0:02	2.8	door exit
82	36	IV	0:18	250	
82	56	III	0:28	38.8	
82	-0-	III	0:02	2.8	door exit
207	12	III	0:06	11.2	
207	-0-	III	0:10	13.9	security door exit
25	32	II	0:16	2.2	
25	-0-	II	0:10	13.9	Security door entry to hot laboratory
30	32	II	0:16	2.2	
30	-0-	II	2:00	16.7	unload samples and place in hot cell
30	-0-	N/A	(1:00)	5.3	dose due to sample handling.(b) Concurrent with the above activity
30	32	II	0:16	2.2	
30	-0-	II	0:10	1.4	security door exit from hot laboratory
25	72	II	0:36	5.0	
22	-0-	II	5:00(c)	41.7	anti-C clothing station, post- entry

TABLE 2D  
PASS DOSE ASSESSMENT  
Exit From Sample Room, With Cart(a)

Page 2 of 2

Area # (see Figs 1 & 2)	Distance Traveled(ft)	Radiation Zone	Time Req'd. (min:sec)	Dose (mrem)	Remarks
25	60	II	0:30	4.2	
25	-0-	II	0:02	0.3	door exit
24	52	II	0:26	3.6	
24	-0-	II	0:02	0.3	door exit
31	144	II	1:12	10.0	
TOTALS			21:12	439.7	

(a) Corresponds to Activity 22 in Tables 1 & 2

(b) Extremity dose due to this action is 165 mrem.

(c) Activity 23 (see Tables 1 & 2) begins 1 minute after the start of this action.

Total elapsed time attributed to Activity 23 is 18:48.

TABLE 3

POST ACCIDENT SAMPLING SYSTEM  
CONTAINMENT ISOLATION VALVES

Reactor Coolant PASS

Influent Isolation Valves:

HV-4168.....IRC<sup>(1)</sup>  
 HV-4169.....IRC<sup>(2)</sup>  
 HV-4170.....ORC<sup>(2)</sup>  
 HV-4182<sup>(3)</sup>...ORC

Effluent Isolation Valves:

HV-7311.....ORC  
 HV-7312.....IRC

Containment Air PASS

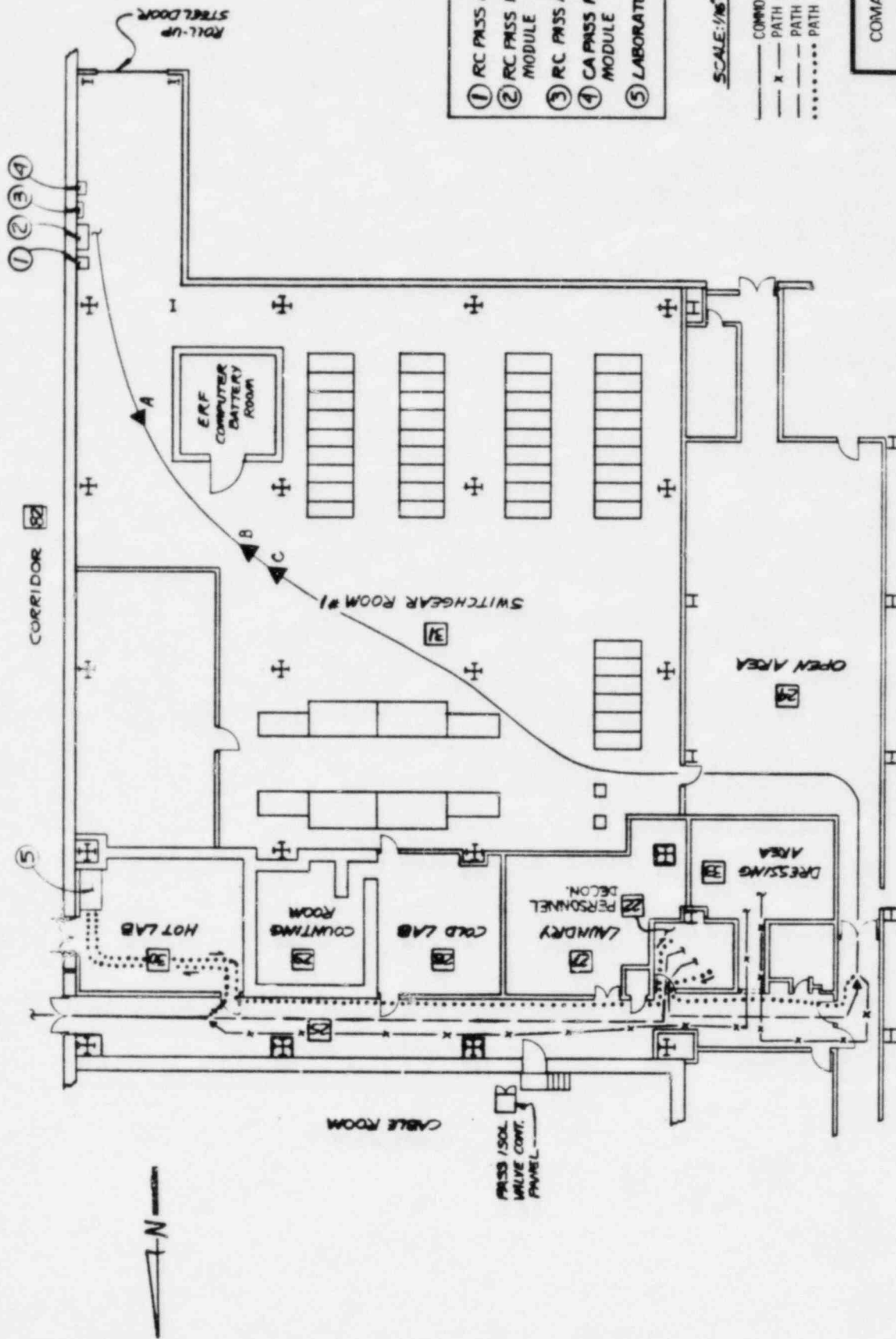
Influent Isolation Valves:

HV-5559.....IRC  
 HV-5558.....ORC  
 HV-5561.....IRC  
 HV-5560.....ORC

Effluent Isolation Valves:

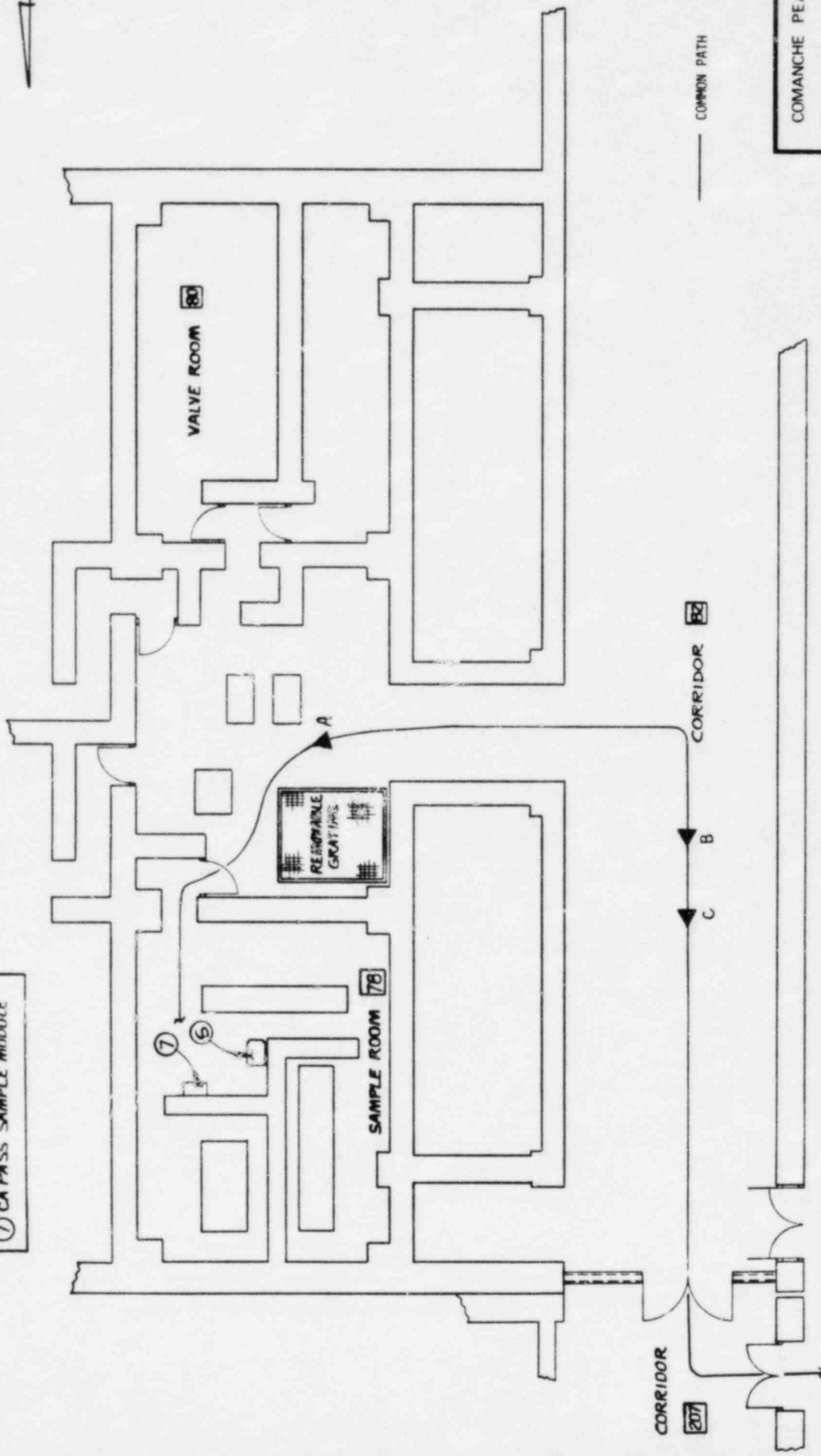
HV-5556.....ORC  
 HV-5557.....IRC

- 
- (1) IRC designates valves "Inside Reactor Containment".
  - (2) ORC designates valves "Outside Reactor Containment".  
 All valves designated "ORC" are in the Safeguards Bldg.
  - (3) Valve HV-4182 isolates the sample path from the RHR system.  
 This path samples the Containment Sump water when in the  
 recirculation mode of operation.





- ⑥ RC PASS SAMPLE MODULE
- ⑦ CA PASS SAMPLE MODULE



COMMON PATH

COMANCHE PEAK S.E.S.
UNITS 1 and 2
PASS Access/Egress Paths - Safeguards Bldg.
FIGURE 2

SCALE: 1/8"=1'-0"