



MISSISSIPPI POWER & LIGHT COMPANY

*Helping Build Mississippi*

P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

August 6, 1982

NUCLEAR PRODUCTION DEPARTMENT

U. S. Nuclear Regulatory Commission  
Office of Nuclear Reactor Regulation  
Washington, D. C. 2055

Attention: Mr. Harold R. Denton, Director

Dear Mr. Denton:

SUBJECT: Grand Gulf Nuclear Station  
Units 1 and 2  
Docket Nos. 50-416 and 50-417  
License No. NPF-13  
File: 0260/16360  
Ref: AECM-81/427  
MAEC-82/169  
Response to EG&G Comments on Six Month  
Heavy Load Report  
AECM-82/338

Mississippi Power & Light Company (MP&L) has reviewed the comments that EG&G submitted on MP&L's first Heavy Load submittal sent to your organization with a letter from L. F. Dale to Mr. D. G. Eisenhut on November 23, 1981. Attached is MP&L's response to the EG&G comments.

In the cover letter accompanying the EG&G comments, from Mr. A. Schwencer to Mr. J. P. McGaughy dated July 13, 1982, MP&L was requested to participate in a conference call the week of August 9, 1982. MP&L's contractor for the Heavy Load evaluation, as well as key MP&L personnel, will be unavailable the week of August 9, 1982, so MP&L is requesting that the conference call be rescheduled for the week of August 16, 1982.

If you have any questions, please advise.

Yours truly,

L. F. Dale  
Manager of Nuclear Services

PJR/JDR:n11

Attachment

cc: See next page

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PDR ADOCK 05000416  
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**MISSISSIPPI POWER & LIGHT COMPANY**

cc: Mr. N. L. Stampley (w/o)  
Mr. R. B. McGehee (w/o)  
Mr. T. B. Conner (w/o)  
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MP&L Response to Comments

Open Item Number:

2.3.1.2 Summary on Safe Load Paths

HLR6-1

EG&G

- a) Complete development of procedures prior to fuel load and have them available for possible NRC audit. (Page 17)

Response:

All appropriate procedures have been developed and are available for audit.

HLR6-2

EG&G

- b) On deviations from defined load paths, the Plant Safety Review Committee should be included in approval actions. (Page 17)

Response:

Plant procedures require that deviations from safe load path need only the approval of the Operations Superintendent. The pertinent plant procedures have been approved by the Plant Safety Review Committee. This function of the Committee, to approve procedures and changes of procedures rather than the approval of deviations from the procedures, is documented in the Technical Specifications as accepted by NRC.

2.3.2.3 Summary on Load Handling Procedures

HLR6-3

EG&G

The development of load handling procedures should be completed prior to fuel load. The Licensee should have these procedures available for possible NRC audit. (Page 19)

Response:

Same as HLR6-1

2.3.3.3 Summary of Crane Operator Training

HLR6-4

EG&G

The Licensee should complete their new procedure prior to fuel load and have the entire training qualification and operator conduct program available for possible NRC review. (Page 20)

Response:

Same as HLR6-1

#### 2.3.4.2 Special Lifting Devices

HLR6-5

EG&G

EG&G does not concur with the Licensee's evaluation of Sections 3.1, 3.3, 4.1, 4.2, and 4.3 as difficult to apply in retrospect. Good engineering practice is not an acceptable substitute for design specifications.

Section 1.0, 2.0, 3.4, 3.5, and 3.6 are also pertinent to the special lifting devices and should be addressed in the Licensee's report. (Pages 24 and 25)

Response:

- 1) The devices were designed prior to the existence of both ANSI N14.6-1978 and the NRC's decision (in NUREG-0612) to apply the standard to these types of devices. In this regard, there are a number of sections in the standard that are difficult to apply in retrospect. These are entitled Designer's Responsibilities (Section 3.1); Design Considerations (Section 3.3); Fabricator's Responsibilities (Section 4.1); Inspector's Responsibilities (Section 4.2); and Fabrication Considerations (Section 4.3). Because documentation is not available to assure that all of the subparts of these sections were met, they have not been addressed item by item for the purpose of identifying and justifying exceptions. Our review did include review of certain designer information including drawings and vendor manuals. The information did indicate that sound engineering practices were utilized by the designer and that requirements were placed on the fabricator and inspector by the designer for the purpose of assuring that the designer's intent was accomplished. On this basis, there is reasonable assurance that the intent of the sections listed above was in fact accomplished in the design, fabrication, inspection and testing of these devices.
- 2) Section 1.0, Scope; Section 2.0, Definitions; Section 3.4, Design Considerations to Minimize Decontamination Effects in Special Lifting Device Use; Section 3.5, Coatings; and Section 3.6, Lubricants are not pertinent to the load handling reliability of the devices and therefore have not been addressed for the purpose of identifying and justifying exceptions.

A comparison chart was completed for the inspection and maintenance aspects of these lifting rigs and is attached. Although the Tables in the attached Appendix refer only to the Head Strongback Carousel and the Dryer Separator Strongback the remarks are generally applicable to the Drywell Head Lifting Frame as well, unless a remark is related to a specific special lifting device.

HLR6-6

EG&G

The Licensee's designer must have a stress analysis on the lifting devices or they could be used to lift any load desired in the facility. (Page 25)

Response:

In the six month report MP&L stated that the Head Strongback Carousel and Dryer/Separator Strongback were designed with stress design factors consistent with ANSI N14.6, Section 3.2. The Drywell Head Lifting Frame was designed to AISC criteria which resulted in lower design factors being realized than required by ANSI N14.6. However, based on conservative load criteria used in the design of the lifting frame, the resulting design factors are consistent with those generally required for safety related items. Stress analysis of the Drywell Head Lifting Frame was based on a load factor of 135,000 lbs. instead of the maximum load of 123,000 lbs. Material

strengths used in the calculation were from specifications, again more conservative than actual mill-certified material properties. Also, the average strength for structural steel is nearly a factor of 1.25 higher than the minimum yield requirement specified by ASTM. While these factors above minimum code strength exist and contribute to structural margins, they were not used in the evaluation. (1)

#### 2.3.4.2 Special Lifting Devices

HLR6-7

EG&G feels that lifts conducted with the devices identified by the Licensee have a high probability of qualifying as critical loads under the definition found in Section 2, especially considering the phrase "uncontrolled movement." The lifts identified in Tables 2.4, 2.5, 2.6, and 2.7 will be conducted when the plant is shut down, thus reducing the number of systems required for unit safety, but greatly increasing the possibility of breaching containment in the event of inadvertent heavy load drop. In addition, it should be pointed out that Section 2.1 of NUREG-0612 specifies the allowable offsite radioactive release applicable to heavy loads as 25% of the guideline exposures outlined in 10CFR Part 100. For the lifts considered in this guideline, the definition of "critical load" in ANSI N14.6 should be amended. (Page 25)

Response:

MP&L contends that this EG&G comment was premature. Whether or not Grand Gulf has critical loads was determined and addressed in the nine month report in which the consequences of load drop analyses were determined, AECM-82/149 dated May 4, 1982.

HLR6-8

EG&G

In Guideline 4 of NUREG-0612, the stress design factor stated in Section 3.2.1.1 of ANSI N14.6 should be based on the combined maximum static and dynamic loads that could be imparted on the handling device based on characteristics of the crane which will be used. The Licensee's evaluation of the lifting devices failed to include this change in stress design factors. (Pages 25 and 26)

Response:

MP&L contends analysis would show that maximum dynamic loading based on characteristics of the polar crane will be insignificant.

(1) The Effects of Atomic Design of Structures to Resist Weapons - Strength of Materials and Structural Elements, TM5-856-2, Department of the Army, Washington, D. C., August, 1965.

HLR6-9

EG&G

In the Licensee's evaluation of fracture toughness properties of materials utilized in fabrication of load-bearing components in each of the lifting devices, it is not clear to EG&G how periodic inspections can be performed to detect pending brittle failure. The Licensee should furnish the procedures describing the techniques that will be employed to ensure that brittle failures does not occur. (Page 26)

Response:

In the six month report it was indicated that A-53 steel, used in vertical supports and bracing in the RV head, might not have adequate resistance to brittle fracture. Subsequently, the NSSS Vendor, General Electric, determined A-53 had not been used in load bearing components. All other materials used for load bearing in lifting devices possessed adequate resistance to brittle fracture. Therefore periodic inspection is not needed.

HLR6-10

EG&G does not concur with the Licensee's plan to inspect the components of the lifting devices on 5-year intervals, contrary to the requirements of Section 5.3.1(2) of ANSI N14.6-1978. The Licensee should re-evaluate the criteria of ANSI N14.6 and develop a plan based on usage level and time intervals. Inconvenience is not an adequate substitution for the safe handling of heavy loads at nuclear power plants. (Page 26)

Response:

Annual inspections for all components of the head strongback carousel, dryer/separator strongback and drywell head lifting frame (strongback) are not believed to be required. The inspection frequencies that have been established for these Grand Gulf devices are judged to be equivalent to the intent of ANSI N14.6-1978 in that this standard was intended for cask lifting rigs that are used on a frequent basis (potentially 50 to 100 times per year), and such lifting rigs would be subjected to potential abuse in transportation between sites as well as harsh environments during transportation. These harsh environments can include rain, road dust, road salt, or other deliterious materials.

Since the lifting devices identified above for Grand Gulf are typically used on an annual basis to support refueling operations, the frequency of use is considerably less than that of the lifting rigs for which ANSI N14.6 is intended. Additionally these Grand Gulf special lifting rigs are stored in an area where they will not be subjected to harsh environments.

Accordingly, while the visual inspections of the lifting rigs will be performed on an annual basis, the more difficult and time consuming nondestructive examinations and dimensional examinations will be performed at a five year interval. This extended inspection interval is considered equivalent to the intent of ANSI N14.6-1978 to provide sufficient periodic inspection and examination to identify wear or degradation that could potentially lead to weakening of the lifting devices.

HLR6-11

EG&G agrees with the Licensee's actions on Section 5.3.3 where inspections and examinations are performed prior to a 150% load test if the device has been deformed. The special lifting devices should be load tested to 150% even though repairs or modifications may not have been required. (Page 26)

Response:

MP&L does not agree that a 150% load test is required if no damage or deformation is identified in inspections or examinations following an overload of a lifting device. In cases where a 150% load test is performed following repairs to damage, inspection and examination is relied on to determine that the lifting rig has not been damaged by the 150% load test. Accordingly, if inspections and examinations following an overload of the lifting device determine that there is no damage or deformation, these should be sufficient to demonstrate that the device is satisfactory for use; a subsequent load test would not establish any additional bases for the integrity of the lifting device.

#### 2.3.5.1 Summary of Licensee's Evaluation on Lifting Devices (Not Specially Designed)

HLR6-12

The Licensee did not address slings to ANSI B30.9-1971.

Response:

To assure that appropriate slings are selected for use in handling miscellaneous loads and that slings are properly maintained, the following changes will be made:

- 1) Load handling procedures pertaining to heavy loads will require use of ANSI B30.9 criteria for sling selection and rigging techniques.
- 2) A preventive maintenance procedure will require annual inspections of slings;
- 3) Load handling procedures will require a visual inspection of slings for damage prior to making a lift; and

- 4) The preventive maintenance procedure for slings will also include sling tagging requirements to identify: sling rating, application, last examination, and expiration date of examination.

Thus the criteria to ANSI B30.9 will be satisfied.

#### 2.3.6.3 Summary on Cranes (Inspection, Testing and Maintenance)

HLR6-13

The Licensee should have maintenance procedures and instructions available for possible NRC review. (Page 30)

Response:

Same as HLR6-1

#### 2.3.7.3 Summary on Crane Design

Grand Gulf Nuclear Station Units 1 and 2 fully complies with Guideline 7, Crane Design of NUREG-0612, Section 5.1.1(7). However, the Licensee should have all information demonstrating equivalency on file for possible NRC review.

Response:

All information concerning specifications of cranes and showing how the specifications conform to NUREG Guidelines are available for audit.

PLANT: GGNS  
 DEVICE: 1. Dryer/Separator Strongback  
2. Head Strongback Carousel  
 TITLE: Evaluation of Design and Inspection Programs  
for Above Devices to Criteria in ANSI N 14.6

CONT ID NO. 7878

STANDARD SPEC.	REMARKS/ALTERNATIVE
<p><b>3. Design</b></p> <p><b>3.1 Designer's Responsibilities</b></p> <p><b>3.1.1</b> The designer shall prepare a design specification, which defines the performance criteria for which the special lifting device is designed and which states the requirements for drawings, materials and their heat treatment (if any), fabrication practices, in-process inspection and testing, quality assurance requirements, documentation requirements, and record retention. The design specification shall specify any limitations on the use of the device with respect to temperature, corrosive environments, etc, and shall specify information to be included on a nameplate or otherwise marked on the device.</p> <p><b>3.1.2</b> The design specification shall include a critical items list, which identifies critical components and defines their critical characteristics. The design specification shall also specify for these components (1) material identification, qualification, and control; (2) fabrication practices; (3) in-process testing and inspection with acceptance criteria; (4) final product testing and inspection with acceptance criteria; and (5) the extent to which 10 CFR, Appendix B, or other quality assurance requirements apply. Although ASME Boiler and Pressure Vessel Code - Section III<sup>2</sup> does not pertain specifically to special lifting devices, the designer may find appropriate sections that may be referenced for materials testing and control, fabrication practices, testing procedures, acceptance criteria, and qualification requirements.</p>	<p>While it is not practical to assign responsibilities when the design and fabrication was completed prior to application of this standard to these devices by NRC, our review of the designer's equipment manuals and the design drawings indicates that sound engineering practices were specified by the designer for the fabrication of the devices including selection of structural material, fabrication practices, in-process testing and inspection. The designer's equipment manuals provides an adequate guide to the user for the proper use of the device. We judge these documents to be an acceptable fulfillment of the designer's responsibilities for this section (3.1) of the standard.</p>

PLANT:

GGNS

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Evaluation of Design and Inspection Programs for Above  
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STANDARD SPEC.	REMARKS/ALTERNATIVE
<p><b>3.1.3</b> The designer shall furnish signed stress analyses demonstrating the adequacy of the special lifting device and its components with respect to any loads that may be imposed upon them during the performance of their functions. These analyses shall also demonstrate that appropriate margins of safety have been provided.</p>	<p>Design calculations for the Head Strongback and Dryer/Separator Strongback have been performed (GE letter MPGE-81/187 dated September 17, 1981).</p>
<p><b>3.1.4</b> The designer shall indicate what repair procedures are permissible and set criteria for acceptable repair procedures and testing.</p>	<p>This requirement is applicable only during fabrication.</p>
<p><b>3.2 Design Criteria</b>  <b>3.2.1 Stress Design Factors</b>  <b>3.2.1.1</b> The load-bearing members of a special lifting device shall be capable of lifting three times the combined weight of the shipping container with which it will be used, plus the weight of intervening components of the special lifting device, without generating a combined shear stress or maximum tensile stress at any point in the device in excess of the corresponding minimum yield strength of their materials of construction. They shall also be capable of lifting five times that weight without exceeding the ultimate strength of the materials. Some materials have yield strengths very close to their ultimate strength. When materials that have yield strengths above 80% of their ultimate strength are used, each case requires special consideration, and the foregoing stress design factors do not apply. Design shall be on the basis of the material's fracture toughness, and the designer shall establish the criteria.  <b>3.2.1.2</b> The foregoing stress design factors are not intended to apply to situations where high local stresses are relieved by slight yielding in the material.</p>	<p>All lifting members are designed with a factor of safety of a minimum of 5 with respect to the materials ultimate tensile strength and a minimum of 3 with respect to their yield strengths.</p>

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N/C=Not Covered  
 N/A=Not Applicable

STANDARD SPEC.	REMARKS/ALTERNATIVE
<p>3.2.2 The manufacturer's rating of non-load-bearing components is acceptable if, in the opinion of the designer, the components will perform satisfactorily.</p>	<p>Not pertinent to load handling reliability.</p>
<p>3.2.3 If a material displays no well-defined yield point, its yield strength may be taken to correspond to 0.2% strain offset criteria.</p> <p>3.2.4 Load-bearing pins, extension links, and adapters used to connect mating members of special lifting devices shall be designed on the basis of criteria established in 3.2.1. Where possible, the weight of pins should permit manual handling.</p>	<p>See 3.2.1</p>
<p>3.2.5 In the event that wire rope or chain is used as an element in a special lifting device, it shall be in conformance with American National Standard Safety Standard for Slings, ANSI B30.9-1971.<sup>3</sup></p>	<p>Although wire rope is used for lifting some auxiliaries, it is not used for lifting of heavy loads as defined by NUREG-0612.</p>
<p>3.2.6 Unless exempted by the provisions of paragraph AM 218 of the ASME Boiler and Pressure Vessel Code, Section VIII, Division 2, materials for load-bearing members shall be subjected to a drop weight test in accordance with ASTM E 208<sup>3</sup> or a Charpy impact test in accordance with ASTM A 370<sup>3</sup> at a temperature 40°F (22°C) below the anticipated service temperature, and shall meet the requirements of the design specification.</p>	<p>See six month report, page 26, AECM-81/427 dated November 23, 1981</p>
<p>3.3 Design Considerations</p> <p>3.3.1 Problems related to (1) the environment in which a special lifting device will operate, (2) potential galling, and (3) possible lamellar tearing shall be considered when the designer selects the construction materials for a lifting device.</p>	<p>It is not practical to assign design considerations after fabrication is completed. Periodic inspections will be used to detect potential or actual problems.</p>

PLANT:

GGNS

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DEVICE:

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2. Head Strongback Carousel

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N/C=Not Covered  
N/A=Not Applicable

## STANDARD SPEC.

## REMARKS/ALTERNATIVE

3.3.2 Construction materials shall not be corroded by decontamination materials identified by the user, which might include demineralized water, oxalic acid, steam, 10% nitric acid, caustic solution, NaOH-tartaric acid, or proprietary materials. The designer shall list any exceptions to decontamination materials identified by the user.

Corrosion will be detected by periodic visual inspections.

3.3.3 Special lifting devices that require remote engagement with the shipping container shall be provided with lead-in guides and sufficient clearance between the container attachment points and the lifting device hook to allow simple motion engagement.

The dryer/separator strongback meets this criteria. The head strongback does not rely on remote engagement devices.

3.3.4 Special lifting devices shall be designed to assure distribution of the load to all load-bearing attachment points.

The devices are designed to assure distribution of load to all load-bearing members.

3.3.5 Load-carrying components that may become inadvertently disengaged shall be fitted with cotter pins or lock pins of a positive locking type, lock wired, or provided with a retaining latch.

Hook pins and clevis pins are provided with locking pins. Lifting pins for dryer/separator lift points are actuated by air piston. Positive indication of full insertion is provided.

3.3.6 An actuating mechanism shall be used, if needed, to securely engage or to disengage a special lifting device and a container. A position indicator shall be used in conjunction with an actuating mechanism when it is difficult to see the connection between the lifting device and the container.

The dryer/separator uses an air valve relay with pressure gage to give positive indication of engagement and thus complies with this requirement. Head strongback does not use actuating mechanisms.

3.3.7 Special lifting devices that are used in pools shall have a method of retrieval if unintentional disengagement with the crane occurs.

The requirement for retrieval if unintentional disengagement occurs is not pertinent to a load handling reliability.

3.3.8 Minimum requirements for nameplate and data content shall be provided.

Nameplates are provided.

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STANDARD SPEC.	REMARKS/ALTERNATIVE
<p><b>3.4 Design Considerations to Minimize Decontamination Efforts in Special Lifting Device Use</b></p> <p><b>3.4.1</b> Cracks, crevices, holes, pockets, cavities, or other areas where radioactive contaminants are likely to collect shall be avoided unless required for a specific function.</p> <p><b>3.4.2</b> Fabricated items and assemblies shall be designed to allow for decontamination washdown and to permit complete runoff of washdown solutions by drain holes, channels, or pipes.</p> <p><b>3.4.3</b> Machined intersecting plane surfaces shall be provided with radii as opposed to intersections, which leave open angles between 0° and 135°.</p> <p><b>3.4.4</b> In welding, if the cover pass is free from coarse ripples, irregular surfaces, deep ridges, or valleys between beads, grinding of bead is not necessary.</p> <p><b>3.4.5</b> Surface finishes subject to washdown shall be 250 rms (root mean square) or less except as indicated in 3.4.4 above. When specified by the buyer, finishes shall equal or be better than buyer-approved samples.</p> <p><b>3.4.6</b> Mechanical joints that are subject to routine or periodic disassembly after initial fabrication should be seal welded all around.</p>	<p>These considerations for decontamination are not pertinent to load handling reliability and were not included in the review.</p>

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STANDARD SPEC.	REMARKS/ALTERNATIVE
<p><b>3.5 Coatings</b></p> <p><b>3.5.1</b> Nonferrous metal or alloy steel such as aluminum, stainless steel, or monel shall not be coated unless specified by the buyer.</p> <p><b>3.5.2</b> Nameplates shall not be coated.</p> <p><b>3.5.3</b> Carbon steel surfaces subject to decontamination shall be coated with Phenoline 305, Amercoat 90, or other materials having equivalent properties with regard to ease of decontamination, as demonstrated by written data (except as indicated in 3.5.9). A thickness of 10 mils (0.25 mm) is recommended.</p> <p><b>3.5.4</b> Prior to blast cleaning, surfaces shall be solvent cleaned of oil, grease, dirt, salt, and crayon marks. Weld splatter shall be removed by grinding.</p> <p><b>3.5.5</b> Prior to coating, surfaces shall be blast cleaned to white metal in accordance with Steel Structures Painting Council Surface Preparation Specification No. 5 White Metal Blast Cleaning (SSPC-SP5).<sup>4</sup> The appearance of the surface after cleaning shall correspond to Pictorial Standards of SSPC-VIS-1.<sup>4</sup></p> <p><b>3.5.6</b> Surfaces shall be cleaned of cleaning materials by vacuuming or blasting with dry, oil-free air.</p> <p><b>3.5.7</b> Coatings shall be mixed, handled, and applied in strict accordance with the manufacturer's recommendations.</p> <p><b>3.5.8</b> Runs or roughness shall be repaired.</p> <p><b>3.5.9</b> Where compatible with buyer-specified decontamination materials, the designer may specify galvanizing or cadmium, chrome, or nickel plating, with the buyer's approval.</p> <p><b>3.5.10</b> Contact materials (tapes, marking pens, etc) used on materials susceptible to stress corrosion cracking, such as stainless steel, shall contain less than 250 ppm total chloride.</p>	<p>These requirements for coatings are not pertinent to load-handling reliability and were not included in the review.</p>

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STANDARD SPEC.	REMARKS/ALTERNATIVE
<p><b>3.6 Lubricants</b></p> <p><b>3.6.1</b> Special lifting devices that are submerged in demineralized water pools shall not have exposed lubricants that contact pool water unless approved by the buyer. Sealed or dry (graphite or polytetrafluoroethylene) bearings are potential substitutes in this application.</p> <p><b>3.6.2</b> Lubricants subject to radiation degradation shall be silicon based, molybdenum disulfide, graphite, or commercially available radiation-resistant greases and oils.</p> <p><b>3.6.3</b> Exposed lubricants subject to particulate contamination shall be minimized by design of the special lifting devices with sealed bearings, etc.</p>	<p>The requirements for lubricants are not pertinent to load-handling reliability and were not included in the review.</p>
<p><b>4. Fabrication</b></p> <p><b>4.1 Fabricator's Responsibilities.</b> The fabricator's responsibilities shall include the items listed in 4.1.1 through 4.1.12.</p> <p><b>4.1.1</b> Compliance with all aspects of the design specification and production of a special lifting device that meets the performance criteria outlined by the design specification.</p> <p><b>4.1.2</b> Obtaining designer approval and documenting the change when manufacturing convenience indicates a deviation from the detail of the design specification.</p> <p><b>4.1.3</b> Selection and use of materials conforming in all respects to the requirements of the design specification.</p> <p><b>4.1.4</b> Compliance with fabrication practices referenced in the design specification and use of generally accepted good practices where no specification is provided.</p>	<p>It is not practical to assign or consider the fabricator's responsibilities in retrospect and thus were not included in this review. However, many of these items were placed upon the fabricator by the design drawing requirements.</p>

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STANDARD SPEC.	REMARKS/ALTERNATIVE
<p><b>4.1.5</b> Qualification of welding procedures, welders, and welding operators in accordance with ASME Boiler and Pressure Vessel Code – Section IX, or by AWS Structural Welding Code D1.1,<sup>5</sup> as required by the design specification.</p> <p><b>4.1.6</b> Provision of a quality assurance program necessary to conform to the applicable requirements of Code of Federal Regulations, Title 10, Part 50, Appendix B, which requires the fabricator to organize, plan, establish, document, implement, and maintain systems using written procedures. The extent to which 10 CFR 50, Appendix B, applies to the special lifting device in question is defined in the design specification – critical items list.</p> <p><b>4.1.7</b> Provision for identification and certification of materials, as required by the design specification and the critical items list.</p> <p><b>4.1.8</b> Provision for in-process inspection and testing, as required by the design specification, and provision of information that may be required by the inspector in the performance of this function.</p> <p><b>4.1.9</b> When the fabricator obtains materials or services for which the design specification imposes requirements, verification that such materials or services are produced under the appropriate controls and qualifications and meet requirements of the design specification, or performance of a suitable inspection and testing program to determine that they meet those requirements.</p> <p><b>4.1.10</b> Provision of written procedures for the performance of each step in the fabrication, machining, testing, inspection, and assembly of the special lifting device.</p>	<p>See remarks under 4.1 above.</p>

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N/C=Not Covered  
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STANDARD SPEC.	REMARKS/ALTERNATIVE
<p><b>4.1.11</b> Retention of, or supplying the buyer with, documents as required by purchase agreements verifying the conformance to the design specification and any referenced specifications or standards that may be included in the design specification. This documentation shall also include all pertinent information relative to the procedures and materials used, the qualification of welders, welding operators, testing personnel, and as-built drawings of the device.</p> <p><b>4.1.12</b> Supplying the owner with certification of compliance verifying that all provisions and requirements of the design specification and the performance criteria have been met, and also supplying the owner with sufficient documentation relative to conformance to satisfy his need for his quality assurance program.</p>	<p>See remarks under 4.1 above.</p>
<p><b>4.2 Inspector's Responsibilities.</b> Various inspections of incoming material, in-process work, and finished product shall take place according to design specifications. In each case the purchase agreement shall determine who performs these inspections. In all cases, the responsibilities of the inspectors shall be as indicated in 4.2.1 through 4.2.5.</p> <p><b>4.2.1</b> The inspector shall familiarize himself with the design specification and the specific requirements that demand verification by the inspector.</p> <p><b>4.2.2</b> Where necessary, the inspector shall become qualified in the inspection or testing techniques required by the duties called for by the design specification, according to specified standards.</p>	<p>It is not practical to consider or assign inspector's responsibilities in retrospect and thus these requirements were not included in the review. Inspections for verifying continuing compliance under Section 5 will be used to identify any deficiencies or defects.</p>

PLANT: GNS

1. Dryer/Separator Strongback

DEVICE: 2. Head Strongback Carousel

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CONT ID NO. 7878

N/C=Not Covered

N/A=Not Applicable

STANDARD SPEC.	REMARKS/ALTERNATIVE
<p><b>4.2.3</b> The inspector shall verify by specified techniques, or suitable techniques if none is specified, that the material or component meets the requirements set forth by the design specification and shall provide tangible evidence of his approval.</p> <p><b>4.2.4</b> The inspector shall tag or otherwise identify and isolate any material component or device that fails to conform to the requirements of the design specification; this shall be done in such a way as to indicate clearly its deficiency.</p> <p><b>4.2.5</b> The inspector shall, where necessary, obtain from the fabricator or others the necessary records to support his inspection or testing.</p>	<p>See 4.2</p>
<p><b>4.3 Fabrication Considerations.</b> In general, the design specification will designate fabrication practices to be followed or avoided. However, the following paragraphs (4.3.1 through 4.3.3) list some practices to be followed for ease of decontamination or control of corrosion.</p> <p><b>4.3.1</b> Materials that must be marked shall be marked by any method that will not result in harmful contamination or sharp discontinuities. Stamping, if not prohibited by design specification, shall be done by low stress blunt-nosed-continuous-dot or blunt-nosed-interrupted-dot die stamps.</p> <p><b>4.3.2</b> In grinding, cutting, or wire brushing stainless steels, care shall be taken that tools, wheels, or brushes are of compatible materials that do not carry foreign metal, which can become attached to or embedded in the stainless surface.</p> <p><b>4.3.3</b> In thermal cutting of stainless steel, the use of iron powder is prohibited in order to prevent dilution of the stainless composition.</p>	<p>It is not practical to address "fabrication considerations" after fabrication is completed. Periodic inspection will be used to identify any deficiencies or defects.</p>

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N/A=Not Applicable

STANDARD SPEC	COVERAGE BY EXISTING PROCEDURE	COVERAGE BY NEW OR REVISED PROCEDURE	REMARKS/JUSTIFICATION FOR NON COMPLIANCE OR ALTERNATIVE SPEC
<p><b>5. Acceptance Testing, Maintenance, and Assurance of Continued Compliance</b></p> <p><b>5.1 Owner's Responsibilities.</b> The owner shall be responsible for the items listed in 5.1.1 through 5.1.8.</p> <p>5.1.1 Verification by records furnished by the designer and the fabricator that the performance criteria have been met by the design specification, and that the design specification has been met by the fabricator.</p>	N/A	N/A	
<p>5.1.2 Verifying by acceptance and functional testing performed or observed by himself or his representative that the performance criteria have been met.</p>	N/A	N/A	
<p>5.1.3 Verifying by scheduled periodic testing that the special lifting device continues to meet its performance criteria and continues to be capable of reliable and safe performance of its functions, and providing a system that indicates the date of expiration of the validity of the test.</p>	No	Procedure Written to Provide Coverage	
<p>5.1.4 Providing an operating procedure for the use of the special lifting device outlining proper use and maintenance, and noting any limitation to its use.</p>	No, Not Complete	Existing Procedure Revised to Provide Coverage	
<p>5.1.5 Providing each special lifting device with identification that will serve to relate it to its intended use and that may be used to record its history (see 5.1.6).</p>	N/A	N/A	Nameplate identification provided on devices.
<p>5.1.5.1 Identifying subparts or subassemblies that may be exchanged from one special lifting device to another of similar design, or that may be replaced because of wear or damage.</p>	N/A	N/A	Parts are not inter-changeable.
<p>5.1.5.2 Marking each special lifting device with its load limit as established by acceptance testing and with any other limitation on its use, such as minimum temperature.</p>	N/A	N/A	Rated capacities provided on nameplates.

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<p><b>5.1.6</b> Maintaining a full record of the history of the special lifting device or component, including documentation of required testing, all uses of the device, any incidents in which the device or any of its parts may have been loaded beyond the loads for which it was qualified, damage, distortion, replacement, repair, alterations, and inspections.</p>	No	Procedure Written to Provide Coverage	
<p><b>5.1.7</b> Removing from service any special lifting device or component for which the period of test validity has expired, which has experienced any incident causing doubt as to its continuing compliance, or which has been damaged.</p>	No	Procedure Written to Provide Coverage	
<p><b>5.1.8</b> Since the special lifting device may be employed by users other than the owner, the owner may have to delegate some of his responsibilities to a user. In such cases, the owner shall verify that the user will conform to his practices of use and recording of use, incidents, or damage and will remove from service any device about which there is some doubt.</p>	N/A	N/A	Devices are not used by anyone other than the owner.
<p><b>5.2 Acceptance Testing</b> <b>5.2.1</b> Prior to its initial use, each device shall be subjected to a load test equal to 150% of the maximum load to which the device is to be subjected. After sustaining the load for a period of not less than 10 minutes, critical areas, including all load-bearing welds, shall be subjected to nondestructive testing in accordance with 5.5 of this standard.</p>	N/A	N/A	Head Strongback - load tested to 125% of rated capacity. Dryer/Separator Strongback - load tested to 125% of rated capacity.

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<p><b>5.2.2</b> Except where load-bearing welds are involved, replacement parts fabricated to the same design, from the same heat of material, and processed in the same lot at the same time as parts that have successfully passed the load test described in 5.2.1 may be qualified by the testing of the initial sample. Any part with load-bearing welds shall be individually tested and inspected in accordance with 5.5 of this standard.</p>	N/A	N/A	This requirement is applicable only during fabrication.
<p><b>5.2.3</b> Non-load-bearing functioning parts shall be tested according to written procedures prior to initial use to verify that they perform according to their purpose.</p>	N/A	N/A	Not applicable to load-handling reliability.
<p><b>5.3 Testing to Verify Continuing Compliance</b>  <b>5.3.1</b> Each special lifting device shall be subjected annually (period not to exceed 14 months) to either of the following:          (1) A load test equal to 150% of the maximum load to which the device is to be subjected. After sustaining the test load for a period not less than 10 minutes, critical areas, including major load-bearing welds, shall be subjected to visual inspection for defects, and all components shall be inspected for permanent deformation.          (2) In cases where surface cleanliness and conditions permit, the load testing may be omitted, and dimensional testing, visual inspection, and nondestructive testing of major load-carrying welds and critical areas in accordance with 5.5 of this standard shall suffice. If the device has not been used for a period exceeding one year, this testing shall not be required. However, in this event, the test shall be applied before returning the device to service.</p>	No	Procedure Written to Provide Coverage	Procedure will require visual, dimensional and NDE inspections prior to each refueling outage. These devices are typically used only during refueling outages.

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5.3.2 The load testing prescribed in 5.2.1 shall also be repeated prior to use following any major maintenance or alteration. Major maintenance or alteration is defined as a repair or design change in which load-bearing members are subjected to heating above 300°F (150°C), removal of significant quantities of metal, welding other than for surface repair, or plastic deformation of metal.	No	Procedure Written to Provide Coverage	
5.3.3 The load testing prescribed in 5.2.1 shall be performed following any incident in which any of the load-bearing components of the special lifting device may have been subjected to stresses substantially in excess of those for which it has been qualified by previous testing, or following an incident that may have caused permanent distortion of its load-bearing parts.	No	No	Exception taken to this requirement as it is worded. Alternative is to inspect, repair, and then test according to 5.2.1.
5.3.4 Functional testing prescribed in 5.2.3 shall be repeated annually (period not to exceed 14 months). If the special lifting device has not been used for a period exceeding one year, this testing shall not be required. However, the test shall be applied before returning the device to service.	No	No	Not applicable to load-handling reliability.
5.3.5 Functional testing prescribed in 5.2.3 shall be repeated following any incident in which repairs or alterations have been required on non-load-bearing functioning components or in which the special lifting device has suffered distortion.	No	No	Not applicable to load-handling reliability.
5.3.6 Special lifting devices shall be visually inspected by operating personnel for indications of damage or deformation prior to each use.	No	Procedure Written to Provide Coverage	Exception taken on basis that tests of 5.3.1 suffice.
5.3.7 Special lifting devices shall be visually inspected by maintenance or other nonoperating personnel at intervals not to exceed 3 months in length for indications of damage or deformation.	No	No	Exception taken on basis that tests of 5.3.1 suffice.

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<p>5.3.8 Each special lifting device shall be tagged or the record system updated after annual testing, or both, indicating the expiration date of the validity of that test.</p>	No	Yes Revised O.P. 5241	
<p>5.4 Maintenance and Repair            5.4.1 Welding, fabrication, heat treatment, testing, and inspection procedures and qualifications involved in repair or alteration of special lifting devices shall be in accordance with the design specification. If no special requirements for repair or alteration are provided in the design specification, these operations shall be governed by the same requirements applying to the original fabrication.</p>	No	Procedure written to Provide Coverage	
<p>5.4.2 Defective bolts, studs, and nuts shall be replaced rather than repaired.</p>	No	Procedure Written to Provide Coverage	
<p>5.5 Nondestructive Testing Procedures, Personnel Qualifications, and Acceptance Criteria            5.5.1 Inspections utilizing liquid penetrant or magnetic particle examination shall be performed by written procedures and by personnel, both qualified in accordance with the rules in the current edition of ASME Boiler and Pressure Vessel Code, Section V, Articles 1, 6, 7, 24, and 25.</p>	No	Procedure Written to Provide Coverage	
<p>5.5.2 Liquid penetrant and magnetic particle acceptance standards shall be as indicated in paragraphs NF-5350 and NF-5340 of the current edition of ASME Boiler and Pressure Vessel Code, Section III, Division I.</p>	No	Procedure Written to Provide Coverage	