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 PARRISH, J.V.      Washington Public Power Supply System  
 RECIPIENT AFFILIATION  
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SUBJECT: Forwards addl info to assist NRC in review & approval of  
 930729 request for TS change allowing replacement of  
 facility refueling mast.

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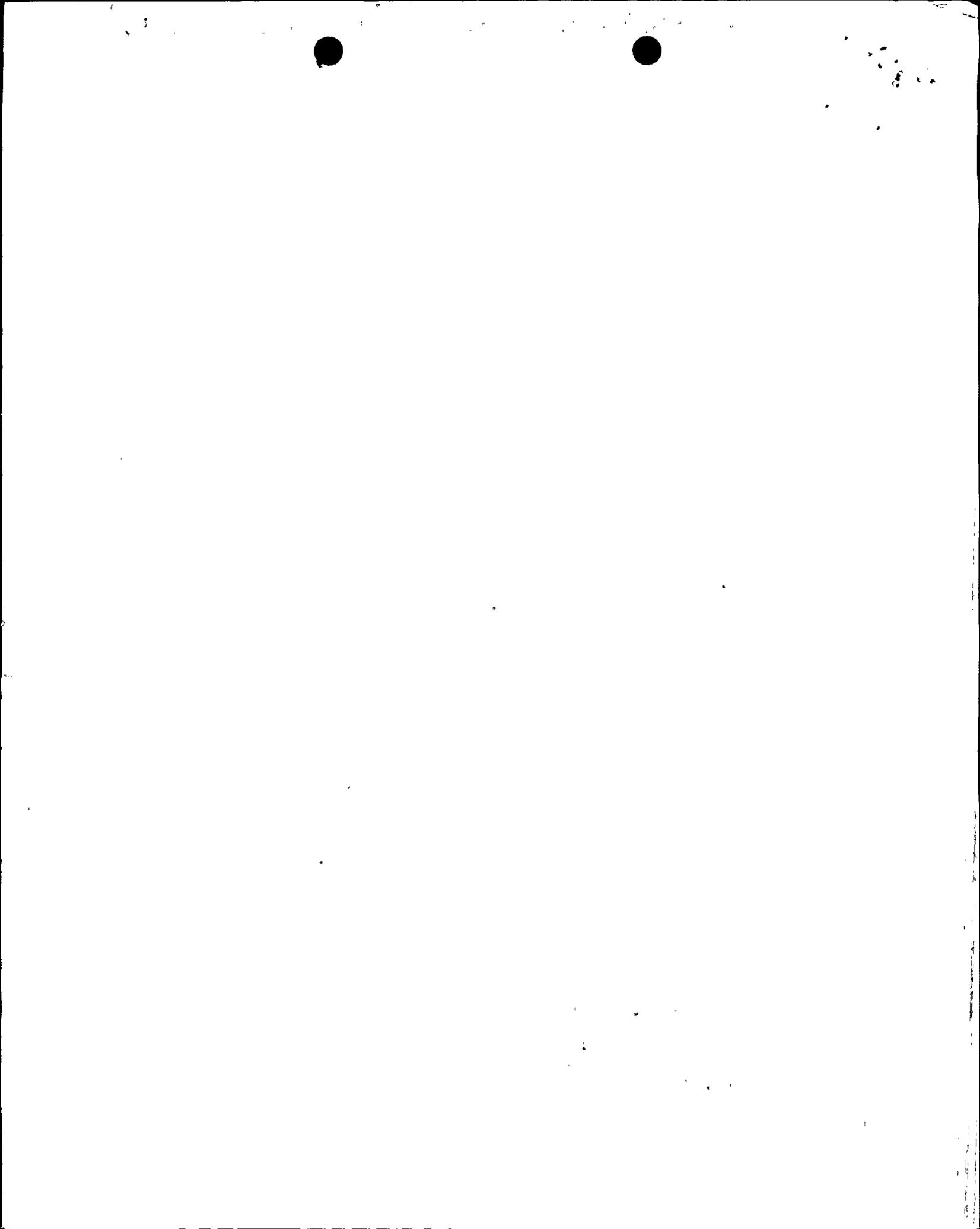
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March 11, 1994  
G02-94-059

Docket No. 50-397

U.S. Nuclear Regulatory Commission  
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Gentlemen:

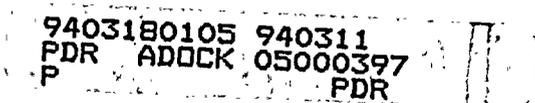
Subject: **WNP-2, OPERATING LICENSE NPF-21  
REQUEST FOR AMENDMENT TO TECHNICAL  
SPECIFICATION 4.9.6, REFUELING PLATFORM  
LOAD LIMITS, SUPPLEMENTAL INFORMATION**

Reference: Letter GO2-93-191, dated July 29, 1993, JV Parrish (SS) to NRC, same subject,

The Reference was submitted by the Supply System to request a Technical Specification change allowing replacement of the WNP-2 refueling mast. Although a direct replacement for the current General Electric model NF400 mast, the new mast is a General Electric model NF500 mast. The proposed change also included minor improvements to the present Refueling Platform Technical Specification.

On March 1, 1994, the NRC Staff provided comments regarding the Reference and indicated that additional information would assist their review and approval of the requested changes. Attachment 1 provides additional information regarding the proposed change. Based on our review of the No Significant Hazards Evaluation and in consideration of the Staff's comments, a revised No Significant Hazards Evaluation is provided in Attachment 2. No changes in our bases for, or the conclusions of, the No Significant Hazards Evaluation were made. No additional information or changes to the Environmental Assessment provided by the Reference are necessary.

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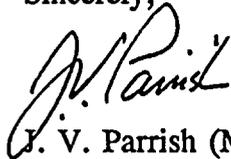


Page Two

**REQUEST FOR AMENDMENT TO TECHNICAL SPECIFICATION 4.9.6,  
REFUELING PLATFORM LOAD LIMITS, SUPPLEMENTAL INFORMATION**

Please call me or H.E. Kook at 509-377-4278 should you have any further questions or desire additional information regarding this matter.

Sincerely,



J. V. Parrish (Mail Drop 1023)  
Assistant Managing Director, Operations

PLP/bk  
Attachments

cc: KE Perkins, Jr. - NRC RV  
NS Reynolds - Winston & Strawn  
JW Clifford - NRC  
DL Williams - BPA/399  
NRC Site Inspector - 901A



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**REQUEST FOR AMENDMENT TO TECHNICAL SPECIFICATION 4.9.6,  
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**ADDITIONAL INFORMATION**

**Part 1** Replacement of the current refueling mast General Electric (GE) model NF400 with a GE model NF500.

**Discussion**

Page three of the Reference states that GE "has reviewed the reactor internals and GE fuel and determined that a maximum upward force relating to a cable tension of 2000 pounds is acceptable." The Supply System was requested to discuss the current maximum upward force specified for the fuel.

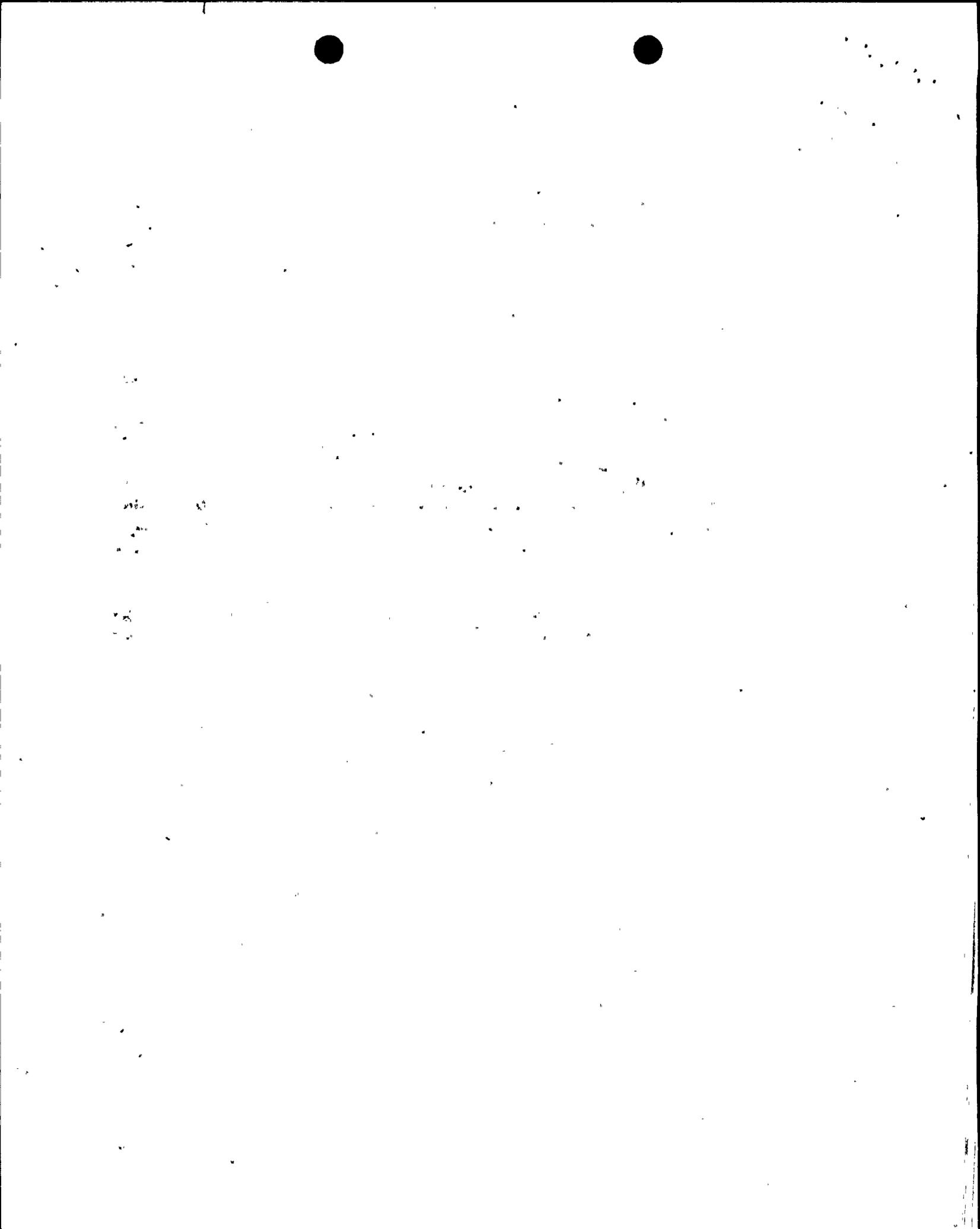
GE Design Specification 22A478, revision 8 states that the maximum upward force for handling loads shall not exceed 3 g, dry. 3 g equates to 1875 pounds (3 x 625 pounds, the dry weight of a fuel assembly). In the configuration with the new mast extended, the 2000 pound limit would also include the grapple assembly and the final section of the extended mast as weight on the cable (the other sections of the mast would be carried by the refueling platform). The grapple assembly and final mast section weigh approximately 180 pounds. Therefore 1820 pounds (2000 - 180) will be the approximate load on the fuel with the new mast.

The proposed overload cutoff value of 1700 pounds on the cable, with the grapple assembly and last mast section weights subtracted (1700 - 180 = 1520) is conservative with respect to the margin established by both the current maximum upward force and the value stated by GE as acceptable.

**Part 2** Relabelling the current "overload cutoff" Surveillance for these hoists as the "loaded interlock" (485  $\pm$  50), and the addition of a Surveillance for an "overload cutoff" on the frame mounted and monorail hoists at 1000  $\pm$  50 pounds.

**Discussion**

The signal to the rod block interlock circuitry currently provided by the load sensor tested in accordance with the 485  $\pm$  50 surveillance is not being changed. This is an administrative change only to relabel the interlock to better describe its function, i.e., when the frame and monorail hoists have a load engaged that approximates that of a fuel bundle. The circuitry acts to prevent the frame mounted and monorail hoists from operation when: 1) the refueling platform is over the reactor, 2) a control rod is withdrawn, and 3) a load,  $\geq$  485  $\pm$  50 pounds, is sensed on the hoist. The phrase "loaded interlock" more closely describes the interlock concerned with providing a rod block signal when a weight close to that of a fuel bundle is sensed on the hoists.



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An additional surveillance is being added because these hoists can be used for other activities concerned with moving reactor internals and use is allowed when any one of the above three input signals are not present (i.e., the load can be greater than that of a fuel bundle). An "overload cutoff" is described in the vendor's manual that acts to disable the hoists when excessive load is sensed. This feature protects the equipment and ensures that excessive loads are not applied to reactor internals. The phrase "overload cutoff" more appropriately describes this function than does the phrase "loaded interlock".

On page 4 of the reference, a statement was made that "a review of other plants having similar frame mounted and monorail hoists on similar refueling platforms indicates that the majority have "overload cutoff" and "loaded interlock" surveillances with similar values." The use of "similar" in this context was intended to refer to the defined surveillances and their relative magnitudes. In the majority of Technical Specifications reviewed, setpoints of approximately 1050 and 450 pounds corresponding to "overload cutoff" and "loaded interlock" values were common. The intent was to ensure that other plants with similar equipment (Fermi, LaSalle 1 & 2, Hatch, and Limerick) use the proposed "overload cutoff" and "loaded interlock" terminology as applied to the frame mounted and monorail hoists.

**Part 3** Reorder the surveillances to place all the "overload cutoff" surveillances together and all of the "loaded interlock" surveillances together.

Discussion

There were no questions with regard to this part of the proposed change.

**Change 4** Change the limit notation to eliminate specifying low limits and clearly indicate the appropriate trip setpoint. The current surveillances specify "when the load exceeds" a setpoint and a  $\pm$  tolerance value. This change clarifies the interlock values to specify one value which, in all cases, is the value of concern. Also the phrase "when the load exceeds" is being replaced by "prior to the load exceeding." The intent is to state demonstrated operability (i.e., prior to exceeding the limit) and to standardize the wording in the Specifications.

Discussion

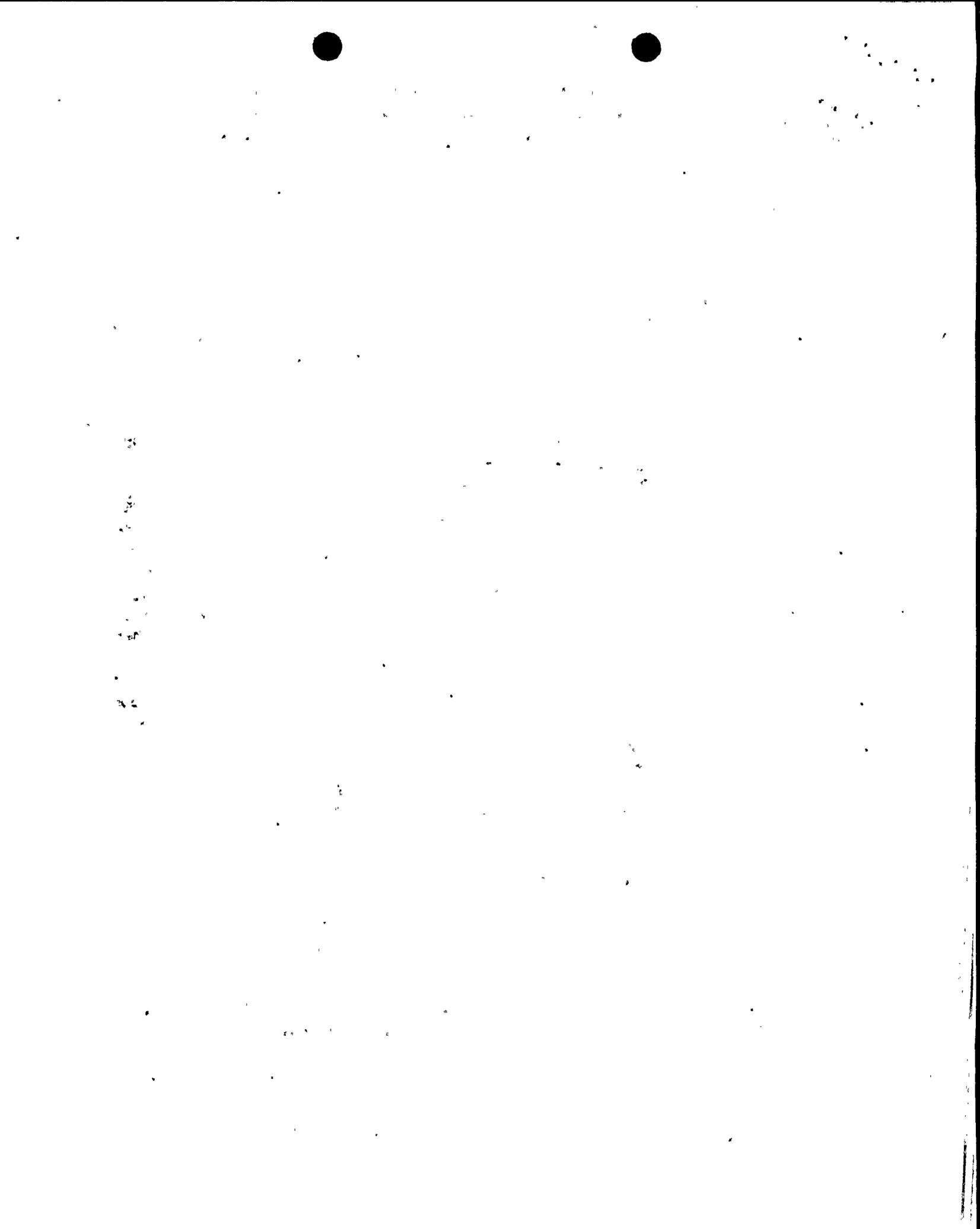
There were no questions with regard to this part of the proposed change.

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Part 5 Change the slack cable cutoff from "less than 50 pounds" to "between 25 and 75 pounds."

Discussion

There were no questions with regard to this part of the proposed change.



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**NO SIGNIFICANT HAZARDS CONSIDERATIONS**

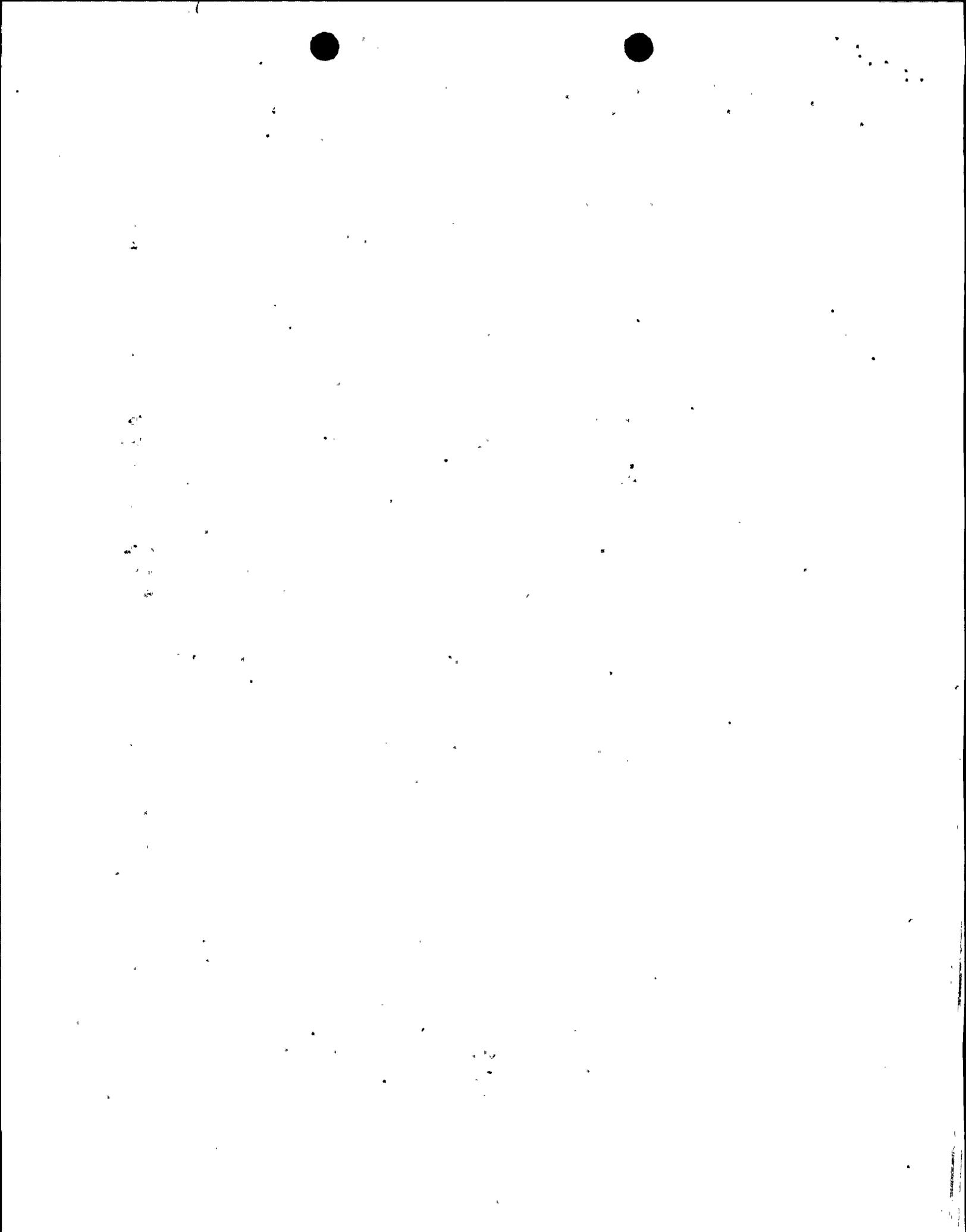
The Supply System has evaluated the no significant hazards considerations in its request for a license amendment. In accordance with 10CFR50.91(a), the Supply System is providing the analysis of the proposed amendment against the three standards in 10CFR50.92:

1. No significant increase in the probability or consequences of an accident previously evaluated results from this change.

The only accident evaluations affected by the proposed changes are those associated with the Fuel Handling Accident (FHA) analyses presented in WNP-2 FSAR section 15.7.4. As discussed therein, the fuel handling accident event which produces the largest number of failed spent fuel rods is the drop of a spent fuel bundle into the reactor core when the reactor vessel head is off. The probability of dropping a spent fuel assembly onto other fuel assemblies in the reactor vessel does not increase with the new design. The NF500 mast functions identically to the old mast when grappling, lifting, or moving a fuel assembly. It does not degrade platform design features such as grapple fail-safe on loss of air, dual lifting cables, backup cable reel brake, and the grapple engaged loaded interlock, all of which serve to protect against a fuel drop event. It is more rigid than the previous mast design and, therefore, is less prone to mast bowing. The consequences of dropping a fuel assembly are also unaffected because the weight of the mast is not considered in the FHA analysis. The number of postulated fuel pins which fail as a result of the FHA is unaffected since the energy imparted by the dropped assembly is independent of the mast design, and mitigating systems will function as previously assumed. Further, analysis by GE of a postulated accident in which the exposed portion of the NF500 mast is struck by a missile and severed while lifting a fuel bundle with both falling onto the top of the core has been concluded showing that the consequences of the increased weight of the mast and the bundle is bounded by the current WNP-2 FSAR analysis for the fuel bundle only FHA.

Relabelling the current "overload cutoff" surveillance as "loaded interlock" is an administrative change which has no impact on any accident previously evaluated.

The "overload cutoff" at  $1000 \pm 50$  pounds on the frame mounted and monorail hoists acts to limit loads on the hoists and reactor internals when a rod block signal is not present. By design, the hoists can be used when the rod block circuitry is not satisfied. Incorporation of this additional restriction on plant activities with regard to these hoists



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is conservative and has no impact on any accident previously evaluated. Neither the "overload cutoff" or "loaded interlock" are safety related design features of the plant and are not recognized as features capable of initiating or contributing to the initiation of an accident. Also, the "overload cutoff" and "loaded interlock" do not perform a mitigative function in any design bases accident analysis.

Reordering the "overload cutoffs" and "loaded interlocks" results in no changes in modes of plant operation, operating procedures, or in plant design and is therefore an administrative change only.

The change to setpoint description "prior to the load exceeding 1250 (535, 600, 1050)" does not affect compliance with the current Technical Specifications. The Surveillances will continue to verify the same safety function, i.e., a trip prior to exceeding the value in the existing Technical Specifications. No changes in modes of plant operation, operating procedures, or plant design are introduced by this change.

The slack cable cutoff is not a safety related design feature and does not act to initiate, contribute to the initiation, nor mitigate the consequences of any WNP-2 design bases accident. Hence the proposed change does not affect any previously analyzed accident analyses.

Thus, the probability or consequences of a previously analyzed accident are not significantly increased by the proposed change.

2. The change would not create the possibility of a new or different kind of accident from any previously analyzed.

No new failure modes are introduced as a result of the proposed changes. The NF500 mast is intended as an exact replacement for the currently installed mast, and is designed to match or exceed the strength and performance of the NF400 mast in all areas. No new fuel handling methods or surveillance procedures will be necessary as a result of installation of the new mast. The proposed limits will still ensure that the protective interlocks are initiated as required. Limits on fuel travel in all directions are unchanged. Retaining the ability to use the NF400 mast presents no new accident possibilities since this has already been analyzed for its current use.

Relabeling the current  $485 \pm 50$  pound surveillance on the frame mounted and monorail hoists as the "loaded interlock" and imposing another surveillance at  $1000 \pm 50$  pounds titled "overload cutoff" introduces no new modes of plant operation or new operating procedures. The addition of an overload cutoff at  $1000 \pm 50$  pounds to ensure that plant equipment will not be exposed to excessive forces does not create any new failure modes or effects.



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**REQUEST FOR AMENDMENT TO TECHNICAL SPECIFICATION 4.9.6,  
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Reordering the "overload cutoffs" and "loaded interlocks" results in no changes in modes of plant operation, operating procedures, or in plant design and is therefore an administrative change only.

The change to setpoint description "prior to the load exceeding 1250 (535, 600, 1050)" does not introduce new modes of plant operation, new operating procedures, or plant modifications. The present Technical Specification values bound this change.

The slack cable cutoff change does not represent a change in modes of plant operation, require a change to plant operating procedures, or require physical modifications.

Therefore, there is no possibility of a new or different kind of accident from any previously analyzed.

3. This change would not involve a significant reduction in the margin of safety.

The changed refueling mast cutoff and interlock values merely account for the increased weight of the mast, or a portion thereof, and still provide the intended protection as discussed in the WNP-2 Bases. No other interlocks are affected by the use of the NF500 mast. No margins or assumptions related to the fuel bundle drop analyses are changed as a result of using the NF500 mast and the new mast has the same single failure protection as the old mast.

A change in title only for the design feature that provides input to the rod block circuitry for the frame mounted and monorail hoists is an administrative change without impact to the margin of safety.

The addition of an overload cutoff Surveillance at  $1000 \pm 50$  pounds for the frame mounted and monorail hoists recognizes an original design feature that provides additional assurance "that the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations", (WNP-2 Bases 3/4.9.6 item (3)). As such, the addition of an "overload cutoff" at 1050 pounds establishes an additional margin of safety not previously identified by the WNP-2 Technical Specifications.

The change to the current "overload cutoff" Surveillance at  $485 \pm 50$  pounds and the proposed surveillance for an "overload cutoff" at  $1000 \pm 50$  pounds on the frame mounted and monorail hoists does not impact a margin of safety. The frame mounted and monorail hoists have the same capability as the refuel mast (main hoist) to engage and apply a lifting force on core internals and the reactor vessel. The lifting force that



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the current main hoist can apply is limited by an "overload cutoff" at  $1200 \pm 50$  (Surveillance 4.9.6.a). Subtracting the approximate weight of the grapple head and last section of extended mast from this value leaves an applied force of approximately 1070 pounds. Hence, because all three hoists have the capability of applying a lifting force to core internals and the reactor vessel, and the current main hoist limit ( $1200 \pm 50$  pounds) has been previously evaluated and accepted as appropriate for maintaining the margin of safety, the "overload cutoff" limit ( $1000 \pm 50$ ) on the frame mounted and monorail hoists does not represent a significant decrease in the margin of safety for avoiding excessive loads on core internals and the reactor vessel.

Reordering the present "overload cutoff" and "loaded interlock" surveillances is an administrative change without impact to any margin of safety.

With respect to the change to setpoint description "prior to the load exceeding 1250 (535, 600, 1050)", the current Technical Specifications bound the proposed change and the change verifies operation prior to exceeding the present Technical Specifications. Therefore, the change results in verification of operability at the same or at a more conservative value to the current Technical Specifications.

The current surveillance verifies operation of the slack cable cutoff when the load "is less than 50 pounds." This change proposes verification "between 25 and 75 pounds." The new values continue to provide the intended protection to stop releasing cable in order to: 1) avoid unravelling the cable from the drum and allowing it to drop free from the refuel platform, 2) indicate a potentially hung up fuel bundle in a timely manner, 3) prevent transfer of the weight of the lower mast section and grapple head to the fuel bundle, and 4) provide additional indication that the grapple has made contact on down travel with the fuel bundle bail and is in position to connect.

For items 1) and 3), the proposed 25 pound lower limit is conservative with respect to the zero pound value where the cable could unravel or the full weight of the mast could be felt on the fuel bundle. For items 2) and 4), actuation of the cutoff at greater than the current "less than 50 pounds" but at less than or equal to 75 pounds provides adequate indication of either a hung up bundle (and a potential to release the bundle in a hung up position) or a grapple that has contacted the bundle bail and is ready to connect. A premature indication, that could occur with the higher cutoff value at 75 pounds (rather than the existing 50 pounds) that could initiate an unsuccessful grapple operation, would in no way impact the safety of the plant or the fuel transfer operation. An unsuccessful grapple attempt is easily recognized because both the main hoist loaded and redundant loaded interlock signals would not be satisfied.

Therefore, this change does not involve a significant reduction in the margin of safety.

