December 1, 2005

Mr. Paul D. Hinnenkamp
Vice President - Operations
Entergy Operations, Inc.
River Bend Station
5485 US Highway 61N
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION, UNIT 1 - ISSUANCE OF AMENDMENT RE: USE OF FUEL BUILDING CASK HANDLING CRANE FOR DRY SPENT FUEL CASK LOADING OPERATIONS (TAC NO. MC6327)

Dear Mr. Hinnenkamp:

The Commission has issued the enclosed Amendment No. 149 to Facility Operating License No. NPF-47 for the River Bend Station, Unit 1. The amendment consists of changes to the Updated Safety Analysis Report (USAR) in response to your application dated March 8, 2005, as supplemented by letters dated April 19, July 12, September 21, November 14, and November 15, 2005.

The amendment enables the licensee to make changes to the USAR to reflect the use of the non-single-failure-proof Fuel Building Cask Handling Crane for dry spent fuel cask component lifting and handling operations.

A copy of our related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

Bhalchandra Vaidya, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures:
1. Amendment No. 149 to NPF-47
2. Safety Evaluation

cc w/encls: See next page

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ENTERGY GULF STATES, INC. **

AND

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

RIVER BEND STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 149
License No. NPF-47

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Entergy Gulf States, Inc.* (the licensee) dated March 8, 2005, as supplemented by letters dated April 19, July 12, September 21, November 14, and November 15, 2005, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and

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* Entergy Operations, Inc. is authorized to act as agent for Entergy Gulf States, Inc., and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

**Entergy Gulf States, Inc., has merged with a wholly owned subsidiary of Entergy Corporation. Entergy Gulf States, Inc., was the surviving company in the merger.

E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, by Amendment No.149, the license is amended to authorize revision to the Updated Safety Analysis Report (USAR), as set forth in the application for amendment by Entergy Operations, Inc. (Entergy) dated March 8, 2005, as supplemented by letters dated April 19, July 12, September 21, November 14, and November 15, 2005. Entergy shall update the USAR by the next periodic update, to reflect the revisions authorized by this amendment in accordance with 10 CFR 50.71(e).

3. The license amendment is effective as of its date of issuance, with the implementation to begin immediately and completed by the next periodic update to the USAR in accordance with 10 CFR 50.71(e). Implementation of the amendment is the incorporation into the USAR the revisions described in the amendment application of March 8, 2005, as supplemented by letters dated April 19, July 12, September 21, November 14, and November 15, 2005, and evaluated in the NRC staff's Safety Evaluation attached to this amendment.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Date of Issuance: December 1, 2005

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 149 TO

FACILITY OPERATING LICENSE NO. NPF-47

ENTERGY OPERATIONS, INC.

RIVER BEND STATION, UNIT 1

DOCKET NO. 50-458

1.0 INTRODUCTION

By application dated March 8, 2005, (Agencywide Documents and Access Management System (ADAMS) Accession No. ML050750179), as supplemented by letters dated April 19 (ADAMS Accession No. ML051120198), July 12 (ADAMS Accession No. ML052060051), September 21 (ADAMS Accession No. ML052690225), November 14 (ADAMS Accession No. ML053260451), and November 15, 2005 (ADAMS Accession No. ML053260449), Entergy Operations, Inc. (the licensee), requested changes to the Updated Safety Analysis Report (USAR) for the River Bend Station, Unit 1 (RBS). The supplements dated April 19, July 12, September 21, November 14, and November 15, 2005, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on April 26, 2005 (70 FR 21455).

The amendment would enable the licensee to make changes to the USAR to reflect the use of the non-single-failure-proof Fuel Building Cask Handling Crane (FBCHC) (the FBCHC is also referred to as the Spent Fuel Cask Trolley (SFCT) in the USAR) for dry spent fuel cask component lifting and handling operations. Specifically, the FBCHC will be used for the lifting and handling of the spent fuel canister, canister lid, and transfer cask, as needed. This amendment would change the RBS USAR to reflect this proposed use of the FBCHC. The licensee has stated that a new USAR subsection will be added to summarize the activities in support of dry spent fuel storage that take place in the RBS Fuel Building. The existing discussion related to the spent fuel shipping cask drop will be modified to add a new discussion of spent fuel storage cask component drops.

2.0 BACKGROUND

The licensee, in its letter dated September 21, 2005, provided the background as summarized in the following subsections.

2.1 Design and Licensing History

The RBS FBCHC was designed, procured, and installed in the RBS Fuel Building in the late 1970s and early 1980s. It is a non-safety-related, commercial-grade crane originally designed and licensed to lift and handle a spent fuel shipping cask. The crane has been used from time to time since RBS commercial operation began in 1985 to move radwaste containers (e.g., high

integrity containers) onto transportation vehicles for shipment to a disposal site. The FBCHC is a bridge-and-trolley design that is not single-failure-proof, as defined in NUREG-0612, “Control of Heavy Loads at Nuclear Power Plants,” or NUREG-0554, “Single-Failure-Proof Cranes for Nuclear Power Plants,” dated May 1979. However, the crane does meet many of the criteria in these documents.

The FBCHC main hoist has a rated load of 125 tons and the auxiliary hoist has a rated load of 15 tons. The main hoist is capable of lifting its rated load and moving it in a north-south direction between the spent fuel cask pool inside the Fuel Building to an adjacent area outside the Fuel Building designated for the cask transport vehicle to receive the cask (hereafter referred to as the "truck bay"). The FBCHC is not capable of moving in the east-west direction.

The current licensing basis for the FBCHC permits the lifting and movement of a spent fuel shipping cask inside the Fuel Building. A hypothetical drop of a 125-ton shipping cask was analyzed as discussed in the RBS USAR in support of the proposed licensing basis because the FBCHC is not single-failure-proof. No significant damage to any safety-related structures, systems, or components (SSCs) was predicted by this analysis. However, the current licensing basis does not provide a bounding scenario for all of the lifting and handling evolutions required for the spent fuel storage cask system chosen for use at the RBS Independent Spent Fuel Storage Installation (ISFSI) under a 10 CFR Part 72 general license. The system chosen for use is the Holtec International (HI) HI-STORM 100 System, which includes the HI-TRAC 125D™ transfer cask and the multi-purpose canister (MPC) that, together with necessary rigging, comprise the heaviest load lifted by the FBCHC during dry storage loading operations in the Fuel Building.

The HI-TRAC 125D™ transfer cask and the MPC must be lifted and moved several times during fuel loading operations in the Fuel Building. At various points in the operation, the empty transfer cask, the empty MPC, the MPC lid, the fuel-loaded MPC, and the loaded transfer cask must be lifted and handled by the FBCHC. Because the FBCHC is not single-failure-proof and will not be upgraded to single-failure-proof, certain drops of the transfer cask, MPC, and MPC lid must be postulated. The locations where drops are postulated and evaluated were chosen to comply with applicable 10 CFR Part 50 licensing requirements, NUREG-0612, and NRC Bulletin 96-02, "Movement of Heavy Loads Over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment." Licensing basis information for the dry storage cask system was also incorporated in this evaluation, as appropriate, from the HI-STORM 100 System™, 10 CFR Part 72 Certificate of Compliance (CoC), and associated Final Safety Analysis Report (FSAR).

To mitigate the consequences of two of these postulated drops, engineered design features (i.e., impact limiters) will be employed in locations over which the transfer cask must be moved in the vertical direction. In most cases, for locations where the load is moved only in the horizontal direction, redundant crane rigging is employed to provide temporary single-failure proof drop protection and preclude the need to postulate drops in these locations.

2.2 Fuel Building Loading Operations Summary

The HI-STORM 100 System™ will be used for dry cask storage of nuclear fuel at the RBS ISFSI. The HI-STORM 100 System™ consists of an MPC (MPC-68), which is capable of holding up to 68 boiling-water reactor (BWR) fuel assemblies; a transfer cask (HI-TRAC 125D™), which contains the MPC during loading, unloading, and transfer operations; and a

storage cask (HI-STORM 100Sm overpack), which provides shielding, heat removal capability, and structural protection for the MPC during storage operations at the ISFSI. The FBCHC is required to lift and handle the HITRAC transfer cask and MPC (both empty and loaded with spent nuclear fuel), and the MPC lid in support of dry storage cask loading. The combined maximum lifted weight, including rigging and lift yoke, will not exceed 125 tons, which is the design rated (maximum critical) load of the FBCHC.

During each cask loading campaign, spent fuel assemblies are moved, one at a time, from the RBS spent fuel pool wet storage racks into the MPC, which is resting inside the HI-TRAC transfer cask in the cask pool on the lower shelf (Position 5 on USAR Figure 9.1-9). The cask pool will have been previously flooded with water to approximately the same elevation as the spent fuel pool, and the gate separating the cask pool and spent fuel pool will have been opened. Once the desired number of fuel assemblies have been loaded into the MPC, the MPC lid is installed under water, and the transfer cask is lifted by the FBCHC and placed on the cask pool upper shelf (Position 4 on USAR Figure 9.1-9) to allow changes in rigging equipment (see Figure 1 in Attachment 2 to the supplemental letter dated September 21, 2005). The transfer cask is then lifted out of the cask pool and moved northward to a dry cask washdown area (Position 3 on USAR Figure 9.1-9, hereafter referred to as the "cask pit").

In the cask pit, the MPC lid is seal welded and the canister is drained, dried, and backfilled with helium in accordance with the 10 CFR Part 72 cask CoC and FSAR. The transfer cask containing the sealed MPC is decontaminated, lifted out of the cask pit, and moved by the FBCHC through the Fuel Building outer doors into the truck bay (Position 2 on USAR Figure 9.1-9), where it is placed on top of the empty storage overpack that has previously been prepared to receive the transfer cask with a mating device. The FBCHC is disengaged from the transfer cask lifting trunnions and rigged to lift the MPC by its lift cleats. The MPC is lifted slightly to remove the weight from the transfer cask bottom (pool) lid. The pool lid is detached and lowered into the mating device, the mating device drawer is opened to provide a pathway through to the overpack, and the MPC is lowered into the overpack. After MPC transfer, the overpack lid is installed and the overpack is transported to the ISFSI using a cask crawler.

3.0 REGULATORY EVALUATION

The regulatory requirements and regulatory guidance on which the NRC staff based its acceptance are discussed below:

NUREG-0612 provides guidelines and recommendations to assure safe handling of heavy loads by prohibiting, to the extent practicable, heavy load travel over stored spent fuel assemblies, fuel in reactor core, safety-related equipment, and equipment needed for decay heat removal.

NUREG-0612 and NUREG-0554 will provide the basis for review of the licensee-proposed handling of heavy loads during the dry spent fuel cask loading operation. NUREG-0612 endorses a defense-in-depth approach for handling of heavy loads near spent fuel and safe shutdown systems. General guidelines for overhead handling systems that are used to handle heavy loads in the area of the reactor vessel and spent fuel pool are given in Section 5.1.1 of NUREG-0612. They are as follows: (1) definition of safe load paths; (2) development of procedures for load handling operations; (3) training and qualification of crane operators in accordance with Chapter 2-3 of American National Standards Institute (ANSI) B30.2-1976; (4) use of special lifting devices that meet guidelines in ANSI N14.6-1978; (5) installation and

use of non-custom lifting devices in accordance with ANSI B30.9-1971; (6) inspection, testing, and maintenance of cranes in accordance with Chapter 2-2 of ANSI B30.2-1976; and (7) design of crane in accordance with Chapter 2-1 of ANSI B30.2-1976 and Cranes Manufacture of America (CMMA) Standard 70 (CMMA-70), "Overhead and Gantry Cranes (1967)."

NUREG-0554 identifies features of design, fabrication, installation, inspection, testing, and operations of single-failure-proof overhead crane handling systems used for handling heavy loads. It recommends special single-failure-proof features in the crane hoisting machinery and reeving. Single-failure-proof means the crane's hoisting and breaking systems will safely retain the load following any single failure in them. The licensee has indicated in its submittal that the crane, which is not-single-failure-proof, is configured in a manner that provides temporary single-failure-proof protection against load drops during certain horizontal moves, and meets many of the criteria for single-failure-proof hoisting systems as defined in NUREG-0612 and NUREG-0554. A matrix showing the degree of compliance with NUREG-0612 and NUREG-0554 was supplied by supplemental letter dated September 21, 2005. The criteria provided in these two NUREGs will be used to determine if the redundant rigging configuration used for horizontal moves provides adequate protection against drops to allow credit for single-failure-proof handling during this configuration, and to evaluate licensee-proposed handling of heavy loads during this modification.

NUREG-1536, "Standard Review Plan for Dry Cask Storage Systems," dated January 1997, Section 3.III, provides guidance for the review of structural performance of the cask systems for withstanding the four most bounding load drops to ensure that the cask system is capable of maintaining its shielding, confinement, retrievability, and criticality safety functions after the postulated cask drop events.

The licensee, in its application dated March 8, 2005, stated that the NRC reviewed and approved a similar license application for Diablo Canyon Power Plant in September 2003. However, the NRC staff does not find this precedent directly applicable.

4.0 TECHNICAL EVALUATION

4.1 Fuel Building Cask Handling Crane

The FBCHC is a non-safety-related, commercial grade crane originally designed and licensed to lift and handle spent fuel shipping casks. It is a bridge-and-trolley design that is not single-failure-proof, as defined in NUREG-0612 or NUREG-0554, and the load rating of the main hoist is 125 tons. The trolley is located at the eastern end of the fuel building and travels in a north-south direction on a straight runway extending out into the truck bay. The position of the main hoist is fixed laterally at the midpoint of the trolley span. The HI-STORM system will be used for dry cask storage for nuclear fuel at the RBS ISFSI. The FBCHC will be used to lift and handle the HI-TRAC transfer cask and MPC. The combined lift weight, including rigging, to be handled during cask loading operations will not exceed 125 tons.

Section 9.1.4.2.2 of the RBS USAR contains a description of the SFCT system. The system was designed and procured as a non-safety-related, non-single-failure-proof lifting system that would hold its load in the event of a safe shutdown earthquake. The licensee states that the FBCHC design is in accordance with CMAA-70 and Occupational Safety and Health Administration regulations (1973), as well as contemporaneous commercial structural, welding,

and electrical design codes. In addition, the licensee states that issues surrounding NUREG-0612 were addressed as part of the license application review process.

As stated in Section 2.2, during cask loading, spent fuel assemblies are moved, one at a time, from the spent fuel pool wet storage racks into the MPC, which is resting inside the HI-TRAC transfer cask in the cask pool on the lower shelf. Once the desired number of fuel assemblies have been loaded into the MPC, the MPC lid is installed underwater and the transfer cask is lifted by the FBCHC and placed on the cask pool upper shelf to allow changes in rigging equipment. The transfer cask is then lifted out of the cask pool and moved to a dry cask washdown area. In ths area the cask is seal welded and the canister is drained, dried and backfilled with helium. The transfer cask containing the sealed MPC is decontaminated, lifted out of the cask pit, and moved by the FBCHC through the Fuel Building outer doors into the truck bay, where it is placed on top of the empty storage overpack.

The current licensing basis for the FBCHC permits the lifting and movement of spent fuel casks inside the fuel building. Dry cask loading operations will require the crane to be used not only to move casks within the Fuel Building, but also to move casks between the spent fuel cask pool inside the Fuel Building to an adjacent area outside the Fuel Building, where loading on the cask transport vehicle takes place. An engineering evaluation of the outdoor portion of the FBCHC has been performed by the licensee. The evaluation included a review to document the inspections and tests performed to demonstrate that there is reasonable assurance that the crane foundation and steel structure were constructed in accordance with design.

4.2 NUREG-0612 General Guidelines

In Attachment 6 to its September 21, 2005, letter, the licensee provided a matrix comparing the FBCHC design with the applicable regulatory requirements in NUREG-0612 and NUREG-0554. Included in the evaluation column of this matrix is a discussion on how the intent of the objectives and general guidelines of NUREG-0612 will be met with regard to (1) use of defined safe load paths; (2) specific development procedures; (3) training and qualification of crane operators; (4) selection of special lifting devices; (5) inspection, testing, and maintenance of cranes; (6) selection of slings; and (7) application of standards to crane design.

In regard to safe load paths, the licensee states that safe load paths for heavy load movements have been defined for RBS and that the FBCHC, by design, is prevented from traveling over the reactor vessel and the spent fuel pool. The licensee also states that the RBS heavy loads program includes procedures to cover heavy load handling operation, including those handled by the FBCHC. In response to a staff RAI the licensee, in its letter dated September 21, 2005, identified to staff new procedures that will be written and existing procedures that will be revised to support the fuel cask loading operations. A commitment to prepare new procedures and update existing procedures was also included in Attachment 3 of the licensee September 21, 2005, letter.

The licensee indicated in its September 21, 2005, letter that the crane operators are trained in the area of heavy loads handling, safe load, potential consequences of load drops over the reactor vessel, spent fuel pool, and safe shutdown equipment, and that the training is based upon ANSI B30.2-1976 requirements. In response to the NRC staff RAI, the licensee also provided details on the training for operators using the crane with the redundant rigging crane

enhancement. The licensee also included details of the training it would be providing in the list of commitments it provided in Attachment 3 of its September 21, 2005, letter.
The FBCHC is inspected and maintained in accordance with ANSI B30.2-1976 and was designed to meet the applicable criteria and guidelines of CMAA 70-1971 and ANSI B30.2-1967. The lifting trunnion is rated to meet the guidelines of NUREG-0612 regarding a 10:1 safety factor for non-redundant or non-dual lift points and the crane has been load tested to 125% of its rated capacity of 125 tons. The main hoist of the crane is restricted from moving over fuel by design, and the only heavy load that is suspended over exposed spent fuel during the loading operation is the MPC lid.

To ensure the evaluation criteria of 5.1 of NUREG-0612 are met the licensee has used the guidance provided in section 5.1.4 of NUREG-0612. For horizontal moves of the loaded cask, the licensee credits reliability of the handling system, which is enhanced to provide redundant load paths during these moves. For loading operations involving vertical moves of heavy loads, the licensee has postulated and analyzed applicable heavy load drops and has shown that the evaluation criteria of Section 5.1 are satisfied. The load drops analyzed include a drop of the MPC lid onto the transfer cask, and drops of the transfer cask in the fuel building onto the cask pit north wall, the cask pool lower shelf, cask pit upper shelf, and in the cask pit washdown area. Load drops were also postulated and analyzed for drops outside the fuel building including drops onto the HI-STROM mating device, and HI-STORM overpack.

Based on review of the information provided by the licensee in its submittals, including that in the NUREG-0612 and NUREG-0554 comparison matrix for the RBS FBCHC (Attachment 6 of the licensee letter dated September 21, 2005), the NRC staff finds that the licensee has satisfied the general guidelines in Section 5.1.1 of NUREG-0612.

4.3 Load Drop Considerations

Because the FBCHC is not a single-failure-proof crane, certain drops of the transfer cask, MPC, and MPC lid were postulated and evaluated. The drop locations were chosen to comply with applicable portions of 10 CFR Part 50 licensing requirements, NUREG-0612, and NRC Bulletin 96-02. To mitigate the consequences of two of the postulated drops, the licensee employed impact limiters at the locations over which the transfer cask must be moved in the vertical direction. When the loaded casks are moved in the horizontal direction for unanalyzed lifts, the licensee will employ the redundant crane rigging to provide single-failure-proof protection against a load drop during the move and, therefore, has not postulated drops during these moves.

Additionally, because the FBCHC is not single-failure-proof, a hypothetical drop of a 125-ton shipping cask was analyzed for inclusion in the USAR as part of the licensing basis. The analyses confirmed that the postulated load drop of a 125-ton shipping cask anywhere along the main hoist's travel would neither result in significant damage to any safety related SSCs, nor would it result in the release of radiation. The licensee found that the load drop analyzed in the USAR does not provide a bounding scenario for all the lifting and handling evolutions required for the spent fuel storage cask system chosen for use at the RBS ISFSI. The licensee has reviewed the required fuel building cask handling operations and has evaluated drops at various locations along the load path in order to be in compliance with the applicable regulatory requirements of NUREG-0612, Appendix A.

The HI-STORM 100 storage cask system at RBS consists of an MPC, which holds up to 68 BWR fuel assemblies, a HI-TRAC 125D transfer cask, which contains the MPC during loading, unloading, and transfer operations, and a storage overpack, which provides shielding, heat removal, and structural protection for the MPC deployed at the RBS ISFSI. Appendix A of Attachment 1 to the licensee's September 21, 2005, letter presents the cask handling operational sequence. Considering the FBCHC with redundant rigging engaged only for cask horizontal movement, the licensee postulated load drops at a few limited locations where cask vertical lifting operations are conducted inside and outside the Fuel Building. Section 4.7.5 of Amendment 1 to the licensee's September 21, 2005, letter summarizes cask loading operations and corresponding load drop scenarios; detailed evaluations are presented in Section 4.7.6. The following subsections provide a discussion of the structural performance of the cask system for withstanding the four most bounding load drops to ensure that the cask system is capable of maintaining its shielding, confinement, and criticality safety functions after the postulated cask drop events.

4.3.1 Loaded Transfer Cask Vertical Drop onto Cask Pool Upper Shelf

Lifting the loaded transfer cask out of the cask pool involves removing the yoke extension and re-engaging the lift yoke at the cask pool upper shelf. Considering the transfer cask bottom being kept at the elevation of 93'-3", the licensee conservatively assumed a cask drop height of 3.5", through air, and calculated a free-fall velocity of 55.01 in/sec upon impacting the upper shelf concrete surface. The resulting calculated maximum MPC deceleration of 45 g is below the fuel acceptance limit of 64.8 g. The licensee stated in its September 21, 2005, letter and the supplemental letters dated November 14 and 15, 2005, that the maximum von Mises stress at the MPC lid-to-shell joint is above the material yield strength of 20,050 psi, but well below the failure strength. Stresses in the MPC shell and the transfer cask inner shell were also found to be below the respective material yield strengths. The licensee calculated a lead slump of less than 0.5", and stated that the small amount of local radiation streaming does not have an offsite dose consequence. On the basis of the maximum MPC deceleration and the stress levels, the NRC staff finds that (1) the drop event will not cause fuel damage or fuel relocation to result in an unanalyzed criticality configuration, and (2) the MPC and transfer cask will retain their structural configurations to permit retrieval of the MPC after the drop.

4.3.2 Loaded Transfer Cask Vertical Drop onto Cask Pool Lower Shelf

After being lifted off the upper shelf and moved laterally to the point above the cask pool lower shelf, the loaded transfer cask is lifted out of the cask pool. Considering the cask bottom being lifted to the elevation of 114'-1", the licensee postulated a vertical load drop of 42'-6" onto the cask pool lower shelf protected by the impact limiter. The licensee varied the crushing strength of the 110" square by 26.25" high impact limiter constructed with a core of polyurethane foam, and calculated the maximum deceleration of 53.54 g for the cask dropping largely through the pool water. The licensee indicated that the calculated maximum deceleration is bounded by those used in previous cask system evaluations. On the basis of above discussion, the NRC staff finds does not expect any fuel damage and finds that all MPC and transfer cask stresses are below allowable values. This ensures that the cask will maintain its shielding, confinement, and criticality safety functions.

4.3.3 Loaded Transfer Cask Vertical Drop into Cask Pit

The transfer cask is suspended 19'-9" above the cask pit floor before being lowered into the cask pit. The licensee calculated the maximum cask deceleration of 42.2 g for a drop height of 17.5' onto the 110" square by 26.25" high impact limiter. This deceleration is less limiting than the 53.54 g evaluated above for the transfer cask drop onto the cask pool lower shelf. Therefore, the cask system will maintain its shielding, confinement, and criticality safety functions for the postulated cask drop.

4.3.4 Loaded MPC Vertical Drop into HI-STORM Overpack

At the truck bay outside the Fuel Building, the loaded MPC is lowered into the HI-STORM overpack after the transfer cask pool lid is unbolted and removed by the mating device. The licensee postulated the MPC vertical drop into the HI-STORM overpack. The licensee stated that the height of the overpack plus the mating device is less than 20 ft. A conservative drop height of 25', however, is assumed in an impact simulation for dynamic analysis, using a commercially available software computer program LS-DYNA. The licensee considered a free-fall velocity of 481.5 in/sec of the MPC impacting the overpack pedestal constructed with a combination of steel and concrete. The calculated maximum von Mises stress of 44,515 psi in the MPC shell is well below the ultimate strength of 64,000 psi. The corresponding maximum calculated plastic strain is about 0.21 in/in which is less than the limiting strain value of 0.38 in/in. The NRC staff noted that in modeling the elasto-plastic material properties a conservative value of 0.38 in/in was used. The licensee stated that the MPC shell deforms most at the bottom because of impact-induced local bending. Therefore, the NRC staff finds that the confinement boundary of the MPC will not be breached. This ensures that radioactive material will be confined in the MPC and water ingression will not result to compromise the guidance regarding criticality safety of the cask system.

4.4 Handling System Modifications (Single-Failure-Proof Features)

The licensee is proposing to enhance the crane for certain moves through the use of redundant rigging. With the redundant rigging engaged, the licensee claims that the crane is temporarily single-failure-proof. Therefore, the licensee does not postulate load drops during the moves with the crane in this configuration. For the handling system to be single-failure-proof, when reliance of safe handling of the load is placed upon the crane system, the crane should be designed such that a single failure will not result in a loss of capability of the system to safely retain the load. To determine if the enhancement provides sufficient single-failure-proof protection to not require load drop analysis to be performed for these lateral cask moves, a review of the crane design and operation against the applicable requirements of NUREG-0612 and NUREG-0554, as they apply to the safe handling of heavy loads, was performed.

The licensee indicated in its submittals that the FBCHC is not single-failure-proof and is not being upgraded to single-failure-proof; however, the licensee does indicate that the crane will be enhanced to protect against a load drop, in the event of a single failure of the hoist or primary load path, by the use of redundant rigging, which will provide a second (static) load path from the special lifting device to the crane structure. This redundant rigging thus affords greater reliability of the hoisting system during these lateral moves of the loaded cask, and load drop is not postulated during these moves. While the crane is not being upgraded to single-failure-proof, its design incorporates many single-failure-proof features. The licensee, in its April 19, 2005, letter, provided the NRC staff with a NUREG-0612 and NUREG-0554 comparison matrix for the RBS FBCHC.

As stated in NUREG-0554, when reliance for the safe handling of heavy loads is placed upon the crane system, the crane should be designed such that a single failure will not result in the loss of the capability of the system to safely retain the load. NUREG-0554 identifies the features of the design, fabrication, installation, inspection, testing, and operation of single-failure-proof hoisting systems that are used for handling heavy loads. The staff reviewed the information provided by the licensee in the comparison matrix to determine if, for the lateral moves of the loaded cask required to be made during cask loading operations, the crane, with the redundant rigging engaged, provides a level of protection against load drops equivalent to that which would be provided by a single-failure-proof crane.

The NRC staff found that, in most areas, the licensee-proposed crane enhancement met the criteria for single-failure-proof cranes given in NUREG-0554, in terms of general load ratings, stress, and testing. In addition, the slings used in the redundant rigging are designed in accordance with ANSI B30.9, with safety factors of three and five with respect to yield stress and ultimate stress allowable values, respectively, which satisfy the requirements in NUREG-0612, Section 5.1. However, the staff found the crane design inconsistent with some key criteria in NUREG-0554. Specifically the NRC staff wanted to ensure that, since a static load path is being used as the redundant load path (with design and/or procedural controls), the hoisting system be properly configured prior to the start of the move and remain in the proper configuration throughout the move. The NRC staff, therefore, requested that the licensee discuss how the intentions of Sections 3.3, 4.1, and 6.1 of NUREG-0554 are satisfied. In the supplemental letter dated November 14, 2005, the licensee provided the additional information relative to this concern.

In its letter dated September 21, 2005, the licensee stated that when redundant rigging is used, the redundant rigging system engagement will be verified prior to proceeding with the horizontal move. The task will be administratively controlled by sign-off steps in the procedures and the procedures will contain specific steps with each step visually confirmed at the time of completion and documented. The licensee also stated that in order to ensure that disorders due to inadvertent operator action, component malfunction, or disarrangement of subsystem control functions will not result in an inadvertent load movement that could lead to an unanalyzed lift system configuration, the crane movement will be positively controlled to allow only singular motion. The positive controls will ensure that lift height restrictions and redundant rigging load sharing requirements are maintained. Operator action to remove power to the hoist or trolley motors, as applicable, will be employed initially, and the licensee has made a commitment to determine, within 1 year, the most appropriate long term means to incorporate positive controls used during hoisting to prevent trolley movement and implement the appropriate method within 3 years. The use of the above methodology and incorporation of the positive controls to prevent inadvertent load or trolley movement meets the intent of criteria specified in NUREG-0554, Section 6.1.

The licensee also indicated in its submittals that the crane cab includes a “reset-stop” button station, with a stop button that opens the main line electrical contractor, which stops all motion of the bridge trolley and hoist. In addition to the controls in the crane cab, there is also a radio remote control system, which has the same operational features for the bridge, trolley, and hoist operation as the bridge-mounted control panel, including the emergency stop button. The two switches discussed above fulfill the guidance concerning emergency stop buttons in Section 3.3 of NUREG-0554. Based on our review of the handling system enhancement and associated positive controls implemented by the licensee, the staff finds that the handling system satisfies

the intent of NUREG-0554 criteria for reliability of handling systems during horizontal moves with redundant rigging.

4.5 Crane Inspection, Testing, and Maintenance

In Section 4.4 of Attachment 1 to the LAR submittal, the licensee discussed crane inspection and testing. The licensee indicated that the FBCHC receives inspections on a daily basis when the crane is in use, with additional inspections and preventative maintenance on a 12-month frequency. The licensee also stated that load testing of the entire range of the outdoor portion of the FBCHC was performed in April 2004 at 125% of the 125-ton rated load, which is consistent with the guidance in NUREG-0554, and that the inside portion of the crane had been load tested at 125% load during installation. Section 5.1.1(6) of NUREG-0612 addresses inspection, testing, and maintenance for cranes handling heavy loads at nuclear power plants. In order to determine the degree of compliance of the FBCHC, including the outdoor portion, with Section 5.1.1(6) of NUREG-0612, the staff requested additional information on the inspection and testing that the licensee has performed in support of operation of the crane.

In letters dated September 21 and November 14, 2005, the licensee provided the staff with additional information on its maintenance, testing, and inspection of the FBCHC. The licensee indicated that it performed regular NDE on the crane, runway, and appurtenance, including visual inspections on mechanical and structural parts associated with the crane load path, as well as panel inspections, and drive and hoist operational tests. The licensee also stated that it had twice performed load tests on the crane: in September 1983 and April 2004. The load test performed in April 2004 was performed on the outdoor portion of the crane at a temperature of 74.5 °F. Since this portion of the crane will be exposed to the outdoor atmosphere for which temperature control is not possible, the licensee has committed to retest and qualify the crane for use at temperatures below 70 °F, as warranted, to support cask loading. Based on the information provided by the licensee in response to the staff's RAI, the staff finds the FBCHC inspection, testing, and maintenance to be consistent with guidelines provided in NUREG-0612. The NRC staff also finds that the testing performed by the licensee, coupled with its commitment to perform new cold proof tests if the crane is required to be operated in temperatures below 70 °F, satisfies the criteria given in Section 2.4 of NUREG-0554.

4.6 Crane Design, Materials, and Fabrication

4.6.1 Evaluation of Crane Design

In Section 4.1 of Attachment 1 to the licensee's supplemental letter dated September 21, 2005, the licensee discussed its findings concerning the crane's original design and construction, based on a comprehensive evaluation of the crane's original design and construction documents, and available inspection and testing records. The licensee states that a review of the historical records indicated that the crane was not formally designated as safety-related with quality assurance controls under 10CFR50 Appendix B; however, inspections, tests, and documentation required by procurement specifications were performed at the time of construction to verify the construction met the design requirements. The licensee, in recognition of the importance of the task of lifting and handling load transfer tasks that is now to be performed by the crane, has upgraded the classification of the FBCHC to "Quality Assurance Program Applicable." With the designation, all future modifications, inspections, testing, and maintenance of the FBCHC will be performed under the RBS 10 CFR Part 50, Appendix B,

Quality Assurance Program, which has the same requirements as the equipment covered under the safety-related designation.

To show that the FBCHC is adequately designed for use in spent fuel transfer cask lifting and handling, the licensee, in its supplemental letters dated September 21 and November 14, 2005, stated that the FBCHC main hoist has a rated load of 125 tons and the auxiliary hoist has a rated load of 15 tons. The combined maximum lifted weight, including rigging and lift yoke of the dry spent fuel cask handling operations, would not exceed 125 tons. The above mentioned submittals also indicated that analysis was performed to demonstrate that the crane can handle the rated load under appropriate loading conditions, including seismic loads.

The FBCHC was designed and procured as a seismically qualified structure. During the review of design documents for the RBS dry cask storage project, it was discovered that the seismic analysis was performed with no load on the crane hook. A re-analysis was performed and the analytical results indicated that with the exception of two welds, the crane system was qualified to hold the maximum critical load during a design basis seismic event. The two welds were upgraded, and the licensee considers the crane fully seismically qualified for dry storage cask loading operations.

In response to an RAI from the NRC staff regarding the adequacy of the analysis and acceptance criteria, the licensee stated that (1) the re-analysis used a three dimensional finite element computer model of the crane system, which included the Crane Runway Girders and all building structural elements and their connections, lateral braces for the runway girders and connections, trolley main load girt and connections, trolley drive girt and connections and the trolley end trucks; (2) the crane was evaluated for a load of 250K (125 tons) at various heights and with the trolley at various locations on the runway; (3) the interaction ratio calculated for all structural members, including the crane rope, and the upgraded connections were less than or equal to 1.0, and these values were evaluated for the load combination of D (dead load) + SSE + 250K (lifted load); and (4) the acceptance criteria for the calculated stresses were selected as 1.5 times American Institute of Steel Construction allowable stresses, the yield strength of the material. The NRC staff finds that the licensee has used a proper mathematical model, boundary conditions, loading and load combinations, and acceptance criteria to analyze the crane system, and the analysis results have demonstrated that the FBCHC is qualified for dry storage cask loading operations.

The NRC staff requested the licensee to provide the basis that would support the licensee's conclusion that sufficient time exists to move the suspended cask to a safe location in a controlled, deliberate manner if outdoor cask handling is underway and weather conditions unexpectedly deteriorate rapidly. The licensee's response in its supplemental letter dated September 21, 2005, Attachment 4, stated the following:

> The outdoor handling of a loaded HI-TRAC transfer cask is a periodic, short-duration, transient operation required only during cask loading. As committed in LAR [License Amendment Request] Section 4.6, outdoor cask handling will not be permitted if the weather is expected to be conducive to tornado formation. The weather expected during outdoor cask handling operations will be verified to be acceptable prior to commencing outdoor cask handling using sources such as the National Oceanic and Atmospheric Administration (NOAA) and the National Weather Service (NWS) via the Internet or other appropriate communication

tools. There is a NWS radio / alert system in the plant control room. The site procedure for severe weather requires that if a tornado or severe thunderstorm warning is issued by NWS for West Feliciana Parish, or other surrounding parishes, or if a tornado is sighted, then a plant wide announcement of the condition is made and, by procedure, any fuel handling or radioactive material transport activities underway are to be immediately brought to a safe condition and stopped. The Fuel Building door at the FBCHC is also to be closed. Weather conditions will also be monitored continuously while outdoor cask handling operations are ongoing. Therefore, a tornado touching down on site during outdoor cask handling operations with no notice whatsoever would be an unexpected and highly unlikely occurrence.

Both the HI-TRAC transfer cask and HI-STORM overpack are designed to withstand tornado winds and tornado-generated missiles. Once the transfer cask is placed atop the overpack or placed on the ground, it is in an analyzed condition. This reduces the tornado missile threat to an even shorter period of time where the HI-TRAC transfer cask is suspended outdoors from the crane main hook (i.e., in transit from the Fuel Building to a position above the HI-STORM overpack). The tornado-generated missile would also have to make its way through the crane superstructure and hit a relatively small target area in the cask structural load path to be of concern. An evaluation of the time it would take to lower the transfer cask to the ground or move it back into the Fuel Building if a tornado unexpectedly occurs has been performed as discussed below:

The Fuel Building Cask Handling Crane main hoist maximum lowering speed with the rated load on the hook is 5.9 ft/min [feet per minute]. The maximum crane main trolley speed with the rated load on the hook is 50 ft/min. The transfer cask bottom is approximately 20 feet above the ground when suspended in the outdoor crane structure. The farthest point out from the Fuel Building that the transfer cask travels in the outdoor crane structure is approximately 40 feet. Using arbitrarily chosen nominal lowering and trolleying speeds (i.e., less than the maximum values), the estimated time it would take to lower the transfer cask to the ground or trolley the cask back into the Fuel Building in the event a tornado is observed in the area during outdoor cask handling operations is illustrated in the table below:

Hoist Lowering Speed (ft/min)	Lowering Distance (ft.)	Time to Lower (min.)	Trolley Speed (ft/min)	Trolley Distance (ft.)	Time to Trolley (min.)
5	20	4	40	40	1

These periods of time, plus any time required for supervisory personnel to decide to execute these maneuvers would result in the cask being placed in a safe location either inside the Fuel Building, on top of the mating device or on the ground in the outdoor crane structure in less than 15 minutes after plant entry into the associated adverse operating procedure. This time is considered sufficient to ensure the transfer cask can be moved to a safe location in a deliberate and controlled manner in the event a tornado unexpectedly occurs.

The NRC staff finds that the licensee has provided an acceptable basis to demonstrate that sufficient time exists to move the suspended cask to a safe location in a controlled, deliberate manner, if outdoor cask handling is underway and weather conditions unexpectedly deteriorate rapidly.

Based on its review of the submittals, RAI responses, and the discussion above, the NRC staff finds that the licensee has properly analyzed the FBCHC for dry spent fuel cask handling operations, and has properly considered the weather conditions.

4.6.2 Materials and Fabrication

Section 4.3 of Attachment 1 to the licensee's supplemental letter dated September 21, 2005, stated that an engineering review was performed to document inspection and tests results that were performed to ensure structural integrity of the FBCHC steel structure. As a result of that review, one weld was repaired, and the weld inspection scope was expanded to include ultrasonic examination of all critical load bearing welds of a similar type that support the crane rails and a sample of other welds that contribute to the rigidity of the structure. All inspection and examination results under the review were found to be acceptable. The NRC staff finds this review acceptable because the inspection results confirm that the weld structural integrity is sound and, thus, the crane steel structure will perform as designed.

In Attachment 6, Initial Review of NUREG-0612 and NUREG-0554 Comparison Matrix for the RBS FBCHC, to the licensee's supplemental letter dated September 21, 2005, the licensee stated that all FBCHC welds were welded using welding procedures and welders qualified in accordance with the welding code requirements of the American Welding Society Standard D1.1-1972. The NRC staff finds that acceptable because welding procedures and welders qualified in accordance with this standard should produce high quality welds and, thus, ensure that the FBCHC will perform as designed.

Also in Attachment 6 of the licensee’s supplemental letter dated September 21, 2005, the licensee stated that all FBCHC crane welds were visually examined and all welds on the main hoist gears, pinions, and shaft assemblies were examined using the magnetic particle testing (MPT) method. By letter dated August 19, 2005, the NRC staff requested additional information in order to assess the extent of the licensee’s weld inspections. In its November 14, 2005, response to the NRC staff’s request for additional information (RAI), the licensee stated that critical welds for the RBS FBCHC include the following welds:

a) construction of the plate girder end trucks (2 girders),
b) construction of the plate girder main girt (1 girder),
c) connections between the main girt and the end trucks (2 connections),
d) connections between the drive girt and the end trucks (2 connections),
e) connection of redundant link plates to the main girt flange (4 plates), and
f) connection of the anti-derailment lugs to the main girt (2 lugs for each of 4 crane wheels).

With the exception of the anti-derailment lug welds, critical welds were identified by following the load path from the redundant link plates back to the crane wheels.

The non-destructive examination (NDE) using MPT, performed in April 2004, included 100% of the welds in items (c), (d), and (e), and 50% (of the length) of the welds in items (a) and (b).

Welds associated with item (f) were not surface examined, but were visually inspected. The total length of welds associated with items (a) and (b) is approximately 130 feet. Each of these welds was MPT examined to 50%, for a total MPT inspection length of approximately 65 feet. The remaining weld length was visually inspected.

In all cases but one, where some non-critical welds on a gusset plate on the crane structure were repaired, the inspection results confirmed that all critical welds are acceptable and structurally sound. Based on the above listed inspection results, the licensee concluded that the handling system satisfies the objectives of NUREG-0612, Section 5.1. The NRC staff finds the licensee's conclusions acceptable because the inspection results confirm that the production welds are of high quality and, thus, reasonable assurance of adequate structural integrity exists to ensure that the FBCHC will perform as designed. Further, the crane has been proof-load tested twice (September 1983 and April 2004) at 1.25 times the design load of the crane, with acceptable results.

Based upon the results of its review of the information submitted by the licensee, the NRC staff finds that the production welds associated with the FBCHC are of acceptable quality and, thus, reasonable assurance of adequate structural integrity and safety exists to ensure that the FBCHC will perform as designed.

4.7 Conclusion - Technical Evaluation

4.7.1 Handling of Heavy Loads

Based on the review of the assumptions and basis used in developing the drop analysis relative to the guidelines of Appendix A to NUREG-0612, in particular the general consideration of Section A-1 and the spent fuel cask drop analysis in Section A-3, the staff finds that the licensee has provided adequate assurance that its planned actions for the handling of heavy loads associated with dry cask storage loading operations are consistent with the "defense-in-depth" approach to safety described in NUREG-0612. Therefore, the NRC staff finds the amendment request acceptable in regard to the handling of heavy loads.

4.7.2 Postulated Load Drops

Based on the NRC staff's review of the drop analyses provided by the licensee in Section 4.7 of its LAR submittal and the discussion in Section 4.6 above, the NRC staff finds that the licensee has included the considerations and assumptions stated in NUREG-0612, Appendix A, and conforms with the guidelines. With respect to the licensee's use of the crane configured with redundant rigging for lateral moves of the loaded cask, the licensee's exclusion of load drops during these moves is acceptable. The licensee has provided reasonable assurance that, under the postulated cask drop events, the HI-STORM 100 storage cask system will perform adequately to maintain its shielding, confinement, and criticality safety functions.

4.8 Regulatory Commitments

The licensee included regulatory commitments in its application and its responses to the NRC staff's RAIs. The commitments are listed in the following table.

COMMITMENT	TYPE (Check One)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Following commitments are from the licensee's letter dated March 8, 2005:			
Submit a matrix comparing the RBS FBCHC to NUREG-0554 and NUREG-0612 criteria to support NRC review.	X		4/1/05
Ensure cask loading procedures specify that only the FBCHC main hoist will be used for cask handling activities.		X	Prior to first cask loading campaign
Ensure appropriately designed impact limiters are installed on the cask pool lower shelf and cask washdown area prior to cask lifts in these areas.		X	Prior to first cask loading campaign
Ensure cask loading procedures match cask loading evolutions described in this LAR.		X	Prior to first cask loading campaign
Upgrade FBCHC quality classification to "Quality Assurance Program Applicable."		X	3/31/05
Ensure cask loading procedures include instructions to check for severe weather prior to commencing outdoor cask handling operations. Evaluation and modify, as necessary, severe weather procedures to address cask handling operations per this LAR, particularly operations when the loaded cask is suspended from the outdoor cask handling crane superstructure.		X	Prior to first cask loading campaign
Ensure cask loading procedures include visual confirmation that redundant rigging is properly engaged and slack is removed from redundant rigging slings prior to horizontal movement.		X	Prior to first cask loading campaign

COMMITMENT	TYPE (Check One)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Ensure cask loading procedures restrict transfer cask lift height over cask pool lower shelf, cask pool upper shelf, cask washdown area, and mating device to values less than or equal to the values used in the drop analyses.		X	Prior to first cask loading campaign
Provide appropriate personnel training to reflect operating procedures and limits per this LAR.		X	Prior to first cask loading campaign
Following commitments are from the licensee's letter dated September 21, 2005:			
Continuing inspection is in accordance with the RBS Preventative Maintenance Program for slings and special lifting devices. This will be accomplished on a frequency in accordance with ASME B30.9 and ANSI N14.6.		X	Prior to first cask loading campaign
All critical lifts of the MPC, MPC Lid, HI-TRAC, HI-TRAC Top and Pool Lids, containing nuclear fuel or over nuclear fuel, will be made using the Main Hook.		X	Prior to first cask loading campaign
Ensure appropriately designed impact limiters are installed on the cask pool lower shelf and cask washdown area prior to cask lifts in these areas.		X	Prior to first cask loading campaign
Ensure cask loading procedures match cask loading evolutions described in this LAR.		X	Prior to first cask loading campaign
RBS will retest and qualify the crane for use in temperatures below 70 °F as warranted to support cask loading plans. The results from successful retesting will be incorporated into site procedures in the form of revised minimum temperature limitations.		X	Prior to use in temperatures below 70 °F

COMMITMENT	TYPE (Check One)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Ensure cask loading procedures include instructions to check for severe weather prior to commencing outdoor cask handling operations. Evaluation and modify, as necessary, severe weather procedures to address cask handling operations per this LAR, particularly operations when the loaded cask is suspended from the outdoor cask handling crane superstructure.		X	Prior to first cask loading campaign
We will ensure that cask loading procedures include visual confirmation that redundant rigging is properly engaged and slack is removed from redundant rigging slings prior to horizontal movement whenever a loaded cask is moved horizontally at its maximum suspended elevation.		X	Prior to first cask loading campaign
We will ensure cask loading procedures restrict loaded transfer cask lift height over cask pool lower shelf, cask pool upper shelf, cask washdown area, and mating device to values less than or equal to the values used in the drop analyses.		X	Prior to first cask loading campaign
Provide appropriate personnel training to reflect operating procedures and limits per this LAR.		X	Prior to first cask loading campaign
Personnel performing the engagement of redundant rigging will be trained to perform this evolution. These visual verifications will be documented in the controlling procedure(s).		X	Prior to first cask loading campaign

COMMITMENT	TYPE (Check One)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
New Dry Fuel Storage (DFS) Procedures, which control activities involving FBCHC operation, that will be written include: 1. DFS-0002, Dry Fuel Cask Loading 2. DFS-0003, Dry Cask Transport and Storage 3. DFS-0004, MPC Unload Procedure 4. DFS-0005, DFS Rigging Plan 5. DFS-0100, FB 113-04 Door (this is the door opening to the outside Cask Crane Structure)		X	Prior to first cask loading campaign
The trained Person In Charge (PIC), with responsibility for the lift, and the trained Cask Crane Operator, with responsibility for crane operation, will establish the crane hoist and travel speeds for loaded cask lifts within the following procedural constraints: • Use Crane “inching speed" at 0.5 fpm where appropriate. "Inching speed may be used, at the flagman's (as the PIC's designee) discretion or at the PIC's discretion, for lift phases where precise load positioning is appropriate. Do not cycle the cask crane by "jogging" or "plugging". The PIC and the crane operator have been trained to use the crane's "inching speed" and not use "jogging" or "plugging" of the crane.		X	Prior to first cask loading campaign
Following commitments are from the licensee’s letter dated November 14, 2005:			

COMMITMENT	TYPE (Check One)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
From Page 7 of Attachment 1: During hoisting of the load, positive controls will be in place to prevent trolley movement and during trolley movement, positive controls will be in place to prevent hoist movement.		X	Prior to first cask loading campaign
From Page 7 of Attachment 1: Operator actions to remove power to the hoist or trolley motors as applicable will be employed initially. Entergy will determine the most appropriate long terms means to incorporate positive controls used during hoisting to prevent trolley movement within 1 year, and implement the most appropriate method within 3 years.	X		Employment of Operator actions will be done prior to first cask loading campaign. Make determination of most appropriate means within 1 year and implement within 3 years
From Page 4 of Attachment 1: (t)he existing cask drop analysis bounds drops in all critical areas. The RBS USAR will be clarified in this regard.	X		Within one year of implementation

The NRC staff finds that reasonable controls for the implementation and for subsequent evaluation of proposed changes pertaining to the above regulatory commitments are best provided by the licensee's administrative processes, including its commitment management program. The above regulatory commitments do not warrant the creation of regulatory requirements (items requiring prior NRC approval of subsequent changes).

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Louisiana State official was notified of the proposed issuance of the amendment. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding published on April 26, 2005 (70 FR 21455). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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