ILLINOIS POWER COMPANY IP

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L30-81(09-25)-L
500 SOUTH 27TH STREET, DECATUR, ILLINOIS 62525

September 25, 1981

RECEIVED SEP 28 1981 U.S. NUCLEAR REGULATORY COMMISSION

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Eisenhut:

References: 1. D. G. Eisenhut letter, dated December 22, 1980, regarding "Control of Heavy Loads"

2. G. E. Wuller (IP) letter to D. G. Eisenhut, U-0249, dated June 22, 1981

Clinton Power Station Units 1 and 2
Docket Nos. 50-461 and 50-462

Illinois Power has completed the last phase of the "Control of Heavy Loads" study. The attachment represents IP's response to section 2.2 and 2.3 of enclosure 3 to reference 1 above. The result of the study is that IP currently complies or will comply with the requirements of NUREG 0612.

As in our previous response the requests of sections 2.2 and 2.3 will each be restated, followed by IP's response. This letter satisfies the response requirements of reference 1. If there are any questions regarding this submittal, please do not hesitate to contact Steve Swartz at (217)424-6983.

Sincerely,

G. E. Wuller

G. E. Wuller
Supervisor-Licensing
Nuclear Station Engineering

SWS/lt

Attachments

cc: J. H. Williams, NRC Clinton Project Manager
H. H. Livermore, NRC Resident Inspector

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-Attachment-

The following is Illinois Power's (IP's) response to Sections 2.2 and 2.3 of Enclosure 3 of Mr. Eisenhut's December 22, 1980 letter regarding IP's compliance to NUREG 0612, "Control of Heavy Loads at Nuclear Power Plants".

2.2 Specific Requirements for Overhead Handling Systems Operating in the Reactor Building

Section 2.2-1 Request and Answer

(R) Identify by name, type, capacity, and equipment designator, any cranes physically capable (i.e., ignoring interlocks, moveable mechanical stops, or operating procedures) of carrying loads over spent fuel in the storage pool or in the reactor vessel.

(A) The term "reactor building" as used in NUREG 0612, shall be construed to include the fuel building and the containment building for the Clinton Mark III plant. The following table includes all cranes in the fuel and containment buildings capable of carrying loads over or near spent fuel pools.

	Crane	Equip Served	Equip. Location: Floor Elev.	Equip. Location: Bldg.	Equip. Location: Column Row	Heaviest Piece Lifted	Crane Type	Equip. Ident.	Load Capacity	Safe Shutdown Equip Below (O) or Near By (P)	Crane Used During Operation
a.	Polar Crane	RPV Head Drywell Head Insulation STEAM Separator STEAM Dryer Spent Fuel Gates Auxiliary Platform	828'3"	Containment	105-121 AH-X T/R El. 856'0"	Drywell Head 65T (90T Includes Strongback &Load Block)	Circular Rail, Tram Beam, (Single-Failure Proof)	1HC01G	Main Hook 100T Aux. Hook 10T	Reactor Vessel (O) Fuel Assembly (O) Vessel Internals (O) Regen. Hx El 803'(O) Fuel Storage Rack (O)	Yes
b.	Refuel Platform	Fuel Bundles, Reactor Components Control Rod Blade Guides Control Rods Neutron Instruments	828'3"	Containment	110-114 AE-AC T/R El. 828'3"	Fuel Bundle 625 lbs.	GE Platform (Single Fail. Proof)	F11-E014	Fuel Hoist 1000 lbs. (Electric) Auxi. Hoist 1000 lbs. (Electric)	Reactor Vessel (O) Fuel Storage Rack (O)	No
c.	Auxilary Platform	Control Rods Stm. Line Plugs Jet Pumps Vessel Inspection	828'3"	Containment	110-114 AE-AC T/R El. 828'3"	Control 218 lbs	GE Platform	F15-E005	"Load Celled" 500 lb. Electric Hoist	Reactor Vessel (O)	No
d.	Jib (2)	Fuel Bundles	828'3"	Containment	110-114 AH-AE	Fuel Bndl. 625 lbs.	Jib	GE Equip	1000#	Fuel Transfer (O) Pool (O)	Yes (New Fuel)
e.	Fuel Handling Platform	Fuel Bundles (New Fuel & Spent Fuel)	755'0"	Fuel	112.1-121 AH-AL T/R El. 755'0"	Fuel Bundle 625 lbs	GE Platform (Single Failure Proof)	F11-E017	Fuel Hoist 1000 lb (Electric) Aux. Hoist 1000 lb. (Electric)	Spent Fuel Pool (P) (Have Boron Plates)	Yes
f.	Fuel Bldg Crane	-Fuel Cask -Spent Fuel -Pool Gates -New Fuel	755'0"	Fuel	102-114 AH-AM T/R El. 781'0"	Fuel Cask (Not yet Selected) 50-75T (3 Ton Load Block)	Rectilinear (Single Failure Proof, Except Hook)	1HC07G	125T Main 10T Aux.	New Fuel Storage (on Fl. El. 707'0") (O) Fuel Transfer Pool (O)	Yes
							Note:	Crane Cannot travel over Spent Fuel Pool			
g.	JIB Cranes (2)	-Work Table -Fuel Prep. Mach.	755'0"	Fuel	121-124 AH-AL	Fuel Bundle 625 lbs.	JIB	GE Equip.	1000 lb.	Spent Fuel Pool (O)	Yes
							Note:	3 post holes - only 2 JIBS			
h.	JIB Crane	Fuel Transfer Tube Shield Plate	755'0"	Fuel	112.1-116 A-H	Shield Plates	Trolley: Manual Hoist: Motorized	JJ (contract ident.)	10T	Spent Fuel Pool (P)	Yes

Please note that item h is a crane which is not operated over the spent fuel pool in the fuel building. This is a new crane whose mounting detail has not yet been determined. Once identified, the crane will either be deleted from this list, or additional drawings and hazard elimination criteria will be supplied to the NRC.

Section 2.2-2 Request & Answer

(R) Justify the exclusion of any cranes in this area from the above category by verifying that they are incapable of carrying heavy loads or are permanently prevented from movement of heavy loads over stored fuel or into any location where, following any failure, such load may drop into the reactor vessel or spent fuel storage pool.

(A) Item c, the auxilary platform, is limited to a 500 pound lifting capacity and therefore, is excluded. Item f, the fuel building crane, is permanently prevented from travel over the spent fuel pool and also is eliminated. It is anticipated that item h will also be included in this category.

Section 2.2-3 Request & Answer

(R) Identify any cranes listed in 2.2-1, above, which you have evaluated as having sufficient design features to make the likelihood of a load drop extremely small for all loads to be carried and the basis for this evaluation (i.e., complete compliance with NUREG 0612, Section 5.1.6 or partial compliance supplemented by suitable alternative or additional design features). For each crane so evaluated, provide the load-handling-system (i.e., crane-load-combination) information specified in Attachment 1.

(A) Item a of Section 2.2-1, the polar crane, is designed and built to the requirements of NUREG 0554. The crane, with the exception of the ten (10) ton auxilary hook, is single-failure proof. Administrative controls will be required, when using the auxilary hook, to prevent the carrying of loads over the fuel transfer pool and the reactor during refueling operations. The following is a step by step response to the requirements of Attachment 1.

Single-Failure-Proof Handling System-Attachment (1)

ITEM 1 of 5 (R) Provide the name of the manufacturer and the design-rated load (DRL). If the maximum critical load (MCL), as defined in NUREG 0554, is not the same as the DRL, provide this capacity.

(A) The polar crane is manufactured by P&H Harnischfeger. The design-rated load is 100 tons. The MCL is 88 tons. The MCL consists of the RPV head and the carousel stongback, 63 and 25 tons respectively.

ITEM 2 of 5 (R) Provide a detailed evaluation of the overhead handling system with respect to the features of design, fabrication, inspection, testing, and operation as delineated in NUREG 0554 and supplemented by the identified alternatives specified in NUREG 0612, Appendix C. This evaluation must include a point-by-point comparison for each section of NUREG 0554. If the alternatives of NUREG 0612, Appendix C, are used for certain applications in lieu of complying with the recommendation of NUREG 0554, this should be explicitly stated. If an alternative to any of those contained in NUREG 0554 or NUREG 0612, Appendix C, is proposed, details must be provided on the proposed alternative to demonstrate its equivalency.

(A) The following is a point-by-point comparison of the polar crane design, fabrication, etc., to the requirements of NUREG 0554.

NUREG 0554 Requirements Met By the Polar Crane

The polar crane will be employed during the construction phase. The maximum load allowed during this period will be 85 tons. No separate performance specifications for the construction period are considered necessary. The crane will be thoroughly examined and tested at the end of the construction period, prior to turn-over to the operations staff. Of particular concern will be the possible damage caused by use of the crane in a dirty environment (i.e., dust, grinding wheel residue, etc.). A temporary tent was constructed over the main drum to protect the wire rope from abrasives. At the end of the construction phase the wire rope will be examined to determine if replacement is necessary.

An operating environment of -0.5 inches H_2O to 2 psig, 65°F to 104°F, and 100% relative humidity was specified for the polar crane. The crane box girders are vented to prevent collapse during containment pressurization. Since the crane was to be used for a short period of time before the containment dome was installed, it was designed to include drainage holes to eliminate standing water and drip proof electric motors, drip covers for brakes, and waterproof enclosures for all electrical controls, limit switches, etc., to protect against possible moisture related failures. Coating of crane surfaces is in accordance with ANSI N101.4.

Materials used for structural members essential to structural integrity were impact tested, unless exempted by the provisions of paragraph AM-218 of ASME Code, Section VIII, Division 2. The "minimum design temperature" was defined as 60°F below the minimum operating temperature of 65°F. Minimum Charpy V-notch impact test requirements were those given in Table AM 211.1 of the ASME Code, Section VIII, Division 2.

All complete penetration groove welds were 100% radiographed in accordance with acceptance standards stated in Section 6, AWS D1.1. Welds impractical to radiograph were examined 100% by both Ultrasonic and either Magnetic Particle or Liquid Penetrant methods.

Fillet welds were 100% examined by Magnetic Particle or Liquid Pentrant methods. This examination conforms to all applicable requirements of AWS D1.1, Section 6. Welds meeting the acceptance standards indicated in AWS D1.1 were considered acceptable.

The polar crane is designed to raise, lower, hold in position, and transport test loads of 125% of the DRL without damage or excessive deflection of any crane part. This design feature, plus additional margin applied, and the redundancy aspects of the crane appear to adequately cover the aspect that the effect of cyclic loading on this crane would be minimal. Over the 40 year life of the crane, including the construction period, the small number of critical lifts made would appear also to have minimal cyclic effect.

The main hoist load block assembly, rope reeving system, and lifting devices are of redundant design (dual load attaching points) such that each attaching point and lifting device is capable of supporting a static load of three times the rated load without permanent deformation. Main hoist rope reeving systems are of redundant design such that each system is capable of providing separately the load balance on the head and load blocks through the rope and equalizer. The auxilary 10 ton hoist is not used to make critical lifts, either by itself or in conjunction with the main hoist.

The load hoisting drum is provided with structural and mechanical safety devices to prevent the drum from dropping, disengaging from its holding brake system or rotating in the event of a drum, shaft, or bearing failure.

Two automatic electric release (magnetic), spring set, shoe type hoist brakes, each with a 125% motor torque rating, are provided. One brake is provided on the motor shaft and one brake is provided on the motor shaft extension on the opposite side of the gear case. Provisions are made for manual operation of the above-mentioned holding brakes. Manual brake operation during emergency lowering includes features to limit the lowering speed to less than 3.5 fpm. One eddy current electrical load brake is provided for precise speed regulation in handling the load.

Controls are provided to stop the hoisting movement within a maximum of 3 inches of vertical load block travel through the use of electrical power controls, mechanical braking systems and torque controls when rope failure, overspeed, or an overloading condition occurs.

The maximum fleet angle from the main hoist drum to the lead sheave in the load block does not exceed 3½ degrees during hoisting and does not have more than one 180 degree reverse bend for each rope leaving the drum and reversing on the first, or lead sheave, of the load block. Fleet angles between individual sheaves to not exceed 3½ degrees. Pitch diameter of the lead sheave is greater than or equal to 30 times the rope diameter for reverse bend, 26 times rope diameter for running sheaves and the drum, and 13 times the rope diameter for equalizers. The portions of the vertical hoisting system components of the main hoist of the containment building crane, which includes the head block, rope reeving system, load block, and dual load-attaching device are each designed to support a static load of 200% of the design rated load. With the hook in the lowest position, two full wraps of cable remain on the drum. A cold proof test of the cable was performed.

The crane hook is a forged stainless steel (AISI 4820H), sandwich design, sister hook. In other words, a hook within a hook. Each hook is designed to support a load, both static and dynamic, of 3 times the DRL. Each portion of the hook was statically load tested to 200% of the DRL. After testing, the hook underwent PT and UT examination.

The mechanical and structural components of the hoisting system are designed and fabricated to have the required strength to resist failure if the hoist block should come into contact with the head block assembly or if the load is hung up.

The main hoist is provided with limit switches to stop the hook in its highest and lowest safe positions. Each limit switch is wired so that the drive motor can be energized in the reverse direction after its limit switch has opened. Two limit switches are used to limit the upward travel of the hoist hook. A block type switch is used on the cable and a screw type on the drum. These switches are adjusted so that if the screw type switch fails, the block switch will shut off the current.

To further protect the wire rope no side loads are allowed on the polar crane. This requirement is posted on the side of the main load block.

No travel rail stops are necessary for the polar crane, since it operates on circular rails. It does have an electrical interlock feature to prevent cab travel in the 350° to 360° azimuth region of the containment building. This is to prevent contact of the crane cab with the refueling platform when the platform is in the stored position. The interlock can be bypassed from the cab however when an interference does not exist.

Radio control is provided for all functions of the crane. Radio control transmitters and receivers are compatible with the stepless control system provided for the crane. As a backup to the radio control, a bridge mounted pendant pushbutton station is provided which will extend to four feet above the main floor for the crane. Each pendant control station is designed to operate contactors on the control panel by means of pilot currents through transformers provided with the equipment, thus eliminating danger of the crane operator coming in contact with high voltages.

A "dead-man" type of control system is used on the crane. A control lever or pushbutton must be engaged and held in place prior to and during any crane operation. The release of the control lever or pushbutton will result in an immediate cessation of the crane operation with the load locked in place. The main and auxiliary hoist controls are provided with stepless ac control to provide variable speed for lowering and raising. Inching provisions are also provided for lowering and raising each hook. The bridge and trolley controls have a stepless ac control to provide variable speed for each crane motion. Inching provisions are also provided for each crane motion.

A plugging circuit is provided on the crane and is designed to decelerate, stop, and accelerate the bridge, trolley, or load in a controlled, safe manner.

The polar crane was installed and thoroughly tested before turn-over to the construction organization. Periodic maintenance is performed on the crane as recommended by the manufacturer. Prior to turn over to the operations staff, at the end of the construction period, the crane will again be tested and, if necessary, degraded components replaced.

The crane was statically tested to, at the least, 125% of MCL with the girders and trolley in a position to generate the maximum strain on the bridge and trolley structures. A performance test using 100% MCL was performed for all speeds and motions the crane is capable of.

A load limit control prevents crane lifts when a specific load size is exceeded. This device was tested using the 122 ton load of the static load test. With two upper limit switches and the load limit control available, it does not appear advantageous to submit a crane to the possible damage a two-block test could present.

The polar crane was manufactured under a quality assurance program by P&H. The program was audited periodically by the purchaser. Periodic surveillance was also performed at P&H to determine that the requirements of NUREG 0554, as written into the purchase contract, were met.

ITEM (R) 3 of 5 With respect to the seismic analysis employed to demonstrate that the overhead handling system can retain the load during a seismic event equal to a safe shutdown earthquake, provide a description of the method of analysis, the assumptions used, and the mathematical model evaluated in the analysis. The description of assumptions should include the basis for selection of trolley and load position.

(A) Due to soil modulus calculations having changed the seismic response spectra for the Clinton plant, reanalysis of the polar crane seismic design must be done. When completed, the above requested information will be supplied.

ITEM (R) 4 of 5 Provide an evaluation of the lifting devices for each single-failure-proof handling system with respect to the guidelines of NUREG 0612, Section 5.1.6.

(A) Two lifting devices are currently anticipated to be used to accomplish lifts with the polar crane over the refueling floor. Both are supplied by General Electric. They are the Steam Separator/Dryer Strongback and the RPV Head Carousel Strongback. Each strongback is provided with four (4) lift points to the load. General Electric states that two (2) of the four (4) attachments are capable of supporting the load. A single failure is considered as the loss of one lift point only.

The strongbacks are attached to the polar crane redundant sister hook through the use of a hook box on top of the strongbacks and through two (2) six (6) inch diameter link pins. General Electric terms the strongbacks "single-failure proof."

The operations and maintenance staff has not yet procurred lifting devices, such as slings, for use with the polar crane. It is anticipated that slings will be required for such items as shield plugs, auxilary platform installation on the vessel flange, and miscellaneous uses. When sling selection is required, the staff will consider the selection guidelines of ANSI B30.9-1971. Dual slings for use with the sister hook will be employed when the application permits

ITEM (R) Provide an evaluation of the interfacing lift
5 of 5 points with respect to the guidelines of NUREG 0612, Section 5.1.6.

(A) Fuel casks are not intended to be used in the containment, only in the fuel building.

Four lifting lugs are used on the RPV head. After failing two lugs, each of the remaining lugs would have to support 63,100 pounds. (These two (2) remaining lugs are assumed to be opposed on the head so that the head would remain level.) Based on a tensile strength of 80,000 psi and a cross sectional analysis on the lug only (18 in^2), the remaining 2 lugs in cross section have a design margin of approximately 22. The cross sectional area above also applies to the steam separator and steam dryer lugs.

Section 2.2-4 Request and Answer

(R) For cranes identified in 2.2-1, above, not categorized according to 2.2-3, demonstrate that the criteria of NUREG 0612, Section 5.1, are satisfied. Compliance with Criterion IV will be demonstrated in response to Section 2.4 of this request. With respect to Criteria I through III, provide a discussion of your evaluation of crane operation in the Reactor Building and your determination of compliance. This response should include the following information for each crane:

a. Where reliance is placed on the installation and use of electrical interlocks or mechanical stops, indicate the circumstances under which these protective devices can be removed or bypassed and the administrative procedures invoked to ensure proper authorization of such action. Discuss any related or proposed technical specifications concerning the bypass of such interlocks.

b. Where reliance is places on the operation of the Standby Gas Treatment System, discuss present and/or proposed technical specifications and administrative or physical controls provided to ensure that these assumptions remain valid.

c. Where reliance is placed on other site-specific considerations (e.g., refueling sequencing). provide present or proposed technical specifications, and discuss administrative or physical controls provided to ensure the validity of such considerations.

d. Analyses performed to demonstrate compliance with Criteria I through III should conform to the guidelines of NUREG 0612, Appendix A. Justify any exception taken to these guidelines, and provide the specific information requested in Attachment 2, 3, or 4, as appropriate, for each analysis performed.

(A) Based upon the requests of the previous sections, it would appear that the author intended to eliminate from discussion here the cranes categorized in 2.2-2, as well as the cranes categorized in 2.2-3. On that basis, the remaining cranes to be addressed here would be items b, d, e, g and h from the Section 2.2-2 response.

It should be noted that NUREG 0612 (sect. 1.1) defines a heavy load as one "whose weight is greater than the combined weight of a single spent fuel assembly and its handling tool". Depending upon the handling tool used, the combined weight could exceed 1000 pounds. This would, in effect, eliminate items b, d, e and g from the study, since "the handling of a single spent fuel assembly has been reviewed in the original licensing review or in the Generic Issue "Fuel Handling Accident Inside Containment". Items b, d, e and g all have 1,000 capacities. The 1,000 pound capacity is provided for these cranes due to the sizing practices of the crane hoist industry (i.e., hoists are not generally produced in the 700 - 1000# range). These cranes do not handle weights greater than those of fuel bundles.

The one remaining crane is item h, the fuel transfer tube shield plate jib crane, which is to have a 10 ton capacity. As previously stated, this crane's location from the spent fuel pool in the fuel building, and its means of operation have not been determined. Once engineering design is completed, the required information will be supplied.

2.3 Specific Requirements for Overhead Handling Systems Operating in Plant Areas Containing Equipment Required for Reactor Shutdown, Decay Heat Removal, or Spent Fuel Pool Cooling

Section 2.3-1 Request and Answer

(R) Identify any cranes listed in 2.1-1, above, which you have evaluated as having sufficient design features to make the likelihood of a load drop extremely small for all loads to be carried and the basis for this evaluation (i.e., complete compliance with NUREG 0612, Section 5.1.6, or partial compliance supplemented by suitable alternative or additional design features). For each crane so evaluated, provide the load-handling-system (i.e., crane-load-combination) information specified in Attachment 1.

(A) The intent of the response to 2.1-1 was to separate all the cranes, which exist in the Clinton plant, into three (3) categories. One category (Table 1, supplied with the section 2.1 response) includes cranes that are not near safe shutdown equipment, spent fuel, or the reactor vessel. The other two categories (Load/Impact Area Matrix, supplied with the section 2.1 response) include cranes near spent fuel or the reactor and cranes near safe shutdown equipment. The cranes listed in Table 1 will not be covered again here. Nor will the cranes which were analyzed in Section 2.2 above, be discussed again. Therefore, it is understood, that only cranes in the Load/Impact Area Matrix which are near safe shutdown equipment need be discussed here.

The cranes included in Load/Impact Area Matrix, not discussed in Section 2.2, are listed below:

1. Recirculation Pump/Motor Removal Monorail
2. MSIV Monorail
3. Containment Equipment Hatch Hoist Beam 35
4. MSIV Steam Tunnel Bridge Crane
5. Fuel Pool Waste Filters and Filter Demineralizers Beam 33
6. RHR Pumps Removal Beams 38, 39, 40
7. HPCS Pump Removal Beam 69
8. LPCS Pump Removal Beam 42
9. RCIC Pump Removal Beams 41, 13

None of the above cranes are single-failure-proof, as defined by NUREG 0554.

Section 2.3-2 Request and Answer

(R) For any cranes identified in 2.1-1 not designated as single failure-proof in 2.3-1, a comprehensive hazard evaluation should be provided which includes the following information:

a. The presentation in a matrix format of all heavy loads and potential impact areas where damage might occur to safety-related equipment. Heavy loads identification should include designation and weight or cross-reference to information provided in 2.1-3-c. Impact areas should be identified by construction zones and elevations or by some other method such that the impact area can be located on the plant general arrangement drawings. Figure 1 provides a typical matrix.

(A) Cranes 1-9 of Section 2.3-1 are all included in the Load/Impact Area Matrix supplied in response to Section 2.1-3-6.

(R) b. For each interaction identified, indicate which of the load and impact area combinations can be eliminated because of separation and redundancy of safety-related equipment, mechanical stops and/or electrical interlocks, or other site-specific considerations. Elimination on the basis of the aforementioned consideration should be supplemented by the following specific information:

(R) 2.3-2 (Continued)

1. For load/target combinations eliminated because of separation and redundancy of safety-related equipment, discuss the basis for determining that load drops will not affect continued system operation (i.e., the ability of the system to perform its safety-related function).

(A) The cranes 1-9 of Section 2.3-1 appear to be divided into two groups. Those which could be used during operation of the plant and those which could not be used. Some of the cranes are in areas which are highly irradiated and used to repair systems of which no work could be performed while the plant is operational. Those cranes which could be used during plant operation fit into the category described by Section 2.3-2-b-(1).

Cranes 5-9 could be used to repair equipment while the plant is operational. Cranes 6-9, besides having back-up cooling systems which can perform their functions, are each separated from the other, with each one having its own crane. In the event that a system would require repair, that system's operation would not be affected by a load drop, since it would be shut down in order for the repair to be done.

Crane 5 services the fuel pool waste filters and filter demineralizes periodically during plant operations. A load drop in this area would not affect the cooling capability of the fuel pool cooling system due to isolation valves on either side of the filters and the filters being in a separate loop from the cooling loop. However, if fuel pool cooling would become unavailable, the RHR system is available as a backup cooling system.

(R) 2. Where mechanical stops or electrical interlocks are to be provided, present details showing the areas where crane travel will be prohibited. Additionally, provide a discussion concerning the procedures that are to be used for authorizing the bypassing of interlocks or removable stops, for verifying that interlocks are functional prior to crane use, and for verifying that interlocks are restored to operability after operations which require bypassing have been completed.

(R) 2.3-2 (Continued)

(A) Of the cranes 1-9, described in Section 2.3-1, none rely upon mechanical stops or electrical interlocks to limit their travel or use.

(R) 3. Where load/target combinations are eliminated on the basis of other, site-specific considerations (e.g., maintenance sequencing), provide present and/or proposed technical specifications and discuss administrative procedures or physical constraints invoked to ensure the validity of such considerations.

(A) Cranes 1-4 of Section 2.3-1 are eliminated as possible hazardous load contributors under the "site-specific considerations". Simply stated, a crane cannot do damage to an operating system if it is not used during that operation. Cranes 1-4 are in high radiation areas and intended for use on systems which can only be repaired when the plant is non-operational.

(R) c. For interactions not eliminated by the analysis of 2.3-2-b, above, identify any handling systems for specific loads which you have evaluated as having sufficient design features to make the likelihood of a load drop extremely small and the basis for this evaluation (i.e., complete compliance with NUREG 0612, Section 5.1.6, or partial compliance supplemented by suitable alternative or additional design features). For each so evaluated, provide the load-handling-system (i.e., crane-load-combination) information specified in Attachment.

(A) No cranes remain.

(R) d. For interactions not eliminated in 2.3-2-b or 2.3-2-c, above, demonstrate using appropriate analysis that damage would not preclude operation of sufficient equipment to allow the system to perform its safety function following a load drop (NUREG 0612, Section 5.1, Criterion IV). For each analysis so conducted, the following information should be provided:

1. An indication of whether or not, for the specific load being investigated, the overhead crane-handling system is designed and constructed such that the hoisting system will retain its load in the event of seismic accelerations equivalent to those of a safe shutdown earthquake (SSE).

2. The basis for any exceptions taken to the analytical guidelines of NUREG 0612, Appendix A.

(R) 2.3-2 (Continued)

3. The information requested in Attachment 4.

(A) No cranes remain.