TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

December 7, 1984

Director of Nuclear Reactor Regulation
Attention: Ms. E. Adensam, Chief
Licensing Branch No. 4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Ms. Adensam:

In the Matter of) Docket Nos. 50-327
Tennessee Valley Authority) 50-328

References: 1. D. G. Eisenhut's letter dated December 22, 1980 regarding NUREG-0612, Control of Heavy Loads at Nuclear Plants.

2. D. G. Eisenhut's letter dated February 3, 1981 regarding Control of Heavy Loads (Generic Letter 81-07).

TVA's response to Section 2.1 of Enclosure 3 to references 1 and 2 was submitted to you for our Sequoyah Nuclear Plant by L. M. Mills' March 1, 1982 letter. A draft technical evaluation report (TER) on the control of heavy loads for our Sequoyah Nuclear Plant was transmitted to TVA by your June 30, 1982 letter to H. G. Parris. A subsequent telephone conversation was held with NRC staff members on December 3, 1982 to discuss TVA comments on the draft TER. A supplemental response, which provided additional information and commitments, as requested by the NRC in the December 3, 1982 telephone conversation was submitted on February 25, 1983.

As requested by your June 30, 1982 letter to H. G. Parris, additional comments to guidelines 5a, 7a, and 7b were provided to you by the February 28, 1984 letter from L. M. Mills.

Enclosure 1 provides an additional response to guideline 4 of the NRC TER regarding special lifting devices. Enclosure 2 provides a revision to footnote 1 for guideline 7a.

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Director of Nuclear Reactor Regulation December 7, 1984

If you have any questions concerning this matter, please get in touch with Jerry Wills at FTS 858-2683.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. W. Hufham, Manager
Licensing and Regulations

Sworn to and subscribed before me
this 7th day of Dec. 1984

Paulette T. White
Notary Public
My Commission Expires 8-24-88

Enclosure
cc: U.S. Nuclear Regulatory Commission (Enclosure)
Region II
Attn: Mr. James P. O'Reilly Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

ENCLOSURE 1

RESPONSE TO GUIDELINE 4 OF THE

TECHNICAL EVALUATION REPORT (TER)

C5257-449 - NUREG-0612 - WESTINGHOUSE

NSSS LIFTING DEVICES

Special Lifting Devices (Guideline 4, NUREG-0612, Section 5.1.1(4))

The following table outlines the reactor vessel head and internals lift rigs' compliance with the criteria of ANSI N14.6-1978 as specified by the NRC in section 2.1.5 of the Sequoyah Draft Technical Evaluation Report (TER) C5257-449. These are NSSS devices supplied by the Westinghouse Electric Corporation under contract 68C60-91934. The information supplied in the table was extracted from the Westinghouse report concerning the compliance of these devices with NUREG-0612. Unless specifically identified, all comments in the table address both rigs.

NA - Not applicable
E - Equivalency
C - Compliance
N - Noncompliance

ANSI N14.6 -1978- Specific Section	TVA's Position	Corrective Action or Equivalency
3.1.1	E	(a) No design specification was written; however both assembly and detailed manufacturing drawings and purchasing documents do specify material, fabrication and testing requirements.
	C	(b) There are no adverse environmental conditions which affect the design or use of the device. The normal operating conditions are 120°F maximum and 50°F minimum temperature at atmospheric pressure.
	E	(c) Since these special lifting devices cannot be used for any lift other than their intended use and since the use of these devices is administratively controlled in Maintenance Instructions MI-1.2, MI-1.4, and MI-6.22, there is no need for nameplate information.
3.1.2	C	A critical items list was submitted in appendix A of attachment A of the Westinghouse report.
3.1.3	C	A stress report, signed and verified by a registered professional engineer, was submitted in appendix A of attachment B of the Westinghouse report.
3.1.4	E	Should any repair of these lifting devices be required in the future, a repair procedure will be prepared at that time to address that particular repair. The method of repair will be in accordance with the recommendations made by Westinghouse Electric Corporation in WCAP-10346, Evaluation of the Acceptability of the Reactor Vessel Head Lift Rig, Reactor Vessel Internals Lift Rig, Load Cell, and Load Cell Linkage to the Requirements of NUREG-0612 for Tennessee Valley Authority, Sequoyah No. 1 and No. 2.
3.2.1	N	(a) Although items 3 and 12 of the internals lifting rig cannot be verified to comply with ANSI N14.6, requirements of section 3.2.1 using documentation provided by Westinghouse, the Failure Evaluation provided with Nonconformance Report SQN MEB

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ANSI N14.6 -1978- Specific Section	TVA's Position	Corrective Action or Equivalency
		8406 acknowledges that the rig is "Acceptable for all modes of operation and design conditions." Additionally, the internals lifting rig was designed to handle the lower internals which weigh approximately 1-1/2 times the upper internals. Since all the fuel is removed when the lower internals are lifted, only the lift of the upper internals is governed by the requirements of NUREG-0612. The inspection requirements delineated in the July 27, 1984 letter to you from L. M. Mills will assure continued acceptability of this lifting rig.
	E	(b) Item 1 of the RV head lift rig and items 4, 5, 6, and 27 of the internals lifting rig were listed as having no material certification by which to determine fracture toughness. Data obtained from hardness test performed on item 1 of the head lifting rig will be analyzed to determine fracture toughness characteristics. The continued use of the internals lifting rig is justified on the basis of discussion in section 3.2.1(a) above. Hardness tests similar to that performed on the head lifting rig will be performed on the internals lifting rig before the completion of the first inservice inspection to confirm material properties.
3.2.4	E	Refer to section 3.2.1 for equivalency of pins, links, and adapters, etc.
3.2.5	NA	No wire rope slings are used for both lifting devices.
3.2.6	E	Neither the drop weight nor the Charpy impact test can be performed since there is no heat number traceability. However, the recommended 125-percent cold proof test is also not feasible. The discussion in section 3.2.1 of this response along with the consideration that Westinghouse stated in WCAP-10346 that all material selection was based on its fracture toughness characteristics should be considered as an equivalency to the requirements of this section.

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N - Noncompliance

ANSI N14.6 -1978- Specific Section	TVA's Position	Corrective Action or Equivalency
3.3.1	E	(a) No specific design considerations were required concerning the operating environment. However, both devices were properly coated and lubricated in accordance with section 3.6 of ANSI N14.6 to reduce the possibility of failure to critical areas due to corrosion or contamination.
	NA	(b) Galling is of no concern for either lifting device, since there are basically no moving parts or severe metal to metal contact areas to produce a galling effect. Additionally, all critical joint connections on these devices are lubricated.
	C	(c) Westinghouse reports that the sling block, item 3, for the RV head lift rig and item 11 for the RV internals lift rig are the only items that need to be considered for lamellar tearing. Designing to extremely low stress levels and requiring nondestructive testing of the base material and assembly welds at fabrication has satisfied these requirements.
3.3.4	C	Both devices were designed using wide joint connections with relatively low tolerances which ensures even load distributions of pins and plates.
3.3.5	C	Cotterpins and lock pins are used to prevent load carrying components from becoming inadvertently disengaged.
3.3.6	NA	There are no remote mechanisms for engagement or disengagement used with either device.
4.1.3	C	All critical load carrying members require letters of compliance to ensure material certification.
4.1.4	C	Both devices were designed to standard fabrication practices with a final inspection that included visual, dimensional, procedural, cleanliness, personnel qualification, etc. Additionally, an issuance of a quality release statement that verifies that these devices were built to the drawing requirements was submitted.

Response to Guideline 4 of TER C5257-449

NA - Not applicable
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C - Compliance
N - Noncompliance

ANSI N14.6 -1978- Specific Section	TVA's Position	Corrective Action or Equivalency
4.1.5	E	All welding was performed by qualified welders and weld procedures were written in accordance with ASME Boiler and Pressure Vessel Code, Section IX for Carbon Steel Welds.
4.1.6	E	A formal quality assurance program was not required during the manufacture of either device; however, all manufacturer welding procedures and nondestructive testing procedures were reviewed by Westinghouse prior to use. Issuance of a quality release to ensure conformance with drawing requirments was performed.
4.1.7	C	All critical load carrying members require letters of compliance to ensure material certification.
4.1.9	C	Issuance of quality releases to ensure conformance of fabrication drawings was performed by Westinghouse.
5.1.3	E	Method of periodic inspection was provided to NRC by letter dated July 27, 1984 from L. M. Mills to E. Adensam.
5.1.4	E	The use of these special lifting devices are governed by Maintenance Instruction MI-1.2
5.1.5	E	These devices have not been individually marked; however, they cannot be used for any lift other than the lift they were designed for as prescribed in SQ-MI-1.2.
5.1.6	E	SQ-MI-1.2 provides an effective history of all lifts using these devices.

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ANSI N14.6 -1978- Specific Section	TVA's Position	Corrective Action or Equivalency
5.2.1	E	The Westinghouse Site Assembly Instruction manual required that the rig suspend 100-percent of its rated load for 1/2 hour. During this time, the rig was visually inspected, then the load was removed and nondestructive surface examination was performed (either magnetic particle or liquid penetrant).
5.2.2	C	Replacement parts that are critical to handling the load will be proof tested in accordance with ANSI N14.6-1978.
5.3	-	The method by which Sequoyah will perform periodic inspections was provided to the NRC by letter dated July 27, 1984 from L. M. Mills to E. Adensam.

ENCLOSURE 2

REVISED RESPONSE TO GUIDELINE 7a
FOOTNOTES

1. Noncompliance - Section 1.7 of CMAA-70 requires load carrying parts to be designed not to exceed 20 percent of the ultimate strength of the material. The lower load block sheave pin, bridge truck pin, bridge saddle pin, and main drum shaft meet the design requirements, but the materials specified cannot be verified. Since all pins or shafts are accessible without disassembly, a field Brinell hardness test is recommended in order to be able to determine the material properties throughout the pin.

2. Equivalent - Section 3.2 of CMAA-70 requires the crane to be designed and fabricated to the standards of The American Welding Society Manual AWS D14.1-70, "Specification for Welding Industrial and Mill Cranes." The procurement specification for this crane requires the design for structural members and their connections be in accordance with the applicable parts of AWS D2.0-69, "Welded Highway and Railway Bridges." Additionally, the fabrication of all structural steel shall be in accordance with section 1.23, part I of the AISC "Specification for Design, Fabrication, and Erection of Structural Steel for Buildings." These two specifications are equivalent to the requirements set forth in AWS D14.1.