WILLIAM L. BERG
President and CEO

DAIRYLAND POWER
COOPERATIVE

February 24, 2010

In reply, please refer to LAC-14098

DOCKET NO. 50-409

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Dairyland Power Cooperative
La Crosse Boiling Water Reactor
Possession-Only License No. DPR-45
Annual Radioactive Effluent Report and
Radiological Environmental Monitoring Report

REFERENCES: (1) NRC Letter, Keppler to Linder, dated August 12, 1983, Inspection Report 50-409/83-10 (DRMSP)
(2) LACBWR Technical Specifications 6.4.2, 6.5.1.1.c & d

In accordance with 10 CFR 50.36a(a)(2), this letter serves to transmit to you the Radioactive Effluent Report and Radiological Environmental Monitoring Report for the La Crosse Boiling Water Reactor (LACBWR) for 2009.

If you have any questions, please contact us.

Sincerely,

DAIRYLAND POWER COOPERATIVE

William L Berg

William L. Berg, President & CEO

WLB: LLN: two

Enclosures

cc/encl: Peter Lee, Ph.D., NRC Reg. III, Decommissioning Branch
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NRR

RADIOACTIVE EFFLUENT REPORT

AND

RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT

FOR THE
LA CROSSE BOILING WATER REACTOR (LACBWR)

(January 1 to December 31, 2009)

DAIRYLAND POWER COOPERATIVE
3200 EAST AVENUE SOUTH
LA CROSSE WI 54602-0817

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SECTION A

RADIOACTIVE EFFLUENT REPORT

INTRODUCTION:

The La Crosse Boiling Water Reactor (LACBWR), also known as Genoa Station No. 2, is located on the east bank of the Mississippi River near Genoa, Vernon County, Wisconsin. The plant was designed and constructed by the Allis-Chalmers Manufacturing Company. It was completed in 1967 and had a generation capacity of 50 MW (165 $MW_{(th)}$). The reactor is owned by Dairyland Power Cooperative (DPC).

The reactor went critical in July 1967 and first contributed electricity to DPC's system in April 1968. After completing full power tests in August 1969, the plant operated between 60% and 100% full power, with the exception of plant shutdowns for maintenance and repair.

In April of 1987 plant operation was ceased. The reactor is presently defueled and in a SAFSTOR mode. In August of 1987 a possession-only license was received.

In accordance with LACBWR Technical Specifications 6.5.1.1.d and in compliance with 10 CFR 50.36a(a)(2), this document is the Radioactive Effluent Report for the period January 1 through December 31, 2009.

EFFLUENT AND WASTE DISPOSAL REPORT

(Supplemental Information)

FACILITY: La Crosse Boiling Water Reactor LICENSEE: Dairyland Power Cooperative

DOCKET NO. 50-409

1.0 REGULATORY LIMITS

a. Gaseous Effluent Release Limits:

LACBWR's stack effluent release limitations for gaseous effluent releases of radioactive material limits the release rate of the sum of the individual radionuclides, so that the dose rates to members of the public beyond the Effluent Release Boundary do not exceed 500 mRem/year to the whole body, 3000 mRem/year to the skin from noble gases, and 1500 mRem/year to a critical organ from H-3 and particulates with half-lives greater than 8 days as per the requirements of the Offsite Dose Calculation Manual (ODCM).

Also, in accordance with 10 CFR 50, Appendix I, the ODCM limitations for gaseous effluent radioactive material limit the air dose to a member of the public from noble gases in areas beyond the Effluent Release Boundary to less than 5 mRad gamma and 10 mRad beta per calendar quarter, and less than 10 mRad gamma and 20 mRad beta per calendar year. The dose limits from H-3 and particulates with half-lives greater than 8 days are less than 7.5 mRem per calendar quarter, and less than 15 mRem per calendar year to any organ.

Cumulative dose contributions from gaseous effluent releases are determined in accordance with the LACBWR Offsite Dose Calculations Manual.

b. Liquid Effluent Release Limits:

LACBWR's liquid effluent release limitations for liquid effluent releases are those concentrations specified in 10 CFR 20 Appendix B, Table 2, Column 2. For alpha emitting radionuclides, the concentration is limited to a total activity concentration of 4.9E-9 μCi/ml, based upon an actual alpha emitting radionuclide analysis performed on a representative water sample. The values reported in tables 2A and 2B, Liquid Effluents, are based on dilution with the combination of LACBWR and Genoa Station No. 3 condenser cooling water flow prior to discharge to the Mississippi River. No credit is taken for further dilution in the mixing zone of the Mississippi River.

Also, in accordance with 10 CFR 50, Appendix I, the dose commitment to a member of the public from radioactive materials released in liquid effluents to areas beyond the Effluent Release Boundary are limited to less than 1.5 mRem whole body and 5.0 mRem organ dose per calendar quarter, and less than 3.0 mRem whole body and 10 mRem organ dose per calendar year via the critical ingestion pathway.

Cumulative quarterly and annual dose contributions from liquid effluent releases are determined for the adult fish ingestion pathway in accordance with the LACBWR Offsite Dose Calculation Manual.

c. Solid Radioactive Waste

All solid radioactive wastes are handled in accordance with a Process Control Program as defined by LACBWR procedures in order to assure that all applicable transportation and burial site disposal requirements are met.

2.0 EFFLUENT RELEASE CONCENTRATION LIMIT

The Effluent Release Concentration used to calculate permissible release rates are obtained from 10 CFR 20, Appendix B, Table 2, Column 2.

3.0 AVERAGE ENERGY

The release rate limits for LACBWR are not based on average energy.

4.0 ANALYTICAL METHODS

a. Liquid Effluents

Liquid effluent measurements for gross radioactivity are performed by HPGe gamma isotopic analysis of a representative sample from each tank discharged. In addition, each batch discharged tank is analyzed for alpha and tritium activity concentration. A composite sample is created by collecting representative aliquots from each tank batch discharged during a calendar quarter. This composite is analyzed for Iron-55 and Strontium-90 by a contractor on a quarterly basis.

b. Airborne Particulates

Airborne particulate releases are determined by HPGe gamma isotopic analysis. This analysis is performed by analyzing a glass fiber filter paper taken from the stack monitor which continuously isokinetically samples and monitors the stack effluent. This filter is changed and analyzed on an approximate weekly basis and analyzed within 7 days after removal. This filter is also analyzed for alpha activity. A quarterly composite of these filters is sent to a contractor for Sr-90 analysis.

c. Radioiodines

Since the plant shutdown in April 1987, the I-131/I-133 have decayed completely to stable elements. Amendment 66 to the LACBWR Technical Specifications, deleted

the requirement for monitoring for iodine.

d. Fission and Activation Gases

The concentration of radioactivity (μCi/cc) in gaseous releases from the stack is continuously monitored by two in line stack monitors. These gas concentrations (μCi/cc) are corrected for pressure loss in the sampling system and averaged by the monitors microprocessor. The results are used along with the stack flow rate to obtain the daily gaseous release from the plant. Since the plant shutdown in April 1987, gaseous releases have been immeasurable. All fission gases except Kr-85 have decayed to stable elements.

e. Tritium

Tritium releases are determined by taking a grab sample of the stack atmosphere at the effluent of the stack monitor. Tritium, as tritiated water, is removed from the sample stream by condensation, using a cold trap. The condensed water vapor is then distilled and the distillate is analyzed for H-3 concentration (μCi/cc), by internal liquid scintillation spectrophotometry and the results are expressed in terms of tritium release rates. The tritium grab samples are obtained on at least a once/month basis.

5.0 BATCH RELEASES

a. Airborne

All airborne effluent releases at LACBWR are from a single Continuous-Elevated Release Point.

b. Liquid

All liquid effluent releases at LACBWR are batch releases. This is summarized as follows:

(1)	Number of Batch Releases:	6
(2)	Total Time Period for Batch Releases:	128.9 hours
(3)	Maximum Time Period for a Batch Release:	26 hours
(4)	Average Time Period for a Batch Release:	21.4 hours
(5)	Minimum Time Period for a Batch Release:	19 hours
(6)	Average Stream Flow Rate During Periods of Release of Effluent into a Flowing Stream:	24460 ft^3/sec

6.0 ABNORMAL RELEASES

There were no abnormal releases of radioactivity in plant effluents.

7.0 ESTIMATED TOTAL ANALYTICAL ERROR

The reported analytical results contain the following estimated errors:

Counting Error 95% Confidence Level

Sampling Volume Error ± 5%.

TABLE 1A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT 2009

GASEOUS EFFLUENTS – SUMMATION OF ALL RELEASES

		UNIT	QTR	QTR	QTR	QTR	TOTAL
A.	**FISSION & ACTIVATION GASES**						
1.	TOTAL RELEASE	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.	AVERAGE RELEASE RATE FOR PERIOD	µCi/ Sec	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
B.	**IODINE I-131 - No longer analyzed for.**						
C.	**PARTICULATES**						
1.	PARTICULATES WITH HALF-LIVES > 8 DAYS	Ci	3.22E-7	4.67E-7	5.11E-7	7.59E-7	2.10E-6
2.	AVERAGE RELEASE RATE FOR PERIOD	µCi/ Sec	4.14E-8	5.94E-8	6.43E-8	9.55E-8	
3.	GROSS ALPHA RADIOACTIVITY	Ci	9.20E-8	6.90E-8	2.90E-8	1.00E-8	2.00E-7
D.	**TRITIUM**						
1.	TOTAL RELEASE	Ci	2.78E-3	4.97E-3	2.90E-2	5.73E-3	4.26E-2
2.	AVERAGE RELEASE RATE FOR PERIOD	µCi/ Sec	3.69-4	6.32E-4	3.65E-3	7.21E-4	
E.	**PERCENTAGE OF ODCM DOSE LIMITS FOR GASEOUS EFFLUENT RELEASES**						
			QTR	QTR	QTR	QTR	YEARLY
1.	NOBLE GAS RELEASE						
	GAMMA	%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	BETA	%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.	H-3 AND ALL RADIONUCLIDES IN PARTICULATE FORM WITH HALF-LIVES GREATER THAN 8 DAYS						
	GAMMA (Highest Organ)	%	3.45E-5	3.86E-5	1.75E-4	6.28E-5	1.46E-4

TABLE 1B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT 2009

GASEOUS EFFLUENTS – ELEVATED RELEASE

			CONTINUOS MODE				
		UNIT	QTR	QTR	QTR	QTR	TOTAL
NUCLIDES RELEASED							
1.	FISSION GASES						
	KRYPTON-85	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TOTAL FOR PERIOD	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.	IODINE I-131 - Analysis no longer required.						
3.	PARTICULATES						
	STRONTIUM-90	Ci	2.20E-8	0.00E+00	4.03E-8	4.32E-8	1.06E-7
	CESIUM-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CESIUM-137	Ci	1.30E-7	1.40E-7	1.80E-7	0.00E+00	4.50E-7
	COBALT-60	Ci	1.70E-7	3.27E-7	2.91E-7	7.59E-7	1.55E-6
	MANGANESE-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ZINC-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Ci					
		Ci					
		Ci					
		Ci					
	TOTALS	Ci	3.22E-7	4.67E-7	5.11E-7	8.02E-7	2.10E-6

TABLE 2A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT 2009

LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES

		UNIT	QTR	QTR	QTR	QTR	TOTAL
A	**FISSION & ACTIVATION PRODUCTS**						
1.	TOTAL RELEASE (NOT INCL. TRITIUM, GASES, ALPHA)	Ci	6.65E-3	1.22E-2	1.02E-2	3.14E-3	3.23E-2
2.	AVERAGE DILUTED CONCENTRATION DURING PERIOD	µCi/ ml	1.61E-8	7.29E-9	6.79E-9	4.90E-9	
B.	**TRITIUM**						
1.	TOTAL RELEASE	Ci	8.26E-4	7.06E-3	4.48E-3	2.20E-3	1.46E-2
	AVERAGE DILUTED CONCENTRATION DURING PERIOD	µCi/ ml	2.00E-9	4.21E-9	2.98E-9	3.44E-9	
C.	**DISSOLVED AND ENTRAINED GASES**						
1.	TOTAL RELEASE	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.	AVERAGE DILUTED CONCENTRATION DURING PERIOD	µCi/ ml	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
D.	**GROSS ALPHA RADIOACTIVITY**						
1.	TOTAL RELEASE	Ci	0.00E+00	2.32E-6	5.34E-6	1.69E-6	9.35E-6
E.	**VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)**	Liters	2.12E+4	4.51E+4	4.81E+4	2.56E+4	1.40E+5
F.	**VOLUME OF DILUTION WATER USED DURING PERIOD**	Liters	4.13E+8	1.68E+9	1.50E+9	6.40E+8	4.24E+9
G.	**PERCENTAGE OF ODCM LIMITS FOR LIQUID RELEASES**						
			QTR	QTR	QTR	QTR	YEARLY
	HIGHEST ORGAN	%	4.45	3.02	2.87	1.19	5.77
	WHOLE BODY	%	9.40	6.39	6.08	2.53	12.19

TABLE 2B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT 2009

LIQUID EFFLUENTS

NUCLIDES RELEASED	UNIT	QTR	QTR	QTR	QTR
MANGANESE-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
IRON-55	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
COBALT-57	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
COBALT-60	Ci	3.07E-5	5.93E-5	1.43E-4	4.89E-5
ZINC-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
STRONTIUM-90	Ci	1.23E-4	2.30E-4	2.58E-4	1.19E-4
SILVER-110m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CESIUM-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CESIUM-137	Ci	6.50E-3	1.20E-2	9.82E-3	2.97E-3
CERIUM-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD (ABOVE)	Ci	6.65E-3	1.22E-2	1.02E-2	3.14E-3
KRYPTON-85	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TABLE 3

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT – 2009
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR DISPOSAL (Not Irradiated Fuel)

1. TYPE OF WASTE	UNIT	6-MONTH PERIOD	6-MONTH PERIOD	TOTAL
a. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC	m^3	0	0	0
	Ci	0	0	0
b. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC	m^3	43.6	32.4	76
	Ci	1.5E-3	5.79E-2	5.94E-2
c. IRRADIATED COMPONENTS, CONTROL RODS, ETC	m^3	0	0	0
	Ci	0	0	0
d. OTHER (DESCRIBE)	m^3	0	0	0
	Ci	0	0	0

2. ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)	PERCENT OF TOTAL	6-MONTH PERIOD CURIES	6-MONTH PERIOD CURIES
Co-60	12.99/45.25	4.55E-4	2.62E-2
Fe-55	1.02/7.15	3.57E-5	4.14E-3
Ni-63	81.9/44.16	2.87E-3	2.55E-2
Pu-241	3.1/2.39	1.09E-4	1.38E-3

3. SOLID WASTE DISPOSITION

NO. OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	Sole Use	Duratek, Oak Ridge, TN
3	Sole Use	Energy Solutions, Clive UT

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

NO OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
NONE		

8. 0 OFFSITE DOSE CALCULATIONS SUMMARY AND CONCLUSIONS:

a. Gaseous Effluent Releases

The maximum quarterly offsite gamma dose due to noble gases was 0.00 mRad. The cumulative 2009 annual offsite gamma dose due to noble gases was 0.00 mRad.

The maximum quarterly offsite beta dose due to noble gases was 0.00 mRad. The cumulative 2009 annual offsite beta dose due to noble gases was 0.00 mRad.

The maximum quarterly offsite dose to any organ from the release of H-3 and all radionuclides in particulate form with half-lives greater than 8 days was approximately 1.31E-5 mRem. The cumulative 2009 annual maximum organ dose from these radionuclides was also approximately 2.19E-5 mRem.

The highest historical annual average X/Q equal to 1.82 E-6 sec/m^3 for the period 1985-1987 for the worst case offsite receptor location, in accordance with the ODCM, was used to calculate these offsite dose values.

b. Liquid Effluent Releases

The maximum quarterly organ dose from liquid releases was approximately 0.222 mRem. The cumulative 2009 annual organ dose was approximately 0.577 mRem. The maximum quarterly total body dose for liquid releases was approximately 0.141 mRem, and the cumulative 2009 annual total body dose was approximately 0.366 mRem.

c. Conclusion

All calculated offsite doses were below ODCM limits.

9. 0 OFFSITE DOSE CALCULATION MANUAL (ODCM) REVIEW

The ODCM was not revised in 2009.

10.0 PROCESS CONTROL PROGRAM (PCP) REVIEW

The PCP was revised in 2009. Changes to the PCP were to add clarity and were administrative in nature. The PCP is included in this report.

LA CROSSE BOILING WATER REACTOR

PROCESS CONTROL PROGRAM

(PCP)

Prepared by: _____ 1/12/09
Date

Health Physics Review: Seymour J Raffety 1-15-09
Date

Security Review: _____ 1-16-09
Date

QA Review: _____ 1/16/09
Date

ORC Approved: _____ 1/27/09
Date

January 2009

Revision 13

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

LACBWR
PROCESS CONTROL PROGRAM
(PCP)

I. INTRODUCTION

The purpose of the Process Control Program (PCP) is to describe the methodology and procedures used by the La Crosse Boiling Water Reactor (LACBWR) Facility during SAFSTOR, to ensure that radioactive waste material processing, packaging, transportation and disposal will be accomplished in a manner that is in compliance with all applicable federal, state, and burial site regulations, and with the LACBWR Security Plan for Transportation of LACBWR Hazardous Materials (Attachment 1). The PCP will provide guidance for LACBWR's three basic waste streams: (1) dry active waste (DAW), (2) wet radioactive waste (resin or filter media), or (3) irradiated material (Reactor vessel or Reactor vessel components).

NOTE: If the methodology and/or procedures found in the PCP are being violated, all radioactive waste processing activities will be suspended until these violations can be investigated and corrected.

II. SPECIFICATION

Technical Specifications state:

a. "The PCP shall be maintained onsite and will be available for NRC review."

b. "Licensee-initiated changes to the PCP shall be submitted to the Commission in the annual Radioactive Effluent Release Report for the period in which the change(s) was made. This submittal shall contain:

- Information to support the rationale for the change;
- A determination that the change did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes; and
- Documentation of the fact that the change has been reviewed and found acceptable by the ORC."

III. WET RADIOACTIVE WASTE

These wastes will be transferred to the Waste Treatment Building (WTB) for storage before their ultimate disposal.

The WTB is located to the northeast of the Reactor Building. The WTB contains facilities and equipment for the collection, storage and handling of low level solid radioactive waste materials.

The grade floor of the WTB contains a shielded compartment which encloses a permanent 320 ft^3 stainless steel Spent Resin Receiving Tank (SRRT) with associated resin receiving and transfer piping, SRRT recirculation piping, SRRT demineralized water flush piping, SRRT dewatering piping, SRRT air sparger piping, valves, and a SRRT ultrasonic level indication assembly. This cubicle is in the southeast corner of the building and has nominal 2' 6" to 3' thick reinforced high density concrete shield walls on the outer sides.

Wet radioactive waste materials may typically be described as whole bead demineralizer resins, mechanical cartridge filters and waste sludge. When expended, resins and sludge are transferred to the SRRT. The cartridge filters may be added directly to a HIC as indicated below.

From the SRRT, partially dewatered spent resins and/or sludge material, are pumped at a low flow rate/pressure with a Roper-type screw pump to a High Integrity Liner (HIC), located in the adjacent shielded cubicle as described in Operating Manual Volume VII. The wall between the SRRT and the HIC and other walls surrounding the HIC are a nominal 2' thick high density concrete. Also located in this cubicle is an air-driven Sandpiper-type diaphragm HIC dewatering pump, the resin transfer and dewatering valves and hoses, and the disposal HIC level indication connecting cable. Once in the HIC, spent resins and sludge material is dewatered to the SRRT which is subsequently dewatered. A final dewatering is performed as described in Operating Manual Volume VII. Samples of wet waste are analyzed for isotopic composition and for waste classification before disposal.

The final dewatering will ensure that the contents of the HIC meets the requirements of 10CFR61.56(a)(3) and the burial site criteria for free-standing liquids. Stabilization of the dewatered wet waste is provided by the HIC as authorized by 10CFR61.56(b)(1). The contractor which supplies the HIC will provide DPC with a copy of the Certificate of Compliance for the HIC which details specific limitations on the use of the HIC.

Once final dewatering is completed, the HIC is inspected and the lid will be closed and sealed. The HIC is surveyed, decontaminated, if needed, and loaded into an appropriate shipping cask.

NOTE: Dewatered spent mechanical cartridge filters may be added directly to a HIC containing spent resins, if necessary.

The shipping cask is prepared for shipment in accordance to contractor's procedures. The vehicle is inspected both upon arrival onsite and after it is loaded prior to departure in accordance with procedure.

Once properly prepared for shipment, the wet waste will be either sent directly to an approved disposal site for burial, or it will be sent to a licensed waste processor for volume reduction. Any material remaining after reprocessing will be sent to burial by the processor for DPC.

IV. DRY ACTIVE WASTES

The PCP and Health and Safety Procedures in Section 4 establish the steps used to process, package and ship the Dry Active Wastes (DAW) from the plant, in accordance with 10CFR20.2006 and 49CFR Part 173. The Dry Active Waste materials may typically be described as paper, cloth, metal, wood, plastic, concrete and other items or components which have become contaminated with radioactive materials. The DAW is normally characterized and labeled as Class A Unstable, in accordance with 10CFR61.55 and .56.

DAW will either be processed at LACBWR for burial at an approved burial site, or it will be processed for shipment to a licensed reprocessing contractor.

a. DAW for direct burial

These wastes processed for direct burial from LACBWR are packaged in approved shipping containers as required by the burial site. Sufficient absorbent material is added to each waste container to limit free standing and non-corrosive liquid to less than 1% of the volume. Representative samples of DAW are analyzed for isotopic composition and for waste classification.

b. DAW for Reprocessing

Containers supplied by the contractor will be strategically placed within the controlled area to allow for the most efficient loading of these containers. The container size will vary due to the application required. Once filled, the reprocessing contractor will be notified and shipping arrangements will be made. The containers will be sealed and surveyed before leaving LACBWR. Any waste volume remaining after reprocessing will be sent to burial by the contractor for LACBWR.

V. IRRADIATED MATERIAL

Irradiated material packaging and shipping may be handled by a licensed contractor hired by Dairyland Power to perform such shipments. DPC employees will provide oversight of these shipments to ensure compliance.

VI. WASTE CLASSIFICATION

Due to the closing of the Barnwell burial site in 2007, LACBWR engaged in a campaign to dispose of all Class B and C waste. Currently LACBWR has no known Class B or Class C waste. LACBWR waste will be classified as Class A stable or unstable. Waste classification is based on the requirements of 10CFR61.55.

Radionuclide concentrations will be determined based on the volume or weight of the final waste form as discussed in Section C.2 of the Branch Technical Position Paper on Waste Classification.

Of the four suggested methods for determining radionuclide concentration, the one most commonly used is the direct measurement of individual radionuclides (gamma emitters) and the use of scaling factors to determine the radionuclide concentration of difficult to measure radionuclides (normally non-gamma emitters). The use of the other suggested methods; material accountability, classification by source or gross radioactivity measurements may occur if the situation best fits the use of that methodology.

Plant procedures are used in the determination of radionuclide concentration for difficult to measure nuclides (normally non-gamma emitters) and for the classification of radioactive waste for near-surface burial in accordance to 10CFR61.56(a)(3) and Table 1 and Table 2.

VII. SHIPMENT MANIFEST

Each shipment of solid radioactive waste to a licensed land disposal facility will be accompanied by a shipment manifest as required by 10CFR20.2006 and described in NUREG/BR-0204. The manifest will contain the name, address, and telephone number of the waste generator. The manifest will also include the name, address, and telephone number or the name and EPA hazardous waste identification number of the person transporting the waste to the land disposal facility.

The manifest will also indicate to the extent practicable: a physical description of the waste; the volume; radionuclide identity and quantity; the total radioactivity; and the principal chemical form. The solidification agent, if applicable, will be identified.

Waste containing more than 0.1% chelating agents by weight will be identified and the weight percentage of the chelating agent estimated. Waste classification will be clearly indicated on the manifest. The total quantity of the radio-nuclides H-3, C-14, Tc-99, and I-129 will be shown on the manifest. Source material mass, and the masses of U-233, U-235, Pu isotopes and total Special Nuclear Material will be calculated and shown on the manifest.

Each manifest will include a certification by DPC that the transported materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the NRC. A qualified individual will sign and date the manifest. LACBWR procedures are used for the preparation of burial site radioactive shipping manifests.

LACBWR will maintain a manifest record-keeping and tracking system that meets the requirements of 10CFR20.2006.

Each shipment of radioactive waste to a licensed reprocessing contractor will be accompanied by a shipment manifest that meets the requirements of that contractor's license.

VIII. ADMINISTRATIVE CONTROLS

A. Training

A training program will be conducted to ensure that waste processing will be performed according to plant procedures and the PCP. An individual's

training record will be maintained for audit and inspection. The processing and shipment of radioactive material will be performed by qualified and trained personnel.

All plant personnel who handle, package, and prepare for shipment radioactive material will receive appropriate DOT Hazardous Material Training, in accordance with their duties, once every three (3) years.

B. Record Retention

Records of processing data, test and analysis results, results of training, inspections and audits will be retained in accordance with LACBWR Quality Assurance requirements for record retention.

C. Documentation Control

DPC-initiated changes may be made to the PCP and procedures in accordance with Technical Specifications and shall become effective upon review and acceptance by the Operations Review Committee (ORC).

Radioactive waste that does not fall within previous waste processing experience will be evaluated and, if necessary, included in the PCP prior to final processing and disposal. Approved changes in the PCP will be reported to the NRC in the subsequent annual Radioactive Effluent Release Report.

D. Quality Assurance

The provisions of the NRC-approved LACBWR Quality Assurance Program apply to all activities performed under the PCP, and solid radioactive waste processing procedures.

E. Voluntary Information Submittal

If any of the following mishaps occur during the preparation of LLW waste for disposal, a voluntary submittal of information will be sent to the NRC. This will be a 30-day report to the NRC's Director of the Division of Low-Level Waste Management and Decommissioning and will also be sent to the designated State disposal-site regulatory authority.

(1) Failure of the high-integrity containers used to ensure a stable waste form. Container failure can be evidenced by changed container dimensions, cracking, or damage resulting from mishandling (e.g., dropping or impacting against another object).

(2) Misuse of high-integrity containers, evidenced by a quantity of free liquid greater than 1 percent of container volume, or by an excessive void space within the container. Such misuse is prohibited by 10CFR61.56.

(3) Production of a solidified Class B or C waste form that has any of the following characteristics:

- Contains free liquid in quantities exceeding 0.5 percent of the volume of the waste.
- Contains waste with radionuclides in concentrations exceeding those considered during waste form qualification testing accepted by the regulatory agency, which could lead to errors in assessment of waste class.
- Contains a significantly different waste loading than that used in qualification testing accepted by the regulatory agency.
- Contains chemical ingredients not present in qualification testing accepted by the regulatory agency, and those quantities are sufficient to unacceptably degrade the waste product.
- Shows instability evidenced by crumbling, cracking, spalling, voids, softening, disintegration, non- homogeneity, or dimensional changes.
- Evidence of processing phenomena that exceed the limiting processing conditions identified in applicable topical reports on process control plans (e.g., foaming, temperature extremes, premature or slow hardening, and production of volatile material).

- Contains a significantly different waste loading than that used in qualification testing accepted by the regulatory agency.
- Contains chemical ingredients not present in qualification testing accepted by the regulatory agency, and those quantities are sufficient to unacceptably degrade the waste product.
- Shows instability evidenced by crumbling, cracking, spalling, voids, softening, disintegration, non- homogeneity, or dimensional changes.
- Evidence of processing phenomena that exceed the limiting processing conditions identified in applicable topical reports on process control plans (e.g., foaming, temperature extremes, premature or slow hardening, and production of volatile material).

Security Plan for Transportation
Of
LACBWR Hazardous Materials

The purpose of this plan is to establish guidelines and requirements for the secure transportation of hazardous materials (HM) from the La Crosse Boiling Water Reactor (LACBWR) in accordance with Hazardous Materials Regulations, 49 CFR 172 Subpart I.

This plan applies to hazardous material consisting of radioactive material, or radioactively contaminated material in packages, and/or shipments that require placarding.

Definitions

DPC: Dairyland Power Cooperative

GET: General Employee Training – annual program that provides site specific training for employees, of which security training is included.

LSA: Low Specific Activity

LSE: LACBWR Site Enclosure – all area within the fence that surrounds the LACBWR facility.

SCO: Surface Contaminated Object

References

(1) 49 CFR 171-180 (Hazardous Materials Regulations)

(2) Physical Security Plan and Procedures for LACBWR

(3) TPP-7, General Employee Training (GET) Procedure

(4) La Crosse Boiling Water Reactor Process Control Program (PCP)

(5) Health & Safety Department Procedures – Section 4: Waste Disposal

Responsibilities

The following personnel and their respective areas of responsibility were reviewed to assist in determining if the key elements of 49 CFR 172, Subpart I, are satisfied.

LACBWR Plant Manager/Security Supervisor: DPC management responsibility for administration and implementation of security program. Responsible for day-to-day oversight of the security organization. (See Ref. 2.)

Contract Security Post Commander: Overall supervisory and training responsibility for the Contract Security Force. (See Ref. 2.)

DPC Health and Safety/Maintenance Supervisor: Responsible for all processing, packaging and preparation of HM for transportation.

DPC Human Resources: Responsible for screening and hiring all DPC personnel.

Training Supervisor: Responsible for ensuring initial and annual training is performed for all LACBWR personnel.

Risk Assessment

The goal of the hazardous materials security requirement is to effectively prevent hazardous materials from being used as tools of mass destruction and terror. In general, the only hazardous materials that LACBWR offers for transport in commerce (or potentially transports in commerce), and therefore come under this security requirement, are shipments of radioactive LSA or SCO material that require placarding because of their radioactive content. These shipments typically consist of large volumes of dry active waste (DAW) such as paper, discarded equipment, valves, pipe, wood, rags, floor sweepings, used glassware, etc. The total radioactivity in these shipments is very small. Only one of the twenty-six shipments made from LACBWR between January 22, 1997, and April 22, 2003, contained more than 160 mCi of radioactivity. There is no credible way that these small amounts of radioactivity could be separated from the large volumes of waste, concentrated, and used as tools of mass destruction or terror, and therefore the security risk is very low.

One shipment of spent resins and sludge made in October 1999 contained 40,900 mCi (40.9 Ci) of radioactivity. This shipment presents a higher security risk than the DAW shipments, but it was made in a heavily shielded Type B cask, certified by the NRC under 10 CFR 71 regulations. However, the relatively low specific activity and large volume (5.35 cubic meters) of the contents of this shipment do not lend themselves to separation and concentration for use as a tool of mass destruction. The potential for sabotage or highjacking for terrorist purposes, warrants consideration.

In the coming years, the majority of our shipments will be LSA or SCO with characteristics similar to those described above. Some will contain higher concentrations of radioactivity, but the security risks will be low because of the large volumes and low specific activities. All large volume LSA/SCO shipments and Type B shipments use sole-use transportation systems, where the transport vehicle is loaded at LACBWR with our shipment and proceeds to the authorized recipient as expeditiously as possible.

At some time, we will make shipments of irradiated reactor fuel assemblies from LACBWR. This type of shipment is considered a relatively high security risk, and these shipments will be made under special security procedures developed at that time to meet then current NRC and DOT requirements. A 90-day prior notification must be made to the NRC before making a shipment of irradiated fuel.

Another type of radioactive material that is considered to have a greater security risk is small encapsulated radioactive sources. We have a number of this kind of sources that will need to be disposed of before license termination. Most have very small quantities of radioactive material and therefore should be considered of very low security risk. However, three of these (two Cs-137 and one PuBe) have higher activity. These will not be shipped until just prior to LACBWR's license termination. Their shipment and disposal will be handled on a case-by-case basis at that time.

Facility Security

Essentially all LACBWR hazardous material offered for transportation (radioactive HM) is produced, processed, stored, prepared for shipment, loaded on a transport vehicle, and turned over to a carrier, within the LSE. The LSE area is controlled under the LACBWR Physical Security Plan (see Ref. 2) and is under continuous, round-the-clock surveillance.

Personnel Security

All personnel admitted to the LSE are issued badges. Three types of badges, indicating different levels of security clearance, are used:

Type 1: Unescorted access to all areas including the LACBWR Protected Area (PA),
Type 2: Unescorted access to the LSE but not the PA, and
Type 3: Visitor, escort required in the LSE and the PA.

All personnel involved with handling and processing the HM, and preparing it for shipment, have been subjected to the LACBWR Physical Security Plan Screening Program.

A limited number of DPC personnel are issued Type 2 badges, authorizing unescorted access to the LSE. These personnel have been subjected to the routine security and background screening for all DPC hires and are not considered to be a security risk under this plan.

All personnel who have <u>not</u> been cleared for unescorted access to the LSE are considered visitors and are issued Type 3 badges before access to the LSE is granted. A person with a Type 3 badge will be under continuous escort by a person with a Type 1 or Type 2 badge, and their access to the HM will be limited by the escort.

En route Security

All hazardous material under this security plan is packaged and prepared for shipment and the preparation and arrangements for offering to an authorized carrier for transport are performed according to the LACBWR Process Control Program (PCP) and detailed Health & Safety Department Procedures (Ref's 4 and 5). Only authorized carriers of nuclear material possessing a transportation security plan will be used for transportation of LACBWR HM. DPC will cooperate with the selected carrier to enhance, to the maximum extent possible, the security of the shipment from the origin to the destination. Appropriate checklists and requirements to document this interaction with the carrier and the carrier's drivers is included in the LACBWR PCP and/or Health & Safety Department Procedures.

Training

Security plan training is accomplished as part of the annual GET training received by all LACBWR DPC and contract security employees. This training will provide an overview of this security plan and the security risks of transportation of LACBWR HM. It will cover LACBWR HM transportation security objectives, specific LACBWR security procedures, employee responsibilities, and actions to take in the event of a security breach.

Records

Appropriate records production and retention are specified in the LACBWR PCP, the Health & Safety Department Procedures, and/or the GET training procedure.

SECTION B

ANNUAL RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT

INTRODUCTION:

The Radiological Environmental Monitoring (REM) Program is conducted to comply with the requirements of the ODCM and in accordance with 10 CFR 50 Appendix I. The REM Program provides measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides which could potentially lead to radiation doses to Members of the Public resulting from plant effluents. Environmental samples are taken within the surrounding areas of the plant and in selected control or background locations.

The monitoring program at the LACBWR facility includes monitoring of liquid and gaseous releases from the plant, as well as environmental samples of surface air, river water, river sediment, milk, fish, and penetrating radiation.

The REM program theory supplements the Radioactive Effluent analyses by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways using the methodology of the Offsite Dose Calculation Manual (ODCM).

An Interlaboratory Comparison Program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive material in environmental samples are performed.

RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT

1.0 SAMPLE COLLECTION

Environmental samples are collected from the area surrounding LACBWR at the frequencies outlined in the ODCM. A series of figures and tables are included in this report to better show LACBWR's environmental program.

FIGURE 1	This map includes the plant boundary, roads, other generation plants, and the relationship of the plant to the nearest local community.
FIGURE 2	This map shows the location of LACBWR's permanent environmental monitoring stations.
FIGURES 3&4	These maps show the location of LACBWR's TLDs.
TABLE 5	This table shows the sampling frequency of the various environmental samples and the analyses performed on these samples
TABLE 6	This table shows the permanent monitoring stations used in LACBWR's environmental program.
TABLE 7	This table shows the TLD locations.
TABLE 8	This table shows the number of various samples collected and analyzed during 2009.

2.0 RESULTS OF THE 2009 RADIO-ENVIRONMENTAL MONITORING SURVEYS

During 2009, activity levels in the local environment were normal, indicating no significant plant attributed radioactivity.

2.1 PENETRATING RADIATION

The environmental penetrating radiation dose is measured by thermo luminescent dosimeters consisting of four lithium fluoride (LiF) chips. These TLD's are changed on a quarterly basis and are sent to an outside contractor for reading. The TLD results for 2009 are shown on Table 9.

2.2 AIR PARTICULATE

Air samples are collected continuously from various sites (see Table 6) around LACBWR. An air sampler is also located 18 miles north of the plant in La Crosse, Wisconsin, to act as a control station.

Particulate air samples are collected at the rate of approximately 30-60 lpm with a Gelman Air Sampler. The air filter consists of a glass fiber filter with an associated pore size of approximately 0.45 µm. The particulate filters are analyzed weekly for gross beta activity with an internal proportional counter, and the monthly particulate composites are gamma analyzed for individual isotopic concentration.

TABLE 10 This table shows the weekly gross beta gamma activity concentration from the air particulate filters.

TABLE 11 This table shows the composite air particulate isotopic analysis.

Comparison between the control station at La Crosse and the other stations near LACBWR indicate that there was no significant plant attributable airborne particulate activity.

2.3 RIVER WATER

River water is collected monthly. River water samples above at, and below the plant site are collected and are gamma analyzed for isotopic concentration. The river water gamma isotopic analysis results are shown in Table 12. The results indicate that there was no significant plant attributable radionuclides in the river water.

2.4 SEDIMENT SAMPLES

Sediment samples were collected twice per year above, at, and below the plant outfall. These samples were gamma analyzed and these results appear on Table 13. They indicated that small amounts of plant-attributed radionuclides have accumulated in river sediments near the outfall. The amount of radionuclide in this sediment declined significantly after plant shutdown. These amounts have remain relatively constant the last few years.

2.5 FISH

Fish samples were collected quarterly above and below the plant discharge. The results of gamma spectral analysis of edible portions of fish samples appear in Table 14. There has been no significant accumulation of plant-attributed radionuclides in fish in the vicinity of LACBWR.

3.0 CONCLUSIONS

All environmental samples collected and analyzed during 2009 exhibited no significant contribution from LACBWR.

4.0 INTERLABORATORY COMPARISON PROGRAM RESULTS

During 2009, interlaboratory comparison samples were obtained from an outside contractor. The equipment used to analyze the environmental samples was tested against the contractors' results. The following is the result of this comparison.

ANALYSIS	LACBWR RESULTS	CONTRACTOR RESULTS	RATIO
GROSS BETA	173 pCi	161 pCi	1.07
GROSS ALPHA	142 pCi	181 pCi	0.79
Ce-141	220 pCi	204 pCi	1.08
Cr-51	582 pCi	554 pCi	1.05
Cs-134	234 pCi	255 pCi	0.92
Cs-137	197 pCi	181 pCi	1.09
Co-58	225 pCi	213 pCi	1.06
Mn-54	203 pCi	179 pCi	1.13
Fe-59	209 pCi	179 pCi	1.16
Zn-65	402 pCi	348 pCi	1.15
Co-60	270 pCi	258 pCi	1.05
H-3	15300 pCi/ℓ	14000 pCi/ℓ	1.10

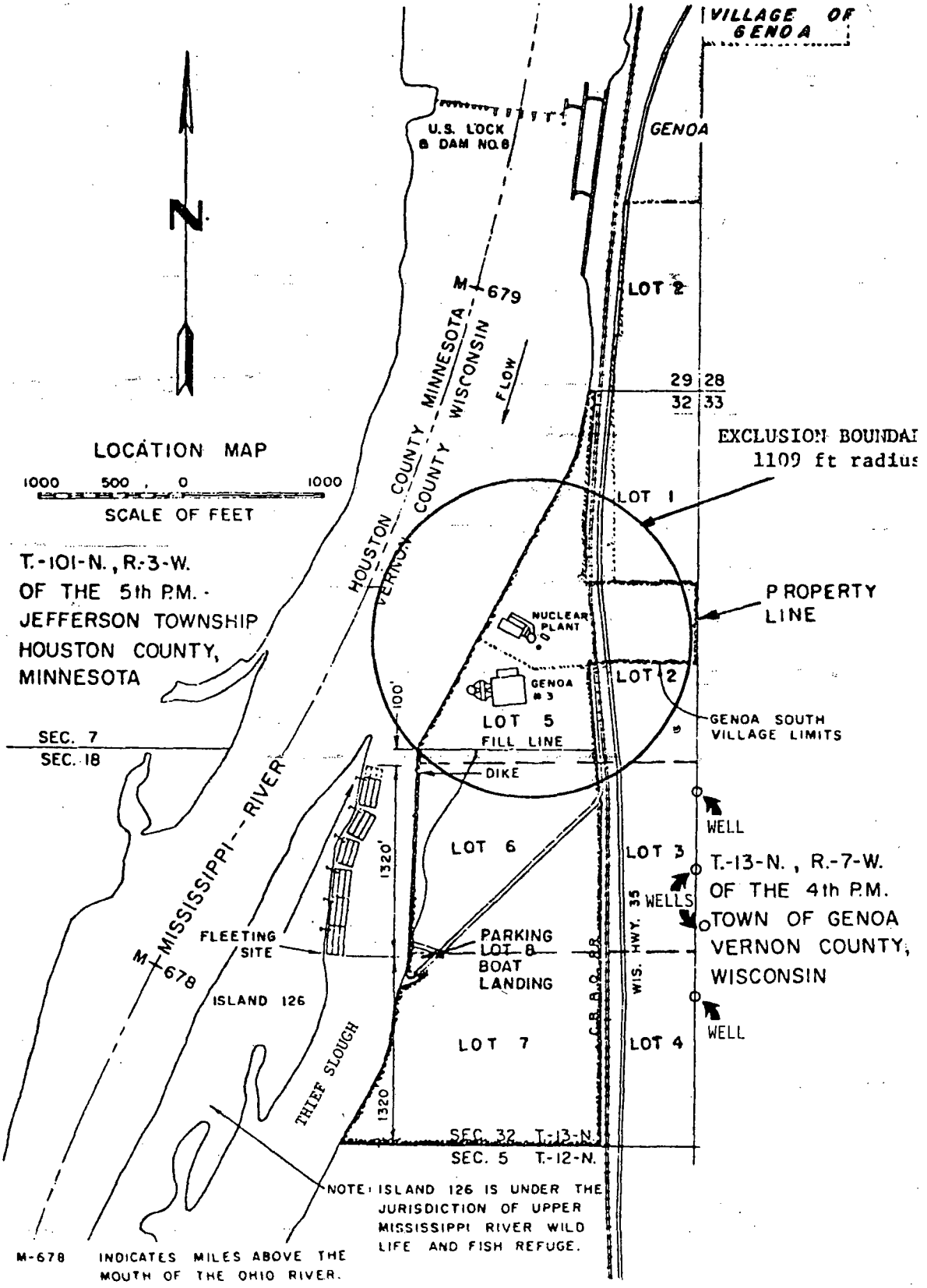

FIGURE 1 - LACBWR PROPERTY MAP

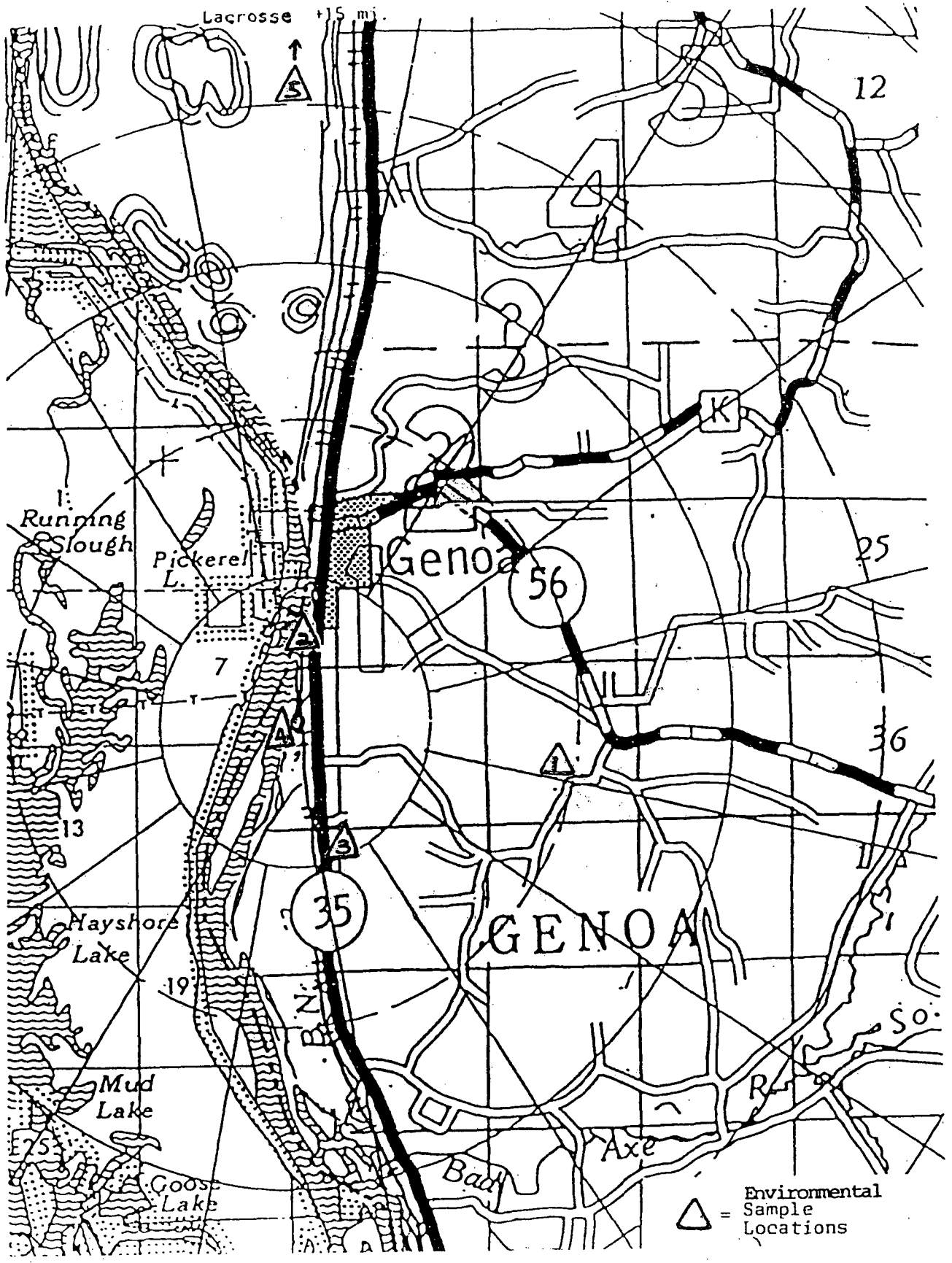

FIGURE 2 - PERMANENT ENVIRONMENTAL MONITORING STATION LOCATIONS
(Refer to Table 6)

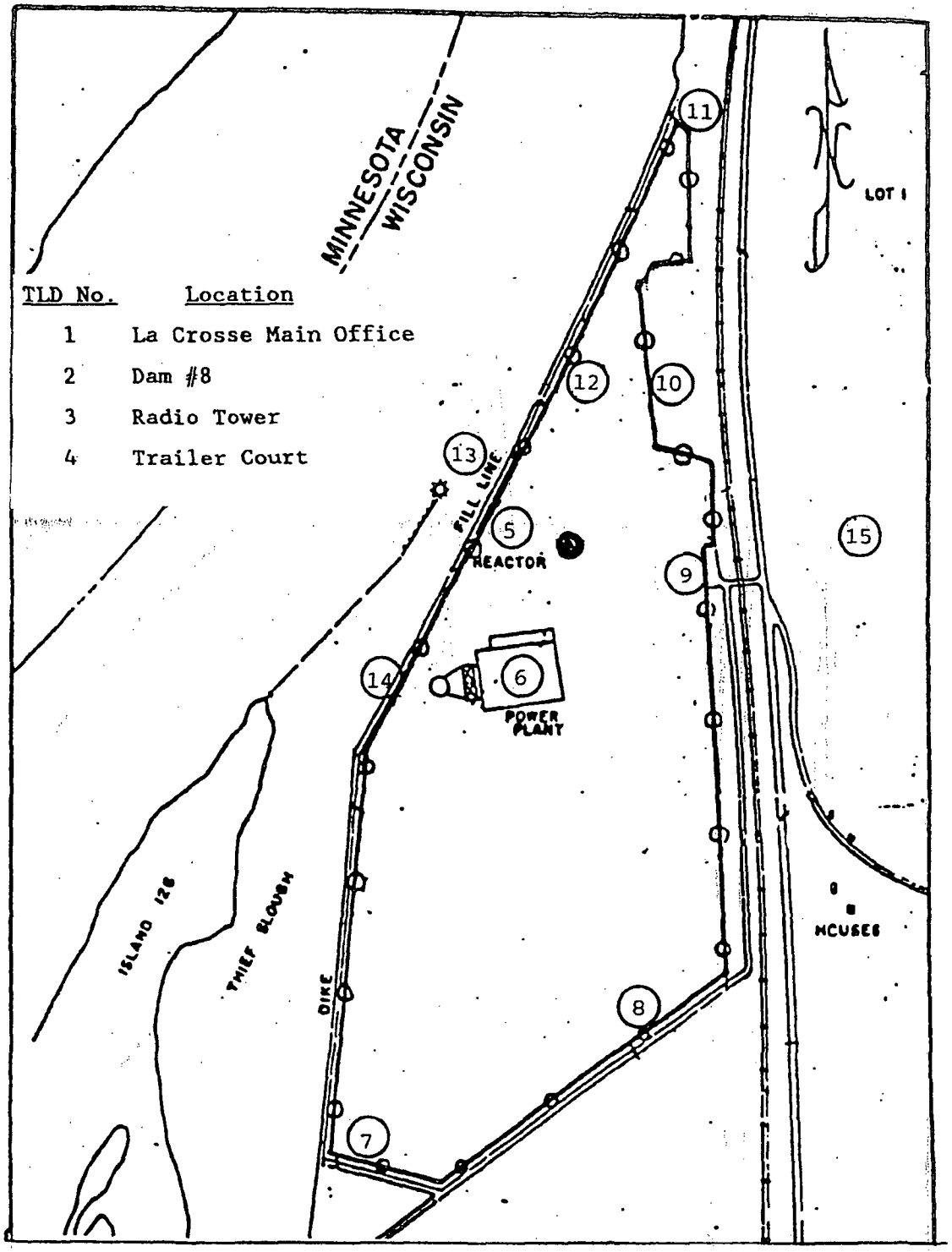

FIGURE 3 - LACBWR ENVIRONMENTAL DOSE ASSESSMENT LOCATIONS

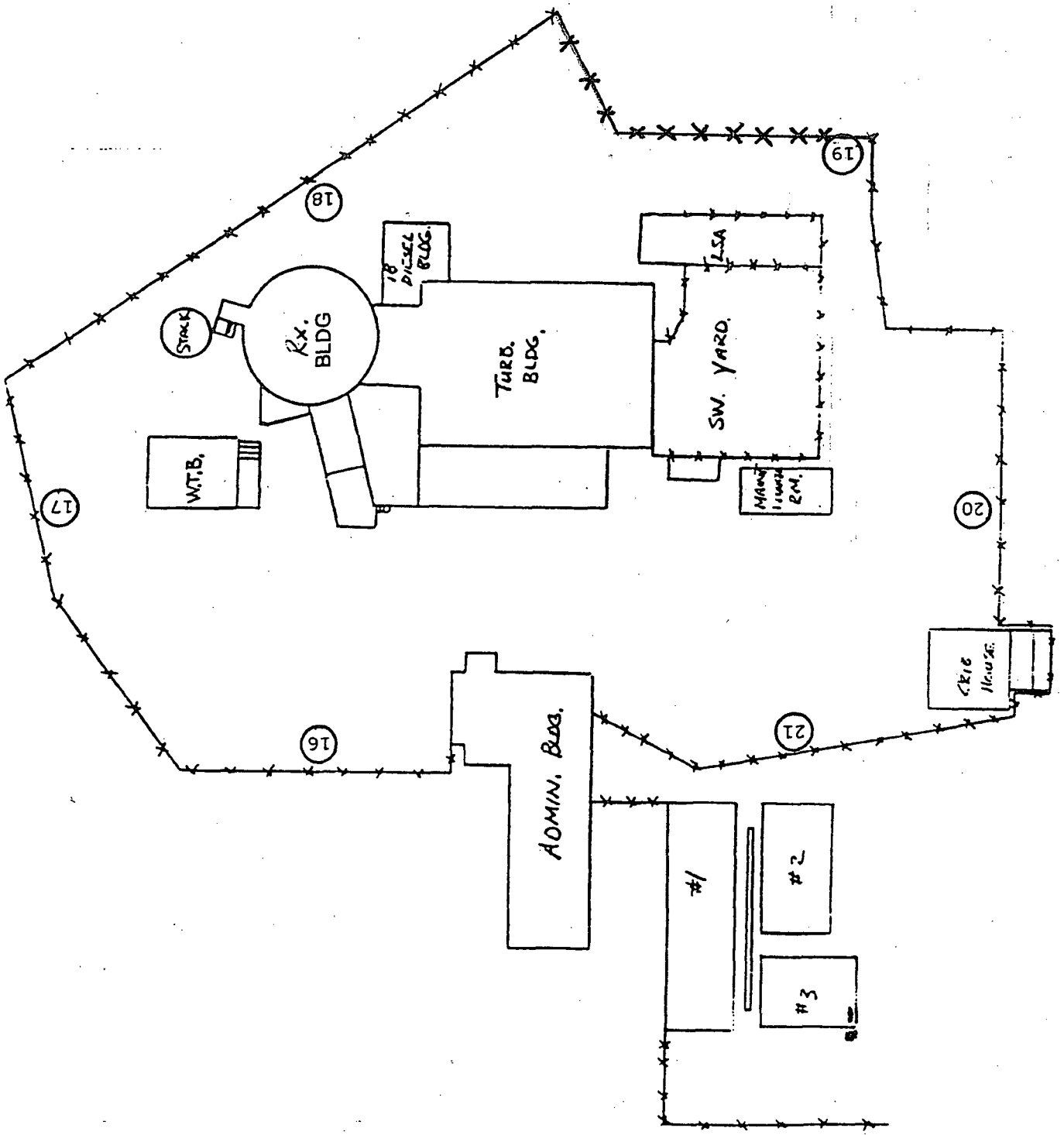

FIGURE 4 - LACBWR ENVIRONMENTAL DOSE ASSESSMENT LOCATIONS

TABLE 5

SAMPLE FREQUENCY AND ANALYSIS OF RADIO-ENVIRONMENTAL SAMPLES

SAMPLE	FREQUENCY	ANALYSIS PERFORMED
TLD (LiF) Dosimeters	Quarterly	Dose in mRem
Particulate Air Glass Fiber Filters	Weekly	Gross Beta and Gamma Spectroscopy of Composites Monthly (HPGe-MCA)
Milk	Obtain sample as directed if abnormal stack particulate release occurs.	Gamma Spectroscopy
Sediment	Twice per year	Gamma Spectroscopy
Fish	Quarterly	Gamma Spectroscopy
River	Monthly	Gamma isotopic analysis and tritium (Liquid Scintillation Analyzer)
Vegetation	Obtain sample as directed if abnormal stack particulate release occurs.	Gamma Spectroscopy

TABLE 6

PERMANENT ENVIRONMENTAL MONITORING STATION LOCATIONS

(Refer to Figure 2)

LOCATION NO.	LOCATION	AIR SAMPLE
1	Radio Tower	x
2	Dam No. 8	x
3	Trailer Court	x
4	Crib House	x
5	Main Office	x

TABLE 7

ENVIRONMENTAL TLD LOCATIONS

LOCATION NO.	LOCATION
1	LA CROSSE MAIN OFFICE AIR SAMPLER BOX
2	DAM #8 AIR SAMPLER BOX
3	RADIO TOWER BUILDING AT AIR SAMPLER
4	TRAILER COURT AIR SAMPLER BOX
5	CRIBHOUSE AIR SAMPLER BOX
6	G-3 CONTROL ROOM
7	SW GATEPOST AT END OF G-3 DIKE
8	ON FENCE N. SIDE OF FISHERMAN'S ROAD
9	SITE ENTRANCE GUARD AREA
10	ON FENCE AT NE CORNER OF THE SWITCHYARD
11	ON N. SITE AREA FENCE GATE
12	G-1 CRIBHOUSE
13	ON MOORING WALKWAY WEST OF LACBWR #2 WAREHOUSE
14	G-3 COAL UNLOADING CRANE
15	POWER POLE ON BLUFF SIDE EAST OF PLANT
16	RESTRICTED AREA FENCE N. SIDE
17	RESTRICTED AREA FENCE E. SIDE
18	RESTRICTED AREA FENCE S. SIDE
19	RESTRICTED AREA FENCE SW CORNER
20	RESTRICTED AREA FENCE W. SIDE
21	RESTRICTED AREA FENCE NW CORNER

TABLE 8

RADIO-ENVIRONMENTAL SAMPLES COLLECTED JANUARY-DECEMBER 2009

TYPE OF SAMPLE	NUMBER OF SAMPLES
Penetrating Radiation (TLD's)	84
Air Particulate	238
River Water	36
Sediment	6
Fish	8

TABLE 9

QUARTERLY THERMOLUMINESCENT DOSIMETER DOSE MEASUREMENTS IN THE LACBWR VICINITY

JANUARY – DECEMBER 2009

BACKGROUND CORRECTED

STATION NO.	1st QUARTER mRem	2nd QUARTER mRem	3rd QUARTER mRem	4th QUARTER mRem
1	0	0	0	0
2	0	0	0.7	0
3	0	0	0	0
4	0	1.4	4.5	0
5	1.2	0.6	1.5	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	1.7	0
12	0	0	4.1	0
13	0	0	0	0
14	0	0	0	0
15	2.4	4.7	6.9	1.7
16	7.8	8.0	13.5	9.5
17	9.7	8.6	12.6	9.3
18	22.4	23.1	28.8	20.9
19	7.0	7.2	28.8	8.3
20	0.7	1.4	4.3	0
21	4.7	6.1	31.3	4.8

Station #1 (La Crosse Main Office) located approximately 16 miles north of LACBWR is considered the Control TLD.

TABLE 10

WEEKLY GROSS BETA AIR PARTICULATES IN THE LACBWR VICINITY

(Reporting Level = 10 times Control Value)

COLLECTION DATE	LACBWR PLANT pCi/m^3	TRAILER COURT pCi/m^3	DAM #8 pCi/m^3	RADIO TOWER pCi/m^3	LA CROSSE CONTROL
01-07-09	.016 ± .002	.021 ± .002	.020 ± .003	.018 ± .002	.033 ± .003
01-13-09	.012 ± .002	.014 ± .002	.017 ± .003	NO SAMPLE	.020 ± .002
01-21-09	.015 ± .002	.013± .002	.024 ± .003	NO SAMPLE	.029 ± .002
01-28-09	.015 ± .002	.022 ± .002	.027 ± .003	.032 ± .002	.038 ± .003
02-04-09	.013 ± .002	.015 ± .002	.019 ± .003	.020 ± .002	.023 ± .002
02-11-09	.011 ± .002	.021 ± .002	.016 ± .003	.026 ± .002	.010 ± .002
02-18-09	.006 ± .002	.018 ± .002	.017 ± .003	.020 ± .002	.026± .003
02-25-09	.014 ± .002	.018 ± .002	.021 ± .003	.025 ± .002	.027 ± .002
03-04-09	.010 ± .002	.018 ± .002	.022 ± .003	.021 ± .002	.023 ± .002
03-11-09	.009 ± .002	.025 ± .002	.016 ± .003	.026 ± .002	.024 ± .002
03-18-09	.016 ± .002	.029 ± .003	.026 ± .003	.027 ± .002	.029 ± .002
03-25-09	.008 ± .002	.023 ± .002	.013 ± .003	.030 ± .003	.018 ± .002
04-01-09	.013 ± .002	.019 ± .002	.018 ± .003	.015 ± .001	.017 ± .002
04-08-09	.005 ± .001	.013 ± .002	.009 ± .001	.012 ± .001	.015 ± .002

TABLE 10

WEEKLY GROSS BETA AIR PARTICULATES IN THE LACBWR VICINITY

(Reporting Level = 10 times Control Value)

COLLECTION DATE	LACBWR PLANT pCi/m^3	TRAILER COURT pCi/m^3	DAM #8 pCi/m^3	RADIO TOWER pCi/m^3	LA CROSSE CONTROL
04-15-09	.011 ± .002	.021 ± .002	.019 ± .003	.023 ± .002	.027 ± .002
04-29-09	.016± .002	.009 ± .002	.005± .002	.014 ± .002	.011± .001
05-06-09	.009 ± .002	.018 ± .002	.008± .002	.010 ± .001	.019 ± .002
05-12-09	.005 ± .002	.013 ± .002	.005 ± .002	.009 ± .001	.010 ± .002
05-20-09	.007 ± .002	.014 ± .002	.007 ± .002	.013± .001	.014 ± .002
06-04-09	.004 ± .002	.015 ± .002	.007 ± .002	.013± .001	.017 ± .002
06-10-09	.014 ± .002	.007 ± .002	.006 ± .002	.014 ± .002	.010 ± .002
06-24-09	.023 ± .002	.019 ± .002	.007 ± .002	.019 ± .002	.020 ± .002
07-01-09	.013 ± .002	.014 ± .002	.008± .002	.013± .001	.013 ± .002
07-08-09	.012 ± .002	.012 ± .002	.004± .002	.008 ± .001	.013 ± .002
07-15-09	.016 ± .002	.013 ± .002	.003± .003	.013± .001	.013 ± .002
07-22-09	.008 ± .002	.008 ± .002	.005 ± .004	.008 ± .001	.010 ± .001
07-29-29	.017 ± .002	.015 ± .002	.005 ± .004	.016 ± .002	.014 ± .002
08-04-09	.016 ± .002	.017 ± .002	.015 ± .004	.015 ± .002	.017 ± .002

TABLE 10

WEEKLY GROSS BETA AIR PARTICULATES IN THE LACBWR VICINITY

(Reporting Level = 10 times Control Value)

COLLECTION DATE	LACBWR PLANT pCi/m^3	TRAILER COURT pCi/m^3	DAM #8 pCi/m^3	RADIO TOWER pCi/m^3	LA CROSSE CONTROL
08-12-09	.016 ± .002	.016 ± .002	.017 ± .003	.018 ± .002	.018 ± .002
08-26-09	.015 ± .002	.013 ± .002	.007± .004	.017 ± .002	.014 ± .002
09-01-09	.015± .002	.014± .002	.013± .003	.014± .001	.015± .002
09-09-09	.024 ± .002	.027± .003	.017 ± .003	.033 ± .002	.026 ± .002
09-16-09	.036 ± .003	.038 ± .003	.012 ± .002	.040± .002	.040 ± .003
09-23-09	.028 ± .002	.025 ± .003	.020 ± .004	.026± .002	.024 ± .002
09-30-09	.014 ± .002	.015 ± .002	.005 ± .003	.016 ± .002	.013 ± .002
10-07-09	.007 ± .001	.008± .002	.010 ± .003	.008 ± .001	.006 ± .001
10-14-09	.009 ± .002	.006 ± .002	.008± .004	.004 ± .002	.009 ± .002
10-21-09	.019 ± .002	.016 ± .002	.011 ± .003	.016 ± .002	.016 ± .002
10-28-09	.010 ± .002	.009 ± .002	.004 ± .002	.009 ± .001	.007 ± .001
11-04-09	.012 ± .002	.012 ± .002	.006 ± .002	.015 ± .002	.012 ± .002
11-10-09	.015 ± .002	.017 ± .002	.015 ± .003	.020 ± .002	.020 ± .002
11-18-09	.020 ± .002	.015 ± .002	.013 ± .002	.018 ± .002	.018 ± .002

TABLE 10

WEEKLY GROSS BETA AIR PARTICULATES IN THE LACBWR VICINITY

(Reporting Level = 10 times Control Value)

COLLECTION DATE	LACBWR PLANT pCi/m^3	TRAILER COURT pCi/m^3	DAM #8 pCi/m^3	RADIO TOWER pCi/m^3	LA CROSSE CONTROL
11-25-09	.031 ± .002	.046± .002	.015 ± .003	.049 ± .004	.028 ± .002
12-02-09	.019 ± .002	.015 ± .002	.010 ± .003	.021 ± .002	.020 ± .002
12-08-09	.015 ± .002	.011 ± .002	.006 ± .003	.016 ± .002	.013 ± .002
12-16-09	.040 ± .003	.026 ± .003	.009 ± .002	.030 ± .002	.034 ± .003
12-22-09	.043 ± .003	.040 ± .004	.019 ± .003	.037 ± .003	.039 ± .003
12-30-09	.024 ± .002	.023 ± .003	.007 ± .002	.027 ± .002	.023 ± .002

TABLE 11
AIR PARTICULATE COMPOSITE RESULTS
(Concentrations in pCi/m³)

LOCATION START DATE END DATE	RADIO TOWER 12-31-08 1-28-09	LACBWR 12-31-08 1-28-09	TRAILER COURT 12-31-08 1-28-09	DAM NO. 8 12-31-08 1-28-09	LA CROSSE 12-31-08 1-28-09
ISOTOPES/RL*					
Cs-134/10	<4.16E-3	<3.15E-3	<3.29E-3	<4.72E-3	<2.74E-3
Cs-137/20	<4.17E-3	<3.18E-3	<3.40E-3	<4.79E-3	<2.86E-3

*RL = REPORTING LEVEL

LOCATION START DATE END DATE	RADIO TOWER 1-28-09 2-25-09	LACBWR 1-28-09 2-25-09	TRAILER COURT 1-28-09 2-25-09	DAM NO. 8 1-28-09 2-25-09	LA CROSSE 1-28-09 2-25-09
ISOTOPES/RL*					
Cs-134/10	<1.74E-3	<3.25E-3	<2.84E-3	<5.09E-3	<2.57E-3
Cs-137/20	<1.86E-3	<3.34E-3	<2.97E-3	<5.09E-3	<2.61E-3

*RL = REPORTING LEVEL

TABLE 11
AIR PARTICULATE COMPOSITE RESULTS
(Concentrations in pCi/m³)

LOCATION START DATE END DATE	RADIO TOWER 2-25-09 4-01-09	LACBWR 2-25-09 4-01-09	TRAILER COURT 2-25-09 4-01-09	DAM NO. 8 2-25-09 4-01-09	LA CROSSE 2-25-09 4-01-09
ISOTOPES/RL*					
Cs-134/10	<1.44E-3	<2.62E-3	<2.54E-3	<4.13E-3	<2.10E-3
Cs-137/20	<1.45E-3	<2.63E-3	<2.52E-3	<4.34E-3	<2.14E-3

*RL = REPORTING LEVEL

LOCATION START DATE END DATE	RADIO TOWER 4-01-09 4-29-09	LACBWR 4-01-09 4-29-09	TRAILER COURT 4-01-09 4-29-09	DAM NO. 8 4-01-09 4-29-09	LA CROSSE 4-01-09 4-29-09
ISOTOPES/RL*					
Cs-134/10	<2.07E-3	<3.37E-3	<2.84E-3	<2.60E-3	<4.95E-3
Cs-137/20	<2.08E-3	<3.45E-3	<3.06E-3	<2.59E-3	<5.08E-3

*RL = REPORTING LEVEL

TABLE 11
AIR PARTICULATE COMPOSITE RESULTS
(Concentrations in pCi/m³)

LOCATION START DATE END DATE	RADIO TOWER 4-29-09 5-27-09	LACBWR 4-29-09 5-27-09	TRAILER COURT 4-29-09 5-27-09	DAM NO. 8 4-29-09 5-27-09	LA CROSSE 4-29-09 5-27-09
ISOTOPES/RL*					
Cs-134/10	<1.75E-3	<3.60E-3	<2.79E-3	<4.90E-3	<2.34E-3
Cs-137/20	<1.92E-3	<3.80E-3	<2.96E-3	<5.03E-3	<2.47E-3

*RL = REPORTING LEVEL

LOCATION START DATE END DATE	RADIO TOWER 5-27-09 7-01-09	LACBWR 5-27-09 7-01-09	TRAILER COURT 5-27-09 7-01-09	DAM NO. 8 5-27-09 7-01-09	LA CROSSE 5-27-09 7-01-09
ISOTOPES/RL*					
Cs-134/10	<1.57E-3	<2.45E-3	<2.36E-3	<3.62E-3	<1.79E-3
Cs-137/20	<1.66E-3	<2.56E-3	<2.46E-3	<3.63E-3	<1.88E-3

*RL = REPORTING LEVEL

TABLE 11
AIR PARTICULATE COMPOSITE RESULTS
(Concentrations in pCi/m³)

LOCATION START DATE END DATE	RADIO TOWER 7-01-09 7-29-09	LACBWR 7-01-09 7-29-09	TRAILER COURT 7-01-09 7-29-09	DAM NO. 8 7-01-09 7-29-09	LA CROSSE 7-01-09 7-29-09
ISOTOPES/RL*					
Cs-134/10	<1.87E-3	<2.60E-3	<2.98E-3	<7.63E-3	<2.26E-3
Cs-137/20	<1.88E-3	<2.63E-3	<3.07E-3	<7.77E-3	<2.35E-3

*RL = REPORTING LEVEL

LOCATION START DATE END DATE	RADIO TOWER 7-29-09 9-02-09	LACBWR 7-29-09 9-02-09	TRAILER COURT 7-29-09 9-02-09	DAM NO. 8 7-29-09 9-02-09	LA CROSSE 7-29-09 9-02-09
ISOTOPES/RL*					
Cs-134/10	<1.54E-3	<2.08E-3	<2.41E-3	<4.89E-3	<1.85E-3
Cs-137/20	<1.55E-3	<2.07E-3	<2.47E-3	5.06E-3±1.92E-3	<1.88E-3
Co-60				6.27E-3±1.35E-3	

*RL = REPORTING LEVEL

TABLE 11
AIR PARTICULATE COMPOSITE RESULTS
(Concentrations in pCi/m³)

LOCATION START DATE END DATE	RADIO TOWER 9-02-09 9-30-09	LACBWR 9-02-09 9-30-09	TRAILER COURT 9-02-09 9-30-09	DAM NO. 8 9-02-09 9-30-09	LA CROSSE 9-02-09 9-30-09
ISOTOPES/RL*					
Cs-134/10	<1.97E-3	<2.51E-3	<3.02E-3	<5.78E-3	<2.17E-3
Cs-137/20	<2.09E-3	<2.61E-3	<3.29E-3	<6.14E-3	<2.38E-3

*RL = REPORTING LEVEL

LOCATION START DATE END DATE	RADIO TOWER 9-30-09 10-28-09	LACBWR 9-30-09 10-28-09	TRAILER COURT 9-30-09 10-28-09	DAM NO. 8 9-30-09 10-28-09	LA CROSSE 9-30-09 10-28-09
ISOTOPES/RL*					
Cs-134/10	<2.37E-3	<2.79E-3	<3.74E-3	<7.01E-3	<2.57E-3
Cs-137/20	<2.48E-3	<2.78E-3	<3.80E-3	<6.92E-3	<2.69E-3
Co-60	2.01E-3±5.12E-4			5.46E-3±1.41E-3	

*RL = REPORTING LEVEL

TABLE 11
AIR PARTICULATE COMPOSITE RESULTS
(Concentrations in pCi/m³)

LOCATION START DATE END DATE	RADIO TOWER 10-28-09 12-02-09	LACBWR 10-28-09 12-02-09	TRAILER COURT 10-28-09 12-02-09	DAM NO. 8 10-28-09 12-02-09	LA CROSSE 10-28-09 12-02-09
ISOTOPES/RL*					
Cs-134/10	<2.35E-3	<2.18E-3	<2.81E-3	<4.47E-3	<2.16E-3
Cs-137/20	<1.93E-3	<2.38E-3	<2.43E-3	<4.32E-3	<1.90E-3
Co-60	2.04E-3±5.65E-4			3.31E-3±1.03E-4	

*RL = REPORTING LEVEL

LOCATION START DATE END DATE	RADIO TOWER 12-02-09 12-30-09	LACBWR 12-02-09 12-30-09	TRAILER COURT 12-02-09 12-30-09	DAM NO. 8 12-02-09 12-30-09	LA CROSSE 12-02-09 12-30-09
ISOTOPES/RL*					
Cs-134/10	<2.78E-3	<3.00E-3	<4.01E-3	<4.32E-3	<3.01E-3
Cs-137/20	<2.87E-3	<3.08E-3	<4.10E-3	<4.50E-3	<3.13E-3

*RL = REPORTING LEVEL

TABLE 12

RESULTS OF ANALYSIS OF MISSISSIPPI RIVER WATER IN THE VICINITY OF LACBWR

(Report Concentrations in pCi/Liter)

COLLECTION DATE: SAMPLE LOCATION:	SAMPLE #1 1-13-09 DAM 8	SAMPLE #2 1-13-09 OUTFALL	SAMPLE #3 1-13-09 VICTORY	SAMPLE #1 2-10-09 DAM 8	SAMPLE #2 2-10-09 OUTFALL	SAMPLE #3 2-10-09 VICTORY
ISOTOPES/RL *						
H-3	<150	<150	<150	<154	<154	<154
Mn-54/1000	<2.08	<3.96	<4.07	<4.18	<4.08	<4.11
Co-60/300	<4.22	<4.05	<4.26	<4.43	<4.21	<4.30
Zn-65/300	<9.37	<9.36	<9.25	<9.74	<9.26	<9.32
Cs-134/30	<4.52	<4.76	<4.69	<4.91	<4.68	<4.55
Cs-137/50	<4.73	<4.77	<4.76	<4.92	<4.68	<4.89

* RL = REPORTING LEVEL

TABLE 12

RESULTS OF ANALYSIS OF MISSISSIPPI RIVER WATER IN THE VICINITY OF LACBWR
(Report Concentrations in pCi/Liter)

COLLECTION DATE: SAMPLE LOCATION:	SAMPLE #1 3-10-09 DAM 8	SAMPLE #2 3-10-09 OUTFALL	SAMPLE #3 3-10-09 VICTORY	SAMPLE #1 4-08-09 DAM 8	SAMPLE #2 4-08-09 OUTFALL	SAMPLE #3 4-08-09 VICTORY
ISOTOPES/RL *						
H-3	275 ± 141	<149	<149	<160	<160	<160
Mn-54/1000	<3.86	<3.91	<4.19	<4.06	<4.02	<4.07
Co-60/300	<4.18	<4.38	<4.41	<4.16	<4.34	<3.98
Zn-65/300	<9.58	<9.74	<9.48	<9.20	<9.25	<9.51
Cs-134/30	<4.48	<4.80	<4.81	<4.16	<4.77	<4.57
Cs-137/50	<4.75	<4.52	<4.79	<4.69	<4.77	<4.71

* RL = REPORTING LEVEL

TABLE 12

RESULTS OF ANALYSIS OF MISSISSIPPI RIVER WATER IN THE VICINITY OF LACBWR

(Report Concentrations in pCi/Liter)

COLLECTION DATE: SAMPLE LOCATION:	SAMPLE #1 5-11-09 DAM 8	SAMPLE #2 5-11-09 OUTFALL	SAMPLE #3 5-11-09 VICTORY	SAMPLE #1 6-09-09 DAM 8	SAMPLE #2 6-09-09 OUTFALL	SAMPLE #3 6-09-09 VICTORY
ISOTOPES/RL *						
H-3	<156	<156	<156	<147	<147	<147
Mn-54/1000	<4.01	<4.14	<4.09	<4.01	<4.20	<4.04
Co-60/300	<4.32	<4.26	<4.40	<4.38	<4.38	<4.03
Zn-65/300	<9.37	<10.0	<9.73	<9.65	<9.37	<9.64
Cs-134/30	<4.57	<4.75	<4.63	<4.72	<4.73	<4.73
Cs-137/50	<3.42	<4.83	<4.90	<4.68	<4.79	<4.69

* RL = REPORTING LEVEL

TABLE 12

RESULTS OF ANALYSIS OF MISSISSIPPI RIVER WATER IN THE VICINITY OF LACBWR

(Report Concentrations in pCi/Liter)

COLLECTION DATE: SAMPLE LOCATION:	SAMPLE #1 7-06-09 DAM 8	SAMPLE #2 7-06-09 OUTFALL	SAMPLE #3 7-06-09 VICTORY	SAMPLE #1 8-10-09 DAM 8	SAMPLE #2 8-10-09 OUTFALL	SAMPLE #3 8-10-09 VICTORY
ISOTOPES/RL *						
H-3	<157	<157	<157	<152	<152	<152
Mn-54/1000	<3.95	<4.08	<4.08	<4.07	<4.12	<3.87
Co-60/300	<4.35	<4.38	<4.29	<4.41	<4.31	<4.15
Zn-65/300	<9.23	<9.50	<9.82	<9.13	<9.11	<9.14
Cs-134/30	<4.56	<4.71	<4.58	<4.82	<4.68	<4.62
Cs-137/50	<4.89	<4.76	<4.72	<4.76	<4.74	<4.57

* RL = REPORTING LEVEL

TABLE 12

RESULTS OF ANALYSIS OF MISSISSIPPI RIVER WATER IN THE VICINITY OF LACBWR

(Report Concentrations in pCi/Liter)

COLLECTION DATE: SAMPLE LOCATION:	SAMPLE #1 9-14-09 DAM 8	SAMPLE #2 9-14-09 OUTFALL	SAMPLE #3 9-14-09 VICTORY	SAMPLE #1 10-13-09 DAM 8	SAMPLE #2 10-13-09 OUTFALL	SAMPLE #3 10-13-09 VICTORY
ISOTOPES/RL *						
H-3	<154	<154	267 ± 147	<157	<157	<157
Mn-54/1000	<3.96	<3.97	<4.11	<3.83	<4.01	<3.93
Co-60/300	<4.32	<3.92	<4.17	<4.11	<4.43	<4.39
Zn-65/300	<9.21	<9.23	<9.22	<9.04	<9.36	<9.65
Cs-134/30	<4.72	<4.56	<4.46	<4.63	<4.54	<4.65
Cs-137/50	<4.77	<4.83	<4.60	<4.69	<4.68	<4.65

* RL = REPORTING LEVEL

TABLE 12

RESULTS OF ANALYSIS OF MISSISSIPPI RIVER WATER IN THE VICINITY OF LACBWR

(Report Concentrations in pCi/Liter)

COLLECTION DATE: SAMPLE LOCATION:	SAMPLE #1 11-09-09 DAM 8	SAMPLE #2 11-09-09 OUTFALL	SAMPLE #3 11-09-09 VICTORY	SAMPLE #1 12-15-09 DAM 8	SAMPLE #2 12-15-09 OUTFALL	SAMPLE #3 12-15-09 VICTORY
ISOTOPES/RL *						
H-3	<156	<156	<156	<151	<151	<151
Mn-54/1000	<3.93	<3.91	<4.03	<4.03	<3.96	<3.86
Co-60/300	<4.16	<4.28	<4.30	<4.35	<4.15	<4.12
Zn-65/300	<9.61	<8.87	<9.30	<9.15	<9.50	<9.50
Cs-134/30	<4.55	<4.55	<4.52	<4.55	<4.76	<4.54
Cs-137/50	<4.69	<4.56	<4.67	<4.73	<4.64	<4.78

* RL = REPORTING LEVEL

TABLE 13

RESULTS OF ANALYSIS OF MISSISSIPPI RIVER SEDIMENT IN THE VICINITY OF LACBWR
(Concentration in pCi/Kg)
(Reporting Level = 10 times Control Value)

SAMPLE LOCATION	UPSTREAM	OUTFALL	DOWNSTREAM	UPSTREAM	OUTFALL	DOWNSTREAM
COLLECTION DATE	5-12-09	5-12-09	5-12-09	8-12-09	8-12-09	8-12-09
ISOTOPES						
Cs-134	<4.66	<4.11	<5.40	<4.08	<4.13	<8.76
Cs-137	<4.43	10.81 ± 1.46	15.0 ± 1.79	<3.98	68.9 ± 3.43	<7.94

TABLE 14

FISH SAMPLE ACTIVITY IN THE VICINITY OF LACBWR
(Report Concentrations in pCi/Kg)

SAMPLE TYPE:	CARP	WALLEYE	CARP	WALLEYE	NORTHERN & BASS	CARP
COLLECTION DATE:	3-23-09	3-23-09	5-12-09	5-12-09	9-22-09	9-22-09
ISOTOPES/RL*						
Mn-54 / 3E4	<6.55	<6.31	<6.62	<7.34	<4.85	<5.04
Co-60/ 1E4	<7.18	<7.38	<7.37	<7.87	<5.60	<6.16
Zn-65/ 2E4	<16.6	<16.6	<17.9	<18.1	<12.8	<13.6
Cs-134/ 1E3	<7.14	<7.20	<7.37	<8.30	<5.39	<5.55
Cs-137/ 2E3	<7.40	<7.08	<6.02	7.13 ± 2.29	<5.61	<4.93

*RL =REPORTING LEVEL

TABLE 14

FISH SAMPLE ACTIVITY IN THE VICINITY OF LACBWR
(Report Concentrations in pCi/Kg)

SAMPLE TYPE:	WALLEYE	WHITE SUCKER/RED HORSE				
COLLECTION DATE:	10-19-09	11-30-09				
ISOTOPES/RL*						
Mn-54/ 3E4	<5.19	<6.2				
Co-60/ 1E4	<6.22	<7.11				
Zn-65/ 2E4	<14.0	<16.8				
Cs-134/ 1E3	<5.6	<6.95				
Cs-137/ 2E3	<4.94	<7.11				

*RL =REPORTING LEVEL