August 21, 2012

Mr. W. L. Berg, General Manager
Dairyland Power Cooperative
3200 East Avenue South
P.O. Box 817
La Crosse, WI 54602-0817

SUBJECT: NRC INSPECTION REPORTS 07200046/11001(DNMS) AND 05000409/11001(DNMS) ─ LA CROSSE BOILING WATER REACTOR INDEPENDENT SPENT FUEL STORAGE INSTALLATION

Dear Mr. Berg:

On June 21, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed its inspection of pre-operational testing activities of the independent spent fuel storage installation (ISFSI) at the shutdown La Crosse Boiling Water Reactor (LACBWR) facility. The purpose of the inspection was to assess whether the licensee had adequately demonstrated its readiness to safely transfer spent fuel from the spent fuel pool to the ISFSI. On July 11, 2012, during the final exit teleconference, the NRC inspectors discussed the inspection results with members of your staff. The enclosed report presents the results of this inspection.

The inspection was an examination of the ISFSI pre-operational testing and preparatory activities as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Specifically, the inspectors observed pre-operational testing activities, reviewed programs, and reviewed engineering evaluations pertaining to the safe loading, storage, and unloading of spent nuclear fuel at the LACBWR facility.

Based on the results of this inspection, the NRC has determined that three Severity Level IV violations of NRC requirements occurred. These violations are being treated as Non-Cited Violations (NCVs), consistent with Section 2.3.2 of the Enforcement Policy. These NCVs are described in the subject inspection report. If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region III; and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with Title 10 of the Code of Federal Regulations (10 CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

We will gladly discuss any questions you may have regarding this inspection.

Sincerely,

/RA/

Christine A. Lipa, Chief
Materials Control, ISFSI, and
Decommissioning Branch

Docket Nos. 072-00046 and 050-00409
License No. DPR-45

Enclosure:
NRC Inspection Reports 07200046/11001(DNMS)
and 05000409/11001(DNMS)

cc w/encl:
D. Egge, Plant Manager
T. Zaremba, Wheeler, Van Sickle and Anderson
J. Kitsembel, Chairman, Wisconsin Public Service Commission
G. Kruck, Chairman, Town of Genoa
S. Burmaster, Coulee Region Energy Coalition
P. Schmidt, Manager, Radiation Protection, Bureau of Environmental and Occupational Health
State of Wisconsin

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REGION III

Docket Nos.	072-00046; 050-00409
License No.	DPR-45
Report Nos.	07200046/11001(DNMS) and 05000409/11001(DNMS)
Licensee:	Dairyland Power Cooperative
Facility:	La Crosse Boiling Water Reactor
Location:	Genoa, WI
Inspection Dates:	Onsite: November 1 – 5, 2010; January 10 – 14, 2011; April 4 – 8, 2011; June 27 – July 1, 2011; August 22 – 26, 2011; August 30 – 31, 2011; September 20 – 23, 2011; October 3 – 6, 2011; March 19 – 23, 2012; May 14 – 18, 2012; May 21 – 24, 2012; June 4 – 12, 2012; and June 19 – 21, 2012 In-Office Review: November 1, 2010 – June 21, 2012
Inspectors:	Jeremy E. Tapp, Health Physicist James E. Neurauter, Senior Reactor Inspector Lionel N. Rodriguez, Reactor Engineer Rhex A. Edwards, Reactor Inspector Jim J. Pearson, Senior Safety Inspector (NMSS) Clyde D. Morell, Storage & Transportation Safety Inspector (NMSS)
Observers:	Jon N. Woodfield, Storage and Transportation Engineer (NMSS)
Approved by:	Christine A. Lipa, Chief Materials Control, ISFSI, and Decommissioning Branch Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

La Crosse Boiling Water Reactor
NRC Inspection Reports 07200046/11001(DNMS) and 05000409/11001(DNMS)

The purpose of the inspection was to observe and evaluate the licensee's activities associated with pre-operational testing of an Independent Spent Fuel Storage Installation (ISFSI). During this inspection period, the inspectors observed pre-operational testing activities, reviewed programs, and reviewed engineering evaluations pertaining to the safe loading, storage, and unloading of spent nuclear fuel at the La Crosse Boiling Water Reactor (LACBWR) facility.

Review of Title 10 of the Code of Federal Regulations 72.212(b) Evaluations

- The licensee performed an adequate evaluation that demonstrated the dose and effluent requirements in Title 10 of the Code of Federal Regulations (CFR) 72.104 would be met during storage of spent fuel on the ISFSI pad. The Certificate of Compliance (CoC) No. 1025, Amendment 6 requirements were shown to be met in the 10 CFR 72.212 Evaluation Report. For the 10 CFR 72.48 screenings reviewed, the inspectors determined they were performed adequately and in accordance with the regulatory requirements and associated site procedure. (Section 1.1)

- The licensee failed to adequately evaluate reactor site parameters with regards to tornado missiles; fire, explosion, and fall hazards; and tip-over of the Vertical Concrete Cask (VCC) to determine if they were bounded by the MPC-LACBWR FSAR, which resulted in violations of regulatory requirements. The licensee has implemented prompt corrective actions to ensure compliance and prevent recurrence. After the completion of adequate corrective actions, the licensee's 72.212 Evaluation Report meets all applicable regulatory requirements and adequately evaluates the site specific parameters to ensure they are bounded by the MPC-LACBWR cask design basis. (Section 1.2)

- The licensee failed to assure the design basis was correctly translated into specifications, drawings, procedures, and instructions. Specifically, an undersized weld was incorporated into Design Change Request 10-02-B1, which would have resulted in a weld overstress during accident conditions. In addition, the licensee failed to review the suitability of the temporary single failure proof lifting system's trolley energy absorbing component that was designed to crush during a rope break accident. Specifically, the licensee: (1) failed to assure the trolley's energy absorbing component had sufficient energy absorbing capacity for the rope break accident; and (2) failed to assure the maximum rope tension resulting from the rope break accident was translated into the evaluation of all trolley structural components affected by the rope break accident. The licensee has implemented prompt corrective actions to ensure compliance and prevent recurrence. After the completion of adequate corrective actions, each licensee design change reviewed by the inspectors met all applicable regulatory requirements and adequately evaluated the site specific parameters to ensure they are bounded by the LACBWR design basis. (Section 1.3)

- The inspectors determined the licensee's Quality Assurance, Emergency Preparedness, Radiation Protection (RP), and training programs were adequate to ensure the effectiveness was not decreased due to the addition of ISFSI Operations onsite. All licensee personnel were verified to have had the required training by the required due date. (Section 1.4)

- The licensee's administrative control program ensures that activities related to storage of spent fuel are conducted only in accordance with written procedures. (Section 1.5)

- The licensee maintains a required copy of the CoC and its referenced documents, and the records provided by the CoC holder in accordance with the applicable regulatory requirements. The licensee performed adequate corrective actions to ensure that a provision was in place for the transfer of records of a cask to another user before the initial loading commenced and a cask could potentially be transferred. (Section 1.6)

<u>Pre-Operational Testing of an Independent Spent Fuel Storage Installation at a Reactor Site</u>

- The licensee demonstrated their ability to adequately and safely perform heavy loads movements inside and outside the reactor building in accordance with the applicable site procedures and industry standards. In addition, the equipment used for heavy loads was inspected, tested, and maintained in accordance with site procedures, industry standards and design specifications. (Section 2.1)

- The inspectors determined that the preoperational test procedures for the ISFSI loading, unloading, and transfer activities and their acceptance criteria meet applicable commitments and requirements for general licensed ISFSIs. The licensee adequately demonstrated their ability to safely perform the ISFSI loading, processing, handling, unloading, and transfer activities. The licensee met the requirements to perform these activities prior to the first use of the MPC-LACBWR storage system. (Section 2.2)

- The licensee's fuel loading plan for the first Transportable Storage Canister (TSC) was adequate and in accordance with the CoC approved contents. In addition, the licensee's fuel loading procedure was adequate to ensure each subsequent TSC loading plan would meet the CoC approved contents. (Section 2.3)

- The licensee's procedures ensured the RP related ISFSI Technical Specifications (TS) requirements would be met during ISFSI loading activities. The projected dose rate calculations for the ISFSI storage pad were adequately calculated and show the licensee will meet the public dose requirements of 10 CFR 72.104. The licensee also demonstrated the use of adequate RP controls during ISFSI pre-operational testing. (Section 2.4)

- The inspectors determined that the Quality Assurance Program met the applicable regulatory requirements; Quality Assurance activities and oversight, including the procurement of components, were adequate and appropriate; and all equipment observed was within the calibration date. (Section 2.5)

Report Details

1.0 Review of Title 10 of the Code of Federal Regulations 72.212(b) Evaluations (60856)

1.1 Review of Licensee Evaluations

a. Inspection Scope

The inspectors reviewed the licensee's ISFSI pad and area evaluations for compliance with the requirements in 10 CFR 72.212 (b)(5)(ii) during the ISFSI inspection documented in NRC Inspection Report Nos. 07200046/09-01(DNMS) and 05000409/09-02(DNMS).

The inspectors reviewed the licensee's 10 CFR 72.212 Evaluation Report to ensure the dose and effluent requirements would be met as required by 10 CFR Part 72.104 and written evaluations were performed which established that the requirements of the Certificate of Compliance (CoC) No. 1025, Amendment 6 have been met. In addition, the inspectors reviewed a sampling of 10 CFR 72.48 screenings to ensure they were performed adequately and in accordance with the applicable requirements in 10 CFR 72.48 and the licensee's procedure. The licensee's procedure was also reviewed to ensure it adequately implemented the applicable regulatory requirements.

b. Observations and Findings

No observations or findings of significance were identified.

c. Conclusion

The licensee performed an adequate evaluation that demonstrated the dose and effluent requirements in 10 CFR 72.104 would be met during storage of spent fuel on the ISFSI pad. The CoC No. 1025, Amendment 6 requirements were shown to be met in the 10 CFR 72.212 Evaluation Report. For the 10 CFR 72.48 screenings reviewed, the inspectors determined they were performed adequately and in accordance with the regulatory requirements and associated site procedure.

1.2 Review of Site Characteristics Against Safety Analysis Report (SAR) and Safety Evaluation Report (SER)

a. Inspection Scope

The inspectors evaluated the licensee's compliance with the requirements of 10 CFR 72.212 and 10 CFR 72.48. The inspection consisted of interviews with cognizant personnel and review of documentation. The licensee is required, as specified in 10 CFR 72.212(b)(1), to notify the NRC of the intent to store spent fuel at the La Crosse Boiling Water Reactor ISFSI facility at least 90 days prior to the first storage of spent fuel. The licensee notified the NRC on July 7, 2011, of their intent to store spent fuel using the NAC-Multi-Purpose Canister (MPC) System according to CoC No. 72-1025, Amendment 6.

The inspectors reviewed and assessed the licensee's 10 CFR 72.212 Evaluation Report, which documents, in part, the review required by 10 CFR 72.212(b)(6). The inspectors reviewed applicable reactor site parameters, such as fire and explosions, tornadoes, wind-generated missile impacts, seismic qualifications, lightning, flooding and temperature, to ensure they had been evaluated for acceptability against the bounding values specified in the NAC-MPC Final Safety Analysis Report (FSAR) and associated analyses.

b. <u>Observations and Findings</u>

The licensee is required to identify site-specific hazards to ensure they are bounded by the cask design basis documented in the cask FSAR. During the inspectors' review of the 72.212 Evaluation Report that documents the results of these evaluations, it was identified that a few sections described the site-specific hazards as acceptable, but did not include conclusions determining that the hazards were bounded by the NAC-MPC FSAR. In addition, the inspectors identified that for fire, explosion, and fall hazards along the ISFSI haul path, the licensee was crediting administrative controls to conclude a site-specific hazard was non-credible and therefore, would not affect the cask during transport. The inspectors reviewed the Fire Hazards Analysis (FHA) performed to evaluate these hazards and the administrative controls in place.

As a result of this review, the inspectors identified a Severity Level IV Non-Cited Violation (NCV) of 10 CFR 72.146, "Design Control," for the licensee's failure to perform adequate evaluations to ensure compliance with 10 CFR 72.122(c) and 10 CFR 72.212(b)(6). Specifically, during the period between October 2011 and June 2012, the inspectors identified that the licensee failed to adequately evaluate that the reactor site parameters were enveloped by the MPC-LACBWR design basis, and that the VCC and associated TSC were not required to withstand the effects of site specific fire and explosion hazards because specific haul path hazards were not credible.

Title 10 CFR 72.122(c), "Overall Requirements," states, in part, that "structures, systems, and components important to safety must be designed and located so that they can continue to perform their safety function effectively under credible fire and explosion exposure conditions." Title 10 CFR 72.212(b)(6), "Conditions of General License Issued Under 72.210," states that the licensee shall "review the Safety Analysis Report (SAR) referenced in the CoC or amended CoC and the related NRC Safety Evaluation Report (SER), prior to use of the general license, to determine whether or not the reactor site parameters, including analyses of earthquake intensity and tornado missiles, are enveloped by the cask design bases considered in these reports. The results of this review must be documented in the evaluation made in paragraph (b)(5) of this section." The NAC-MPC FSAR describes a design basis fire scenario and explosion overpressure. A number of ISFSI haul path hazards exceeded the design basis values. During the review of the FHA, the inspectors determined that the use of administrative controls as an evaluation method to show that site specific fire and explosion hazards are not credible is not an acceptable or approved methodology. In addition, the FHA did not contain an adequate justification why a scenario that is highly unlikely is also not credible. The licensee documented the conditions in Corrective Action Reports (CARs) 2012-048 and 2012-084 and initiated actions to evaluate the described conditions. Subsequently, a new calculation was performed that used a probabilistic methodology to justify that the fire and explosion hazards were not credible. Site fall hazards were also included in the revised evaluation. For potential fall hazards that exceeded the cask design basis, the revised analysis provided used an acceptable method of evaluation to justify the hazards as non-credible.

The inspectors used Traditional Enforcement guidance to determine the significance of the violation. The violation was determined to be of more than minor safety significance using Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," Example 3i, in that the licensee's lack of an adequate credibility evaluation did not assure cask integrity during a fire or explosion scenario determined to be outside the cask design basis and a new calculation was required to evaluate the credibility of the site specific fire or explosion hazards. This violation did not fit any examples in the NRC Enforcement Policy so it should be assigned a severity level: (1) Commensurate with its safety significance; and (2) Informed by similar violations addressed in the violation examples. The violation was determined to be a Severity Level IV violation or of very low safety significance because the hazards were determined to be non-credible by the FHA report and supporting calculation. This violation is being treated as an NCV, consistent with Section 3.1.1 of the NRC Enforcement Manual. (NCV 05000409/11001-01 and 07200046/11001-01; Failure to Perform Adequate Credibility Evaluations for ISFSI).

The licensee is using a heavy haul trailer to transport the VCC to the ISFSI storage pad. This trailer has a large number of rubber tires in order to support the heavy load on the haul path. The tires present a fire hazard to the cask if a fire were to occur in close proximity. The NAC-MPC FSAR does not evaluate this site specific transport method for potential fire hazards. Through the review of the licensee's FHA and interviews of cognizant personnel, the inspectors determined an evaluation of this site specific fire hazard had not been performed. This failure constitutes a violation of minor safety significance of 72.146 "Design Control" for the licensee's failure to perform adequate evaluations to ensure compliance with 10 CFR 72.122(c) and 10 CFR 72.212(b)(6). Specifically, the inspectors identified that the licensee failed to evaluate that the reactor site parameters were enveloped by the MPC-LACBWR design basis and that the VCC and associated TSC were designed to withstand the effects of a heavy haul trailer site specific tire fire hazard. The licensee documented the conditions in CAR 2012-100. This was determined to be of minor safety significance because the subsequent evaluation performed resulted in only a minimal increase of peak fuel cladding temperature that is still well below the fuel cladding temperature limit.

In addition, during the review of the licensee's 72.212 Evaluation Report, the inspectors noted that the licensee considered the tip-over of the VCC during transport on the heavy haul trailer. During cask transport on the heavy haul trailer, there is the potential that the trailer could rock and potentially cause the VCC and TSC to tip over. An evaluation was referenced and reviewed by the inspectors. The evaluation was performed for the Yankee Rowe ISFSI project and did not reference LACBWR. The inspectors requested documentation that justified the evaluation's applicability at LACBWR and such documentation could not be provided. This failure constitutes a violation of minor safety significance of 10 CFR 72.146, "Design Control," for the licensee's failure to perform adequate evaluations to ensure compliance with 10 CFR 72.212(b)(6). Specifically, the inspectors identified that the licensee failed to evaluate that the reactor site parameters were enveloped by the MPC-LACBWR design basis and that the VCC and associated TSC was designed to withstand a tip-over from the heavy haul trailer. The licensee documented the conditions in CAR 2011-155 and initiated actions to evaluate the described conditions. The licensee performed a review and acceptance of the document

and justified its applicability at LACBWR. This has been determined to be of minor safety significance because the subsequent review and acceptance performed did not result in any evaluation revisions and determined it was bounding.
The licensee constructed an opening in the Reactor Building in order to remove the reactor vessel and ship it offsite in 2007. The opening was covered with a bi-parting door system. The licensee will be performing TSC welding and processing activities in front of the bi-parting doors, which provides the potential for tornado missiles to impact the fuel loaded transfer cask (TFR). During the inspectors' review of the 72.212 Evaluation Report, it was noted that the NAC-MPC FSAR is silent with regards to tornado missiles impacting the TFR. The licensee performed a calculation to ensure missile impacts on the TFR are acceptable and within the cask licensing basis. The inspectors identified that the calculation did not properly take into account the fact that the TFR will be in a seismic restraint system. This failure to properly evaluate the actual condition of the TFR constitutes a minor violation of 10 CFR 72.146, "Design Control," which requires licensees to perform adequate evaluations to ensure compliance with 10 CFR 72.122(b)(2)(i) and 10 CFR 72.212(b)(6). Specifically, the inspectors identified that the licensee failed to adequately evaluate that the reactor site parameters, including analyses of tornado missiles, were enveloped by the TFR design basis and that the TFR was designed to withstand the effects of natural phenomenon including tornadoes. The licensee documented the conditions in CAR 2012-049 and initiated actions to evaluate the described condition. The licensee revised the calculation and determined there was only a marginal increase of material stresses in the TFR and no breach of the TFR would occur for the restrained condition of the cask. This has been determined to be of minor safety significance because the subsequent evaluation performed was not a significant revision and resulted in only a minimal increase in TFR stresses.

The inspectors verified that the licensee's 10 CFR 72.212 Evaluation Report met all applicable regulatory requirements and adequately evaluated the site specific parameters to ensure they are bounded by the MPC-LACBWR cask design basis before the end of the inspection period and before the licensee commenced initial loading activities.

c. Conclusion

The licensee failed to adequately evaluate reactor site parameters with regards to tornado missiles; fire, explosion, and fall hazards; and tip-over of the VCC to determine if they were bounded by the MPC-LACBWR FSAR, which resulted in violations of regulatory requirements. The licensee has implemented prompt corrective actions to ensure compliance and prevent recurrence. After the completion of adequate corrective actions, the licensee's 72.212 Evaluation Report meets all applicable regulatory requirements and adequately evaluates the site specific parameters to ensure they are bounded by the MPC-LACBWR cask design basis.

1.3 Review of ISFSI Activities for Determination of No Adverse Impact on Site Operation or Technical Specifications

a. Inspection Scope

The inspectors reviewed documentation associated with design activities supporting dry cask storage including: the new reactor building cask pool and liner, cask pool support, cask pool gate, and cask pool gate support; the procured temporary cask lifting system including the single failure proof trolley and trolley supporting structure; the structural capacity of cask lay down areas; and the new cask seismic restraint designs. Specifically, the review included structural evaluations associated with the seismic design of the cask pool and liner design, cask pool support design, cask pool gate and gate support design, the new single failure proof trolley, hoist/reeving equipment, miscellaneous components, crane bridge girders, supporting structural steel, modifications affecting the plant, and floor loading in cask lay down areas. The inspectors also reviewed the seismic restraint used during placement of the TFR onto the reactor building mezzanine floor lay down area and the seismic restraint used during the transfer of the TSC from the TFR into the VCC outside the reactor building.

b. Observations and Findings

Title 10 CFR 50, Appendix B, Criterion III, "Design Control," requires, in-part, that the licensee establishes measures to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. During the inspectors' review of Design Change Request (DCR) 10-02-B1 and calculation 08785-080-ST-02, "Cask Pool Support Design,' Revision 2, it was identified that DCR 10-02-B1, drawing S-100, Revision B, incorrectly incorporated an undersized fillet weld size.

As a result of this review, the inspectors identified a Severity Level IV NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to comply with the industry code utilized in the design basis calculation for fillet weld design. Specifically, American Welding Society (AWS) "Structural Welding Code – Steel," specified a minimum 3/8 inch fillet weld size (plus shim thickness) for welding the thick steel members being joined. DCR 10-02-B1, drawing S-100, Revision B, specified a minimum 5/16 inch fillet weld size (plus shim thickness). As a result, the weld specified on DCR 10-02-B1, drawing S-100, Revision B, was undersized and not in conformance with the requirements of the design basis code. On November 4, 2010, the licensee entered the issue into its corrective action program as CAR 2010-115, determined that an incorrect sketch was transmitted to the licensee as part of DCR 10-02-B1, and revised DCR 10-02-B1 to specify the correct 3/8 inch minimum fillet weld size.

The inspectors used Traditional Enforcement guidance to determine the significance of the violation. The violation was determined to be of more than minor safety significance using Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," Example 3a, in that the error was significant enough to require a DCR 10-02-B1 revision to correctly resolve the concern. This violation did not fit any examples in the NRC Enforcement Policy so it should be assigned a severity level: (1) Commensurate with its safety significance; and (2) Informed by similar violations addressed in the violation examples. The violation was determined to be a Severity Level IV violation or of very low safety significance because the non-conforming weld size was corrected prior to installation of the cask pool support. This violation is being treated as an NCV, consistent with Section 3.1.1 of the NRC Enforcement Manual. (NCV 05000409/11001-02; Failure to Incorporate Correct Weld Size in DCR 10-02-B1)

Title 10 CFR 50, Appendix B, Criterion III, “Design Control,” requires, in part, that the licensee establish measures for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems, and components.

Regulatory guidance for lifting heavy loads at nuclear power plants is given in NUREG-0612, “Control of Heavy Loads at Nuclear Power Plants,” dated July 1980. Section 5.1.4 of NUREG-0612 specified that lifting devices used for handling heavy loads should satisfy the single failure proof guidelines of Section 5.1.6 of NUREG-0612 or the effects of heavy loads drops should be analyzed to show that the evaluation criteria of Section 5.1 of NUREG-0612 are satisfied. Section 5.1.6, “Single-Failure-Proof Handling Systems,” of NUREG-0612 specified that new cranes should be designed to meet NUREG-0554, “Single-Failure-Proof Cranes for Nuclear Power Plants.”

As a part of the temporary cask handling system, the licensee procured a vendor supplied single failure proof trolley. The inspectors reviewed vendor documentation that established the trolley to be single failure proof in accordance with NUREG-0612 and NUREG-0554. Section 4.1 of NUREG-0554 specified, in-part, that a dual rope reeving system will permit either rope system to hold the critical load and transfer the critical load without excessive shock in case of failure of the other rope system. Vendor calculation CAL-21031-SE-321, “Vertical Displacement after Rope Failure,” Revision 1, evaluated the dual rope reeving system for the consequences of a rope break accident. The dual reeving system included an energy absorbing component designed to crush during transfer of the critical load for the rope break accident. However, the inspectors identified that calculation CAL-21031-SE-321 did not establish that the energy absorbing component was suitable for the rope break accident. Specifically, calculation CAL-21031-SE-321 did not establish the energy absorbing capacity of the component and did not establish an appropriate absorbed energy acceptance limit to assure additional shock would not occur from exceeding the component energy absorbing capacity.

In addition, the inspectors identified a non-conservative method to determine maximum rope tension during a rope break accident was used in vendor calculations that evaluated other structural capacity of components affected by a rope break accident including: CAL-21031-ME-320, “Main Hoist Drive System,” Revision 1; CAL-21031-ME-340, “Main Hoist Wire Rope Drum,” Revision 2; CAL-21031-ME-360, “Main Hoist Upper Block,” Revision 0; and CAL-21031-ME-750, “Main Hoist Lower Block,” Revision 0. The inspectors noted that the energy absorbing component evaluated in calculation CAL-21031-SE-321 was designed to crush at a higher rope load than evaluated in the above calculations.

As a result of this review, the inspectors identified a Severity Level IV NCV of 10 CFR 50, Appendix B, Criterion III, “Design Control.” Specifically, the licensee failed to establish measures for the selection and review for suitability of application of the crushable energy absorbing component essential to the safety related functions of the structures, systems, and components during a rope break accident. In addition, the licensee did not establish measures to assure other components affected by selection of the crushable energy absorbing component had sufficient structural capacity during a rope break accident. The inspectors verified that the revised vendor calculations demonstrated the crushable energy absorbing component had sufficient energy absorbing capacity and that other components affected by a rope break accident had sufficient structural capacity. On July 13, 2012, the licensee initiated CAR 12-099, “Cask Handling Crane Design Comment on Energy Absorbing Material,” to document resolution of the concerns in its corrective action program.

The inspectors used Traditional Enforcement guidance to determine the significance of the violation. The inspectors determined that the licensee’s failure to perform adequate evaluations to establish their temporary lifting device trolley as single failure proof was contrary to the design control measures per 10 CFR 50 Appendix B requirements. The violation was determined to be more than minor because the licensee failed to verify that the energy absorbing capacity of the crushable component was sufficient for the rope break accident. This violation did not fit any examples in the NRC Enforcement Policy so it should be assigned a severity level: (1) Commensurate with its safety significance; and (2) Informed by similar violations addressed in the violation examples. The violation was determined to be a Severity Level IV violation or of very low safety significance because the affected calculations were revised to demonstrate the trolley could withstand the effect of a rope break accident in accordance with NUREG-0554 prior to use as a single failure proof handling system. This violation is being treated as an NCV, consistent with Section 3.1.1 of the NRC Enforcement Manual. (NCV 05000409/11001-03; Failure to Establish Suitability of Trolley Reeving System Energy Absorbing Component)

As a result of this review, the inspectors identified the licensee design calculation for the cask pool gate support did not ensure component manufacturing tolerances were incorporated into the design calculation. Specifically, calculation 08785-080-ST-04, “Cask Pool Gate Support Design,” Revision 1, utilized nominal pipe wall thickness for piping used as structural members. As indicated in calculation 08785-080-ST-04, design of the cask pool gate support framing was in accordance with American Institute of Steel Construction (AISC) “Manual of Steel Construction Allowable Stress Design,” 9th Edition. The inspectors noted that the AISC manual documented that the standard mill practice for steel pipe would allow the minimum wall thickness to be 12.5 percent below the nominal wall thickness. The inspectors further noted that the 13th Edition of the AISC manual included design parameters for round hollow structural shapes that incorporated a seven percent reduction in nominal wall thickness to account for standard manufacturing tolerances. The licensee’s corrective action included ultrasonic testing to determine actual pipe wall thicknesses. The licensee measured a maximum 8.3 percent wall thickness reduction and further determined that the available design margin was significant and no change to the design was required. The inspectors determined the concern to be of minor safety significance using IMC 0612, “Power Reactor Inspection Reports,” Appendix E, “Examples of Minor Issues,” Example 3a, in that the effect the actual minimum pipe wall thickness had was not significant. On July 13, 2012, the licensee initiated CAR 12-098, “Reactor Building Modification Design Comment on Pipe Wall Thickness,” to document resolution of the concerns in its corrective action program.

As a result of this review, the inspectors identified the licensee design calculation for the cask prep area did not physically restrain the TFR after removal from the cask pool and placement onto the mezzanine floor lay down area for decontamination, drying, and closure lid and ring welding. Specifically, calculation 08785-080-ST-05, “Cask Prep Area Modification,” Revision 2, calculated that the cask would not tip or slide during a design basis seismic event. The inspectors and licensee discussed the lack of regulatory guidance related to stability of unrestrained structures and the safety significance should the TFR slide during a seismic event while on the mezzanine floor. As a result of discussions with the inspectors, the licensee chose to provide physical restraint of the

TFR while on the mezzanine floor and not attached to the temporary lifting device. In addition, the licensee chose to provide a physical seismic restraint during the transfer of the TSC from the TFR into the VCC outside the reactor building. Due to the licensee providing seismic restraint of components during actual cask operations and the lack of regulatory guidance for evaluation of unrestrained components during a seismic event, the initial use of a seismic stability evaluation in lieu of a physical seismic restraint is documented as an observation.

c. Conclusion

The licensee failed to incorporate a minimum 3/8 inch fillet weld size (plus shim thickness) for welding the thick steel members being joined into DCR 10-02-B1. In addition, the licensee: (1) failed to assure the trolley's energy absorbing component had sufficient energy absorbing capacity for the rope break accident; and (2) failed to assure the maximum rope tension resulting from the rope break accident was translated into the evaluation of all trolley structural components affected by the rope break accident. The licensee has implemented prompt corrective actions to ensure compliance and prevent recurrence. After the completion of adequate corrective actions, each licensee design change reviewed by the inspectors met all applicable regulatory requirements and adequately evaluated the site specific parameters to ensure they are bounded by the LACBWR design basis.

1.4 Review of Programs Impacted by ISFSI Operations

a. Inspection Scope

The inspectors reviewed the licensee's 10 CFR 72.212 Evaluation Report to verify the Quality Assurance, Emergency Preparedness, RP, and Training programs were reviewed to determine if their effectiveness is decreased and, if necessary, the appropriate changes were made.

b. Observations and Findings

During the inspectors' review of the training program, it was noted that the program documentation did not clearly state the frequency requirements for personnel training with respect to the ISFSI activities. In addition, the licensee was not able to retrieve and provide the inspectors with all requested training records for project personnel. The licensee wrote CAR 2011-157 to document these issues and correct them. The inspectors reviewed the completed CAR and determined the appropriate actions were taken to correct the issues and preclude recurrence.

The inspectors noted that the Radiation Protection Program documentation reviewed did not specifically describe how the program would incorporate the ISFSI activities. The inspectors discussed this observation with the licensee and it was determined that the program was currently undergoing review for changes with respect to the ISFSI project. The licensee stated the changes would be completed before the initial fuel loading campaign begun. The inspectors verified the appropriate changes had been made to the program before the end of the inspection period.

No findings of significance were identified.

c. Conclusion

The inspectors determined the licensee's Quality Assurance, Emergency Preparedness, Radiation Protection, and training programs were adequate to ensure the effectiveness was not decreased due to the addition of ISFSI Operations onsite. All licensee personnel were verified to have had the required training by the required due date.

1.5 ISFSI Procedures

a. Inspection Scope

The licensee is required by 10 CFR 72.212(b)(13) to conduct activities related to the storage of spent fuel only in accordance with written procedures. The inspectors performed interviews with site personnel and reviewed the licensee's administrative control procedures index in its entirety and selected administrative control procedures to verify the licensee's procedure use and control meets the regulatory requirement.

b. Observations and Findings

No observations or findings of significance were identified.

c. Conclusion

The licensee's administrative control program ensures that activities related to storage of spent fuel are conducted only in accordance with written procedures.

1.6 Storage of ISFSI Records

a. Inspection Scope

The licensee is required by 10 CFR 72.212(b)(11) to maintain a current copy of the CoC and those documents referenced in the CoC. The licensee is also required by 10 CFR 72.212(b)(12) to accurately maintain the record provided by the CoC holder for each cask that shows the CoC holder, the spent fuel stored in the cask, and any maintenance performed on the cask. The inspectors verified the licensee maintained a copy of the CoC and the record of the cask provided by the CoC holder.

In addition, the inspectors verified that the licensee has provisions in place to transfer the cask records if it is sold, leased, loaned, or otherwise transferred to another user. This is required by 10 CFR 72.212(b)(14)(d).

b. Observations and Findings

During the review of the licensee's provisions for transferring the cask records to another user, if that were to occur, the inspectors identified that the licensee did not have a process established. The licensee documented this issue in CAR No. 2011-158 to ensure it was corrected. The inspectors reviewed the completed CAR and determined adequate corrective actions were taken to correct the issue.

No findings of significance were identified.

c. Conclusion

The licensee maintains a required copy of the CoC and its referenced documents, and the records provided by the CoC holder in accordance with the applicable regulatory requirements. The licensee performed adequate corrective actions to ensure that a provision was in place for the transfer of records of a cask to another user before the initial loading commenced and a cask could potentially be transferred.

2.0 Preoperational Testing of Independent Spent Fuel Storage Facility Installations at Operating Plants (60854.1)

2.1 Control of Heavy Loads

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the control of heavy loads program for ISFSI operations. The inspectors reviewed inspection, testing, and maintenance documentation associated with the Reactor Building polar crane, CHC, TFR lifting trunnions, lift yoke, and heavy haul trailer to ensure compliance with industry standards and design specifications. The inspectors observed the licensee perform heavy loads movements inside and outside of the reactor building. In addition, the inspectors observed the licensee perform daily and periodic inspections to ensure compliance with site procedures and industry standards.

b. Observations and Findings

The inspectors noted that the licensee used the required procedures and appropriate human performance practices to ensure the safe handling of heavy loads.

c. Conclusion

The licensee demonstrated their ability to adequately and safely perform heavy loads movements inside and outside the reactor building in accordance with the applicable site procedures and industry standards. In addition, the equipment used for heavy loads was inspected, tested, and maintained in accordance with site procedures, industry standards and design specifications.

2.2 Dry Run Activities

a. Inspection Scope

The licensee performed pre-operational dry run activities in order to fulfill the requirements of the CoC. The NRC inspectors were onsite to observe dry run activities August 22 – 26, 2011, September 20 – 23, 2011, May 14 – 18, 2012, May 21 – 23, 2012, and June 4 – 12, 2012. These activities included TSC processing and welding, heavy loads operations inside and outside of the Reactor Building, wet operations including fuel loading, crane walkdown inspection, and document review.

The inspectors observed the licensee place the TFR containing the TSC into the cask pool. Installation of the cask pool gate was observed with subsequent removal of the fuel transfer canal gate after cask pool floodup. Disassembly of the CHC rails in the

Reactor Building was then observed, which is performed in order to allow movement of the fuel handling bridge over the fuel element storage well (FESW) and cask pool for fuel loading or unloading activities.

The inspectors observed the loading and unloading of a dummy fuel assembly into the TSC basket in both a damaged fuel can (DFC) cell and normal storage cell. The licensee demonstrated removal of a dummy fuel assembly from the FESW rack, placement of the assembly into the TSC DFC cell and normal cell, and retrieval of the fuel assembly from the TSC to the FESW rack. The inspectors observed the licensee install the CHC rails and perform a periodic inspection on the CHC so the TFR could be moved out of the cask pool. The inspectors observed the licensee remove a TFR containing a TSC from the cask pool and subsequent placement of the TFR in the cask preparation area (CPA).

The inspectors observed the licensee perform TSC processing activities. The licensee demonstrated hydrostatic testing, blow-down, vacuum drying, and helium backfilling. The inspectors observed the licensee demonstrate TSC unloading dry run activities.

The inspectors observed the movement of the TFR from the CPA, through an opening in the Reactor Building, outside to the cask transfer area. The inspectors then observed transfer of the TSC from the TFR to the VCC in a restrained support structure on top of the heavy haul trailer outside the Reactor Building.

The inspectors observed transfer of the VCC from the support structure outside the Reactor Building to the ISFSI pad via the haul path to the ISFSI pad using the heavy haul trailer and tractor. The inspectors then observed placement on its proper location on the ISFSI pad using air pads and extendable boom forklift.

The inspectors observed communication between the cask loading contractors, operations, radiation protection, and security staff. The inspectors verified adequate communication and team work between departments and adherence to procedures.

The inspectors attended licensee briefings during dry run operations including: pre-job briefs, post-job briefs, as low as reasonably achievable (ALARA) radiation dose briefs, and in-field briefs.

The inspectors reviewed loading and unloading procedures to ensure that they contained commitments and requirements specified in the license, the TS, the FSAR, and 10 CFR Part 72.

The inspectors reviewed the procedures that were revised due to improvements noted during dry run activities to ensure the appropriate changes were made.

b. Observations and Findings

The inspectors noted that throughout all dry run activities, the licensee improved their procedures and programs to ensure the future ISFSI loading campaign would be performed safely and adequately. This also included those procedure improvements identified by the inspectors while observing the dry run activities. In addition, the inspectors noted the licensee's pre-job briefs improved as work progressed.

c. Conclusion

The inspectors determined that the preoperational test procedures for the ISFSI loading, unloading, and transfer activities and their acceptance criteria meet applicable commitments and requirements for general licensed ISFSIs. The licensee adequately demonstrated their ability to safely perform the ISFSI loading, processing, handling, unloading, and transfer activities. The licensee met the requirements to perform these activities prior to the first use of the MPC-LACBWR storage system.

2.3 Fuel Characterization

a. Inspection Scope

The inspectors reviewed the licensee's program associated with fuel characterization and selection for storage. The inspectors reviewed the licensee's procedure to characterize fuel as fuel debris, damaged, or intact fuel. The inspectors reviewed licensee procedure OP-35-25, "Dry Cask Storage Fuel Selection and Loading Plan Development," Issue 1 to verify that the procedure contained adequate instruction for licensee staff to select fuel assemblies in accordance with the CoC approved contents. The inspectors reviewed the first TSC loading plan to verify that the licensee was loading fuel in accordance with the CoC approved contents.

b. Observations and Findings

No observations or findings of significance were identified.

c. Conclusion

The licensee's fuel loading plan for the first TSC was adequate and in accordance with the CoC approved contents. In addition, the licensee's fuel loading procedure was adequate to ensure each subsequent TSC loading plan would meet the CoC approved contents.

2.4 Radiation Protection

a. Inspection Scope

The inspectors evaluated the licensee's RP Program pertaining to the operation of the ISFSI. The inspectors reviewed the licensee's procedures describing the methods and techniques used when performing dose rate and surface contamination surveys and verified that they ensured dose rate limits and surveillance requirements of the TS were met. The inspectors verified that the licensee's RP staff considered lessons learned from other utilities' spent fuel loading campaigns during development of the radiological controls for the loading, storage and unloading operations. The inspectors interviewed licensee personnel to verify their knowledge regarding the scope of the work and the radiological hazards associated with transfer and storage of spent fuel. The inspectors reviewed licensee dose rate calculations to verify that the licensee's ISFSI was in compliance with 10 CFR 72.104, "Criteria for Radioactive Materials in Effluents and Direct Radiation from an ISFSI or MRS [Monitored Retrievable Storage Installation]." The inspectors verified that the licensee has a radiation monitoring program in place to ensure compliance with 10 CFR 20.1301 "Dose Limits for Individual Members of the

Public" and interviewed staff on the implementation of this program in regards to ISFSI storage operations.

b. Observations and Findings

The inspectors noted the licensee RP staff fully participated in all parts of the pre-operational activities to ensure all individuals involved in the upcoming ISFSI loading campaign would be cognizant and aware of the site specific radiological hazards and prevention techniques.

c. Conclusion

The licensee's procedures ensured the RP related ISFSI TS requirements would be met during ISFSI loading activities. The projected dose rate calculations for the ISFSI storage pad were adequately calculated and show the licensee will meet the public dose requirements of 10 CFR 72.104. The licensee also demonstrated the use of adequate RP controls during ISFSI pre-operational testing.

2.5 Quality Assurance

a. Inspection Scope

The inspectors reviewed the licensee's Quality Assurance Program, as it applied to the ISFSI. In a letter from Dairyland Power Cooperative to the NRC on August 24, 2009, LACBWR communicated their intent to incorporate the ISFSI Quality Assurance Program into their established 10 CFR 50 Quality Assurance Program as allowed by 10 CFR 72.140(d).

The inspectors reviewed procedures pertaining to the receipt inspection of TSCs and VCC overpacks. The inspectors observed the licensee implement their Materials and Test Equipment program into ISFSI activities. The inspectors observed that gauges were within their calibration date, and that the use of 99.995 percent pure helium was used during backfilling. The inspectors reviewed the calibration dates of various components used for ISFSI operations.

b. Observations and Findings

No observations or findings of significance were identified.

c. Conclusion

The inspectors determined that the Quality Assurance Program met the applicable regulatory requirements; Quality Assurance activities and oversight, including the procurement of components, were adequate and appropriate; and all equipment observed was within the calibration date.

3.0 Management Meetings

3.1 Exit Meeting Summary

On July 11, 2012, the inspectors conducted an exit teleconference to present the results of the inspection to Mr. D. Egge, Plant Manager, and other members of the licensee staff. The licensee acknowledged the results presented. Some documents reviewed contained statements indicating they were proprietary, and the inspectors indicated that the identified proprietary information would be handled accordingly.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

D. Egge, Plant Manager
L. Nelson, Health and Safety/Maintenance Supervisor
R. Cota, Operations and Relief/Training Supervisor
E. Martin, Quality Assurance Manager
W. Trubilowicz, Project Manager
J. McRill, Technical Support Engineer
D. Tesar, Technical Support Engineer
L. Peters, Project Engineer

INSPECTION PROCEDURES USED

IP 60854.1	Pre-Operational Testing of ISFSIs at Operating Plants
IP 60856	Review of 10 CFR 72.212 (b) Evaluations

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000409/11001-01 07200046/11001-01	NCV	Failure to Perform Adequate Credibility Evaluations for ISFSI
05000409/11001-02	NCV	Failure to Incorporate Correct Weld Size in DCR 10-02-B1
05000409/11001-03	NCV	Failure to Establish Suitability of Trolley Reeving System Energy Absorbing Component

Closed

05000409/11001-01 07200046/11001-01	NCV	Failure to Perform Adequate Credibility Evaluations for ISFSI
05000409/11001-02	NCV	Failure to Incorporate Correct Weld Size in DCR 10-02-B1
05000409/11001-03	NCV	Failure to Establish Suitability of Trolley Reeving System Energy Absorbing Component

Discussed None

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access Management System
AISC	American Institute of Steel Construction
ALARA	As Low As Reasonably Achievable
AWS	American Welding Society
CAR	Corrective Action Report
CFR	Code of Federal Regulations
CHC	Cask Handling Crane
CoC	Certificate of Compliance
CPA	Cask Preparation Area
DCR	Design Change Request
DFC	Damaged Fuel Can
DNMS	Division of Nuclear Material Safety
FESW	Fuel Element Storage Well
FHA	Fire Hazards Analysis
FSAR	Final Safety Analysis Report
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
LACBWR	La Crosse Boiling Water Reactor
MPC	Multi-Purpose Canister
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
RP	Radiation Protection
SAR	Safety Analysis Report
SER	Safety Evaluation Report
TFR	Transfer Cask
TS	Technical Specifications
TSC	Transportable Storage Canister
VCC	Vertical Concrete Cask

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather, that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

Review of 10 CFR 72.212 (b) Evaluations (IP 60856)

0842501.01-S-001; Seismic Analysis of LACBWR Reactor Building with Cask Pool Tank Model and Cask; Revision 1
0842501.01-S-001; Seismic Analysis of LACBWR Reactor Building with Cask Pool Tank Model and Cask; Revision 2
0842501.01-S-002; Seismic analysis for LACBWR's Temporary Lifting Device Structure for Removing the Spent Fuel from Reactor Building; Revision 0
0842501.01-S-003; Structural Reinforcing of the LACBWR Reactor Building Outer Shield Wall Opening; Revision 0

0842501.01-S-004; Structural Integrity Analysis of Spent Fuel Storage Well and Racks Inside the Reactor Building; Revision 0
0842501.01-S-005; Structural Calculation of LACBWR Modified Polar Crane Support Columns; Revision 0
0842501.01-S-006; Design of Bioshield Support Anchors for LACBWR Temporary Lifting Device; Revision 0
08785-080-ME-01; Cask Pool Drainage and Clean-up Piping; Revision 2
08785-080-ST-01; Cask Pool and Liner Design; Revision 1
08785-080-ST-01; Cask Pool and Liner Design; Revision 2
08785-080-ST-02; Cask Pool Support Design; Revision 2
08785-080-ST-02; Cask Pool Support Design; Revision 3
08785-080-ST-03; Cask Pool Seismic Model; Revision 0
08785-080-ST-04; Cask Pool Gate Support Design; Revision 1
08785-080-ST-04; Cask Pool Gate Support Design; Revision 2
08785-080-ST-05; Cask Prep Area Modification; Revision 2
08785-080-ST-06; Reactor Building Modifications and Evaluations; Revision 1
08785-080-ST-08; TFR Cask Seismic Restraint System; Revision 0
08785-081-ST-11; Soil-Structure Interaction Analysis of the Cask Stack-up Restraint System; Revision 0
300 Series Drawings; Seismic Restraint Structure; Revision 1
301 Series Drawings; Seismic Structure Assembly, Seismic Restraint; Revision 2
302 Series Drawings; Structure Section #1, Seismic Restraint; Revision 2
303 Series Drawings; Structure Section #2, Seismic Restraint; Revision 2
304 Series Drawings; VCC Clamp Assembly, Seismic Restraint; Revision 0
305 Series Drawings; Turnbuckle Assembly, Seismic Restraint; Revision 0
306 Series Drawings; Details, Seismic Restraint; Revision 0
790-S-24; Procurement/Fabrication Specification, MPC-LACBWR Cask Seismic Restraint System; Revision 0
630045-300-1A; DCR: Gusset Plates Added to Minimize Bending of Anchor Foot Plate; dated September 26, 2011
63004500-2040; Seismic Evaluation of the Constraint Tower for Transfer Cask and VCC; Revision 1
63004500-2041; Flange Evaluations of the Restraint Tower for Transfer Cask and VCC; Revision 1
63004500-2042; Attachment Evaluations of the Restraint Tower for Transfer Cask and VCC; Revision 1
63004500-2043; Weld Evaluations of the Restraint Tower for Transfer Cask and VCC; Revision 1
10 CFR 72.212 Report, Revision 0, dated September 2011
10 CFR 72.212 Report, Revision 1, dated March 2012
10 CFR 72.212 Report, Revision 2, dated June 2012
10 CFR 50.59 Evaluation; RE-2012-03; DCS Cask Loading Operations; Revision 0
10 CFR 72.48 Determination; RE-2012-11; LACBWR 10 CFR 72.212 Report, Revision 2 Changes; Revision 0, dated June 18, 2012
10 CFR 72.48 Determination; RE-2012-10; Calculation No. 2008-16712, ISFSI Fire Radiant Heat and Explosion Overpressure Analysis, Revision 2; Revision 0, dated June 18, 2012
10 CFR 72.48 Determination; RE-2012-09; Calculation No. 2008-16712, ISFSI Fire Radiant Heat and Explosion Overpressure Analysis, Revision 2; Revision 0, dated June 15, 2012
10 CFR 72.48 Determination; RE-2012-07; LACBWR 10 CFR 2012 Report, Revision 0 Changes, Part B; Revision 0, dated March 16, 2012

10 CFR 72.48 Determination; RE-2012-06; LACBWR 10 CFR 2012 Report, Revision 0 Changes, Part B; Revision 0, dated March 15, 2012
10 CFR 72.48 Determination; RE-2012-05; LACBWR 10 CFR 2012 Report, Revision 1 Changes, Part A; Revision 0, dated March 15, 2012
10 CFR 72.48 Determination; ID No. NAC-11-MPC-003; dated February 9, 2011
10 CFR 72.48 Determination; ID No. NAC-11-MPC-012; dated April 26, 2011
10 CFR 72.48 Determination; ID No. NAC-10-MPC-003; dated March 11, 2010
10 CFR 72.48 Determination; ID No. NAC-11-MPC-010; dated March 7, 2011
ACP-06.01; Preparation and Use of Procedures; Issue 25
ACP-07.01; Control of Programs, Plans, and Procedures; Issue 78
ACP-07.05; Independent Review of 10 CFR 72.48 Evaluations; Issue 1
ACP-07.06; 10 CFR 72.48 Evaluations; Issue 1
ACP-18.01; Collection, Storage, and Maintenance of LACBWR Quality Assurance Records; Issue 19
ALARA Review; Loading of TSC's Rev 1 Based on NACs Dose Rate Determination; dated June 10, 2011
C-3076-10; Runway System Structural Analysis; Revision 3
C-3076-12; Seismic Review; Revision 2
CAL-21031-ME-001; Trolley Wheel Load; Revision 0
CAL-21031-ME-002; Bridge Wheel Load; Revision 0
CAL-21031-ME-003; Trolley Center of Gravity; Revision 0
CAL-21031-ME-004; Bridge Center of Gravity; Revision 0
CAL-21031-ME-250; Bridge Drive System; Revision 1
CAL-21031-ME-300; Trolley Bumpers; Main Hoist Drive System; Revision 0
CAL-21031-ME-320; Main Hoist Drive System; Revision 1
CAL-21031-ME-320; Main Hoist Drive System; Revision 2
CAL-21031-ME-340; Main Hoist Wire Rope Drum; Revision 2
CAL-21031-ME-340; Main Hoist Wire Rope Drum; Revision 3
CAL-21031-ME-350; Trolley Drive System; Revision 1
CAL-21031-ME-360; Main Hoist Upper Block; Revision 0
CAL-21031-ME-360; Main Hoist Upper Block; Revision 1
CAL-21031-ME-400; Bridge Bumpers; Revision 0
CAL-21031-ME-500; Bridge Wheels and Axles; Revision 0
CAL-21031-ME-510; Trolley Wheels and Axles Revision 0
CAL-21031-ME-750; Main Hoist Lower Block; Revision 0
CAL-21031-ME-750; Main Hoist Lower Block; Revision 1
DIR-21031-ME-007; Bridge Weight; Revision 0
DIR-21031-ME-008; Trolley Weight Revision 0
CAL-21031-SE-110; Bridge Girder Calculations – Normal Loading; Revision 0
CAL-21031-SE-115; Bridge Girder Calculations – Seismic Loading; Revision 1
CAL-21031-SE-210; Bridge Endtruck Calculations – Normal Loading; Revision 0
CAL-21031-SE-215; Bridge Endtruck Calculations – Seismic Loading; Revision 1
CAL-21031-SE-300; Trolley Frame Evaluation; Revision 1
CAL-21031-SE-321; Vertical Displacement after Rope Failure; Revision 1
CAL-21031-SE-321; Vertical Displacement after Rope Failure; Revision 2
CAR 2010-115; DCR No. 10-02-B1 Has Sketch Showing Incorrect Weld Size Callout; dated November 4, 2010
CAR 2011-066; Application of 100-40-40 Rule for Reactor Building Modifications; dated April 21, 2011
CAR 12-085; NRC Outside Seismic Restraint Comments; dated June 25, 2012

CAR 12-098; NRC Reactor Building Modification Comment on Pipe Wall Thickness; dated July 13, 2012
CAR 12-099; NRC Cask Handling Crane Design Comment on Energy Absorbing Material; dated July 13, 2012
CAR 2012-100; Heavy Haul Transporter Tire Fire; dated July 13, 2012
CAR 2012-084; 10 CFR 72.212 Report Issues; dated June 20, 2012
CAR 2012-048; 212 Report NRC Inspection – Fall and Fire Hazards; dated April 12, 2012
CAR 2011-158; Process for transfer of cask to another registered user; dated October 5, 2011
CAR 2011-157; Training requirements and verifications; dated October 5, 2011
CAR 2011-155; VCC Transport Trailer Evaluation; dated October 6, 2011
CAR 2011-156; LACBWR ISFSI Explosion Hazards Analysis Discrepancies; dated October 6, 2011
CAR 2011-154; LACBWR 72.212 Report Issues; dated October 6, 2011
CAR 2009-106; No Title; Dated December 16, 2009
DCR 10-02-A1; Design Change Request; dated July 23, 2010
DCR 10-02-B1; Design Change Request; dated September 10, 2010
DCR 10-02-B2; Design Change Request; dated September 26, 2010
DCR 10-02-E1; Design Change Request; dated July 7, 2010
DCR 10-02-E3; Design Change Request; dated July 7, 2010
DCR 10-02-E4; Design Change Request; dated July 7, 2010
DCR 10-02-E5; Design Change Request; dated September 10, 2010
DCR 10-02-G1; Design Change Request; dated October 20, 2010
DCR 10-02-H1; Design Change Request; dated September 10, 2010
DCR 10-02-J1; Design Change Request; dated May 14, 2010
DIR-21031-ME-007; Bridge Weight; Revision 0
DIR-21031-ME-008; Trolley Weight Revision 0
DIR-21031-SE-001; Design Input for Combined Crane and Structure Analyses; Revision 1
DIT SL-10-002; Design Information Transmittal: Cask Pool Seismic Model; dated April 1, 2010
Drawing S-100; Cask Pool Support; Revision B
Drawing S-101; Cask Pool and Gate Support; Revision B
Drawing S-105; Reactor Building Intermediate Floor Modification; Revision B
Employee Training Report; Job Title: Plant Manager/Security Supervisor
Employee Training Report; Job Title: Tech Support Engineer/Licensing
EPP-20.1; ISFSI Emergency Conditions; Issue 1
EPP-20.2; ISFSI Organization and Operations During Emergencies; Issue 1
EPP-20.3; ISFSI Communications Systems; Issue 0
EPP-20.4; ISFSI Emergency Dose Assessment and Survey; Issue 0
EPP-20.5; ISFSI Medical Emergencies, First Aid Assistance, and Emergency Ambulance Service; Issue 1
Exxon Nuclear Design Report XN-75-28, La Crosse Reload Fuel Assemblies, Type III Fuel; dated November 1975
FPP 20.01; ISFSI Fire Protection Planning and Response; Issue 0
FPP 20.02; Dry Cask Transport Fire Protection Requirements; Issue 0
FPP 20.02; Dry Cask Transport Fire Protection Requirements; Issue 1
FPP-20.02; Dry Cask Transport Fire Protection Requirements; Issue 2
FPP-20.03; ISFSI Control of Ignition Sources; Issue 0
FPP-20.04; ISFSI Monthly Fire Protection Inspection; Issue 0
HSP-1.0; LACBWR Radiation Protection Program; Issue 0, dated June 23, 2011
HSP-1.0; LACBWR Radiation Protection Program; Issue 1, dated January 27, 2012
LACBWR Emergency Plan; Revision 31, dated May 2011
SL-009901; LACBWR Independent Spent Fuel Storage Installation Fire Hazards Analysis; Revision 1

LACBWR Quality Assurance Program Description; Revision 23
LACBWR Quality Assurance Project Plan; Revision 2
M0016-DR; Design Report: Cask Pool Gate and Frame; Revision 2
M0016-DR; Design Report: Cask Pool Gate and Frame; Revision 3
NAC001-CALC-001; Foundation Design to Support NAC Dry Cask Storage Seismic Restraints Structure; Revision 0
NAC001-SPEC-001(6564-43); Cask Seismic Restraint Foundation Design; Revision 0
NAC Evaluation 455-WP-001; Resolution of VCC Tipping from Heavy-Haul Trailer and ISFSI Pad; Revision 1
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10 CFR 50.59 Screen; Temporary Change 12-25, Operating Manual Vol. VI, Sect. 7, "Removal, Transfer, Storage, and Re-installation of Transfer Canal Gate"; Revision 0
ACECO REP-21031-019; Crane Maintenance Training for LACBWR Cask Handling Temporary Lifting System; Revision 0
ACECO REP-21031-008; Factory Functional Test Plan for Dairyland Power Cooperative, LACBWR Cask Handling Crane; Revision 0
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ACECO REP-21031-010; Site Functional Test Plan for Dairyland Power Cooperative, LACBWR Cask Handling Crane; Revision 1
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Airgas Certificate of Batch Analysis, Helium Chromatographic; dated July 7, 2011
Airgas Certificate of Batch Analysis, Helium Chromatographic; dated August 15, 2011
CAR 2012-077; Difficulties in Landing the Closure Lid into TSC; dated June 5, 2012
CAR 2012-070; Industrial Safety Issues Identified; dated May 17, 2012
CAR 2012-050; Dummy Fuel Assembly Damaged During Dry Run; dated April 19, 2012
CAR 2012-043; LACBWR Response to USNRC IN2011-10 Incomplete; dated March 23, 2012
CAR 2012-031; CHC Inside Runway Component Re-installation Torque Value and Bolt usage discrepancies; dated February 26, 2012
CAR 2012-029; Dummy Fuel Assembly Spacer Grid Damaged; dated February 24, 2012
CAR 2012-024; Cask Handling Crane Hoist Noise; dated February 16, 2012
CAR 2012-012; TSC Lid Fit Issues; dated January 25, 2012
CAR 2012-011; TSC FME Screen Fit Up Issues; dated January 25, 2012
CAR 11-172; Cask Handling Crane Functional Testing; dated November 16, 2011
CAR 2011-167; Overflow of FESW; dated October 26, 2011

CAR 2011-153; TSC Cutting Equipment Availability; dated September 30, 2011
CAR 2011-152; Equipment Lock and Tag Procedure; dated September 30, 2011
CAR 2011-150; Port Cover Removal Hole Saw; dated September 20, 2011
CAR 2011-136; TSC Corrosion; dated September 9, 2011
CAR 2011-133; Procedure Violations; dated September 1, 2011
CAR 2011-132; Procedure Violation during NRC Demonstrations; dated August 30, 2011
CAR 2011-131; DPC Approval of contractor welding and NDE documents; August 29, 2011
CAR 2011-130; Helium Backfill Requirement and Accounting for Actual Barometric Pressure; dated August 29, 2011
CAR 2011-129; DCS Project – TSC (Demo) Welding Operations on Port Covers; dated August 26, 2011
CAR 2011-126; DCS Project – TSC (Demo) Welding Operations; dated August 26, 2011
CAR 2011-125; DCS Project – TSC (Demo) NDE Inspection; dated August 26, 2011
CAR 2011-124; Applicability and Use of 50.59 and 72.48 Screenings; dated August 25, 2011
CAR 2011-123; Control of Segmented Material; dated August 25, 2011
CAR 2011-122; Work Order Document Control; dated August 24, 2011
CAR 2011-121; DCS Project – TSC (Demo) Closure Ring Fit-Up; dated August 25, 2011
CAR 2011-138; Lack of free release procedure; dated September 13, 2011
CAR 2011-113; Use of unapproved material to clean TSC; dated August 17, 2011
CAR 2011-108; Receipt Inspection of Lifting Slings; dated August 10, 2011
CAR 2011-084; Material removed from restricted area without proper survey; dated August 9, 2011
CAR 2011-089; Improper release of material from a restricted area; dated July 15, 2011
CAR 2011-082; Mezzanine of Reactor Building Cement Block Removal; dated June 27, 2011
CAR 2011-069; Level D Storage Area discrepancies; dated May 12, 2011
CAR 11-068; Cask Pool Top Plate Bent; dated May 12, 2011
CAR 11-065; Cask Pool Base Plate Rotation; dated May 4, 2011
CAR 2011-045; Cask pool base plate thickness change with no DCR; dated April 1, 2011
CAR 2011-036; WO-09-04, Fuel Inspection Reconciliation; dated February 25, 2011
CAR 2011-023; Fuel Bridge Hoist limit switch; dated February 3, 2011
CAR 2011-021; Fuel Bridge Drive Coupling; dated February 3, 2011
CAR 2011-006; Fuel Bridge Corrective Maintenance; dated January 13, 2011
CAR 2010-093; Failure of Fuel Bridge Hoist; dated August 26, 2010
CAR 2010-077; Unable to install DFC's in FSW; dated July 6, 2010
CAR 2010-071; TSC Closure Lid Assembly Weight Discrepancy; dated June 17, 2010
DPC Memo ID#M-11-0053; Response to NRC Information Notice 2011-010; dated July 8, 2011
DPC Memo ID#: M-12-0129; Heat Stress Program at LACBWR; dated June 5, 2012
DPC Employee Training Reports and Respirator Fit Test Records
Drawing No. 41-400-238; LACBWR Reactor Plant Air Cond. And Vent Systems; dated July 7, 2004
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Konecranes Field Service Report; Investigate intermittent operation of machinery on the trolley; dated August 1, 2011

LAC-TR-143; La Crosse Boiling Water Reactor Spent Fuel Classification Report; Revision 1
LACBWR ID#: M-11-0110; Spent Fuel Assembly Weight; dated June 30, 2011
LACBWR ID#: M-12-0093; Fuel Material Displaced from LACBWR Fuel Assemblies; dated April 12, 2012
LACBWR Operating Manual, Volume V, Service System; Demineralized Water System; dated June 2011
LACBWR Operating Manual, Volume VI, Refueling; Handling of Irradiated Fuel in the FESW for Training, Inspection, Cask Loading, Etc.; dated February 2012
MR 87-12-99; CHCrane; dated March 21, 2012
MR 2110-11-37; Rx Bldg Crane Trolley; dated July 20, 2011
MR 276-11-37; Rx Bldg Crane; dated August 19, 2011
MR 22-12-37; Rx Bldg Crane; dated January 20, 2012
MR 51-12-37; Rx Bldg Polar Crane; dated February 15, 2012
MR 52-12-37; Rx Bldg Polar Crane; dated February 15, 2012
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NAC International Drawing #312; TSC Weld Mock-Up, MPC-LACBWR; Revision 3
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OP-99-2.05; Canister Unloading Operations; Issue 0
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OP-99-3.06; Cask Handling Crane (CHC) Runway Installation/Removal; Issue 1
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OP-35-25; Dry Cask Storage Fuel Selection and Loading Plan Development, TSC Loading Plan Data Package, TSC# WO-12-01; dated March 22, 2012
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WCUS-Maint-04; LACBWR Water Clean Up System (WCUS) Maintenance; Revision B
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VI-REP-21031-017; Procedure for Manual Movement of Bridge for LACBWR Cask Handling Temporary Lifting System; Revision 0
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WO 12-03; Demonstration of Cask Handling Crane Manual Movement; dated April 23, 2012