

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-409/80-08

Docket No. 50-409

License No. DPR-45

Licensee: Dairyland Power Cooperative
2615 East Ave. - South
LaCrosse, WI 54060

Facility Name: LaCrosse Boiling Water Reactor

Inspection At: LACBWR Site, Genoa, WI

Inspection Conducted: August 26-28, 1980

W B Grant
Inspector: W. B. Grant

C. J. Paperiello
Approved By: C. J. Paperiello, Acting Chief
Environmental and Special
Projects Section

9/14/80

9/17/80

Inspection Summary:

Inspection on August 26-28, 1980 (Report No. 50-409/80-08)

Areas Inspected: Routine, unannounced inspection of (1) Environmental Protection Program including; management controls; quality control of analytical measurements; implementation of Environmental Monitoring Program and (2) Confirmatory Measurements Program including a discussion of results of comparative analyses of previous radiological effluent samples; collection of effluent samples for subsequent comparative analysis. The inspection involved 20 inspector-hours on site by one NRC inspector.
Results: No apparent items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

- *J. Parkyn, Assistant Plant Superintendent, LACBWR
- *L. Krajewski, Health and Safety Supervisor, LACBWR
- *P. Shaffer, Radiation Protection Engineer, LACBWR
- B. Zibung, Health Physics Technician, LACBWR
- T. Steele, Environmental Department Manager, DPC

*Denotes those present at the exit interview.

2. Management Controls

The current Environmental Monitoring Program is defined in a series of Health and Safety Procedures, HSP-03.1 through HSP-03.4. These procedures assign responsibility for the implementation of the program, define sample identification, list sample collection techniques, and describe sample preparation and analysis techniques. The analysis of the environmental samples is done in-house and is implemented through a series of Chemical and Radiochemical Procedures, HSP-05.1 through 05.24, 05.26 and 05.27, 05.35, and 06.1 through 06.17. These procedures were reviewed, revised and approved by the Safety Review Committee (SRC) during the period December 1979 through July 1980. The inspector reviewed the revised procedures and identified no apparent problems.

According to a licensee representative, Appendix B Environmental Technical Specifications have been written and were submitted to the NRC for review in August 1979.

No items of noncompliance or deviations were identified.

3. Quality Control and Analytical Measurements

The licensee's Environmental Monitoring Program is conducted by plant personnel. The data are reviewed by the DPC Environmental Department. The program consists of air samples, TLD's, and analysis of milk from three farms, precipitation, river water, vegetation, fish, and silt samples.

The licensee's vegetation sample consisted of green leafy vegetables from local gardens, and grass and corn silage from local farms as available.

Fish are purchased from a local commercial fisherman. The fish are collected from pools above and below the plant. Sample portions are ground up and counted in a Marinelli flask to assure reproducible counting geometry.

No items of noncompliance or deviations were identified in this area.

4. Implementation of the Environmental Monitoring Program

The inspector reviewed the 1979 LACBWR Annual Environmental Monitoring Report. Missing data and mistakes were reconciled with the licensee and will be corrected in the form of errata to the report. There were no apparent anomalous results or trends in this data.

The inspector also reviewed the 1980, January through June environmental data and noted there were no apparent anomalous results or trends in this data.

The inspector visited various on and off site environmental sample stations. The air sampling and rain water sampling stations visited were found to be operating properly. The environmental air sampler has three meters (flow, vacuum, and time) which determine total air sample volume. The licensee has a calibration program for these meters. All vacuum gauges and time meters are checked for calibration. Flow meters are calibrated using a National Bureau of Standards calibrated flow meter which has an effective calibration of two years. The standard flow meter was purchased approximately 15 months ago. According to the licensee representative, the flow meters are checked for calibration in the field and a correction factor is applied to the data if required.

The inspector reviewed the minutes of the Operations Review Committee (ORC) for the period September 1979 through May 20, 1980. It appeared environmental matters presented to the committee were resolved in a timely manner.

No items of noncompliance or deviations were identified.

5. Confirmatory Measurements

The inspector examined licensee's analytical systems. The equipment examined included a Nuclear Data, Model 6600 Multi-Channel Analyzer utilizing two separate detectors, a liquid scintillation system and internal proportional beta-gamma counters. Records of maintenance calibration and daily checks were reviewed and found to be satisfactory.

a. Results of Comparative Analyses

The results of comparative analyses performed on effluent samples split at the site in November 1979 are shown in Table 1. The criteria for comparing measurements results are given in Attachment 1. For twelve comparisons the licensee's results yielded ten agreements or possible agreements. The results were discussed with the licensee. The licensee failed to quantify strontium-89 and 90 activity in the analysis of liquid waste. It should be noted however, that the NRC Reference Laboratory reported that all results are suspect due to the absence of paper pulp and sodium metabisulfite in the liquid split. Regarding the strontium-89, the licensee's reported results were 2.7 times higher

than those reported by the NRC Reference Laboratory. If this result was representative the licensee may have overstated quantities or concentrations of radionuclides released near the time of sample collection. With regard to strontium-90 the licensee's results were 37 percent of that reported by the NRC Reference Laboratory. The licensee's reporting of a strontium-90 result which was approximately 60 percent low would not have resulted in an effluent technical specification being exceeded.

No apparent items of noncompliance or deviations were identified.

b. Collection of Samples for Future Comparative Analysis

The inspector collected samples of liquid waste and a particulate filter and a charcoal absorber from the licensee for subsequent comparative analyses. A gaseous sample could not be collected since the plant is in shutdown condition. Results of these analyses will be compared during a future inspection.

6. Exit Interview

The inspector met with licensee representatives denoted in Paragraph 1 at the conclusion of the inspection on August 28, 1955. The inspector summarized the purpose and scope of the inspection and the findings.

Attachments:

1. Table 1, Confirmatory
Measurements Program
2. Attachment 1, Criteria
for Comparing Analytical
Measurements

TABLE I
 U S NUCLEAR REGULATORY COMMISSION
 OFFICE OF INSPECTION AND ENFORCEMENT
 CONFIRMATORY MEASUREMENTS PROGRAM
 FACILITY: LACBWR
 FOR THE 4 QUARTER OF 1979

SAMPLE	ISOTOPE	-----NRC-----		---LICENSEE---		---NRC:LICENSEE---		
		RESULT	ERROR	RESULT	ERROR	RATIO	RES	T
OFF GAS	XE 133	4.5E-03	2.0E-04	5.6E-03	6.3E-05	1.2E+00	2.3E+01	A
	XE 133M	1.9E-04	8.0E-05	0.0	0.0	0.0	2.4E+00	N
L WASTE	BETA	2.0E-04	1.0E-05	2.8E-04	1.5E-06	1.4E+00	2.0E+01	P
	H 3	4.2E-02	2.0E-04	4.2E-02	7.0E-06	1.0E+00	2.1E+02	A
	SR 89	1.3E-06	1.0E-07	3.5E-06	2.4E-07	2.7E+00	1.3E+01	D
	SR 90	2.7E-06	1.0E-07	1.0E-06	1.0E-07	3.7E-01	2.7E+01	D
	CE 144	4.2E-06	1.3E-06	2.6E-06	3.7E-07	6.2E-01	3.2E+00	A
	I 131	6.8E-06	1.4E-06	5.8E-06	3.7E-06	8.5E-01	4.9E+00	A
	CS 134	2.7E-05	8.8E-07	2.7E-05	1.8E-07	1.0E+00	3.1E+01	A
	CS 137	1.3E-04	3.8E-06	1.4E-04	4.0E-07	1.1E+00	3.4E+01	A
	CO 58	1.0E-05	5.2E-07	1.4E-05	2.0E-07	1.4E+00	1.9E+01	P
	CO 60	5.6E-05	1.7E-06	5.7E-05	2.7E-07	1.0E+00	3.3E+01	A
FILTER	BA 140	1.4E-04	4.8E-05	9.3E-05	8.8E-06	6.6E-01	2.9E+00	N
C FILTER	I 131	4.2E-04	9.8E-05	5.4E-04	2.5E-05	1.3E+00	4.3E+00	A
	CS 137	2.1E-05	1.3E-05	0.0	0.0	0.0	1.6E+00	N

T TEST RESULTS:
 A=AGREEMENT
 D=DISAGREEMENT
 P=POSSIBLE AGREEMENT
 N=NO COMPARISON

ATTACHMENT 1

CRITERIA FOR COMPARING ANALYTICAL MEASUREMENTS

This attachment provides criteria for comparing results of capability tests and verification measurements. The criteria are based on an empirical relationship which combines prior experience and the accuracy needs of this program.

In these criteria, the judgment limits are variable in relation to the comparison of the NRC Reference Laboratory's value to its associated one sigma uncertainty. As that ratio, referred to in this program as "Resolution", increases, the acceptability of a licensee's measurement should be more selective. Conversely, poorer agreement should be considered acceptable as the resolution decreases. The values in the ratio criteria may be rounded to fewer significant figures to maintain statistical consistency with the number of significant figures reported by the NRC Reference Laboratory, unless such rounding will result in a narrowed category of acceptance. The acceptance category reported will be the narrowest into which the ratio fits for the resolution being used.

<u>RESOLUTION</u>	<u>RATIO = LICENSEE VALUE/NRC REFERENCE VALUE</u>		
	<u>Agreement</u>	<u>Possible Agreement "A"</u>	<u>Possible Agreeable "B"</u>
<3	No Comparison	No Comparison	No Comparison
>3 and <4	0.4 - 2.5	0.3 - 3.0	No Comparison
>4 and <8	0.5 - 2.0	0.4 - 2.5	0.3 - 3.0
>8 and <16	0.6 - 1.67	0.5 - 2.0	0.4 - 2.5
>16 and <51	0.75 - 1.33	0.6 - 1.67	0.5 - 2.0
>51 and <200	0.80 - 1.25	0.75 - 1.33	0.6 - 1.67
>200	0.85 - 1.18	0.80 - 1.25	0.75 - 1.33

"A" criteria are applied to the following analyses:

Gamma spectrometry, where principal gamma energy used for identification is greater than 250 keV.

Tridium analyses of liquid samples.

"B" criteria are applied to the following analyses:

Gamma spectrometry, where principal gamma energy used for identification is less than 250 keV.

Sr-89 and Sr-90 determinations.

Gross beta, where samples are counted on the same date using the same reference nuclide.