

APPENDIX C SUPPLEMENT TO
GENERIC LICENSING TOPICAL REPORT
EDR-1

SUMMARY OF REGULATORY POSITIONS
TO BE ADDRESSED BY THE APPLICANT

PALISADES NUCLEAR POWER PLANT

SPENT FUEL POOL CRANE

PURCHASE ORDER # G0337468

EDERER S.O. NO. F2681

REVISION A

PREPARED: 
CHIEF ENGINEER, EDERER INCORPORATED

CHECKED: 
EDERER, INCORPORATED

REVIEWED: 
QUALITY ASSURANCE MANAGER
EDERER, INCORPORATED

APPROVED: 
CHIEF ENGINEER, EDERER INCORPORATED

**EDR-1 APPENDIX C SUPPLEMENT
SUMMARY OF REGULATORY POSITIONS TO BE ADDRESSED BY THE APPLICANT
PALISADES NUCLEAR POWER PLANT**

TABLE OF CONTENTS AND REVISION STATUS

<u>DESCRIPTION</u>	<u>PAGE NO.</u>	<u>REVISION</u>
TITLE PAGE	i	0
TABLE OF CONTENTS & REVISION STATUS	ii	0
 <u>TOPICAL REPORT SECTION</u>		
III.C (C.1.b(1))	1	0
III.C (C.1.b(3))	2	
III.C (C.1.b(4))	2	
III.C (C.4.d)	2	
 III.C (C.1.c)	 3	 0
 III.C (C.1.d)	 4	 0
 III.C (C.1.e)	 4	 0
III.C (C.1.f)	5	
III.C (C.2.b) & III.E.4	5	
 III.C (C.2.c)	 5	 0
III.C (C.2.d)	6	
 III.C (C.3.b)	 6	 0
III.C (C.3.t)	7	
 REG GUIDE 1.104 (C.3.u)	 7	 0
REG GUIDE 1.104 (C.4.a)	8	
REG GUIDE 1.104 (C.4.b)	8	
REG GUIDE 1.104 (C.4.c)	8	
REG GUIDE 1.104 (C.4.d)	8	
 III.C (C.5.a)	 8	 0
	ii	

EDR-1 APPENDIX C SUPPLEMENT
SUMMARY OF REGULATORY POSITIONS TO BE ADDRESSED BY THE APPLICANT
PALISADES NUCLEAR POWER PLANT

REG.GUIDE I.104 POSITION	TOPICAL REPORT SECTION	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 SPENT FUEL POOL BUILDING THAT HOUSES THE CRANE WILL NOT BE 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 NONDESTRUCTIVE AND COLD PROOF TESTING TO BE PERFORMED ON EXISTING STRUCTURAL MEMBERS FOR WHICH SATISFACTORY IMPACT TEST DATA IS NOT AVAILABLE.	FOR THE EXISTING CRANE STRUCTURES NOT BEING REPLACED, AN ALTERNATIVE TO PERFORMING TOUGHNESS TESTING IN NUREG-0554 WILL BE INVOKED BY A TEST LIFT OF THE CRANE AT THE LOWEST ANTICIPATED OPERATING TEMPERATURE (I.E. COLD PROOF TESTING). THE LOCATIONS AND ACCEPTANCE CRITERA FOR THE INSPECTIONS ARE DOCUMENTED IN EA-FC-976-10. COLD PROOF TESTING WILL BE PERFORMED ON THE REPLACEMENT BRIDGE, FOLLOWED BY A VISUAL INSPECTION OF ALL ACCESSIBLE WELDS WHOSE FAILURE WOULD RESULT IN THE DROP OF A LOAD. VISUAL INDICATIONS OF STRUCTURAL DEGRADATION OF THE REPLACEMENT BRIDGE WILL BE INVESTIGATED FURTHER BY THE APPROPRIATE NON-DESTRUCTIVE EXAMINATION TECHNIQUES. THE AMBIENT TEMPERATURE WHEN THE 125% STATIC LOAD TEST IS PERFORMED WILL BE THE MINIMUM OPERATING TEMPERATURE FOR THE CRANE. IN THE EVENT THAT THE CRANE MUST BE OPERATED AT A LOWER TEMPERATURE, ANOTHER 125% STATIC PROOF TEST WILL BE PERFORMED AT THE LOWE TEMPERATURE.

EDR-I APPENDIX C SUPPLEMENT
SUMMARY OF REGULATORY POSITIONS TO BE ADDRESSED BY THE APPLICANT
PALISADES NUCLEAR POWER PLANT

REG. GUIDE 1.104 POSITION	TOPICAL REPORT SECTION	INFORMATION TO BE PROVIDED	SPECIFIC CRANE DATA
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. THE EXISTING BRIDGE STRUCTURE, NEW TROLLEY, RAILS, CLIPS AND END STOPS ARE BEING ANALYZED FOR THE DESIGN BASIS EARTHQUAKE AND SAFE SHUTDOWN EARTHQUAKE WHILE SUPPORTING THE MAXIMUM CRITICAL LOADS.
C.1.d	III.C(C.1.d)	1. THE EXTENT WELDS JOINTS IN THE CRANE'S STRUCTURES, WHICH ARE NOT BEING REPLACED, WERE NONDESTRUCTIVELY EXAMINED.	1. THE BRIDGE COMPONENTS WERE CONSTRUCTED FOR COMMERCIAL USE USING RECOGNIZED INDUSTRY STANDARDS, SUCH AS EOCI SPEC 61. THE WELDING WAS PERFORMED USING AWS STANDARDS. FURTHERMORE, THE X-SAM SYSTEM PROVIDES ADDITIONAL OVERLOAD PROTECTION AND THE INSPECTIONS FOR THE EXISTING STRUCTURE DESCRIBED IN C.1.b (3) ABOVE ARE ADEQUATE TO ENSURE THE STRUCTURAL INTEGRITY OF THE REPLACEMENT. BASED ON CRITICAL WELDS IDENTIFIED BY EDERER, A NONDESTRUCTIVE EXAMINATION WILL BE PERFORMED.
		2. THE EXTENT THE BASE MATERIAL, AT JOINTS SUSCEPTIBLE TO LAMELLAR TEARING, WAS NONDESTRUCTIVELY EXAMINED.	2. EXISTING WELD JOINT GEOMETRIES USED IN THE BRIDGE STRUCTURE ARE NOT SUSCEPTIBLE TO LAMELLAR TEARING.

EDR-1 APPENDIX C SUPPLEMENT
SUMMARY OF REGULATORY POSITIONS TO BE ADDRESSED BY THE APPLICANT
PALISADES NUCLEAR POWER PLANT

REG.GUIDE I.104 POSITION	TOPICAL REPORT SECTION	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. ALL PAST AND PROJECTED USE OF THE REPLACEMENT STRUCTURAL COMPONENTS WILL BE ASSESSED TO ENSURE THE CRANE IS WITHIN THE CYLIC LOADING CAPABILITY OF THE BRIDGE STRUCTURE AND WELDS AT A MCL OF 110 TONS. FATIGUE EFFECTS ARE NOT A CONSIDERATION DUE TO THE FACT THAT CALCULATED STRESSES ARE LOW AND THE MAIN HOIST WAS SELDOM USED FOR THE MAXIMUM (DESIGN) LOADS. THEREFORE PAST CYCLIC LOADINGS WILL NOT SIGNIFICANTLY REDUCE THE FATIGUE LIFE OF THE COMPONENTS, PER CONSUMERS ENERGY COMMENTS OF 4/10/01.
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 SUB ARTICLE 3.9 OF AWS D1.1, "STRUCTURAL WELDING CODE".	1. THE MATERIAL THICKNESS OF THE EXISTING BRIDGE COMPONENTS ARE SUCH 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 FAILURE WHEN THE LOAD IS BEING TRAVERSED AND WHEN IT IS BEING RAISED OR LOWERED.	1. ADMINISTRATIVE PROCEDURES WILL BE USED TO ASSURE THAT A MINIMUM OF 1.5 FEET OF CLEARANCE IS MAINTAINED BETWEEN THE LOAD AND SURFACES THAT CANNOT WITHSTAND THE KINETIC ENERGY ASSOCIATED WITH 1 INCH FREE FALL OF THE LOAD INVOLVED. A MAINTENANCE PROCEDURE WILL ALSO BE IN PLACE TO ASSURE THE 1.5 FEET MINIMUM CLEARANCE FOR SYSTEMS STRUCTURES AND COMPONENTS REQUIRED FOR SAFE STORAGE OF SPENT NUCLEAR FUEL. STRUCTURES WITHIN THE HEAVY LOAD PATH WERE QUALIFIED FOR THIS ENERGY. THIS IS DOCUMENTED IN EA-FC-973-09.

EDR-I APPENDIX C SUPPLEMENT
SUMMARY OF REGULATORY POSITIONS TO BE ADDRESSED BY THE APPLICANT
PALISADES NUCLEAR POWER PLANT

REG.GUIDE I.104 POSITION	TOPICAL REPORT SECTION	INFORMATION TO BE PROVIDED	SPECIFIC CRANE DATA
C.2.c	III.C(C.2.c)	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.	1. THE LAYDOWN AREAS THAT CAN BE USED IN THE EVENT THAT REPAIRS TO THE CRANE ARE REQUIRED THAT CANNOT BE MADE WITH THE LOAD SUSPENDED ARE THE SPENT FUEL POOL FLOOR. THE LOCATIONS OF SAFE LAYDOWN AREAS ARE IDENTIFIED IN A REVISION TO THE SPENT FUEL POOL AREA HEAVY LOAD PROCEDURE FHS-M-23. THESE WILL BE USED IN THE EVENT THAT REPAIRS TO THE CRANE ARE REQUIRED WITH THE LOAD SUSPENDED.
C.2.d	III.C(C.2.d)	1. SIZE OF REPLACEMENT COMPONENTS THAT CAN BE BROUGHT INTO THE BUILDING FOR REPAIR OF THE CRANE WITHOUT HAVING TO BREAK THE BUILDING INTEGRITY. 2. LOCATION OF AREA WHERE REPAIR WORK CAN BE ACCOMPLISHED ON THE CRANE WITHOUT AFFECTING THE SAFE SHUT-DOWN CAPABILITY OF THE REACTOR.	THE L-3 CRANE IS LOCATED IN THE SPENT FUEL HANDLING AREA OF THE AUX. BUILDING ABOVE ELEV. 649'. A 12' X 24' HATCH WAY IS PROVIDED IN THE 649' FLOOR NORTH OF THE SPENT FUEL POOL TO PROVIDE ACCESS TO TRACK ALLEY ON ELEV. 625'. TRACK ALLEY HAS A 14' X 22' ROLL-UP DOOR THAT OPENS TO THE OUTDOORS. THIS PATH WAY (HATCHWAY THROUGH ROLL-UP DOOR) IS THE MAIN EQUIPMENT REMOVAL PATH FOR THE PALISADES AUX. BUILDING. BOTH THE OLD L-3 TROLLEY AND NEW X-SAM TROLLEY WERE REMOVED AND INSTALLED (FULLY ASSEMBLED) THROUGH THIS PATHWAY. PALISADES IS A PWR PLANT. THE CRANE IS LOCATED IN THE SPENT FUEL POOL AREA OF THE AUX.BLDG. ABOVE ELEV. 649'. CRANE REPAIRS OCCURE IN A AREA NORTH OF THE SPENT FUEL POOL IN WHAT IS CONSIDERED AS LOAD PATH 3 IN FHS-M-23. LOAD DROPS IN LOAD PATH 3 WILL NOT IMPACT SAFE SHUT DOWN OF THE PLANT.

EDR-1 APPENDIX C SUPPLEMENT
SUMMARY OF REGULATORY POSITIONS TO BE ADDRESSED BY THE APPLICANT
PALISADES NUCLEAR POWER PLANT

REG.GUIDE
1.104 POSITION

TOPICAL
REPORT
SECTION

INFORMATION TO BE PROVIDED

SPECIFIC CRANE DATA

3. ANY LIMITATIONS ON REACTOR
OPERATIONS THAT WOULD RESULT FROM
CRANE REPAIRS.

PALISADES IS A PWR PLANT. THE CRANE IS
LOCATED IN THE SPENT FUEL POOL AREA OF
THE AUX. BLDG. ABOVE ELEV. 649'. HENCE,
CRANE REPAIRS WILL NOT AFFECT REACTOR
OPERATION.

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.

FOR LIFTS THAT MUST FULFILL SINGLE-FAILURE
PROOF CRITERIA WILL MEET THE REQUIREMEN
OF SECTION 5.6.1 OF NUREG-0612. LIFTS THAT A
NOT SINGLE FAILURE PROOF WILL MEET THA
SAFE RIGGING PRATICCE AS REQUIRED BY NUREG
0612.

EDR-I APPENDIX C SUPPLEMENT
SUMMARY OF REGULATORY POSITIONS TO BE ADDRESSED BY THE APPLICANT
PALISADES NUCLEAR POWER PLANT

REG.GUIDE I.104 POSITION	TOPICAL REPORT SECTION	INFORMATION TO BE PROVIDED	SPECIFIC CRANE DATA
C.3.t	III.C(C.3.t)	<p>1) THE EXTENT CONSTRUCTION REQUIREMENTS FOR THE CRANE'S STRUCTURES, WHICH WILL NOT BE REPLACED, ARE MORE SEVERE THAN THOSE FOR PERMANENT PLANT SERVICE.</p> <p>2) THE MODIFICATIONS AND INSPECTIONS TO BE ACCOMPLISHED ON THE CRANE FOLLOWING CONSTRUCTION USE, WHICH WAS MORE SEVERE THAN THOSE FOR PERMANENT PLANT SERVICE.</p>	<p>1) PRIOR USE AND LOAD HISTORIES WILL BE DOCUMENTED AND REVIEWED FOR THE EXISTING BRIDGE COMPONENTS AS A PART OF THE COMMERCIAL GRADE DEDICATION PLAN. FATIGUE EFFECTS ARE NOT A CONSIDERATION DUE TO THE FACT THAT CALCULATED STRESSES ARE LOW AND THE MAIN HOIST WAS SELDOM USED FOR THE MAXIMUM (DESIGN) LOADS. THEREFORE PAST CYCLIC LOADINGS WILL NOT SIGNIFICANTLY REDUCE THE FATIGUE LIFE OF THE COMPONENTS, PER CONSUMERS ENERGY COMMENTS OF 4/10/01.</p> <p>2) NON-DESTRUCTIVE EXAMINATIONS OF THE ACCESSIBLE LOAD BEARING WELD SEAMS AND JUSTIFICATION THAT THE FATIGUE LIFE HAS NOT BEEN COMPROMISED WILL BE COMPLETED PRIOR TO THE 125% DESIGN LOAD TEST. FATIGUE EFFECTS ARE NOT A CONSIDERATION DUE TO THE FACT THAT CALCULATED STRESSES ARE LOW AND THE MAIN HOIST WAS SELDOM USED FOR THE MAXIMUM (DESIGN) LOADS. THEREFOR PAST CYCLIC LOADINGS WILL NOT SIGNIFICANTLY REDUCE THE FATIGUE LIFE OF THE COMPONENTS, PER CONSUMERS ENERGY COMMENTS OF 4/10/01.</p>

EDR-1 APPENDIX C SUPPLEMENT
SUMMARY OF REGULATORY POSITIONS TO BE ADDRESSED BY THE APPLICANT
PALISADES NUCLEAR POWER PLANT

REG.GUIDE 1.104 POSITION	TOPICAL REPORT SECTION	INFORMATION TO BE PROVIDED	SPECIFIC CRANE DATA
C.3.u	-	1. THE EXTENT OF INSTALLATION AND OPERATING INSTRUCTIONS.	1. THE INSTALLATION AND OPERATING INSTRUCTIONS WILL BE UPDATED 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-0554.
C.4.a	--	1. THE EXTENT OF ASSEMBLY CHECKOUT, TEST PROCEDURES, LOAD TESTING AND RATED LOAD MARKING OF THE CRANE.	1. PRIOR TO HANDLING CRITICAL LOADS, THE CRANE WILL BE GIVEN A COMPLETE ASSEMBLY CHECKOUT, AND THEN GIVEN A NO-LOAD TEST OF ALL MOTIONS IN ACCORDANCE WITH UPDATED PROCEDURES PROVIDED BY EDERER. A 125% STATIC LOAD TEST AND 100% PERFORMANCE TEST WILL ALSO BE PERFORMED AT THIS TIME IN ACCORDANCE WITH UPDATED TEST PROCEDURES PROVIDED BY EDERER. A NO-LOAD TEST OF ALL MOTIONS AND 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 CRANE.
C.4.b			
C.4.c			
C.4.d			

EDR-1 APPENDIX C SUPPLEMENT
SUMMARY OF REGULATORY POSITIONS TO BE ADDRESSED BY THE APPLICANT
PALISADES NUCLEAR POWER PLANT

C.5.a

III.C(C.5.a)

1. THE EXTENT THE PROCUREMENT DOCUMENTS FOR THE CRANE'S STRUCTURE'S, 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. THESE COMPONENTS WERE BUILT TO THE MANUFACTURERS QUALITY CONTROL PROCESSES. QUALITY ASSURANCE PROVISIONS DENOTED IN THE PROCUREMENT DOCUMENTS COVERED SUCH ITEMS AS DESIGN CONTROL, MATERIAL SELECTION AND INSPECTION AND TESTING. FOLLOWING THE COMMERCIAL-GRADE DEDICATION, THE BRIDGE STRUCTURAL DESIGN AND ANY MODIFICATIONS WILL BE CONTROLLED BY THE PALISADES QUALITY PLAN.