

TEXAS UTILITIES GENERATING COMPANY  
SKYWAY TOWER • 400 NORTH OLIVE STREET, L.B. 81 • DALLAS, TEXAS 75201

Log # TXX-4306  
File # 10010

September 24, 1984

Director of Nuclear Reactor Regulation  
Attention: Mr. B. J. Youngblood, Chief  
Licensing Branch No. 1  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION  
DOCKET NOS. 50-445 AND 50-446  
RESPONSE TO B. J. YOUNGBLOOD LETTER TO  
M. D. SPENCE DATED JULY 26, 1984,  
"Technical Evaluation Report Regarding  
Control of Heavy Loads (Phase II-NUREG-0612)  
for CPSES

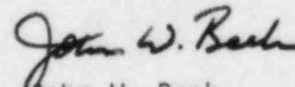
- REF: (1) H. C. Schmidt letter to B. J. Youngblood  
dated June 8, 1983.
- (2) H. C. Schmidt letter to B. J. Youngblood  
dated July 12, 1984.

Dear Mr. Youngblood:

As directed by your July 26, 1984 letter, a conference call was held August 30, 1984 with the NRC to resolve open items associated with handling of heavy loads at CPSES. Additional information to close out these items is provided by this letter.

Also, a conference call was held on September 6, 1984 to discuss Reference 2. The documentation requested during the call is provided as Attachment D to this letter.

Sincerely,

  
John W. Beck

RWH/grr  
Attachment

cc - Mr. J. J. Stefano  
Mr. Amarjit Singh

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PDR ADOCK 05000445  
A PDR

CPSES RESPONSE TO JULY 26, 1984 NRC  
LETTER ON HANDLING OF HEAVY LOADS

Section

2.3.1

The auxiliary hoists of the Fuel Building Overhead Crane cannot physically travel any closer than 6' 3" from the nearest spent fuel pool. Heavy loads (> 2150 lbs.) handled within 15 feet of the spent fuel pools by the auxiliary hoists will maintain a load orientation such that the worst case postulated drop will not result in the load center of gravity extending past the edge of the spent fuel pools.

2.3.2

- (1) Heavy loads carried by the Containment Auxiliary Upper Crane and the Polar Crane Auxiliary Hoist shall not traverse an open reactor vessel as per Attachment A which provides updated figures from Reference 1.
  
- (2) CPSES does not arbitrarily exempt a load handling system from carrying heavy loads even though a heavy load has not been identified for that system. In the event that a heavy load is required to be handled by such a system, an engineering evaluation is made to consider which of the following is applicable to the system:
  - a) redundant shutdown and/or decay heat removal systems exist
  - b) load restrictions are necessary
  - c) single-failure-proof protection, administrative control and/or further engineering evaluation on postulated load drops is required.

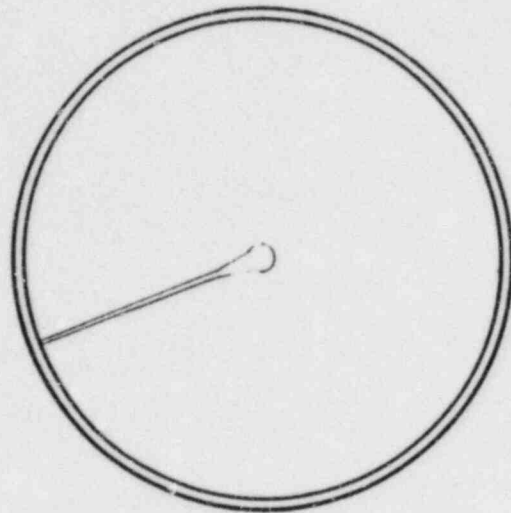
2.3.3

- (1) Attachment B provides updated tables from Reference 1.
- (2) Attachment C, as an update to Reference 1, provides plant specific data for the single-failure-proof Safety Related Chiller Hoist and Auxiliary Filter Hoist. These hoists have been installed and testing will be completed prior to initial criticality at CPSES.

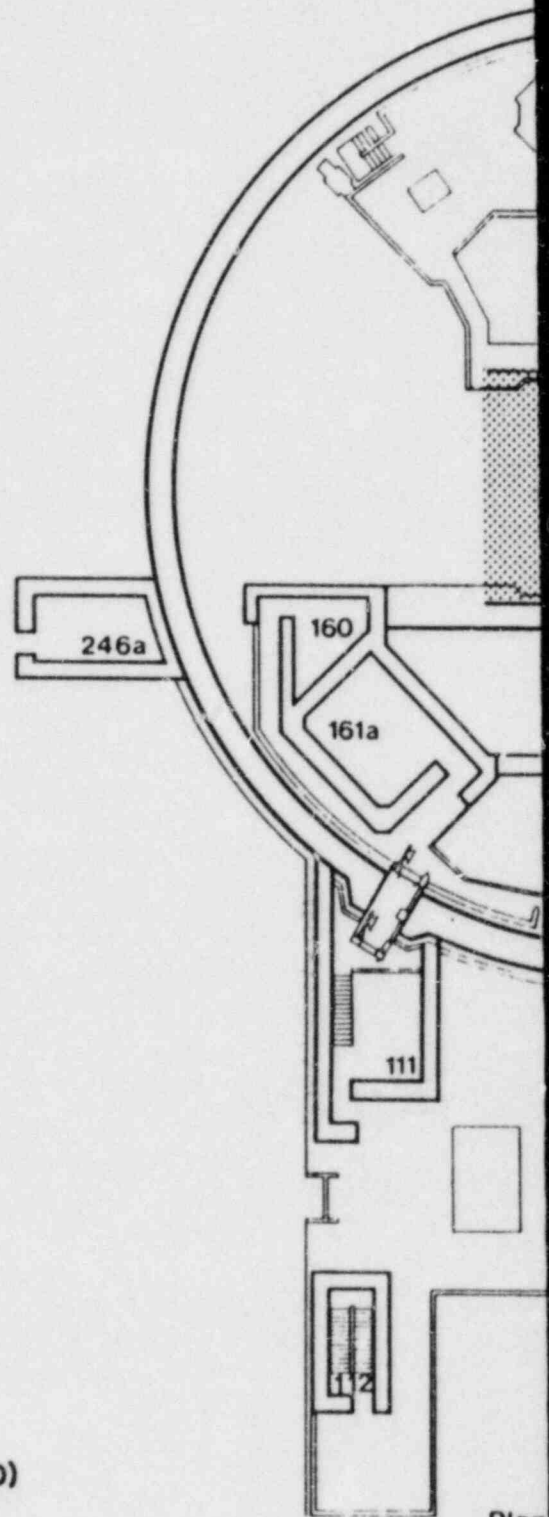
2.3.4



CPSES currently has four single-failure-proof systems: the Polar Crane (1/Unit), Fuel Building Overhead Crane (1/Unit), Safety Related Chiller Hoist (1/Unit) and Auxiliary Filter Hoist (Shared). The Reactor Vessel Head Lift Rig and the Internals Lift Rig have been evaluated for acceptability in WCAP-10156 Rev. 1. When obtained, other special lifting devices required for single-failure-proof systems will also be evaluated to meet the requirements of NUREG-0612.

ATTACHMENT A

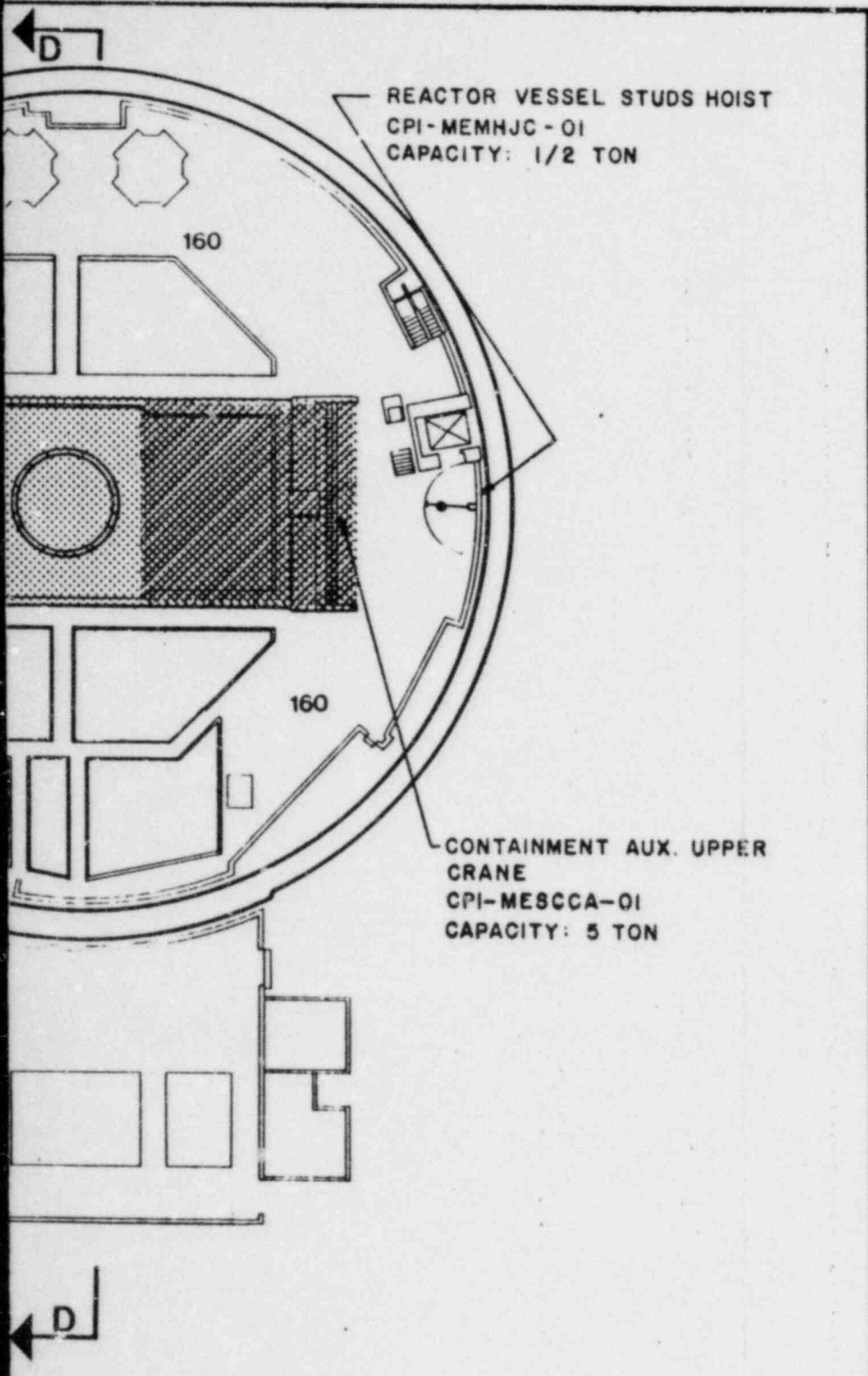


Plan of Containment Dome Platform  
at EL. 1000'-6"



- 
 AUX. UPPER CRANE  
SAFE LOAD AREA  
(WITH REACTOR VESSEL HEAD INSTALLED)
- 
 AUX. UPPER CRANE  
SAFE LOAD AREA  
(WITH REACTOR VESSEL HEAD REMOVED)

Plan



REACTOR VESSEL STUDS HOIST  
CPI-MEMHJC-01  
CAPACITY: 1/2 TON

160

160

CONTAINMENT AUX. UPPER  
CRANE  
CPI-MESCCA-01  
CAPACITY: 5 TON

s at EL. 905'-9" & 896'-4"

Plans at Elevations 905'-9",  
896'-4" & 1000'-6"

Rm. #	Rm. Name
111	Emergency Airlock Access
112	Stair No. 8-1
160	Operating Room
160	Valve Room
161a	Pressurizer Compartment
246a	Penthouse

TI  
APERTURE  
CARD

Also Available On  
Aperture Card

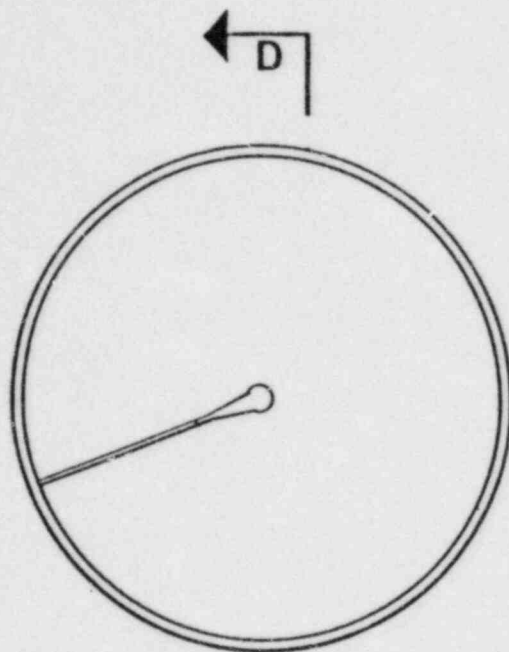
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COMANCHE PEAK S.E.S.

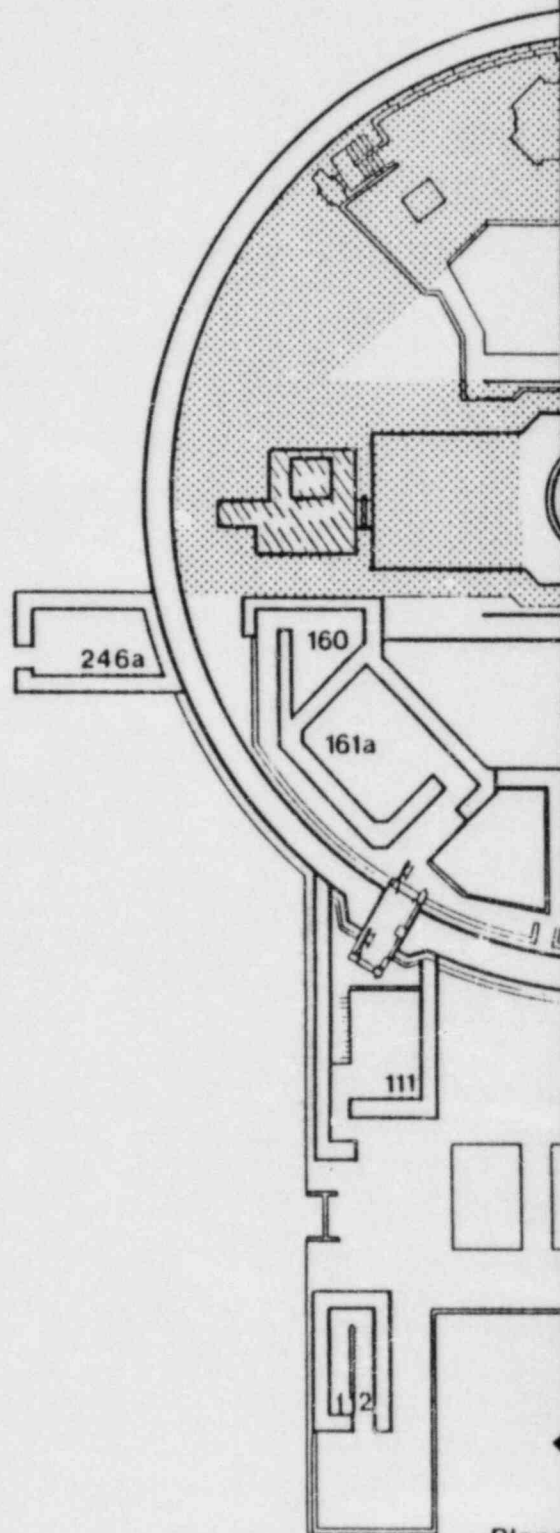
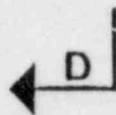
UNITS 1 and 2


CONT. & SAFEGUARD BLDG.  
CONT. AUX. UPPER CRANE  
AND VESSEL STUDS HOIST

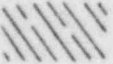
FIGURE A-10



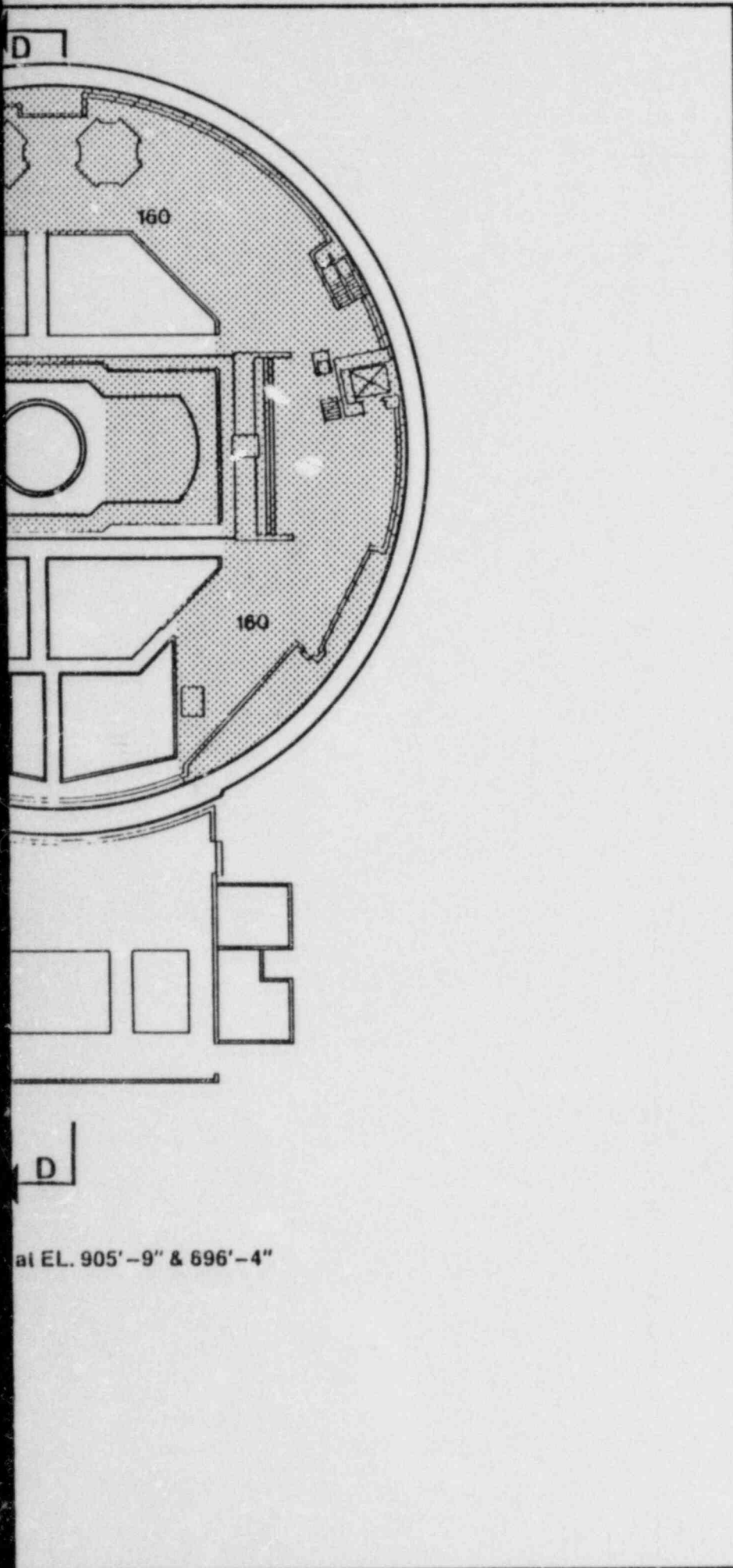
Plan of Containment Dome Platform  
at EL. 1000'-6"




 POLAR CRANE, POLAR CRANE  
 AUX. HOIST, AND CONTAINMENT  
 ACCESS ROTATING PLATFORM  
 HOIST SAFE LOAD AREA.


 SAFE LOAD AREA ONLY WHEN  
 SPENT FUEL IS NOT  
 IN THIS AREA.

Plans



at EL. 905'-9" & 696'-4"

Plans at Elevations 905'-9",  
896'-4" & 1000'-6"

Rm. #	Rm. Name
111	Emergency Airlock Access
112	Stair No. 8-1
160	Operating Room
160	Valve Room
161a	Pressurizer Compartment
246a	Penthouse

**TI  
APERTURE  
CARD**

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Aperture Card

REVISION 1

**8410020222-02**

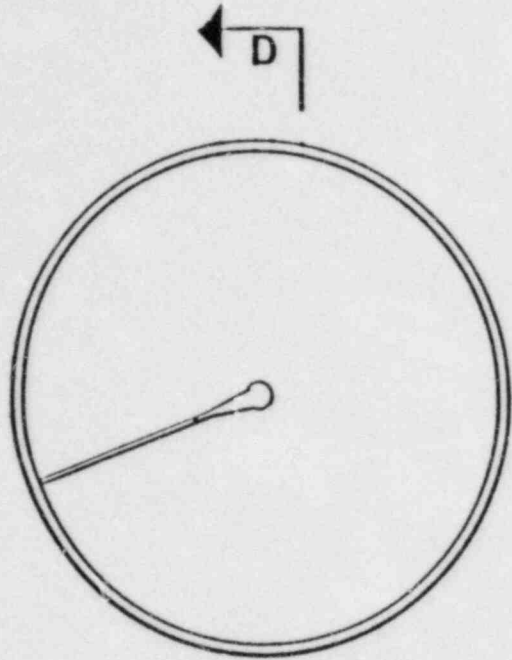
COMANCHE PEAK S.E.S.

UNITS 1 and 2

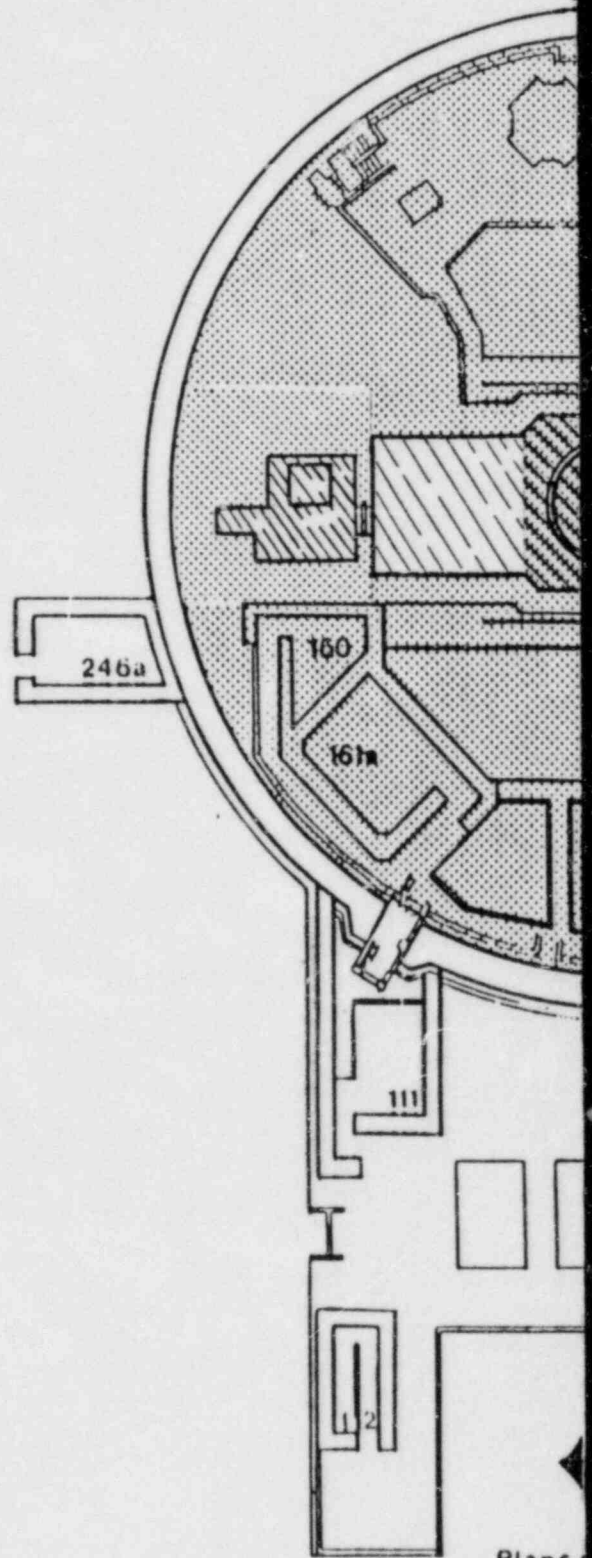
CONTAINMENT & SAFEGUARD BLD'G.  
CONT. POLAR CRANE SAFE LOAD  
AREA FOR HOT SHUTDOWN




FIGURE A-11A



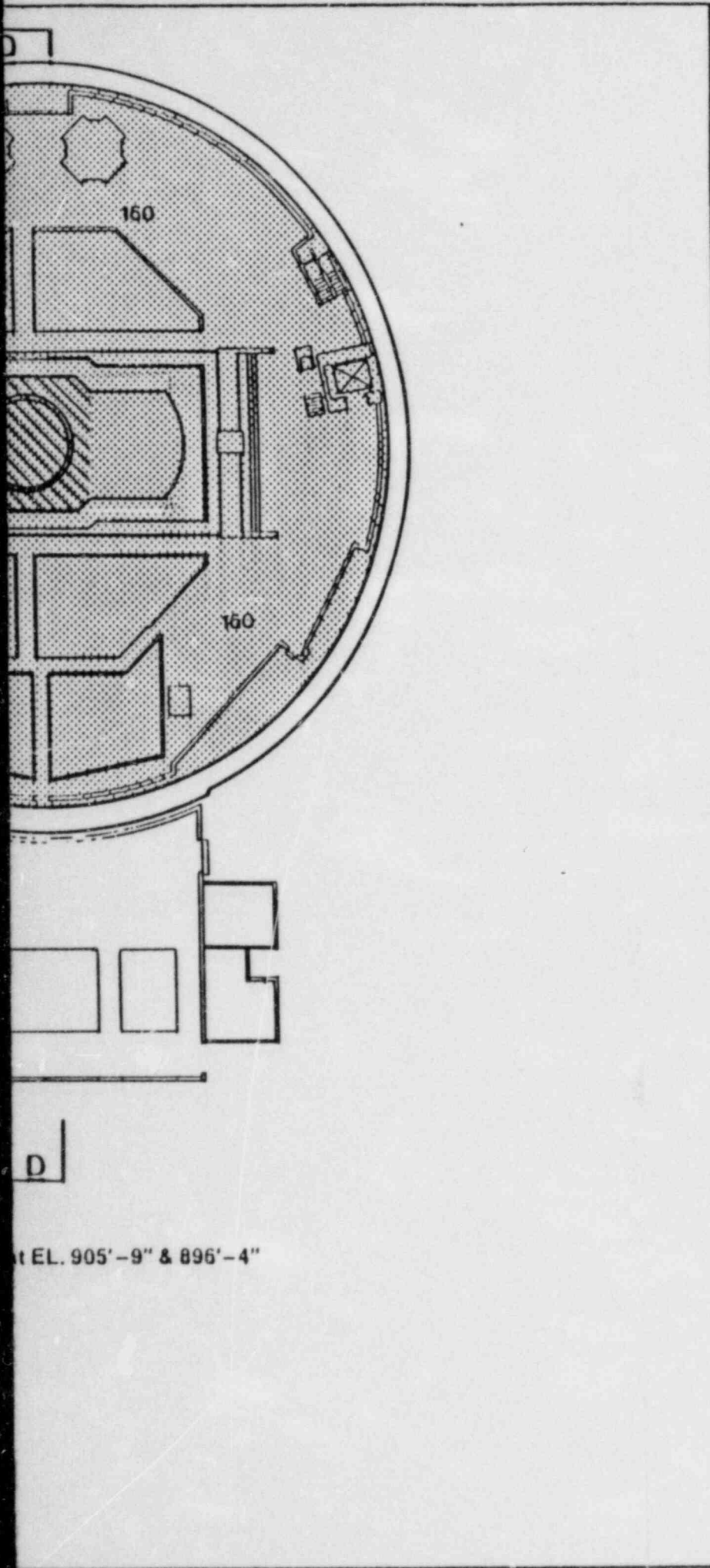


Plan of Containment Dome Platform  
at EL. 1000'-6"



- 
 POLAR CRANE, POLAR CRANE  
AUX. HOIST, AND CONTAINMENT  
ACCESS ROTATING PLATFORM  
HOIST SAFE LOAD AREA.
- 
 SAFE LOAD AREA ONLY WHEN  
REACTOR VESSEL HEAD IS  
INSTALLED OR SPENT FUEL  
IS NOT IN THE REACTOR VESSEL.
- 
 SAFE LOAD AREA ONLY WHEN  
SPEN. FUEL IS NOT  
IN THIS AREA.

Plans



Plans at Elevations 905'-9",  
896'-4" & 1000'-6"

Rm. #	Rm. Name
111	Emergency Airlock Access
112	Stair No. 8-1
160	Operating Room
160	Valve Room
161a	Pressurizer Compartment
246a	Penthouse

Also Available On  
Aperture Card

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CARD**

REVISION 1

**8410020222-03**

COMANCHE PEAK S.E.S

UNITS 1 and 2

CONTAINMENT & SAFEGUARD BLD'G.  
CONT. POLAR CRANE SAFE LOAD  
AREA FOR COLD SHUTDOWN

FIGURE A-11B

ATTACHMENT B

CPSES  
TABLE A-1  
(Sheet 1 of 3)

OVERHEAD LOAD HANDLING SYSTEMS WITH POTENTIAL FOR LOAD DROP ON SPENT FUEL OR SYSTEMS  
REQUIRED FOR PLANT SHUTDOWN OR DECAY HEAT REMOVAL

<u>Crane/Hoist Name</u>	<u>Crane/Hoist I.D. No.</u>	<u>Location</u>	<u>Elevation</u>	<u>Capacity (Tons)</u>	<u>Equipment and/or Piping Along the Load Path</u>
1. Fuel building overhead crane.	CPX-MESCFC-01	Fuel Bldg.	Above 860'	130-17-5	Spent fuel pool cooling piping. Spent fuel transfer area.
2. Containment auxiliary upper cranes.	CP1-MESCCA-01 CP2-MESCCA-01	Containment Bldg.	905'-9"	5	Reactor vessel.
3. Containment polar cranes.	CP1-MESCCP-01 CP2-MESCCP-01	Containment Bldg.	950'-7"	175-20	Reactor vessel. Steam generator. Reactor coolant pumps. Reactor coolant piping.
4. Moderating Heat Exchanger (HX) and letdown chiller HX hoist.	CP1-MEMHCH-16 CP2-MEMHCH-16	Safeguards Bldg.	831'-6"	2	Train "A" electrical tray (cabling for Auxiliary Feedwater System, Component Cooling Water (CCW) System Motor operated valves) located near the monorail.
5. Component Cooling Water (CCW) pump hoist.	CPX-MEMHCH-01	Auxiliary Bldg.	810'-6"	4	CCW pump and associated piping.
6. Safety related chiller hoist (Single-Failure-Proof).	CP1-MEMHCH-04A CP2-MEMHCH-04A	Auxiliary Bldg.	778'	3	CCW piping connected to the chiller. Train "A" Chiller Unit. Train "B" Chiller Unit.
7. Centrifugal charging pumps hoist.	CP1-MEMHCH-01, 02 CP2-MEMHCH-01, 02	Auxiliary Bldg.	810'-6"	4	Centrifugal charging pump and associated piping and valves.
8. Containment fuel handling bridge crane.	CP1-MESCCF-01 CP2-MESCCF-01	Containment Bldg.	Above 860'	1	Containment fuel transfer area and fuel rack.
9. Auxiliary feedwater pump hoist (electric driven pump).	CP1-MEMHCH-13, 14 CP2-MEMHCH-13, 14	Safeguards Bldg.	790'-6"	4	Motor driven auxiliary feedwater pumps, piping and valves.
10. Auxiliary feedwater pump hoist (turbine driven pump).	CP1-MEMHCH-12 CP2-MEMHCH-12	Safeguards Bldg.	790'-6"	3	Turbine driven auxiliary feedwater pump, piping and valves.

CPSES  
TABLE A-1  
(Sheet 2)

OVERHEAD LOAD HANDLING SYSTEMS WITH POTENTIAL FOR LOAD DROP ON SPENT FUEL OR SYSTEMS  
REQUIRED FOR PLANT SHUTDOWN OR DECAY HEAT REMOVAL

Crane/Hoist Name	Crane/Hoist I.D. No.	Location	Elevation	Capacity (Tons)	Equipment and/or Piping Along the Load Path
11. Auxiliary filter hoist.	CPX-MEMHWR-04	This hoist has been re-classified as an exempt hoist and is listed in Table A-2.			
12. Reactor coolant pumps hoist.	CP1-MEMHCH-42 CP2-MEMHCH-42	Containment Bldg.	905'-9"	45 Upgraded to 45 tons per DCA-9035	Same as polar crane. See Note 1.
13. Diesel generator (piston) hoist.	CP1-MEMHCH-37, 38 CP2-MEMHCH-37, 38	Safeguards Bldg.	810'-6"	1	Diesel generator and its associated piping and instrumentation.
14. Spent fuel pool HX hoist.	CPX-MEMHCH-69, 70	Fuel Bldg.	838'-9"	8	Spent fuel pool heat exchangers, piping and valves.
15. Service water traveling screen hoist and jib crane.	CPX-MEMHCH-12 CPX-SWEHSG-01	Outside of service water structure	838'	20 3	Traveling screens and stop gates.
16. Residual heat removal (RHR) HX and Containment Spray System (CSS) HX hoist.	CP1-MEMHCH-47, 59 CP2-MEMHCH-17, 59	Safeguards Bldg.	831'-6"	10	RHR & CSS heat exchanger and its associated piping and valves.
17. Main steam safety valves hoist.	CP1-MEMHCH-48,49,50,51 CP2-MEMHCH-48,49,50,51	Safeguards Bldg.	880'-6"	1	Main steam safety valves.
18. Service water intake structure crane.	CPX-MESCSW-01	Service water structure	Above 796'	7 †	Service water pumps and its associated piping and valves.
19. Containment dome access rotating platform hoist.	CP1-MESCRP-01 CP2-MESCRP-02	Containment Bldg.	1000'	1	Reactor vessel. Fuel storage rack. Steam generator. Reactor coolant pumps. Reactor coolant piping.
20. Fuel handling bridge crane (Fuel Bldg.).	TBX-FHSCFB-01	Fuel Bldg.	Above 860'	2	Spent fuel pool. Refueling canal. New fuel storage pit.
21. Refueling machine (Containment Bldg.).	TBX-FHSCMC-01 TCX-FHSCMC-01	Containment Bldg.	Above 860'	2	Reactor vessel. Containment fuel transfer area.

| 1

CPSES  
TABLE A-1  
(Sheet 3)

OVERHEAD LOAD HANDLING SYSTEMS WITH POTENTIAL FOR LOAD DROP ON SPENT FUEL OR SYSTEMS  
REQUIRED FOR PLANT SHUTDOWN OR DECAY HEAT REMOVAL

<u>Crane/Hoist Name</u>	<u>Crane/Hoist I.D. No.</u>	<u>Location</u>	<u>Elevation</u>	<u>Capacity (Tons)</u>	<u>Equipment and/or Piping Along the Load Path</u>
22. Service water intake stop gate hoist.	CPX-MEMHCH-61	Service water intake structure	789'-9"	8	Service water pumps.
23. Auxiliary filter hoist (Single- Failure-Proof).	CPX-MEMHWR-04A	Auxiliary Bldg.	852'-6"	8	Service water piping, misc. filters.
24. Miscellaneous hoist.	CPX-MEMHCH-72	Fuel Bldg.	838'-9"	2	Spent fuel pool cooling pump inlet isolation valve.
25. Residual heat removal pump hoist.	CP1-MEMHCH-08 CP2-MEMHCH-09	Safeguards Bldg.	773'	3	RHR pump and its associated piping.

NOTE: 1. Reactor Coolant Pumps Hoist is attached to the Polar Crane Hooks during the maintenance operation of the Reactor Coolant Pump.

CPSES  
TABLE A-2  
(Sheet 1 of 3)

OVERHEAD LOAD HANDLING SYSTEMS  
CRANES AND HOISTS WHICH DO NOT REQUIRE ADDITIONAL REVIEW AND EVALUATION

<u>Crane/Hoist Name</u>	<u>Crane/Hoist I.D. No.</u>	<u>Location</u>	<u>Elevation</u>	<u>Capacity (Tons)</u>	<u>Separation Criteria (Note 1)</u>
1. Drumming storage area crane.	CPX-MESCDS-01	Fuel Bldg.	831'	17	B
2. Maintenance Bldg. bridge crane.	CPX-MESCMB-01	Maintenance Bldg.	810'	25	A
3. Turbine Bldg. gantry crane.	CP1-MESCTC-01 CP2-MESCTC-01	Turbine Bldg.	830'	Main hoist: 210 Aux. hoist: 50	A
4. Circulating water intake structure gantry crane.	CPX-MESCCW-01	Circulating water intake structure	810'	Main hoist: Inside span - 25 Outside span - 12 Aux. Hoist: 5	A
5. Equipment hatch door hoist.	CP1-MEMHCH-41	Containment Bldg.	832'-6" @ 223 degrees	10	C
6. Waste gas compressor hoist.	CPX-MEMHCH-05	Auxiliary Bldg.	831'-6"	1	C
7. Positive displacement charging pump hoist.	CP1-MEMHCH-03 CP2-MEMHCH-03	Auxiliary Bldg.	810'-6"	6	C
8. H <sub>2</sub> Recombiner hoist.	CPX-MEMHCH-07	Auxiliary Bldg.	831'-6"	1	C
9. Letdown chiller package hoist.	CP1-MEMHCH-05 CP2-MEMHCH-05	Auxiliary Bldg.	852'-6"	2	C
10. Heating & Ventilation chiller hoist.	CPX-MEMHCH-10	Auxiliary Bldg.	873'-6"	6	A
11. Heating & Ventilation chiller hoist.	CPX-MEMHCH-10	Auxiliary Bldg.	873'-6"	1	A
12. Letdown HX and seal water HX hoist.	CP1-MEMHCH-15 CP2-MEMHCH-15	Safeguards Bldg.	810'-6"	1 1/2	C
13. Condenser vacuum pumps hoist.	CP1-MEMHCH-25 CP2-MEMHCH-25	Turbine Bldg.	778'	4	A
14. Turbine plant cooling water pump hoist.	CPX-MEMHCH-11	Turbine Bldg.	778'	6	A
15. Heater drain pump hoist.	CP1-MEMHCH-28 CP2-MEMHCH-28	Turbine Bldg.	778'	4	A

CPSES  
TABLE A-2  
(Sheet 2)

OVERHEAD LOAD HANDLING SYSTEMS  
CRANES AND HOISTS WHICH DO NOT REQUIRE ADDITIONAL REVIEW AND EVALUATION

Crane/Hoist Name	Crane/Hoist I.D. No.	Location	Elevation	Capacity (Tons)	Separation Criteria (Note 1)
16. Control fluid tank hoist.	CP1-MEMHCH-29 CP2-MEMHCH-29	Turbine Bldg.	778'	3	A
17. Personnel lock hoist.	CP1-MEMHCH-30	Safeguards Bldg.	831'-6" @ 317 degrees	2	C
18. Reactor vessel studs hoist.	CP1-MEMHJC-01 CP2-MEMHJC-01	Containment Bldg.	905'-9"	1/2	A
19. Steam generator feedwater pump and turbine driver crane.	CP1-MEMHOC-01 CP2-MEMHOC-01	Turbine Bldg.	803'	10	A
20. Equipment hatch hoist @ 790'-6" for misc. equipment.	CP1-MEMHCH-45 CP2-MEMHCH-45	Safeguards Bldg.	790'-6"	4	A
21. Equipment hatch hoist @ 810'-6" for misc. equipment.	CP1-MEMHCH-46 CP2-MEMHCH-46	Safeguards Bldg.	810'-6"	4	A
22. Equipment hatch hoist @ 873'-6" for misc. ventilation equipment.	CPX-MEMHCH-52	Auxiliary Bldg.	873'-6"	1	A
23. Equipment hatch hoist @ 886'-6" for misc. ventilation equipment.	CPX-MEMHCH-53	Auxiliary Bldg.	886'-6"	1	A
24. Misc. equipment hoist.	CPX-MEMHCH-54	Unit 2, Turbine Bldg.	810'	2	A
25. Misc. equipment hoist.	CPX-MEMHCH-55	Unit 2, Turbine Bldg.	810'	1/2	A
26. Dry waste compactor hoist.	CPX-MEMHCH-56	Fuel Bldg.	810'-6"	2	A
27. Chlorine containers hoist.	CPX-MEMHCH-57	Service water chlorination bldg.	823'-9"	2	A
28. Chlorine containers hoist.	CPX-MEMHCH-58	Circ. water chlorination bldg.	809'-6"	2	A



CPSES  
TABLE A-2  
(Sheet 3)

OVERHEAD LOAD HANDLING SYSTEMS  
CRANES AND HOISTS WHICH DO NOT REQUIRE ADDITIONAL REVIEW AND EVALUATION

<u>Crane/Hoist Name</u>	<u>Crane/Hoist I.D. No.</u>	<u>Location</u>	<u>Elevation</u>	<u>Capacity (Tons)</u>	<u>Separation Criteria (Note 1)</u>
29. Auxiliary steam condensate cooler hoist.	CPX-MEMHCH-60	Auxiliary bldg.	778'	1	A
30. Containment equipment hatch hoist.	CPX-MEMHCH-67 CPX-MEMHCH-68	Outside Containment		25	A
31. Wall puller for letdown HX, moderating HX.	CP1-MEMHLH-01 CP2-MEMHLH-01	Safeguards Bldg.	810'-6" & 831'-6"	3/4	C
32. Demineralizers hoist.	CPX-MEMHWR-05	Auxiliary Bldg.	852'-6"	8	C
33. Radial arm stud tensioner hoists.	TBX-FHHCAH-01 TCX-FHHCAH-01	Containment Bldg.	Below 860'	2	D
34. Miscellaneous equipment hoist.	CP1-MEMHCH-64 CP2-MEMHCH-64	Safeguards Bldg.	852'-6"	3	A
35. Auxiliary filter hoist.	CPX-MEMHWR-04	Auxiliary Bldg.	852'-6"	8	C

1

Note 1: Separation criteria used is as follows:

- A - No safety related equipment located in, under or near the load path.
- B - Safety related equipment separated by barriers which have been analyzed for load drop.
- C - Equipment in, under, or near load path is not required for safe shutdown or decay removal.
- D - Load handling equipment not used except in safe shutdown and equipment in, under, or near load path is not required for decay heat removal.

CPSES  
TABLE A-3  
(Sheet 1 of 2)

OVERHEAD LOAD HANDLING SYSTEMS  
APPLICABLE CODE AND STANDARDS

<u>Crane/Hoist Name</u>	<u>Crane/Hoist I.D. No.</u>	<u>Location</u>	<u>Elevation</u>	<u>Capacity (Tons)</u>	<u>Code and Standards</u>
1. Fuel building overhead crane.	CPX-MESCFC-01	Fuel Bldg.	Above 860'	130-17-5	Crane Manufacturers Association of America (CMAA) Spec. No. 70 and ANSI B30.2-1967, Chapter 2-1.
2. Containment auxiliary upper cranes.	CP1-MESCCA-01 CP2-MESCCA-01	Containment Bldg.	905'-6"	5	CMAA Spec. No. 70 and ANSI B30.2-1967, Chapter 2-1.
3. Containment polar cranes.	CP1-MESCCP-01 CP2-MESCCP-01	Containment Bldg.	950'-7"	175-20	CMAA Spec. No. 70 and ANSI B30.2-1967, Chapter 2-1.
4. Moderating HX and letdown chiller HX hoist.	CP1-MEMHCH-16 CP2-MEMHCH-16	Safeguards Bldg.	831'-6"	2	ANSI B30.16-1973
5. Component cooling water pump hoist.	CPX-MEMHCH-01	Auxiliary Bldg.	810'-6"	4	ANSI B30.16-1973
6. Safety related chiller hoist (Single-Failure-Proof).	CP1-MEMHCH-04A CP2-MEMHCH-04A	Auxiliary Bldg.	778'	3	CMAA Spec. No. 70 and ANSI B30.16-1973
7. Centrifugal charging pumps hoist.	CP1-MEMHCH-01, 02 CP2-MEMHCH-01, 02	Auxiliary Bldg.	810'-6"	4	ANSI B30.16-1973
8. Containment fuel handling bridge crane.	CP1-MESCCF-01 CP2-MESCCF-01	Containment Bldg.	Above 860'	1	CMAA Spec. No. 70 and ANSI B30.2-1967, Chapter 2-1.
9. Auxiliary feedwater pump hoist (electric driven pump).	CP1-MEMHCH-13, 14 CP2-MEMHCH-13, 14	Safeguards Bldg.	790'-6"	4	ANSI B30.16-1973
10. Auxiliary feedwater pump hoist (turbine driven pump).	CP1-MEMHCH-12 CP2-MEMHCH-12	Safeguards Bldg.	790'-6"	3	ANSI B30.16-1973
11. Auxiliary filter hoist.	CPX-MEMHWR-04	This hoist has been re-classified as an exempt hoist and is listed in Table A-2.   1			
12. Reactor coolant pumps hoist.	CP1-MEMHCH-42 CP2-MEMHCH-42	Containment Bldg.	905'-9"	45	ANSI B30.16-1973

CPSES  
TABLE A-3  
(Sheet 2)

OVERHEAD LOAD HANDLING SYSTEMS  
APPLICABLE CODE AND STANDARDS

Crane/Hoist Name	Crane/Hoist I.D. No.	Location	Elevation	Capacity (Tons)	Code and Standards
13. Diesel generator (piston) hoist.	CP1-MEMHCH-37, 38 CP2-MEMHCH-37, 38	Safeguards Bldg.	810'-6"	1	ANSI B30.16-1973
14. Spent fuel pool HX hoist.	CPX-MEMHCH-43, 44	Fuel Bldg.	838'-9"	8	ANSI B30.16-1973
15. Service water traveling screen hoist and jib crane.	CPX-MEMHCH-12 CPX-SWEHSG-01	Outside of service water intake structure	838'	20 3	ANSI B30.16-1973 ANSI B30.16-1973
16. Residual heat removal HX and Containment Spray System hoist.	CP1-MEMHCH-47, 59	Safeguards Bldg.	831'-6"	10	ANSI B30.16-1973
17. Main steam safety valves hoist.	CP1-MEMHCH-48,49,50,51 CP2-MEMHCH-48,49,50,51	Safeguards Bldg.	880'-6"	1	ANSI B30.16-1973
18. Service water intake structure crane.	CPX-MESCSW-01	Service water intake structure	Above 796'	7 1/2	CMAA Spec. No. 70 and ANSI B30.2-1967, Chapter 2-1.
19. Containment dome access rotating platform hoist.	CP1-MESCRP-01 CP2-MESCRP-01	Containment Bldg.	1000'	1	CMAA Spec. No. 70 and ANSI B30.2-1967, Chapter 2-1.
20. Fuel handling bridge crane (Fuel Bldg.).	TBX-FHSCFB-01	Fuel Bldg.	Above 860'	2	CMAA Spec. No. 70 and ANSI B30.2-1967, Chapter 2-1.
21. Refueling machine (Containment Bldg.).	TBX-FHSCMC-01 TCX-FHSCMC-01	Containment Bldg.	Above 860'	2	CMAA Spec. No. 70 and ANSI B30.2-1967, Chapter 2-1.
22. Service water intake stop gate hoist.	CPX-MEMHCH-61	Service water intake structure	789'-9"	8	ANSI B30.16-1973
23. Auxiliary filter hoist (Single-Failure-Proof).	CPX-MEMHWR-04A	Auxiliary Bldg.	852'-6"	8	CMAA Spec. No. 70 and ANSI B30.16-1973,
24. Miscellaneous hoist.	CPX-MEMHCH-72	Fuel Bldg.	838'-9"	2	ANSI B30.16-1973
25. Residual heat removal pump hoist.	CP1-MEMHCH-08 CP2-MEMHCH-09	Safeguards Bldg.	773'	3	ANSI B30.16-1973

CPSES  
TABLE A-4  
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OVERHEAD LOAD HANDLING SYSTEM  
PROJECTED LOADS AND WEIGHTS

<u>CRANE/HOIST EQUIPMENT</u>	<u>I.D. NUMBER</u>	<u>LOCATION</u>	<u>ELEVATION</u>	<u>PROJECTED LOADS</u>	<u>APPROX. LOAD WTS.</u>	<u>ANTICIPATED LIFTING DEVICES</u>
1. Fuel building overhead crane.	CPX-MESCFC-01	Fuel Bldg.	860'	A. Spent Fuel Cask	220,000 lbs.	SLD
				B. New Fuel Assembly and Handling Tool	2,088 lbs.	NR
				C. New Fuel Shipment Cask	7,000 lbs.	S
				D. Fuel Transfer Canal Stop Gates	12,000 lbs.	S
2. Containment auxiliary upper crane.	CP1-MESCCA-01 CP2-MESCCA-01	Containment	905'	A. Reactor Vessel Stud Tensioning Device	4,000 lbs.	S
				B. Reactor Vessel Stud Transport Baskets (full)	6,200 lbs.	S
				C. Reactor Vessel Studs	570 lbs.	S
				D. Control Rod Drive Ventilation Ducts	1,000 lbs.	S
3. Containment polar crane.	CP1-MESCCP-01 CP2-MESCCP-01	Containment	950'	A. Reactor Vessel Head Assembly plus Rig Assembly plus Load Cell Linkage and Contingencies	336,218 lbs.	SLD
				B. Reactor Upper Internals	132,000 lbs.	SLD
				C. Reactor Lower Internals plus Lifting Rig plus Load Cell Linkage and Contingencies	290,000 lbs.	SLD
				- Internals Lifting Rig	18,350 lbs.	NR
				- Reactor Lower Internals	260,000 lbs.	SLD
				- Load Cell and Load Cell Linkage	2,930 lbs.	NR
				D. Reactor Coolant Pumps		
				- Pump Internals and Hoist	60,480 lbs.	S
				- Pump Impeller and Hoist	52,880 lbs.	S
				- Rotating Element and Hoist	12,880 lbs.	S
				- Pump Motor, Lifting Rig and Hoist	89,986 lbs.	S
- Motor Stator and Hoist	53,283 lbs.	S				
- Motor Rotor and Hoist	36,764 lbs.	S				
- Fly Wheel and Hoist	21,405 lbs.	S				
- Air Cooler and Hoist	7,280 lbs.	S				
E. Reactor Coolant Pump Motor Stand and Hoist	16,280 lbs.	S				
F. Fuel Storage Area Stop Gate	12,000 lbs.	S				

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(Sheet 2)

OVERHEAD LOAD HANDLING SYSTEM  
PROJECTED LOADS AND WEIGHTS

CRANE/HOIST EQUIPMENT	I.D. NUMBER	LOCATION	ELEVATION	PROJECTED LOADS	APPROX. LOAD WTS.	ANTICIPATED LIFTING DEVICES
4. Moderating Heat Exchanger (HX) and letdown chiller HX hoist.	CP1-MEMHCH-16 CP2-MEMHCH-16	Safeguards Bldg.	831'	A. Moderating HX Channel Head	268 lbs.	S
				B. Moderating HX Tube Bundle	1,515 lbs.	S
				C. Moderating HX Shell	2,558 lbs.	S
				D. Letdown Chiller HX Channel Head	357 lbs.	S
				E. Letdown Chiller HX Tube Bundle	1,357 lbs.	S
				F. Letdown Chiller HX Shell	1,905 lbs.	S
5. Component cooling water pump hoist.	CPX-MEMHCH-01	Auxiliary Bldg.	810'	A. Component Cooling Water Pump	6,500 lbs.	S
				B. Component Cooling Water Pump Base	3,300 lbs.	S
				C. Component Cooling Water Pump Motor	7,500 lbs.	SB
				D. Valves - 24"	1,040 lbs.	S
				E. Emergency Fan/Coil Unit Motor	200 lbs.	S
6. Safety related chiller hoist.	CP1-MEMHCH-04A CP2-MEMHCH-04A	Auxiliary Bldg.	778'	A. Cooler HX Tube Bundle	1,500 lbs.	S
				B. Condenser HX Tube Bundle	1,500 lbs.	S
				C. Chilled Water Circulating Pump	210 lbs.	S
				D. Chilled Water Pump Motor	546 lbs.	S
				E. Potential Transformers	1,500 lbs.	S
7. Centrifugal charging pump hoist.	CP1-MEMHCH-01, 02 CP2-MEMHCH-01, 02	Auxiliary Bldg.	810'	A. Centrifugal Charging Pump (CCP) (Total)	7,500 lbs.	S
				B. CCP Gear Assembly	2,700 lbs.	S
				C. CCP Motor (Total)	5,830 lbs.	SB
				D. CCP Motor Rotor	1,760 lbs.	S
				E. Lube Oil Cooler (Shell)	260 lbs.	S
				F. Emergency Fan/Coil Unit Motor	140 lbs.	S
8. Containment fuel handling bridge	CP1-MESCCF-01 CP2-MESCCF-01	Containment Bldg.	860'	A. Fuel Assembly and Lifting Tool	2,088 lbs.	NR
9. Auxiliary feedwater pump hoist (Motor driven).	CP1-MEMHCH-13, 14 CP2-MEMHCH-13, 14	Safeguards Bldg.	790'	A. Auxiliary Feedwater Pump	4,000 lbs.	S
				B. Auxiliary Feedwater Pump Motor	7,100 lbs.	SB
				C. Auxiliary Feedwater Pump Rotor	1,224 lbs.	S
				D. Auxiliary Feedwater Pump Casing	1,200 lbs.	S
10. Auxiliary feedwater pump hoist (Turbine Driven).	CP1-MEMHCH-12 CP2-MEMHCH-12	Safeguards Bldg.	790'	A. Auxiliary Feedwater Pump	4,000 lbs.	S
				B. Turbine Driver	2,800 lbs.	SB
				C. Auxiliary Feedwater Pump Rotor	1,150 lbs.	S
				D. Auxiliary Feedwater Pump Casing	1,300 lbs.	S
11. Auxiliary filter hoist.	CPX-MEMHWR-04	This hoist has been re-classified as an exempt hoist and is listed in Table A-2.				

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OVERHEAD LOAD HANDLING SYSTEM  
PROJECTED LOADS AND WEIGHTS

CRANE/HOIST EQUIPMENT	I.D. NUMBER	LOCATION	ELEVATION	PROJECTED LOADS	APPROX. LOAD WTS.	ANTICIPATED LIFTING DEVICES
12. Reactor coolant pump hoist.	CP1-MEMHCH-42 CP2-MEMHCH-42	Containment Bldg.	905'	A. Reactor Coolant Pump Internals	55,200 lbs.	S
				1. Pump Stator	47,600 lbs.	S
				2. Pump Rotating Element	7,600 lbs.	S
				B. Reactor Coolant Pump Motor and Lifting Rig	84,706 lbs.	SB
				1. Stator	48,003 lbs.	S
				2. Rotor	31,484 lbs.	S
				3. Flywheel	16,125 lbs.	S
C. Reactor Coolant Pump Motor Stand	7,000 lbs.	S				
	10,435 lbs.	S				
13. Diesel generator (piston) hoist.	CP1-MEMHCH-37, 38 CP2-MEMHCH-37, 38	Safeguards Bldg.	810'	A. Various Piping and Structural Components on or near Diesel Generator Set	2,000 lbs.	S
14. Spent fuel pool heat exchanger hoist.	CPX-MEMHCH-69, 70	Fuel Bldg.	838'	A. Spent Fuel Cooling Pump	2,500 lbs.	S
				B. Spent Fuel Cooling Motor	2,100 lbs.	S
				C. Spent Fuel Heat Exchanger		
				1. Shell	7,600 lbs.	SB
				2. Tube Bundle	7,400 lbs.	SB
D. Concrete Floor Plugs	8,985 lbs.	S				
15. Service water traveling screen hoist and jib crane.	CPX-MEMHCH-12 CPX-SWEHSG-01	Service Water Intake Structure	838'	A. Miscellaneous Parts, Traps, Chains, Housing, Chain Guides (Max.)	3,500 lbs.	SB
				B. Traveling Screen Unit	21,500 lbs.	SB
				C. Stop Gates	4,500 lbs.	SB
16. Residual heat removal and containment spray system HX hoist.	CP1-MEMHCH-47, 59 CP2-MEMHCH-47, 59	Safeguards Bldg.	831'	A. Containment Spray Heat Exchanger		
				1. Shell Body	7,300 lbs.	SB
				2. Tube Bundle	17,000 lbs.	SB
				B. RHR Heat Exchanger		
				1. Shell Body	7,750 lbs.	SB
				2. Tube Bundle	16,600 lbs.	SB
				C. Compartment Concrete Floor Plugs	11,045 lbs.	S
				D. Containment Spray System HX Support Beam	580 lbs.	S
				E. Miscellaneous Valves	200 lbs.	S

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(Sheet 4)

OVERHEAD LOAD HANDLING SYSTEM  
PROJECTED LOADS AND WEIGHTS

CRANE/HOIST EQUIPMENT	I.D. NUMBER	LOCATION	ELEVATION	PROJECTED LOADS	APPROX. LOAD WTS.	ANTICIPATED LIFTING DEVICES
17. Main steam safety valves hoist.	CP1-MEMHCH-48,49,50,51 CP2-MEMHCH-48,49,50,51	Safeguards Bldg.	880'	A. Main Steam Safety Valves	1,550 lbs.	S
18. Service water intake structure crane.	CPX-MESCWS-01	Service Water Intake Structure	796'	A. Service Water Pump Motor B. Fire Pump Jockey Pump C. Fire Pump Jockey Pump Motor D. Fire Pump Diesel Driven Pump E. Fire Pump Diesel Driven Pump Driver F. Fire Pump Diesel Driven Pump Gear G. Fire Pump Diesel Coupling H. Fire Pump (Electric Driven) Pump I. Fire Pump (Electric Driven) Motor	9,700 lbs. 525 lbs. 235 lbs. 4,730 lbs. 3,450 lbs. 1,450 lbs. 181 lbs. 4,730 lbs. 4,800 lbs.	S S S S SB S S S S
19. Containment dome access rotating platform hoist.	CP1-MESCRP-01 CP2-MESCRP-01	Containment Bldg.	1000'	A. Miscellaneous Tools B. Welding Equipment	200 lbs. 300 lbs.	S S
20. Fuel handling bridge crane (Fuel Bldg.).	TBX-FHSCFB-01	Fuel Bldg.	860'	A. Fuel Assembly and Tool B. Underwater Lighting Fixture	2,088 lbs. 300 lbs.	NR NR
21. Refueling machine (Containment bldg.).	TBX-FHSCMC-01 TCX-FHSCMC-01	Containment Bldg.	860'	A. Fuel Assembly, Rod Control Cluster & Gripper B. Control Rod Drive Shaft & Handling Fixture	1,854 lbs. 336 lbs.	NR NR
22. Service water intake stop gates hoist.	CPX-MEMHCH-61	Service Water Intake Structure	789'-9"	A. Service Water Pump Compartment Stop Gates	12,400 lbs.	S
23. Auxiliary filter hoist (Single-Failure-Proof)	CPX-MEMHWR-04A	Auxiliary Bldg.	852'-6"	A. Miscellaneous Filter B. Spent Filter Cask C. Concrete Floor Plug	20 lbs. 10,000 lbs. 12,875 lbs.	NR S S
24. Miscellaneous hoist.	CPX-MEMHCH-72	Fuel Bldg.	838'-9"	A. Spent Fuel Pool Cooling Pump Inlet Isolation Valve.	2,500 lbs.	S
25. Residual heat removal pump hoists.	CP1-MEMHCH-08 CP2-MEMHCH-09	Safeguards	773'	A. RHR Pump	6,000 lbs.	S

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TABLE A-4  
(Sheet 5)

OVERHEAD LOAD HANDLING SYSTEM  
PROJECTED LOADS AND WEIGHTS

<u>CRANE/HOIST EQUIPMENT</u>	<u>I.D. NUMBER</u>	<u>LOCATION</u>	<u>ELEVATION</u>	<u>PROJECTED LOADS</u>	<u>APPROX. LOAD WTS.</u>	<u>ANTICIPATED LIFTING DEVICES</u>
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\*LIFTING DEVICE SYMBOLS

S - Sling or Cable Arrangement  
SB - Sling or Spreader Bar Arrangement  
SLD - Special Lifting Device  
NR - None Required



ATTACHMENT C

CPSES  
TABLE C-3  
(Sheet 1 of 8)

SAFETY RELATED CHILLER HOIST DATA (NOTE 1)

Regulatory Position (Note 2)	Egerer Topical Report Section	Information to be Provided	Specific Crane Data
C.1.a	III.C(C.1.a)	1. The actual crane duty classification of the crane specified by the applicant.	1. The hoists have a Class D crane duty classification in accordance with CMAA Specification #70.
C.1.b	III.C(C.1.b)	1. The minimum operating temperature of the crane specified by the applicant.	1. The hoists were designed and fabricated for a minimum operating temperature of 40 degrees F.
C.2.a	III.C(C.2.a)	1. Provisions for accomodating or preventing load motion following a loss of one electrical phase.	1. The hoists are equipped with loss of phase protection that shuts the hoist down and sets the holding brake in the event of a loss of one phase.
C.2.a	III.B.2.a	2. Provisions for ensuring proper functioning of hoist and travel limits following a phase reversal.	2. The hoists' control system includes phase reversal protection that shuts the hoist down if a phase reversal occurs.
C.2.b	III.C(C.2.b) III.E.4	1. The maximum extent of load motion and the peak kinetic energy of the load following a drive train failure.	1. The hoists are designed such that the maximum load motion following a drive train failure is less than 1 foot and the maximum kinetic energy of the load is less than that resulting from 1 inch of free fall of the maximum critical load. The maximum load motion and kinetic energy is determined using the analyses described in Appendix I of Revision 3 of EDR-1, with a

CPSES  
TABLE C-3  
(Sheet 2)

SAFETY RELATED CHILLER HOIST DATA (NOTE 1)

Regulatory Position (Note 2 )	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
			conservative allowance for the kinetic energy and load motion contributed by the actuation of the Emergency Drum Brake.
		2. Provisions for actuating the Emergency Drum Brake prior to traversing with the load, when required to accommodate the load motion following a drive train failure.	2. The hoists utilize a Continuously Engaged Emergency Drum Brake.
C.3.e	III.C(C.3.e)	1. The maximum cable loading following a wire rope failure in terms of the acceptance criteria established in Section III.C (C.3.e).	1. The maximum cable loading following a wire rope failure in the hoist meets the maximum allowed by the acceptance criteria established in Section III.C(C.3.e).
C.3.f	--	1. Maximum fleet angle 2. Number of reverse bends 3. Sheave diameter	1. 3.5 degrees 2. None, other than the one between the wire rope drum and the first sheave in the load block. 3. Per CMAA Specification #70.
C.3.h	III.C(C.3.h) III.E.11	1. The maximum extent of motion and peak kinetic energy of the load following a single wire rope failure.	1. The hoists are designed such that the maximum load motion following a single wire rope failure is less

CPSES  
TABLE C-3  
(Sheet 3)

SAFETY RELATED CHILLER HOIST DATA (NOTE 1)

Regulatory Position (Note 2 )	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
C.3.i	III.C(C.3.i)	<ol style="list-style-type: none"><li data-bbox="694 970 1355 1031">1. The type of load control system specified by the applicant.</li><li data-bbox="694 1093 1355 1287">2. Whether interlocks are recommended by Regulatory Guide 1.13 to prevent trolley and bridge movements while fuel elements are being lifted and whether they are provided for this application.</li></ol>	<p data-bbox="1512 555 2094 934">than 1 foot and the maximum kinetic energy of the load is less than that resulting from 1 inch of free fall of the maximum critical load. The maximum load motion and kinetic energy is determined using the analyses described in Appendix I of Revision 3 of EDR-1, with a conservative allowance for the kinetic energy and load motion contributed by the actuation of the Emergency Drum Brake.</p> <ol style="list-style-type: none"><li data-bbox="1512 970 2094 1067">1. An Ederer wound rotor AC motor crane duty control system with an Eddy Current Brake is provided.</li><li data-bbox="1512 1093 2094 1287">2. The hoists will not be used to lift fuel elements from the reactor core or spent fuel racks. Therefore, interlocks to prevent trolley movement while hoisting have not been provided.</li></ol>
C.3.j	III.C(C.3.j)	<ol style="list-style-type: none"><li data-bbox="694 1323 1355 1481">1. The maximum cable and machinery loading that would result in the event of a high speed two blocking, assuming a control system malfunction that would allow the full breakdown</li></ol>	<ol style="list-style-type: none"><li data-bbox="1512 1323 2094 1481">1. The Energy Absorbing Torque Limiter (EATL) is designed such that the maximum machinery load, which would result in the event a two blocking occurs while lifting the rated load</li></ol>

CPSES  
TABLE C-3  
(Sheet 4)

SAFETY RELATED CHILLER HOIST DATA (NOTE 1)

Regulatory Position (Note 2 )	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
		torque of the motor to be applied to the drive motor shaft.	at the rated speed that allows the full breakdown torque of the motor to be applied to the drive shaft, will not exceed twice the machinery's design rating. In addition, the EATL design does not allow the maximum cable loading to exceed the acceptance criteria established in Section III.C (C.3.e) during the above described two-blocking.
		2. Means of preventing two blocking of auxiliary hoist, if provided.	2. An auxiliary hoist has not been provided.
C.3.k	III.C(C.3.k)	1. Type of drum safety support provided.	1. The design drum safety restraint designs shown in Figure 1 of Appendix H of Revision 3 of EDR-1 are used for the hoists drum.
C.3.o	--	1. Type of hoist drive to provide incremental motion.	1. A three speed crane drive control system with Eddy Current Braking provides incremental load motion.
C.3.p	--	1. Maximum trolley speed.	1. 120 FPM.
		2. Maximum bridge speed.	2. NA
		3. Type of overspeed protection for the trolley and bridge drives.	3. The trolley drive is powered by an AC motor that can inherently not

CPSES  
TABLE C-3  
(Sheet 5)

SAFETY RELATED CHILLER HOIST DATA (NOTE 1)

Regulatory Position (Note 2 )	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
			overspeed, since its maximum speed is limited by the 60 HZ line frequency. Therefore, an overspeed sensor that actuates the trolley and bridge drive brakes has not been provided.
C.3.q	--	1. Control station location.	1. The complete operating control system, including the emergency stop button, is located on a pendant.
--	III.D.1	1. The type of Emergency Drum Brake used, including type of release mechanism.	1. The Continuously Engaged Emergency Drum Brake System of the type shown in Figure 1 of Appendix H of Revision 3 of EDR-1 has been provided.
		2. The relative location of the Emergency Drum Brake.	2. The Emergency Drum Brake engages the wire rope drum.
		3. Emergency Drum Brake Capacity.	3. The Emergency Drum Brake in the hoists have a minimum capacity of 150% of that required to hold the design rated load.
--	III.D.2	1. Number of friction surfaces in EATL.	1. The EATL has 7 friction surfaces.
		2. EATL Torque Setting.	2. The specified EATL torque setting is approximately 130% of the rated

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(Sheet 6)

SAFETY RELATED CHILLER HOIST DATA (NOTE 1)

Regulatory Position (Note 2 )	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
--	III.D.3	1. Type of Failure Detection System.	motor torque at the design rated speed that corresponds to lifting the design rated load.  1. The drive train continuity detector and emergency drum brake actuator are of the type shown in Figure 1 of Appendix H of Revision 3 of EDR-1.
--	III.D.5	1. Type of Hydraulic Load Equalization System.	1. The hoists' Hydraulic Load Equalization System limits the impact forces applied to the equalizer and crane structure following a wire rope failure. The small amount of load motion that results from equalizer rotation has been considered in the analysis of load motion following a rope break in accordance with Appendix I of EDR-1.
--	III.D.6	1. Type of hook.  2. Hook design load.   3. Hook test load.	1. Hook has a single load path.  2. The hook's design rated load (DRL) is 3 tons. The hook's MCL is 2 tons with a 10:1 factor of safety on ultimate.  3. The test load for the hook will be 6 tons.

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TABLE C-3  
(Sheet 7)

SAFETY RELATED CHILLER HOIST DATA (NOTE 1)

Regulatory Position (Note 2 )	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
--	III.F.1	<ol style="list-style-type: none"> <li>1. Design rated load.</li> <li>2. Maximum critical load rating.</li> <li>3. Trolley weight (net).</li> <li>4. Trolley weight (with design rated load).</li> <li>5. Hook lift.</li> <li>6. Number of wire rope drums.</li> <li>7. Number of parts of wire rope.</li> <li>8. Drum size (pitch diameter).</li> <li>9. Wire rope diameter.</li> <li>10. Wire rope type.</li> <li>11. Wire rope material.</li> <li>12. Wire rope breaking strength.</li> <li>13. Wire rope yield strength.</li> <li>14. Wire rope reserve strength.</li> </ol>	<ol style="list-style-type: none"> <li>1. 3 tons.</li> <li>2. 2 tons.</li> <li>3. 3,500 lbs. (including hook)</li> <li>4. 7,500 lbs.</li> <li>5. 25 feet.</li> <li>6. The hoists have one wire rope drum.</li> <li>7. 4 parts per wire rope.</li> <li>8. 11 15/16 inches.</li> <li>9. 5/16 inch.</li> <li>10. 5x37 class IWRC.</li> <li>11. EIPS IWRC.</li> <li>12. 10,540 lbs.</li> <li>13. 6,851 lbs.</li> <li>14. .427</li> </ol>



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SAFETY RELATED CHILLER HOIST DATA (NOTE 1)

Regulatory Position (Note 2 )	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
		15. Number of wire ropes.	15. The hoists have two ropes.

NOTE 1: Completes Appendix B of Generic Licensing Topical Report EDR-1(P)-A, Revision 3,  
"Nuclear Safety Related Extra-Safety and Monitoring (X-SAM) Cranes."

NOTE 2: Regulatory Guide 1.104 (Revision 1, Draft 3), October 1978.

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(Sheet 1 of 6)

SUMMARY OF REGULATORY POSITIONS TO BE  
ADDRESSED BY THE APPLICANT  
FOR COMANCHE PEAK STATION SAFETY RELATED CHILLER HOIST

Regulatory Position (Note 2)	Ederer Topical Report Section (Note 1)	Information to be Provided	Specific Crane Data
--	III.C(C.1.b(1))	1. The extent of venting of closed box sections.	1. Closed box sections are not vented since the building that houses the hoists is not pressurized.
C.1.b(3) C.1.b(4) C.4.d	III.C(C.1.b(3)) III.C(C.1.b(4)) III.C(C.4.d)	1. The monorail and its supports have been upgraded to meet Seismic Category I requirements. Impact test data for the monorail and its supports is not available.	1. The monorail and its supports has been upgraded to meet Seismic Category I requirements. Impact test data for the monorail and its supports is not available.
C.1.c	III.C(C.1.c)	1. The extent the crane's structures, which are not being replaced, are capable of meeting the seismic requirements of Regulatory Guide 1.29.	1. Safety related monorail structures have been replaced where necessary to be capable of meeting the seismic requirements of Regulatory Guide 1.29.
C.1.d	III.C(C.1.d)	1. The extent weld joints in the crane's structures, which are not being replaced, were nondestructively examined, and  2. The extent the base material, at joints susceptible to lamellar tearing, was nondestructively examined.	1. There are no welds in the monorail structures.  2. This criteria is not applicable since there are no weld joints in the monorail structures.

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SUMMARY OF REGULATORY POSITIONS TO BE  
ADDRESSED BY THE APPLICANT  
FOR COMANCHE PEAK STATION SAFETY RELATED CHILLER HOIST

Regulatory Position (Note 2 )	Ederer Topical Report Section (Note 1)	Information to be Provided	Specific Crane Data
C.1.e	III.C(C.1.e)	1. The extent the crane's structures, which are not being replaced, are capable of withstanding the fatigue effects of cyclic loading from previous and projected usage, including any construction usage.	1. The hoists will not be used for any major construction lifts. All past and projected use of the crane, at a maximum loading of 3 tons, is well within the cyclic loading capability of the hoist's structure.
C.1.f	III.C(C.1.f)	1. The extent the crane's structures, which are not being replaced, were post-weld heat-treated in accordance with Subarticle 3.9 of AWS D1.1, "Structural Welding Code."	1. The material thicknesses of the monorail structure are such that paragraph III.C(C.1.f) of EDR-1 does not require post-weld heat-treatment.
C.2.b	III.C(C.2.b) III.E.4	1. Provisions for accommodating the load motion and kinetic energy following a drive train or wire rope failure when the load is being traversed and when it is being raised and lowered.	1. Administrative procedures will be used to assure that a minimum of 1 foot of clearance is maintained between the hoists' loads and surfaces that cannot withstand the kinetic energy associated with 1 inch of free fall of the load involved. The surfaces, which will support the load, are designed to withstand a minimum of 1 inch of free fall of the hoists' maximum critical load.

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TABLE C-4  
(Sheet 3)

SUMMARY OF REGULATORY POSITIONS TO BE  
ADDRESSED BY THE APPLICANT  
FOR COMANCHE PEAK STATION SAFETY RELATED CHILLER HOIST

Regulatory Position (Note 2 )	Ederer Topical Report Section (Note 1)	Information to be Provided	Specific Crane Data
C.2.c	III.C(C.2.c)	<ol style="list-style-type: none"> <li>1. Location of safe laydown areas for use in the event repairs to the crane are required that cannot be made with the load suspended.</li> </ol>	<ol style="list-style-type: none"> <li>1. Figure C-3 shows the laydown areas that can be used in the event that repairs to the hoists are required that cannot be made with the load suspended.</li> </ol>
C.2.d	III.C(C.2.d)	<ol style="list-style-type: none"> <li>1. Size of replacement components that can be brought into the building for repair of the crane without having to break its integrity,</li> <li>2. Location of area where repair work can be accomplished on the crane without affecting the safe shutdown capability of the reactor, and</li> <li>3. Any limitations on reactor operations that would result from crane repairs.</li> </ol>	<ol style="list-style-type: none"> <li>1. The replacement parts will be brought in through the access door, which means that any hoist component can be brought in to the building if needed for repairs.</li> <li>2. Repair work, involving heavy lifts by non-single failure proof equipment can be safely accomplished on the hoists when it is positioned over the areas shown in the drawing. The only nuclear safety restriction involved in trolley or hoist repairs is the handling of heavy trolley or hoist components.</li> <li>3. There are no limitations on reactor operations that would result from hoist or trolley repairs.</li> </ol>

CPSES  
TABLE C-4  
(Sheet 4)

SUMMARY OF REGULATORY POSITIONS TO BE  
ADDRESSED BY THE APPLICANT  
FOR COMANCHE PEAK STATION SAFETY RELATED CHILLER HOIST

Regulatory Position (Note 2 )	Ederer Topical Report Section (Note 1)	Information to be Provided	Specific Crane Data
C.3.b	III.C(C.3.b)	1. The design margin and type of lifting devices that are attached to the hook to carry critical loads.	1. Each lifting device for critical loads has been designed in accordance with Section 5.1.6(1)(b) of NUREG-0612 "Control of Heavy Loads at Nuclear Power Plants."
C.3.t	III.C(C.3.t)	1. The extent construction requirements for the crane's structures, which will not be replaced, are more severe than those for permanent plant service.  2. The modifications, and inspections to be accomplished on the crane following construction use, which was more severe than those for permanent plant service.	1. There are no construction requirements for the hoists.  2. This requirement is not applicable since there were no construction requirements for the hoist/trolley.
C.3.u	--	1. The extent of installation and operating instructions.	1. The installation and operating instructions provided by Ederer to fully comply with the requirements of section C.3.u of Regulatory Guide 1.104 and Sections 7.1 and 9 of NUREG-0612.

CPSES  
TABLE C-4  
(Sheet 5)

SUMMARY OF REGULATORY POSITIONS TO BE  
ADDRESSED BY THE APPLICANT  
FOR COMANCHE PEAK STATION SAFETY RELATED CHILLER HOIST

Regulatory Position (Note 2 )	Ederer Topical Report Section (Note 1)	Information to be Provided	Specific Crane Data
C.4.a C.4.b C.4.c C.4.d	--	1. The extent of assembly check-out, test procedures, load testing and rated load marking of the crane.	1. Prior to handling critical loads, the hoists will be given a complete assembly and operational checkout by Ederer, and then be given a no load test of all motions in accordance with updated procedures provided by Ederer. A 125% static load test and a 100% performance test will also be performed at this time in accordance with updated test procedures provided by Ederer. A two blocking test will be performed by Ederer prior to delivery of the crane per Topical Report EDR-1. The maximum Critical Load is plainly marked on each side of the hoists.
C.5.a	III.C(C.5.a)	1. The extent the procurement documents for the crane's structures, which will not be replaced, required the crane manufacturer to provide a quality assurance program consistent with the pertinent provisions of Regulatory Guide 1.28.	1. The procurement documents for the safety related monorail structure invoked 10CFR50 Appendix B.

CPSES  
TABLE C-4  
(Sheet 6)

SUMMARY OF REGULATORY POSITIONS TO BE  
ADDRESSED BY THE APPLICANT  
FOR COMANCHE PEAK STATION SAFETY RELATED CHILLER HOIST

Regulatory Position (Note 2 )	Ederer Topical Report Section (Note 1)	Information to be Provided	Specific Crane Data
NOTE 1:		Completes Appendix C of Generic Topical Report EDR-1(P)-A, Revision 3, "Nuclear Safety Related Extra-Safety and Monitoring (X-SAM) Cranes."	
NOTE 2:		Regulatory Guide 1.104 (Revision 1, Draft 3), October 1978.	

CPSES  
TABLE C-5  
(Sheet 1 of 8)

AUXILIARY FILTER HOIST DATA (NOTE 1)

Regulatory Position (Note 2)	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
C.1.a	III.C(C.1.a)	1. The actual crane duty classification of the crane specified by the applicant.	1. The hoists have a Class D crane duty classification in accordance with CMAA Specification #70.
C.1.b	III.C(C.1.b)	1. The minimum operating temperature of the crane specified by the applicant.	1. The hoists were designed and fabricated for a minimum operating temperature of 40 degrees F.
C.2.a	III.C(C.2.a)	1. Provisions for accomodating or preventing load motion following a loss of one electrical phase.	1. The hoists are equipped with loss of phase protection that shuts the hoist down and sets the holding brake in the event of a loss of one phase.
C.2.a	III.B.2.a	2. Provisions for ensuring proper functioning of hoist and travel limits following a phase reversal.	2. The hoists' control system includes phase reversal protection that shuts the hoist down if a phase reversal occurs.
C.2.b	III.C(C.2.b) III.E.4	1. The maximum extent of load motion and the peak kinetic energy of the load following a drive train failure.	1. The hoists are designed such that the maximum load motion following a drive train failure is less than 1 foot and the maximum kinetic energy of the load is less than that resulting from 1 inch of free fall of the maximum critical load. The maximum load motion and kinetic energy is determined using the analyses described in Appendix I of



CPSES  
TABLE C-5  
(Sheet 2)

AUXILIARY FILTER HOIST DATA (NOTE 1)

Regulatory Position (Note 2)	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
			Revision 3 of EDR-1, with a conservative allowance for the kinetic energy and load motion contributed by the actuation of the Emergency Drum Brake.
		2. Provisions for actuating the Emergency Drum Brake prior to traversing with the load, when required to accommodate the load motion following a drive train failure.	2. The hoists utilize a Continuously Engaged Emergency Drum Brake.
C.3.e	III.C(C.3.e)	1. The maximum cable loading following a wire rope failure in terms of the acceptance criteria established in Section III.C (C.3.e).	1. The maximum cable loading following a wire rope failure in the hoist meets the maximum allowed by the acceptance criteria established in Section III.C(C.3.e).
C.3.f	--	1. Maximum fleet angle 2. Number of reverse bends 3. Sheave diameter	1. 3.5 degrees 2. None, other than the one between the wire rope drum and the first sheave in the load block. 3. Per CMAA Specification #70.
C.3.h	III.C(C.3.h) III.E.11	1. The maximum extent of motion and peak kinetic energy of the load	1. The hoist is designed such that the maximum load motion following

CPSES  
TABLE C-5  
(Sheet 3)

AUXILIARY FILTER HOIST DATA (NOTE 1)

Regulatory Position (Note 2)	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
		following a single wire rope failure.	a single wire rope failure is less than 1 foot and the maximum kinetic energy of the load is less than that resulting from 1 inch of free fall of the maximum critical load. The maximum load motion and kinetic energy is determined using the analyses described in Appendix I of Revision 3 of EDR-1, with a conservative allowance for the kinetic energy and load motion contributed by the actuation of the Emergency Drum Brake.
C.3.i	III.C(C.3.i)	<ol style="list-style-type: none"> <li>1. The type of load control system specified by the applicant.</li> <li>2. Whether interlocks are recommended by Regulatory Guide 1.13 to prevent trolley and bridge movements while fuel elements are being lifted and whether they are provided for this application.</li> </ol>	<ol style="list-style-type: none"> <li>1. An Ederer wound rotor AC motor crane duty control system with an Eddy Current Brake is provided.</li> <li>2. The hoists will not be used to lift fuel elements from the reactor core or spent fuel racks. Therefore, interlocks to prevent trolley movement while hoisting have not been provided.</li> </ol>
C.3.j	III.C(C.3.j)	<ol style="list-style-type: none"> <li>1. The maximum cable and machinery loading that would result in the event of a high speed two blocking, assuming a control system malfunction</li> </ol>	<ol style="list-style-type: none"> <li>1. The Energy Absorbing Torque Limiter (EATL) is designed such that the maximum machinery load, which would result in the event a two blocking</li> </ol>

CPSES  
TABLE C-5  
(Sheet 4)

AUXILIARY FILTER HOIST DATA (NOTE 1)

Regulatory Position (Note 2)	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
		that would allow the full breakdown torque of the motor to be applied to the drive motor shaft.	occurs while lifting the rated load at the rated speed that allows the full breakdown torque of the motor to be applied to the drive shaft, will not exceed twice the machinery's design rating. In addition, the EATL design does not allow the maximum cable loading to exceed the acceptance criteria established in Section III.C (C.3.e) during the above described two-blocking.
		2. Means of preventing two blocking of auxiliary hoist, if provided.	2. An auxiliary hoist has not been provided.
C.3.k	III.C(C.3.k)	1. Type of drum safety support provided.	1. The design drum safety restraint designs shown in Figure 1 of Appendix H of Revision 3 of EDR-1 are used for the hoist drum.
C.3.o	--	1. Type of hoist drive to provide incremental motion.	1. A three speed crane drive control system with Eddy Current Braking provides incremental load motion.
C.3.p	--	1. Maximum trolley speed.	1. 29 FPM.
		2. Maximum bridge speed.	2. NA

CPSES  
TABLE C-5  
(Sheet 5)

AUXILIARY FILTER HOIST DATA (NOTE 1)

Regulatory Position (Note 2)	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
		3. Type of overspeed protection for the trolley and bridge drives.	3. The trolley drive is powered by an AC motor that can inherently not overspeed, since its maximum speed is limited by the 60 HZ line frequency. Therefore, an overspeed sensor that actuates the trolley and bridge drive brakes has not been provided.
C.3.q	---	1. Control station location.	1. The complete operating control system, including the emergency stop button, is located on a pendant.
--	III.D.1	1. The type of Emergency Drum Brake used, including type of release mechanism.	1. The Continuously Engaged Emergency Drum Brake System of the type shown in Figure 1 of Appendix H of Revision 3 of EDR-1 has been provided.
		2. The relative location of the Emergency Drum Brake.	2. The Emergency Drum Brake engages the wire rope drum in the main hoist.
		3. Emergency Drum Brake Capacity.	3. The Emergency Drum Brake in the hoist has a minimum capacity of 150% of that required to hold the design rated load.
--	III.D.2	1. Number of friction surfaces in EATL.	1. The EATL has 11 friction surfaces.

CPSSES  
TABLE C-5  
(Sheet 6)

AUXILIARY FILTER HOIST DATA (NOTE 1)

Regulatory Position (Note 2)	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
		2. EATL Torque Setting.	2. The specified EATL torque setting is approximately 130% of the rated motor torque at the design rated speed that corresponds to lifting the design rated load.
--	III.D.3	1. Type of Failure Detection System.	1. The drive train continuity detector and emergency drum brake actuator are of the type shown in Figure 1 of Appendix H of Revision 3 of EDR-1.
--	III.D.5	1. Type of Hydraulic Load Equalization System.	1. The hoists' Hydraulic Load Equalization System limits the impact forces applied to the equalizer and crane structure following a wire rope failure. The small amount of load motion that results from equalizer rotation has been considered in the analysis of load motion following a rope break in accordance with Appendix I of EDR-1.
--	III.D.6	1. Type of hook.	1. Hook has a single load path.
		2. Hook design load.	2. The hook's design rated load (DRL) is 10 tons. The hook's MCL is 8 tons with a 10:1 factor of safety on ultimate.

CPSES  
TABLE C-5  
(Sheet 7)

AUXILIARY FILTER HOIST DATA (NOTE 1)

Regulatory Position (Note 2)	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
		3. Hook test load.	3. The test load for the hook will be 20 tons.
--	III.F.1	1. Design rated load.	1. 10 tons.
		2. Maximum critical load rating.	2. 8 tons.
		3. Trolley weight (net).	3. 5,900 lbs. (including hook)
		4. Trolley weight (with design rated load).	4. 25,900 lbs.
		5. Hook lift.	5. 42 feet.
		6. Number of wire rope drums.	6. The hoist has one wire rope drum.
		7. Number of parts of wire rope.	7. 4 parts per wire rope.
		8. Drum size (pitch diameter).	8. 15 1/2 inches.
		9. Wire rope diameter.	9. 1/2 inch.
		10. Wire rope type.	10. 6x37 class IWRC.
		11. Wire rope material.	11. EIPS IWRC.
		12. Wire rope breaking strength.	12. 26,000 lbs.
		13. Wire rope yield strength.	13. 16,900 lbs.

CPSES  
TABLE C-5  
(Sheet 8)

AUXILIARY FILTER HOIST DATA (NOTE 1)

Regulatory Position (Note 2)	Ederer Topical Report Section	Information to be Provided	Specific Crane Data
		14. Wire rope reserve strength.	14. .49
		15. Number of wire ropes.	15. The hoist has two ropes.

NOTE 1: Completes Appendix B of Generic Licensing Topical Report EDR-1(P)-A, Revision 3,  
"Nuclear Safety Related Extra-Safety and Monitoring (X-SAM) Cranes."

NOTE 2: Regulatory Guide 1.104 (Revision 1, Draft 3), October 1978.

CPSES  
TABLE C-6  
(Sheet 1 of 5)

SUMMARY OF REGULATORY POSITIONS TO BE  
ADDRESSED BY THE APPLICANT  
FOR COMANCHE PEAK STATION AUXILIARY FILTER HOIST

Regulatory Position (Note 2)	Ederer Topical Report Section (Note 1)	Information to be Provided	Specific Crane Data
--	III.C(C.1.b(1))	1. The extent of venting of closed box sections.	1. Closed box sections are not vented since the building that houses the hoist is not pressurized.
C.1.b(3) C.1.b(4) C.4.d	III.C(C.1.b(3)) III.C(C.1.b(4)) III.C(C.4.d)	1. The monorail and its supports have been upgraded to meet Seismic Category I requirements. Impact test data for the monorail and its supports is not available.	1. The monorail and its supports has been upgraded to meet Seismic Category I requirements. Impact test data for the monorail and its supports is not available.
C.1.c	III.C(C.1.c)	1. The extent the crane's structures, which are not being replaced, are capable of meeting the seismic requirements of Regulatory Guide 1.29.	1. Safety related monorail structures have been replaced where necessary to be capable of meeting the seismic requirements of Regulatory Guide 1.29.
C.1.d	III.C(C.1.d)	1. The extent weld joints in the crane's structures, which are not being replaced, were nondestructively examined.	1. The monorail is a fabricated structure that uses the existing bottom flange that is welded to a heavier web and top flange. This weld was made in accordance with approved site welding procedures and visually inspected.
C.1.e	III.C(C.1.e)	1. The extent the crane's structures, which are not being replaced, are	1. The hoist will not be used for any major construction lifts. All past



CPSES  
TABLE C-6  
(Sheet 2)

SUMMARY OF REGULATORY POSITIONS TO BE  
ADDRESSED BY THE APPLICANT  
FOR COMANCHE PEAK STATION AUXILIARY FILTER HOIST

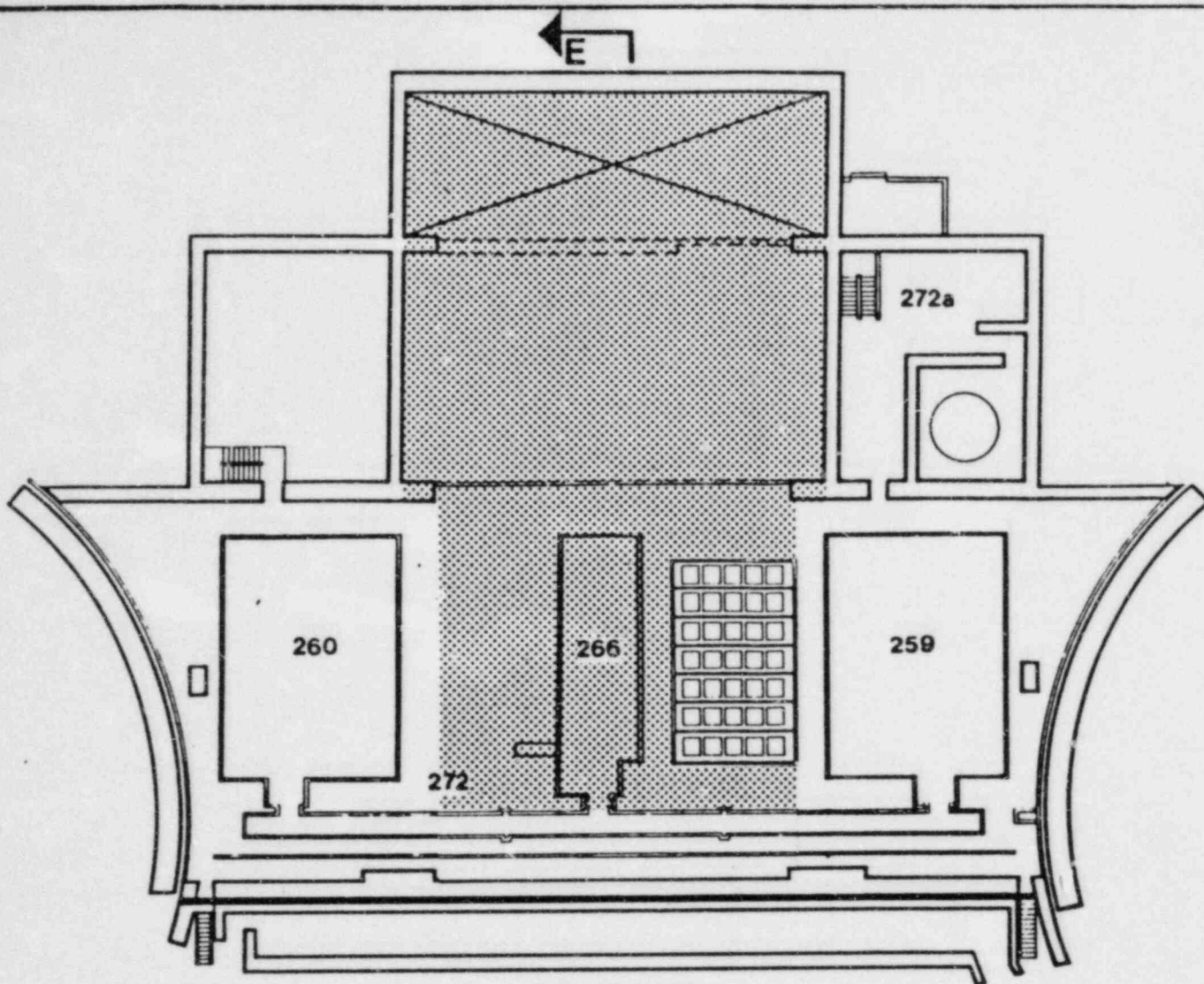
Regulatory Position (Note 2)	Ederer Topical Report Section (Note 1)	Information to be Provided	Specific Crane Data
		capable of withstanding the fatigue effects of cyclic loading from previous and projected usage, including any construction usage.	and projected use of the crane, at a maximum loading of 10 tons, is well within the cyclic loading capability of the hoist's structure.
C.1.f	III.C(C.1.f)	1. The extent the crane's structures, which are not being replaced, were post-weld heat-treated in accordance with Subarticle 3.9 of AWS D1.1, "Structural Welding Code."	1. The material thicknesses of the monorail structure are such that paragraph III.C(C.1.f) of EDR-1 does not require post-weld heat-treatment.
C.2.b	III.C(C.2.b) III.E.4	1. Provisions for accommodating the load motion and kinetic energy following a drive train or wire rope failure when the load is being traversed and when it is being raised and lowered.	1. Administrative procedures will be used to assure that a minimum of 1 foot of clearance is maintained between the hoist's loads and surfaces that cannot withstand the kinetic energy associated with 1 inch of free fall of the load involved. The surfaces, which will support the load, are designed to withstand a minimum of 1 inch of free fall of the hoist's maximum critical load.
C.2.c	III.C(C.2.c)	1. Location of safe laydown areas for use in the event repairs to the	1. Figure C-4 shows the laydown areas that can be used in the event that

CPSES  
TABLE C-6  
(Sheet 3)

SUMMARY OF REGULATORY POSITIONS TO BE  
ADDRESSED BY THE APPLICANT  
FOR COMANCHE PEAK STATION AUXILIARY FILTER HOIST

Regulatory Position (Note 2)	Ederer Topical Report Section (Note 1)	Information to be Provided	Specific Crane Data
		crane are required that cannot be made with the load suspended.	repairs to the hoist are required that cannot be made with the load suspended.
C.2.d	III.C(C.2.d)	<ol style="list-style-type: none"> <li>1. Size of replacement components that can be brought into the building for repair of the crane without having to break its integrity,</li> <li>2. Location of area where repair work can be accomplished on the crane without affecting the safe shutdown capability of the reactor, and</li> <li>3. Any limitations on reactor operations that would result from crane repairs.</li> </ol>	<ol style="list-style-type: none"> <li>1. The replacement parts will be brought in through the access door, which means that any hoist component can be brought in to the building if needed for repairs.</li> <li>2. Repair work, involving heavy lifts by non-single failure proof equipment can be safely accomplished on the hoist when it is positioned over the areas shown in the drawing. The only nuclear safety restriction involved in trolley or hoist repairs is the handling of heavy trolley or hoist components.</li> <li>3. There are no limitations on reactor operations that would result from hoist or trolley repairs.</li> </ol>
C.3.b	III.C(C.3.b)	<ol style="list-style-type: none"> <li>1. The design margin and type of lifting devices that are attached</li> </ol>	<ol style="list-style-type: none"> <li>1. Each lifting device for critical loads has been designed in</li> </ol>

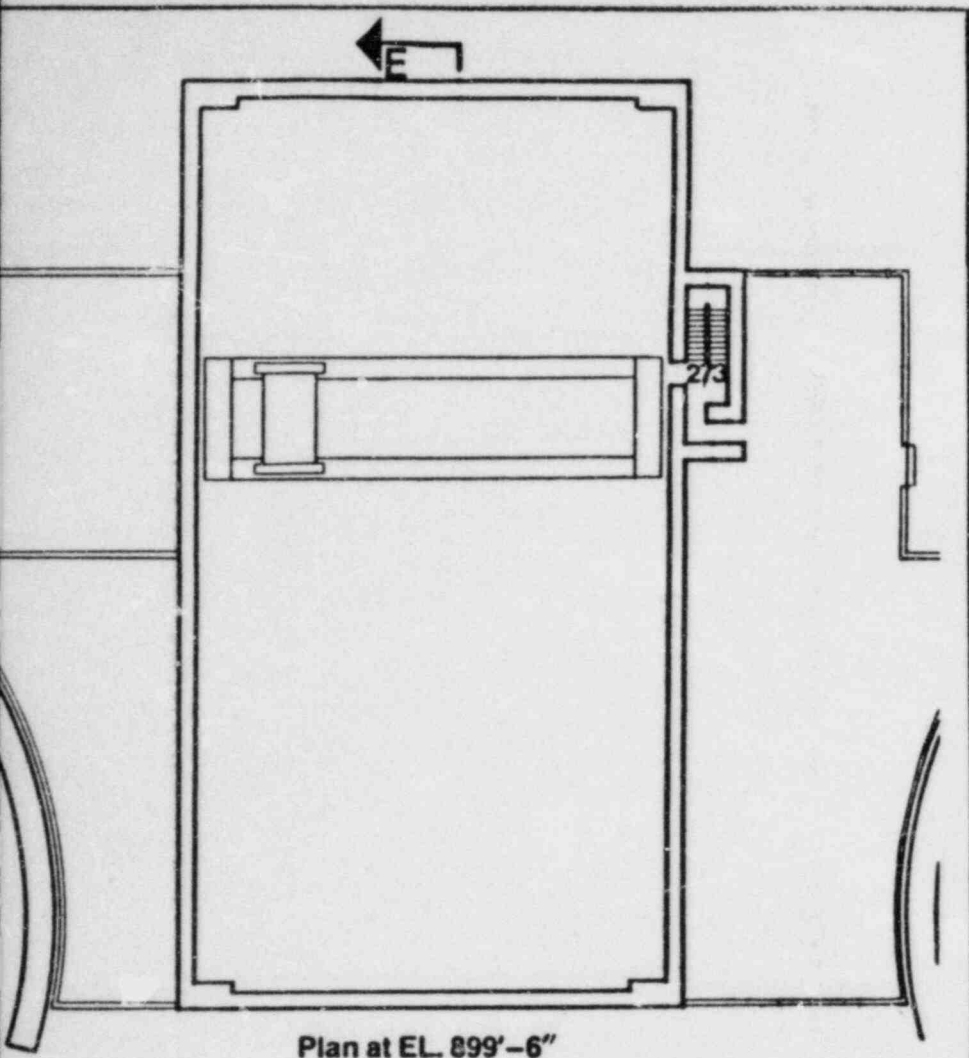




Plan at EL. 860'-0"



**FUEL BUILDING OVERHEAD CRANE  
SAFE LAYDOWN AREA**



Plan at EL. 899'-6"



Plan at Elevation 860'-0"

- | Rm.# | Rm. Name              |
|------|-----------------------|
| 259  | Spent Fuel Pool No. 1 |
| 260  | Spent Fuel Pool No. 2 |
| 266  | Wet Cask Loading Area |
| 272  | Operating Floor Level |
| 272a | Open Space            |

Plan at Elevation 899'-6"

- |     |               |
|-----|---------------|
| 273 | Stair No. F-2 |
|-----|---------------|

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CARD

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REVISION 1

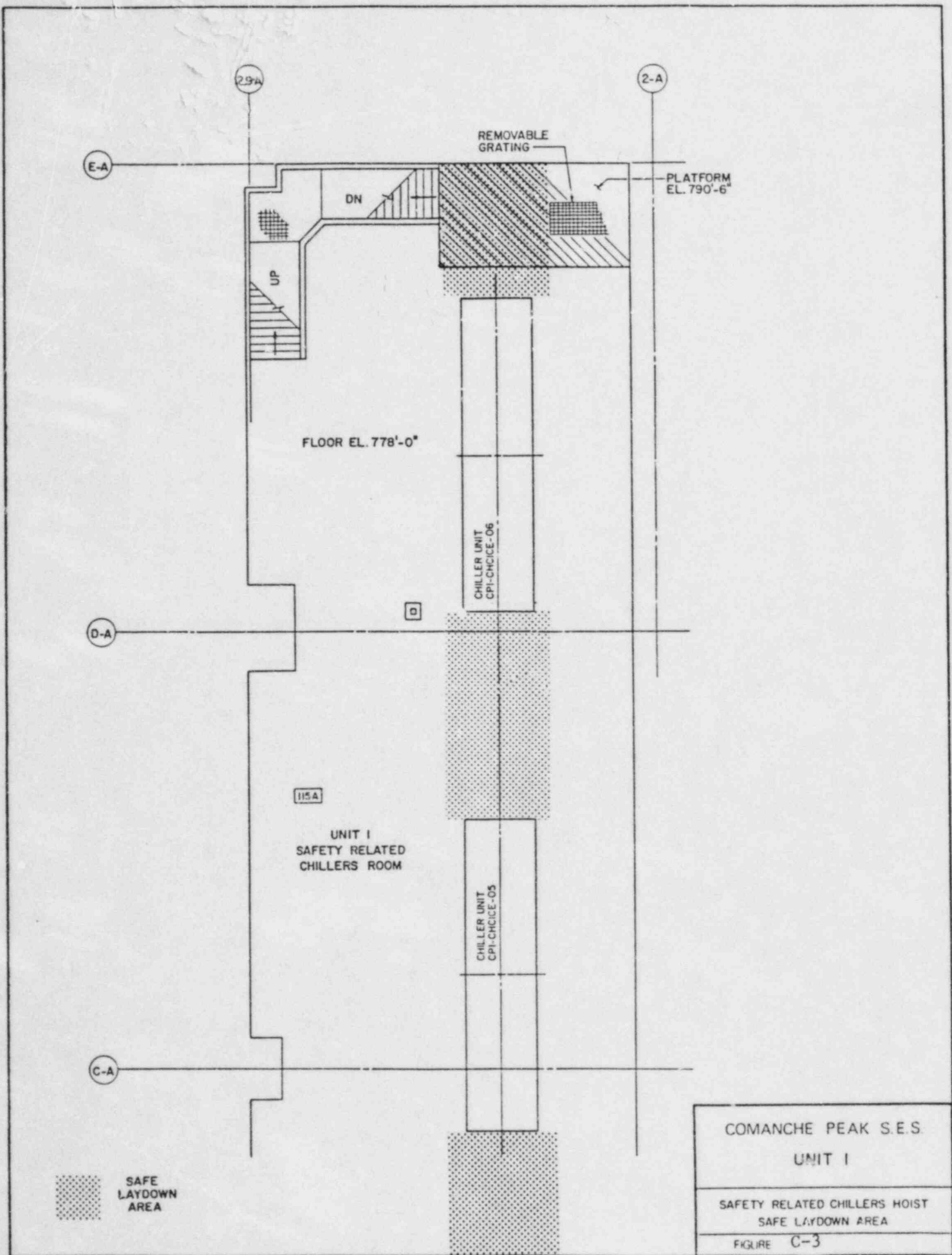
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COMANCHE PEAK S.E.S.

UNITS 1 and 2

FUEL BUILDING  
FUEL BLDG. OVERHEAD CRANE  
SAFE LAYDOWN AREA

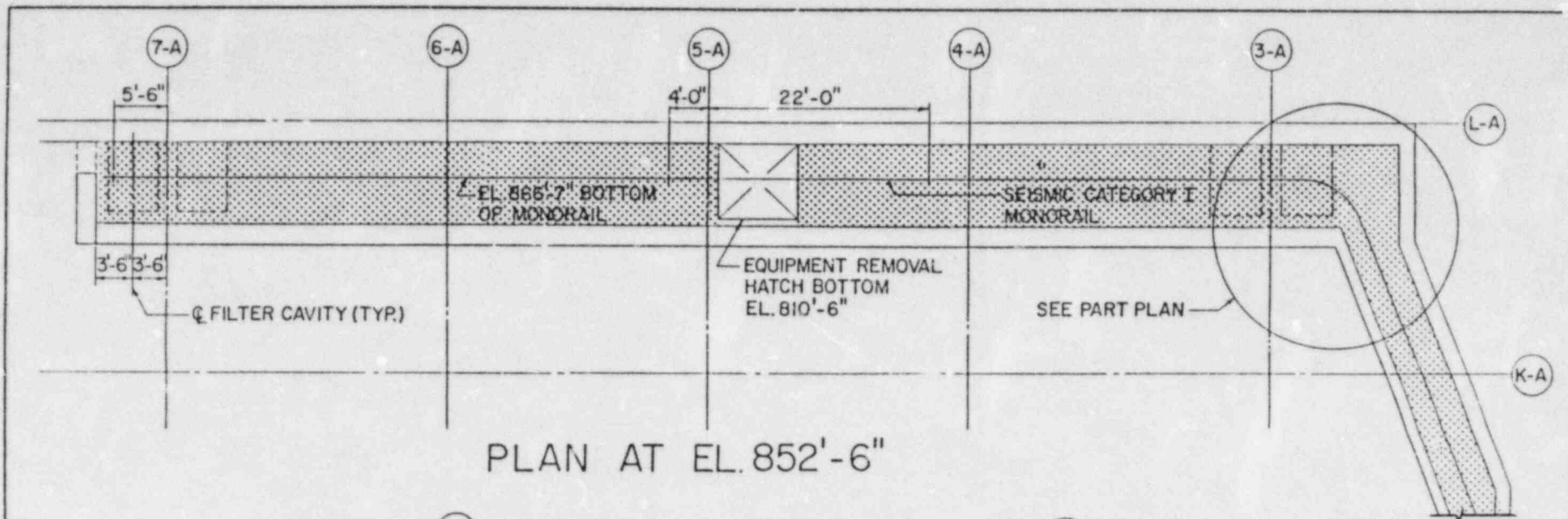
FIGURE C-2



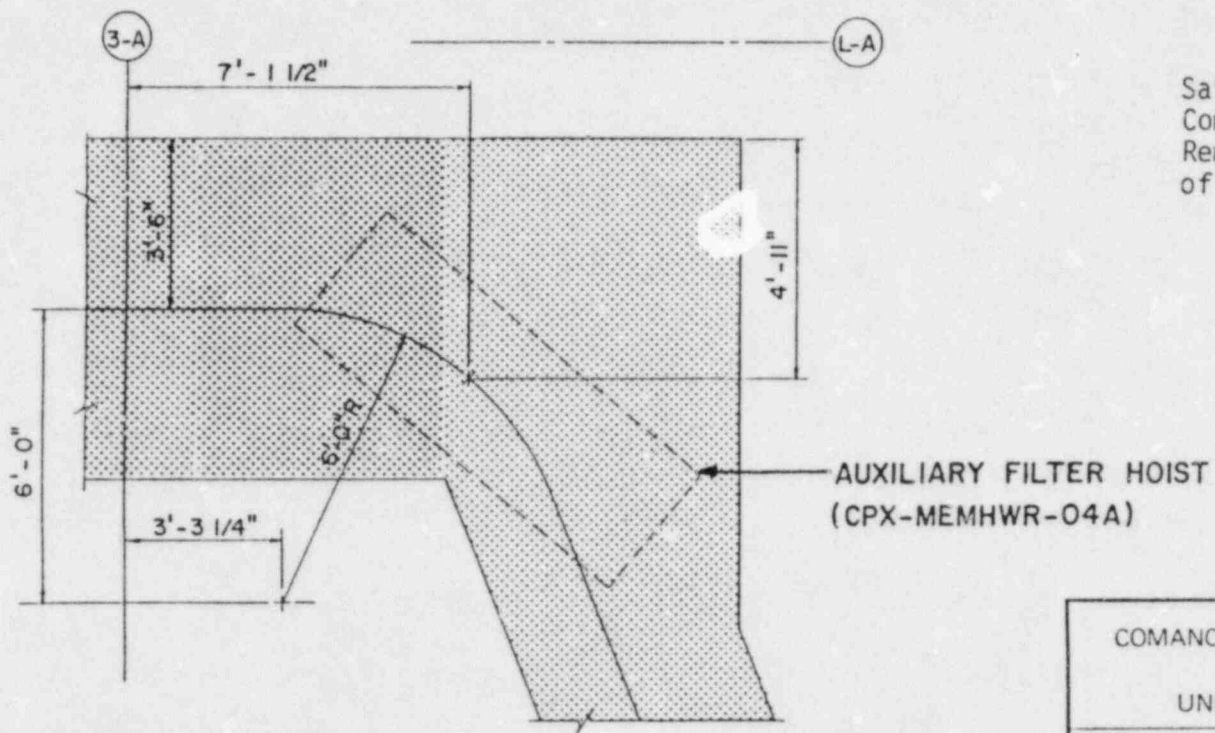
COMANCHE PEAK S.E.S.  
UNIT 1

SAFETY RELATED CHILLERS HOIST  
SAFE LAYDOWN AREA

FIGURE C-3



Note:  
Safe Laydown Area Continues Thru Remaining Portion of Monorail.



SAFE LAYDOWN AREA

PART PLAN

COMANCHE PEAK S E S

UNITS 1 and 2

AUXILIARY FILTER HOIST  
SAFE LAYDOWN AREA

FIGURE C-4

ATTACHMENT D



Prior to heavy load lifts where safe load paths and areas are not physically marked, a determination will be made by plant supervisory personnel of the need for a signalman to assist the crane operator in safely handling the load in accordance with the designated safe load paths and areas. This requirement will be included in heavy load handling procedures.