EDERER INCORPORATED

EDERER CRANES
WASHINGTON CRANES

APPENDIX C SUPPLEMENT TO GENERIC LICENSING TOPICAL REPORT EDR-1

SUMMARY OF PLANT SPECIFIC DATA SUPPLIED BY APPLICANT FOR IOWA ELECTRIC LIGHT & POWER COMPANY DUANE ARNOLD ENERGY CENTER UNIT 1 REACTOR BUILDING CRANE

P.O NO. 6610
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REVISION 1 9/9/83

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Revision 1 9/9/83

EDR-1 APPENDIX C SUPPLEMENT
SUMMARY OF PLANT SPECIFIC DATA SUPPLIED BY IOWA ELECTRIC POWER & LIGHT COMPANY FOR DUANE ARNOLD UNIT 1 REACTOR BUILDING CRANE MODIFICATIONS

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IOWA ELECTRIC POWER & LIGHT COMPANY
FOR DUANE ARNOLD UNIT 1
REACTOR BUILDING CRANE MODIFICATIONS

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EDR-I APPENDIX C SUPPLEMENT
SUMMARY OF REGULATORY POSITIONS TO BE ADDRESSED BY THE APPLICANT FOR DUANE ARNOLD UNIT I
REACTOR BUILDING CRANE MODIFICATIONS

Regulatory Position	Topical Report Section	Information to be Provided	Specific Crane Data
--	III.C (C.I.b(I))	I. The extent of venting of closed box sections.	I. Closed box sections are not vented since the reactor building that houses the crane is not pressurized.
C.I.b(3) C.I.b(4) C.4.d	III.C (C.I.b(3)) III.C (C.I.b(4)) III.C (C.4.d)	I. The nondestructive and cold proof testing to be performed on existing structural members for which satisfactory impact test data is not available.	I. The existing crane bridge, including all accessible structural welds, will be visually inspected by a competent structural engineer. Visual indications of structural degradation of the existing bridge will be investigated further by the appropriate nondestructive 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 lower temperature.

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SUMMARY OF REGULATORY POSITIONS TO BE ADDRESSED BY THE APPLICANT FOR DUANE ARNOLD UNIT I REACTOR BUILDING CRANE MODIFICATIONS

Regulatory 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 with the new trolley is being analyzed based upon the accelerations used in the initial plant design.
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, and	1. Nondestructive examinations of the existing bridge structure were not required by existing regulations at the time of bridge construction. However, the X-SAM system provides additional overload protection, and the inspections of the existing structure described in C.1.b(3) above are adequate to ensure the structural integrity of the existing bridge.
		2. The extent the base material, at joints susceptible to lamellar tearing, was nondestructively examined.	2. The weld joint geometries used in the existing bridge structure are not considered to be susceptible to lamellar tearing.

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Regulatory 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. The crane was not used for any major construction lifts. All past and projected use of the crane, at a maximum loading of 100 Tons, is well within the cyclic loading capability of the existing crane 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 existing bridge structure are such that paragraph III.C (C.1.f) of EDR-1 does not require post-weld heat-treatment.

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Regulatory Position	Topical Report Section	Information to be Provided	Specific Crane Data
C.2.a	III.C(C.2.a)	1. Provisions for accomodating or preventing load motion following a loss of one electrical phase.	1. All surfaces of load paths for loads listed in Table 5 of Iowa Electric's control of heavy loads report and designated as critical have been analyzed and confirmed to withstand the kinetic energy resulting from a minimum of one inch of free fall of the load involved. Maintenance procedures are in place requiring engineering analysis of any heavy load determined to be critical and not scoped by previously analyzed critical loads.
C.2.a	III.B.2.a	2. Provisions for ensuring proper functioning of hoist and travel limits following a phase reversal.	2. The existing hoist control system includes phase reversal protection that stops the hoist if a phase reversal occurs.

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Regulatory Position	Topical Report Section	Information to be Provided	Specific Crane Data
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 or lowered.	1. All surfaces of load paths for loads listed in Table 5 of Iowa Electric's control of heavy loads report and designated as critical have been analyzed and confirmed to withstand the kinetic energy resulting from a minimum of one inch of free fall of the load involved. Maintenance procedures are in place requiring engineering analysis of any heavy load determined to be critical and not scoped by previously analyzed critical loads.
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 enclosed Bechtel drawing (7884-M5-5) shows 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.

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Regulatory Position	Topical Report Section	Information to be Provided	Specific Crane Data
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 its integrity,	1. The replacement trolley components will be brought in through the Reactor Building Building Equipment Hatch, which means that any trolley component can be brought in to the Reactor Building if needed for crane repairs.
		2. Location of area where repair work can be accomplished on the crane without affecting the safe shut-down capability of the reactor, and	2. Repair work, involving heavy lifts by non-single failure proof equipment, can be safely accomplished on the crane when it is positioned over the areas shown in Bechtel drawing (7884-M5-5). The only nuclear safety restriction involved in crane repairs is the handling of heavy crane components.
		3. Any limitations on reactor operations that would result from crane repairs.	3. There are no limitations on reactor operations that would result from crane repairs.

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Regulatory Position	Topical Report Section	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.p	—	1. Maximum bridge speed.	1. The existing bridge controls permit a maximum bridge speed of 100 fpm compared to the 50 fpm recommended by CMAA #70 for slow speed bridges. Administrative controls will restrict the bridge speed while making critical lifts to less than 50 fpm.

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Regulatory Position	Topical Report Section	Information to be Provided	Specific Crane Data
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.	1. The construction requirements for the crane were the same as for 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.	2. No special modifications or inspections were required when the crane was converted from construction use to permanent plant service, since the requirements for both types of service were the same.

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Regulatory 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 ond 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-0612.
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 crane will be given a complete assembly and operational checkout by Ederer, and then 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 Lood is plainly marked on each side of the crane.

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Regulatory Position	Topical Report Section	Information to be Provided	Specific Crane Data
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 existing bridge structure did not invoke 10CFR50 Appendix B, since the bridge was built prior to the issuance of this federal regulation. However, the bridge was built to the Harnischfeger quality control and assurance procedures in effect at the time of construction. These procedures covered such items as procurement control, receiving control, material storage and handling, in-process control, inspection and testing, packaging and shipping, drawing and change control, tool and gage control, nonconforming material control, and corrective action measures.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

Attachment 4
to NG-83-3298

AUG 2 6 1983

RECEIVED
AUG 3 1 1983
EDERER INCORPORATED
SEATTLE

C. William Clark, Jr.
Director of Engineering
Ederer Incorporated
2925 First Avenue South
Box 24708
Seattle, Washington 98124

Dear Mr. Clark:

Subject: Acceptance for Referencing of Licensing Topical Report EDR-1(P), Revision 3, "Ederer Nuclear Safety-Related Extra Safety and Monitoring (X-SAM) Cranes"

We have completed our review of the subject topical report submitted by Ederer's October 8, 1982 letter. We find this report is acceptable for referencing in license applications to the extent specified and under the limitations delineated in the report and the associated NRC evaluation which is enclosed. The evaluation defines the basis for acceptance of the report.

We do not intend to repeat our review of the matters described in the report and found acceptable when the report appears as a reference in license applications except to assure that the material presented is applicable to the specific plant involved. Our acceptance applies only to the matters described in the report.

In accordance with procedures established in NUREG-0390, it is requested that Ederer publish accepted versions of this report, proprietary and non-proprietary, within three months of receipt of this letter. The accepted versions should incorporate this letter and the enclosed evaluation between the title page and the abstract. The accepted versions shall include an -A (designating accepted) following the report identification symbol.

Should our criteria or regulations change such that our conclusions as to the acceptability of the report are invalidated, Ederer and/or the applicants referencing the topical report will be expected to revise and resubmit their respective documentation, or submit justification for the continued effective applicability of the topical report without revision of their respective documentation.

Sincerely,

Cecil O. Thomas

Cecil O. Thomas, Chief
Standardization & Special
Projects Branch
Division of Licensing

Enclosure:
As stated

DUPE OF 8309060559 (1p.-PDR)