



February 20, 2013

10 CFR 50.59(d)(2)
10 CFR 72.48(d)(2)

In reply, please refer to LAC-14267

DOCKET NO. 50-409 and 72-046

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: Dairyland Power Cooperative
La Crosse Boiling Water Reactor (LACBWR)
Possession-Only License No. DPR-45
Annual Report for 2012 – Personnel Exposure and Description of Changes, Tests
and Experiments

REFERENCES: 1) LACBWR Technical Specifications, Section 6.5.1.1
2) 10 CFR 50.59(d)(2)
3) 10 CFR 72.48(d)(2)

In accordance with Reference 1, we are submitting the Annual Report covering the radiological exposure summary.

Also included are brief descriptions of facility modifications, including summaries of evaluations, as required by References 2 and 3. No tests or experiments were conducted during 2012.

If you have any questions concerning this matter, please contact Don Egge of my staff at 608-689-4207.

Sincerely,

William L. Berg, President and CEO

WLB:JBM:jkl

Enclosures

FSME20
N 115526
IE47

cc w/Enclosures: John Hickman
Project Manager
U.S. Nuclear Regulatory Commission

Charles Casto
Regional Administrator, Region III
U.S. Nuclear Regulatory Commission

STATE OF WISCONSIN)
)
COUNTY OF LA CROSSE)

Personally came before me this 26th day of February, 2013, the above
named, William L. Berg, to me known to be the person who executed the foregoing instrument and
acknowledged the same.



Notary Public, La Crosse County Wisconsin

My commission expires 5-25-14

LAURIE A. ENGEN
Notary Public
State of Wisconsin

**La Crosse Boiling Water Reactor
(LACBWR)**

Possession Only License No. DPR-45

2012 ANNUAL REPORT

PERSONNEL EXPOSURE

AND

DESCRIPTION OF
CHANGES, TESTS, AND EXPERIMENTS

Dairyland Power Cooperative
3200 East Avenue South
La Crosse, WI 54602-0817

2012 Dose Distribution

Date: 01/18/2013
 License No. DPR-45
 Licensee: DAIRYLAND POWER COOPERATIVE
 Affiliated License No.:

Dose Range (Rem)	Primary and Affiliated Licensee Records		All Records for Monitoring Year	
	Number of Individuals	TEDE Dose (person-Rem)	Number of Individuals	TEDE Dose (person-Rem)
No Measured Exposure	41		41	
Measured < .100	76	2.378	76	2.378
.100 – .250	15	2.213	15	2.213
.250 – .500	8	2.458	8	2.458
.500 – .750	1	0.603	1	0.603
.750 – 1.000	0		0	
1.000 – 2.000	0		0	
2.000 – 3.000	0		0	
3.000 – 4.000	0		0	
4.000 – 5.000	0		0	
> 5.000	0		0	
Number with Measured TEDE	100		100	
Total Monitored	141		141	
Total Collective TEDE		7.652		7.652
Total Collective CEDE				

APPENDIX A

STANDARD FORMAT FOR REPORTING NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

2012	Number of Personnel (>100 mRem)			Total Man-Rem		
Work & Job Function	Station Employees	Utility Employees	Contract Workers and Others	Station Employees	Utility Employees	Contract Workers and Others
<u>REACTOR SURVEILLANCE</u>						
Maintenance Personnel	0	0	0	0.000	0.000	0.000
Operating Personnel	0	0	0	0.000	0.000	0.000
Health Physics Personnel	0	0	0	0.000	0.000	0.000
Supervisory Personnel	0	0	0	0.000	0.000	0.000
Engineering Personnel	0	0	0	0.000	0.000	0.000
<u>ROUTINE MAINTENANCE</u>						
Maintenance Personnel	0	0	0	0.000	0.000	0.000
Operating Personnel	0	0	0	0.000	0.000	0.000
Health Physics Personnel	0	0	0	0.000	0.000	0.000
Supervisory Personnel	0	0	0	0.000	0.000	0.000
Engineering Personnel	0	0	0	0.000	0.000	0.000
<u>INSERVICE INSPECTION</u>						
Maintenance Personnel	0	0	0	0.000	0.000	0.000
Operating Personnel	0	0	0	0.000	0.000	0.000
Health Physics Personnel	0	0	0	0.000	0.000	0.000
Supervisory Personnel	0	0	0	0.000	0.000	0.000
Engineering Personnel	0	0	0	0.000	0.000	0.000
<u>SPECIAL MAINTENANCE</u>						
Maintenance Personnel	0	0	0	0.000	0.000	0.000
Operating Personnel	0	0	0	0.000	0.000	0.000
Health Physics Personnel	0	0	0	0.000	0.000	0.000
Supervisory Personnel	0	0	0	0.000	0.000	0.000
Engineering Personnel	0	0	0	0.000	0.000	0.000

APPENDIX A – (cont'd)

2012	Number of Personnel (>100 mRem)			Total Man-Rem		
Work & Job Function	Station Employees	Utility Employees	Contract Workers and Others	Station Employees	Utility Employees	Contract Workers and Others
<u>WASTE PROCESSING</u>						
Maintenance Personnel	2	0	10	0.607	0.352	3.244
Operating Personnel	1	0	0	0.345	0.000	0.076
Health Physics Personnel	3	0	4	0.730	0.000	1.104
Supervisory Personnel	0	0	2	0.133	0.200	0.586
Engineering Personnel	0	0	1	0.000	0.008	0.266
<u>DEFUELING</u>						
Maintenance Personnel	0	0	0	0.000	0.000	0.000
Operating Personnel	0	0	0	0.000	0.000	0.000
Health Physics Personnel	0	0	0	0.000	0.000	0.000
Supervisory Personnel	0	0	0	0.000	0.000	0.000
Engineering Personnel	0	0	0	0.000	0.000	0.000
<u>TOTAL</u>						
Maintenance Personnel	2	0	10	0.607	0.352	3.244
Operating Personnel	1	0	0	0.345	0.000	0.076
Health Physics Personnel	3	0	4	0.730	0.000	1.104
Supervisory Personnel	0	0	2	0.133	0.200	0.586
Engineering Personnel	0	0	1	0.000	0.008	0.266
GRAND TOTAL	6	0	17	1.815	0.560	5.276

MAXIMUM INDIVIDUAL DOSE DURING CALENDAR YEAR: 0.603 Rem – Contractor

DESCRIPTION OF CHANGES, TESTS, AND EXPERIMENTS

2012

1.0 BACKGROUND

LACBWR Possession Only License No. DPR-45, Appendix A, Technical Specification 6.5.1.1 requires a report be made annually by March 1 containing a brief description of changes, tests, and experiments conducted under the criteria of 10 CFR 50.59. A request for license amendment is currently under review by the NRC that would change this reporting requirement to biennially in accordance with 10 CFR 50.59(d)(2). Because Technical Specification 6.5.1.1 remains applicable, LACBWR continues with the annual reporting of 50.59 changes at this time.

10 CFR 72.48 reviews of changes at LACBWR commenced after approval of the LACBWR 10 CFR 72.212 Report in September of 2011. Changes to the NAC-MPC Storage System reviewed under 72.48 have been performed by NAC International and reported as required by their processes. Changes to the NAC-MPC system are incorporated into the NAC-MPC FSAR as it is revised. A small number of 72.48 Evaluations were performed in 2012 by LACBWR relating to the Dry Cask Storage Project and are described here.

Because LACBWR continues with 50.59 change reporting on an annual basis pending license amendment approval, 72.48 changes during 2012 are included in this report also. At which time LACBWR is able to report changes biennially in accordance with 10 CFR 50.59(d)(2), LACBWR will then likewise report 72.48 changes biennially in accordance with 10 CFR 72.48(d)(2).

2.0 FACILITY MODIFICATIONS

The following facility modifications were physically completed in 2012. The modifications were performed using the LACBWR work control process and are documented in work order files. Each modification is associated with a specific Work Order (WO). A summary of the review of each, performed in accordance with 10 CFR 50.59, or 72.48 as applicable, is included. It was determined prior NRC approval was not required for these facility modifications.

WO-11-07: FESW Component Removal

Following transfer of all spent fuel assemblies into dry storage canisters, components within the Fuel Element Storage Well (FESW) were removed, decontaminated, surveyed, and packaged for shipment to offsite waste disposal. FESW component removal was completed while the fifth and final fuel-loaded canister was located in the cask pool with shield lid in place. The following FESW components were removed: dummy fuel assembly, boron coupon sample holder, storage cell support plates, control rod storage rack, 2-section core spray bundle support rack, seismic pads, eight (8) upper and lower fuel storage rack sections, and crash pad. FESW component removal was performed in accordance with the requirements of the LACBWR work control process and QAPD/QAPP. Heavy load controls, rigging plans, and adherence to safe load paths assured that the activity created no new failure modes or other adverse effects. The 50.59 screen concluded that the activity did not require prior NRC approval, that there was no need for any change to Technical Specifications, and that a 50.59 Evaluation was not required.

WO-11-10: FESW Final Clean Out

This activity captured all FESW debris, sorted and characterized the debris, and placed the debris into proper containers for disposal and storage. In addition to standard mechanical methods, the Water Clean-Up System was also used in the retrieval of FESW debris. Identified fuel debris was placed in the

fifth and final fuel-loaded canister in accordance with the requirements of the NAC-MPC CoC and FSAR. This activity was reviewed under Regulatory Evaluation RE-11-02, "Water Clean-Up System Installation and Operation." This 50.59 Evaluation concluded that this activity did not require prior NRC approval and was previously reported in March 2012.

WO-12-04: Cask Stack-Up Seismic Restraint System Installation

To assure no new accidents were created from the LACBWR Safe Shutdown Earthquake (SSE) while the fuel-loaded Transfer Cask and Transportable Storage Canister (TFR/TSC) were in place on the transfer adapter and stacked on top of the Vertical Concrete Cask (VCC), the cask stack-up seismic restraint system (SRS) was installed to restrain the stacked TFR/TSC and VCC. The SRS was a bolted and welded steel structure installed onto a concrete foundation adjacent to the Reactor Building (RB). The system utilized four mechanical clamps that interfaced with the outer diameter of the TFR and a series of wire rope restraints that wrapped around the VCC. The SRS limited the movement of the cask stack-up in order to protect it from tip over during the LACBWR SSE and was designed to withstand the forces that the cask stack-up imparts on the SRS due to the seismic accelerations. The SRS and its components were designated as an Important to Safety (ITS) Structure, System, and Component (SSC) for DCS cask loading operations. The SRS and its components were fabricated to critical characteristics as defined in NAC Document No. 630045-R-04, "Critical Characteristics of the MPC-LACBWR Seismic Restraint System," Rev. 0.

NAC calculations concluded that the stress results from the seismic analysis confirmed that the design of the SRS including flanges, base anchor bolts, attachments (lugs, brackets, turnbuckles, pins, and anchors), and required welds complied with the applicable criteria of ASME and AISC code sections. It was shown that the maximum relative displacement between the TFR/TSC and VCC during the LACBWR SSE was less than 0.73 inches which was insufficient to move the adapter plate to impact on the VCC internal wall (i.e., the TFR/TSC would be held in place on top of the VCC with less than ¾-inch of movement). NAC Calculation No. NAC001-CALC-001, "Foundation Design to Support NAC Dry Cask Storage Seismic Restraints Structure," Rev. 0, concluded that the SRS reinforced concrete foundation design was adequate to support required loads from either the loaded SRS structure or movement of the loaded cask transport trailer during the SSE event. The 50.59 review of the SRS installation was included in RE-2012-03, "DCS Cask Loading Operations." This 50.59 Evaluation concluded that this activity did not require prior NRC approval and was previously reported in March 2012.

NAC International performed a 72.48 Evaluation (NAC-12-MPC-009) for the design change associated with the seismic restraint systems used at LACBWR. The NAC 72.48 Evaluation supported the addition of a section in Chapter 11 of the NAC-MPC FSAR, Revision 8A. It is shown that the stresses in the MPC-LACBWR Transfer Cask (TFR) imparted by a typical seismic restraint system used to maintain stability of the TFR during an accident level seismic event meet the allowable stress limits of ASME B&PV Code, Section III, Division 1, Appendix F, Service Limit Level D. The NAC 72.48 Evaluation concluded that prior NRC approval was not required for the change.

WO-12-15, WO-12-16, WO-12-17, WO-12-18, and WO-12-19: Loading Operations TSC #1, TSC #2, TSC #3, TSC #4, and TSC #5

These Work Orders provided detailed instructions to support movement of the spent fuel in the FESW to the Independent Spent Fuel Storage Installation (ISFSI). The information in these Work Orders provide documented assurance that the NAC-MPC dry cask storage systems were placed in use at LACBWR in accordance with the requirements of the NAC-MPC CoC and FSAR, and consistent with the LACBWR 10 CFR 72.212 Report. TSC/VCC-01 was set on the ISFSI pad July 12, 2012. The final TSC/VCC-05 was set on the ISFSI pad September 19, 2012.

Four 50.59 Evaluations, reported previously in March 2012, comprised the review of dry cask storage operations at LACBWR:

- RE-11-01, Heavy Load Movements for DCS Cask Loading Operations

- RE-11-02, Water Clean-Up System Installation and Operation
- RE-11-03, Transportable Storage Canister Preparation
- RE-12-03, DCS Cask Loading Operations

These four 50.59 Evaluations, taken together, addressed all cask loading and unloading activities that took place in the RB and just outside the RB bi-parting door where cask stack-up and TSC transfer occurred. These 50.59 Evaluations concluded that neither changes to the LACBWR Technical Specifications nor a license amendment were required to conduct dry cask storage system loading.

WO-12-21: Install Sidewalk around ISFSI Isolation Zone Fence

This activity installed a 4-foot wide, 4-inch thick concrete sidewalk around the perimeter of the ISFSI Isolation Zone Fence. The installation of the ISFSI sidewalk did not adversely affect any design function of the ISFSI. The 72.48 screen concluded that this activity did not require prior NRC approval, that there was no need for any change to the NAC-MPC CoC Appendix A Technical Specifications or Appendix B Approved Contents and Design Features, and that a 72.48 Evaluation was not required.

WO-12-24: Remove FESW Return Line

This modification removed the FESW cooling system return line to the spent fuel pool downstream of valve 58-24-043 in order to remove interference to fuel storage rack removal and final pool clean-out. The FESW cooling system was not required with all spent fuel assemblies removed from the spent fuel pool. The 50.59 screen concluded that this activity did not require prior NRC approval, that there was no need for any change to Technical Specifications, and that a 50.59 Evaluation was not required.

WO-12-27: Install Storage Shed in Owner Controlled Area of ISFSI

This activity installed a 10' x 16' storage shed near the ISFSI Administration Building. The ISFSI Fire Hazards Analysis previously analyzed and described the installation of a storage shed at the ISFSI. The 10' x 16' size shed hazard was bounded by the analysis of a 9.5' tall by 53' long storage unit located as close as 50 feet from the ISFSI pad. The ISFSI storage shed is located outside the vehicle barrier system over 300' from the ISFSI pad. The 72.48 screen concluded that this activity did not require prior NRC approval, that there was no need for any change to the NAC-MPC CoC Appendix A Technical Specifications or Appendix B Approved Contents and Design Features, and that a 72.48 Evaluation was not required.

3.0 SUMMARY OF CHANGES AUTHORIZED BY 10 CFR 72.48 USED AT LACBWR

The licensing basis for the NAC-MPC System used at LACBWR for the only dry cask loading campaign is NAC-MPC CoC No. 72-1025, Amendment 6, and NAC-MPC FSAR Revision 8A, as updated. Certain changes to NAC-MPC hardware, operation, and/or maintenance, as described in the FSAR, were required for use of the dry cask storage system at LACBWR. NAC has incorporated all of these changes into the NAC-MPC FSAR. The 72.48 screens performed by DPC for the cask loading procedures indicated that the procedures are consistent with the operating instructions in the FSAR. Two deviations from the NAC-MPC FSAR were authorized under 10 CFR 72.48 (Item 1 and 2 below) as part of Revision 1 to the LACBWR 10 CFR 72.212 Report. 72.48 Evaluation RE-2012-07, "LACBWR 10 CFR 72.212 Report, Revision 1 Changes, Part B," reviewed these items. The use of an alternate methodology other than that used in the NAC-MPC FSAR was authorized under 10 CFR 72.48 (Item 3 below) as part of Revision 2 to the LACBWR 10 CFR 72.212 Report. 72.48 Evaluation RE-2012-10, "Calculation No. 2008-16712, ISFSI Fire Radiant Heat and Explosion Overpressure Analysis, Revision 2," reviewed this item. The items are described following:

1. Use of a higher external TSC design pressure of 100 psid instead of the 22 psid described in the NAC-MPC FSAR.

2. A site-specific analysis of the TFR/TSC for tornado missiles that is not addressed in the NAC-MPC FSAR.
3. Use of a probabilistic analysis that provides objective evidence that certain specific building fires, chemical fires and/or explosions, and structure fall hazards are not significant hazards for a fuel-loaded cask during ISFSI operations on the cask transport route since the total cask damage probability from these combined hazards is less than 1×10^{-6} per year.

These 72.48 Evaluations, RE-2012-07 and RE-2012-10, both concluded that the changes did not require prior NRC approval, and that there was no need for any change to the NAC-MPC CoC Appendix A Technical Specifications or Appendix B Approved Contents and Design Features,

4.0 TESTS

There were no tests conducted during 2012.

5.0 EXPERIMENTS

There were no experiments conducted during 2012.