

**RADIOACTIVE EFFLUENT REPORT
AND
RADIOLOGICAL ENVIRONMENTAL MONITORING
REPORT**

FOR THE
LA CROSSE BOILING WATER REACTOR
(LACBWR)

(January 1 to December 31, 1993)

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 6.8.1.1.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, 1993.

EFFLUENT AND WASTE DISPOSAL REPORT

(Supplemental Information)

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

DOCKET NO. 50-409

1. REGULATORY LIMITS

a. Gaseous Effluent Release Limits:

LACBWR's Technical Specifications for gaseous effluent releases of radioactive material limit the release rates 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.

Also, in accordance with 10 CFR 50, Appendix I, the Technical Specifications 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 Technical Specification limits for liquid effluent releases are limited to those concentrations of individual radionuclides such that the diluted discharge does not exceed 1 MPC in a 168-hour week averaged over the calendar year. For dissolved or entrained noble gases, the concentration is limited to a total activity concentration of 6×10^{-4} $\mu\text{Ci/ml}$. For alpha emitting radionuclides, the concentration is limited to a total activity concentration of 4.9×10^{-9} $\mu\text{Ci/ml}$, 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.

EFFLUENT AND WASTE DISPOSAL REPORT - (cont'd)

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. MAXIMUM PERMISSIBLE CONCENTRATION (MPC)

The MPC used to calculate permissible release rates are obtained from 10 CFR 20, Appendix B, Table II, Columns 1 and 2. In addition, the following values are used:

Tritium in Water = 3×10^{-3} $\mu\text{Ci/ml}$.

Tritium in Air = 2×10^{-7} $\mu\text{Ci/cc}$.

3. AVERAGE ENERGY

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

4. ANALYTICAL METHODS

a. Liquid Effluents

Liquid effluent measurements for gross radioactivity are performed by Ge-Li 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 and is analyzed quarterly for Iron-55 and Strontium 90 by a contractor.

b. Airborne Particulates

Airborne particulate releases are determined by Ge-Li gamma isotopic analysis. This analysis is performed by analyzing a glass fiber filter paper taken from the stack monitor (Eberline SPING) 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, Table 5.7.2.2, no longer requires monitoring for iodine.

d. Fission and Activation Gases

The concentration of radioactivity ($\mu\text{Ci/cc}$) in gaseous releases from the stack is continuously monitored by two stack monitors, which are in-line monitors. These gas concentrations ($\mu\text{Ci/cc}$) 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 in Curies. Since the plant shutdown in April 1987, gaseous releases have been immeasurable. All fission gases except Kr-85 have decayed completely to stable elements.

EFFLUENT AND WASTE DISPOSAL REPORT - (cont'd)

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 containing an organic compound and dry ice. The condensed water vapor is then distilled and the distillate is analyzed for H-3 concentration, $\mu\text{Ci/cc}$, 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 unless the upper reactor cavity is flooded, at which time the sampling frequency is increased to at least once per 7 days.

5. 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:	43
(2)	Total Time Period for Batch Releases:	291.9 hours
(3)	Maximum Time Period for a Batch Release:	15.0 hours
(4)	Average Time Period for a Batch Release:	6.8 hours
(5)	Minimum Time Period for a Batch Release:	0.92 hours
(6)	Average Stream Flow Rate During Periods of Release of Effluent into a Flowing Stream:	111,947 ft^3/sec

6. ABNORMAL RELEASES

There were no abnormal releases of radioactivity in plant effluents as summarized as follows:

a. Liquid

(1) Number of Releases: None

(2) Total Activity Released: N/A

b. Gaseous

(1) Number of Releases: None

(2) Total Activity Released: N/A

7. ESTIMATED TOTAL ANALYTICAL ERROR

The reported analytical results contain the following estimated errors:

Counting Error \pm 1 Standard Deviation

Sampling Volume Error \pm 5%.

The lower limits of detection (LLD) are expressed in terms of a 4.66σ as defined in Technical Specifications.

TABLE IA
EFFLUENT AND WASTE DISPOSAL - 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	6.42E-07	2.75E-07	1.02E-04	6.46E-07	1.04E-04
2. AVERAGE RELEASE RATE FOR PERIOD	μCi/Sec	8.26E-08	3.49E-08	1.29E-05	8.13E-08	
3. GROSS ALPHA RADIOACTIVITY	Ci	4.21E-08	2.40E-08	2.26E-07	7.60E-08	

D. TRITIUM

1. TOTAL RELEASE	Ci	4.54E-02	1.73E-02	3.05E-02	7.68E-03	1.01E-01
2. AVERAGE RELEASE RATE FOR PERIOD	μCi/Sec	5.84E-03	2.20E-03	3.84E-03	9.66E-04	

E. PERCENTAGE OF (APPENDIX I) TECHNICAL SPECIFICATION LIMITS

		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						
HIGHEST ORGAN	%	2.64E-04	1.03E-04	5.21E-03	6.24E-05	2.63E-03

EFFLUENT AND WASTE DISPOSAL REPORT - (cont'd)

TABLE 1B

EFFLUENT AND WASTE DISPOSAL - GASEOUS EFFLUENTS

ELEVATED RELEASE

CONTINUOUS 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
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2. IODINE I-131 - No longer analyzed for.

3. PARTICULATES

STRONTIUM-90	Ci	0.00E+00	0.00E+00	3.93E-07	0.00E+00	3.93E-07
CESIUM-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CESIUM-137	Ci	3.07E-07	1.90E-07	1.01E-04	3.59E-07	1.02E-04
COBALT-60	Ci	3.35E-07	6.50E-08	8.27E-07	2.87E-07	1.51E-06
MANGANESE-54	Ci	0.00E+00	1.97E-08	0.00E+00	0.00E+00	1.96E-08
ZINC-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Ci					
	Ci					
	Ci					
	Ci					
TOTALS	Ci	6.42E-07	2.75E-07	1.02E-04	6.46E-07	1.04E-04

EFFLUENT AND WASTE DISPOSAL REPORT - (cont'd)

TABLE 2A
EFFLUENT AND WASTE DISPOSAL - 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	1.35E-02	6.24E-03	6.61E-03	1.18E-02	3.82E-02
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	μCi/ml	2.22E-08	1.57E-09	1.63E-09	2.40E-08	
B. TRITIUM						
1. TOTAL RELEASE	Ci	1.22E-02	1.44E-02	8.00E-03	1.76E-02	5.24E-02
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	μCi/ml	1.99E-08	3.63E-09	1.97E-09	3.64E-08	
C. DISSOLVED AND ENTRAINED GASES						
1. TOTAL RELEASE	Ci	0.00	0.00	0.00	0.00	0.00
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	μCi/ml	0.00	0.00	0.00	0.00	0.00
D. GROSS ALPHA RADIOACTIVITY						
1. TOTAL RELEASE	Ci	1.23E-05	9.24E-05	5.88E-05	8.15E-06	1.72E-04
E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)						
	Liters	5.29E+04	2.78E+05	2.60E+05	6.65E+04	6.57E+05
F. VOLUME OF DILUTION WATER USED DURING PERIOD						
	Liters	6.11E+08	3.97E+09	4.06E+09	4.89E+08	9.13E+09
G. PERCENTAGE OF (APPENDIX I) TECHNICAL SPECIFICATION LIMITS FOR LIQUID RELEASES						
		QTR	QTR	QTR	QTR	YEARLY
HIGHEST ORGAN	%	0.05	0.04	0.02	0.15	0.13
WHOLE BODY	%	0.10	0.10	0.05	0.32	0.2%

EFFLUENT AND WASTE DISPOSAL REPORT - (cont'd)

TABLE 2B
EFFLUENT AND WASTE DISPOSAL
LIQUID EFFLUENTS

NUCLIDES RELEASED	UNIT	QTR	QTR	QTR	QTR
MANGANESE-54	Ci	1.74E-05	6.33E-07	7.65E-07	0.00E+00
IRON-55	Ci	4.95E-03	5.61E-04	9.91E-04	2.00E-03
COBALT-57	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
COBALT-60	Ci	5.95E-03	3.07E-03	4.08E-03	5.86E-03
ZINC-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
STRONTIUM-90	Ci	9.90E-05	1.16E-04	0.00E+00	6.41E-05
SILVER-110m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CESIUM-134	Ci	0.00E+00	3.24E-04	0.00E+00	0.00E+00
CESIUM-137	Ci	2.53E-03	2.16E-03	1.54E-03	3.84E-03
CERIUM-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD (ABOVE)	Ci	1.35E-02	6.24E-03	6.61E-03	1.18E-02
KRYPTON-85	Ci	--	--	--	--

EFFLUENT AND WASTE DISPOSAL REPORT - (cont'd)

TABLE 3

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT - 1993
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR 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	1.32	3.72	5.04
	Ci	2.14 E-1	2.87 E-2	2.43 E-1
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	6-MONTH PERIOD	6-MONTH PERIOD
b. Co-60	44.4	1.28 E-2	9.51 E-2
Cs-137	5.51	1.58 E-3	1.18 E-2
Fe-55	34.94	1.01 E-2	7.48 E-2
Ni-63	13.16	3.79 E-3	2.82 E-2
Pu-241	1.7	4.89 E-4	3.63 E-3
Sr-90	0.29	2.90 E-5	2.13 E-4

3. SOLID WASTE DISPOSITION

<u>NO. OF SHIPMENTS</u>	<u>MODE OF TRANSPORTATION</u>	<u>DESTINATION</u>
3	SOLE USE	BARNWELL, S.C.

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

<u>NO. OF SHIPMENTS</u>	<u>MODE OF TRANSPORTATION</u>	<u>DESTINATION</u>
0		

8. 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 1993 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 1993 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 3.91 E-4 mRem . The cumulative 1993 annual maximum organ dose from these radionuclides was also approximately 3.95 E-4 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 7.50 E-3 mRem . The maximum cumulative 1993 annual organ dose was approximately 1.30 E-2 mRem . The maximum quarterly whole body dose for liquid releases was approximately 4.80 E-3 mRem , and the cumulative 1993 annual whole body dose was approximately 8.40 E-3 mRem .

c. Conclusion

All calculated offsite doses were below Technical Specification limits.

SECTION B

ANNUAL
RADIOLOGICAL
ENVIRONMENTAL MONITORING
REPORT

January 1 - December 31, 1993

INTRODUCTION:

The Radiological Environmental Monitoring (REM) Program is conducted to comply with the requirements of Technical Specifications 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 - (cont'd)

LACBWR was removed from the power generation rolls in April 1987 when DPC shut down the reactor and placed LACBWR in SAFSTOR. Since that time, the amount of radioactive material released to the environment has decreased significantly. Amendment 64 to the LACBWR Technical Specifications was issued in December of 1988 and eliminated the need to analyze environmental samples for I-131 due to the stabilization of all iodine at LACBWR. Amendment 66 to the Technical Specifications was received in August of 1991 and significantly reduced the sampling and analysis requirements of LACBWR's environmental program.

LACBWR's in-house procedures were modified in February of 1992. At that time LACBWR environmental program was reduced to match that listed in Technical Specification Amendment 66.

RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT - (cont'd)

1.0 SAMPLE COLLECTION

Environmental samples are collected from the area surrounding LACBWR at the frequencies outlined in the Technical Specifications. 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 1993.

2.0 RESULTS OF THE 1993 RADIO-ENVIRONMENTAL MONITORING SURVEYS

During 1993, 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 thermoluminescent 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 1993 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 is insignificant 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.

2.5 MILK SAMPLES

Milk samples were collected monthly during the grazing season (May through September) from three dairy farms in the vicinity of LACBWR and gamma analyzed. These samples are listed in Table 14. There has been no significant accumulation of plant attributed radionuclides in milk in the vicinity of LACBWR.

2.6 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 15. There has been no significant accumulation of plant attributed radionuclides in fish in the vicinity of LACBWR.

2.7 VEGETATION

Vegetation samples were collected from local gardens at the time of harvest. The results of the gamma spectral analysis of the vegetation samples appear on Table 16. There has been no significant accumulation of plant attributed radionuclides in the vegetation.

3.0 CONCLUSIONS

All environmental samples collected and analyzed during 1993 exhibited no significant contribution from LACBWR.

4.0 INTERLABORATORY COMPARISON PROGRAM RESULTS

During 1993, 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 ($\mu\text{Ci/cc}$)	CONTRACTOR RESULTS ($\mu\text{Ci/cc}$)
GROSS BETA	1.02 E-3	9.62 E-4
GROSS ALPHA	2.77 E-4	3.15 E-4
TRITIUM	1.36 E-3	8.68 E-4
CS-137	2.83 E-3	2.44 E-3
CO-60	8.96 E-3	7.87 E-3

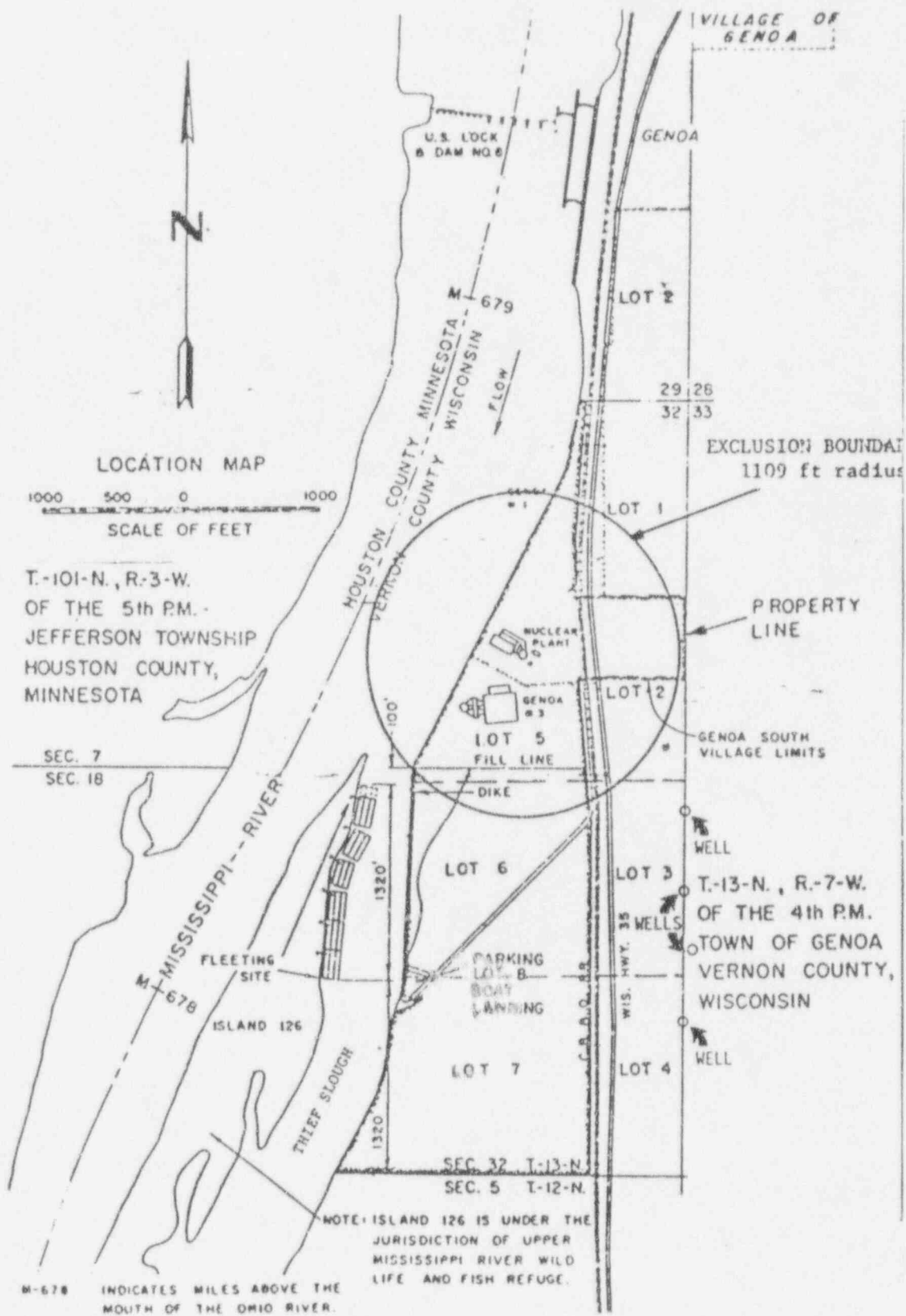


FIGURE 1 - LACBWR PROPERTY MAP



FIGURE 2 - PERMANENT ENVIRONMENTAL MONITORING STATION LOCATIONS

(Refer to Table 6)

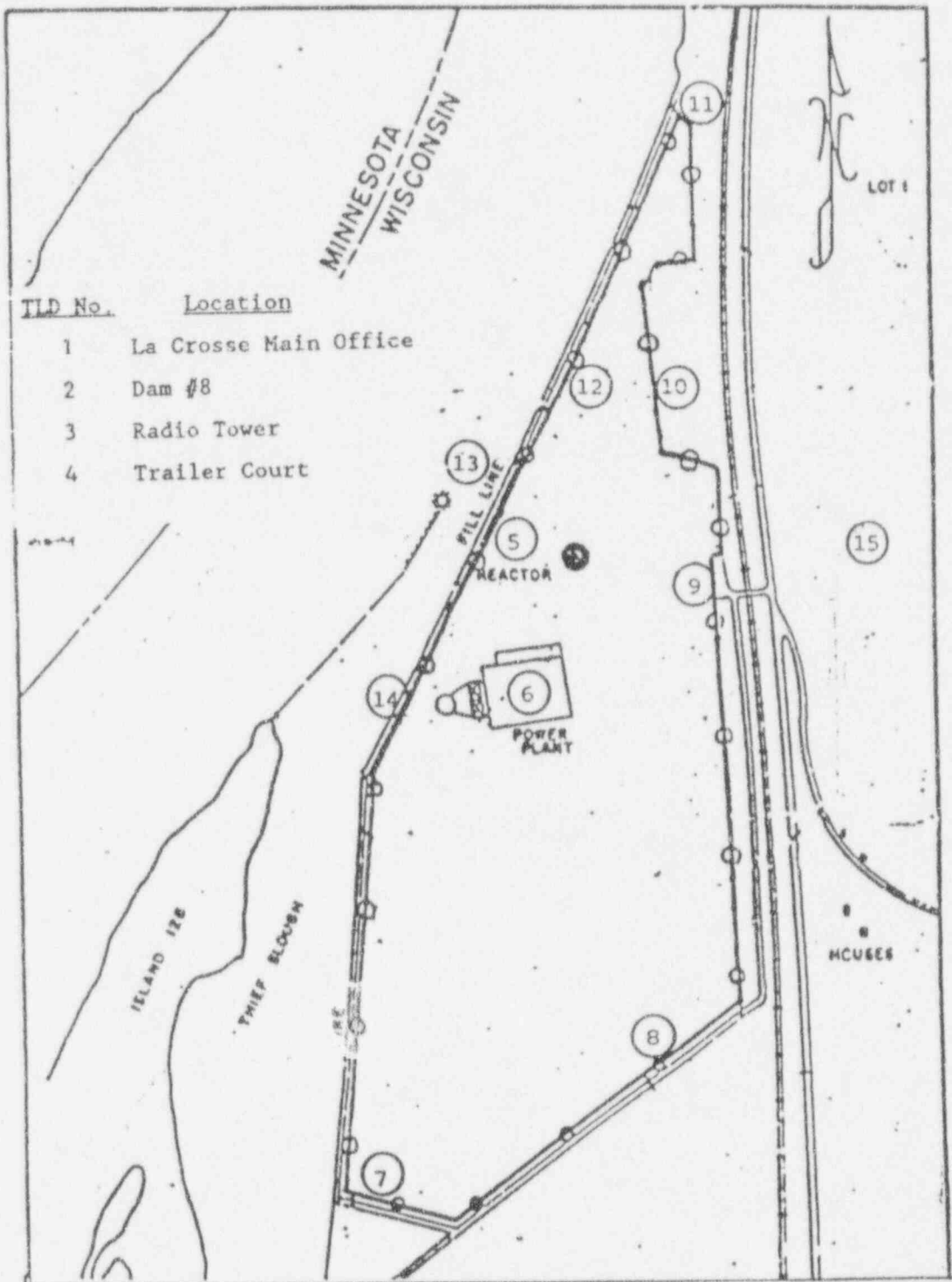


FIGURE 3 - LACBWR ENVIRONMENTAL DOSE ASSESSMENT LOCATIONS

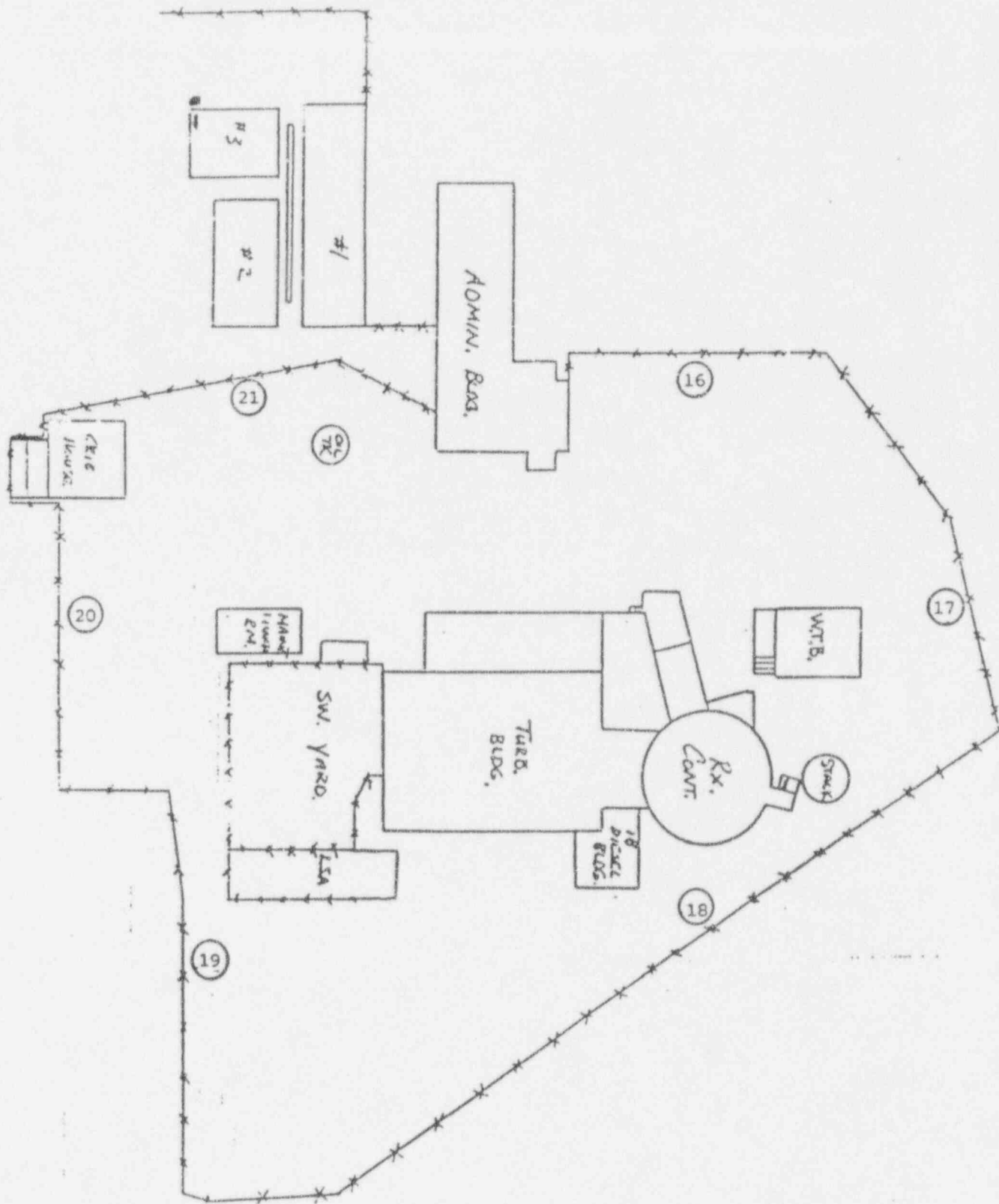


FIGURE 4 - LACBWR ENVIRONMENTAL DOSE ASSESSMENT LOCATIONS

TABLE 5

SAMPLE FREQUENCY AND ANALYSIS OF RADIO-ENVIRONMENTAL SAMPLES

<u>SAMPLE</u>	<u>FREQUENCY</u>	<u>ANALYSIS PERFORMED</u>
TLD (LiF) Dosimeters	Quarterly	Dose in mRem
Particulate Air Glass Fiber Filters	Weekly	Gross Beta and Gamma Spectroscopy of Composites Monthly (HPGe-MCA)
Milk	Monthly during grazing season	Gamma Spectroscopy
Sediment	Twice per year	Gamma Spectroscopy
Fish	Quarterly	Gamma Spectroscopy
River	Monthly	Gamma isotopic analysis and tritium (Internal Liquid Scintillation Spectrometer)
Vegetation	At time of harvest	Gamma Spectroscopy

TABLE 6

PERMANENT ENVIRONMENTAL MONITORING STATIONLOCATIONS

(Refer to Figure 2)

LOCATION NO.	LOCATION	AIR SAMPLE	MILK
1	Pedretti Farm		x
2	P. Malin Farm		x
3	A. Malin Farm		x
4	Dam No. 8	x	
5	Trailer Court	x	
6	Crib House	x	
7	Main Office	x	
8	Radio Tower	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 1993

<u>TYPE OF SAMPLE</u>	<u>NUMBER OF SAMPLES</u>
Penetrating Radiation (TLD's)	83
Air Particulate	259
River Water	36
Sediment	6
Milk	12
Fish	8
Effluent Split w/State of Wisconsin	24
Vegetation	2

TABLE 9

QUARTERLY THERMOLUMINESCENT DOSIMETER DOSE
MEASUREMENTS IN THE LACBWR VICINITY

STATION NO.	1st QUARTER mRem	2nd QUARTER mRem	3rd QUARTER mRem	4th QUARTER mRem
1	15.0 ± 2	15.0 ± 1.4	13.8 ± 3.3	17.8 ± 4.6
2	19.0 ± 5.1	19.4 ± 2.7	20.8 ± 4.6	24.4 ± 4.1
3	17.6 ± 2.7	19.4 ± 2.7	17.8 ± 3.3	20.6 ± 6.4
4	17.6 ± 4.6	19.2 ± 5.4	20.6 ± 3.6	20.2 ± 8.6
5	27.8 ± 2.6	25.2 ± 10.8	23.0 ± 5.5	23.2 ± 4.8
6	15.8 ± 2.2	14.4 ± 1.8	12.8 ± 2.6	16.4 ± 1.8
7	16.0 ± 2	15.2 ± 4.6	16.4 ± 3.9	22.4 ± 2.7
8	MISSING	20.0 ± 3.2	19.2 ± 5.4	20.2 ± 6.5
9	20.0 ± 2	24.2 ± 5.4	27.4 ± 3.0	23.4 ± 5.8
10	18.4 ± 2.7	18.0 ± 5.1	22 ± 2	23.0 ± 4.0
11	15.6 ± 2.3	19.2 ± 1.7	9.8 ± 5.2	22.0 ± 5.1
12	21.4 ± 5.2	20.4 ± 3.3	22.0 ± 5.7	24.0 ± 5.3
13	23.4 ± 5	24.8 ± 7.3	25.0 ± 5.5	25.6 ± 4.6
14	15.4 ± 1.1	16.4 ± 5.6	15.8 ± 2.6	17.4 ± 3.6
15	22.8 ± 4.8	24.8 ± 6.4	30.6 ± 12.1	31.8 ± 4.3
16	51.2 ± 4.3	57.4 ± 11.2	67.6 ± 7.0	65.6 ± 10.7
17	82.2 ± 8.8	80.0 ± 17.9	73 ± 11.0	91.0 ± 23.9
18	66.0 ± 16.5	63.0 ± 11.4	70 ± 4.0	79.2 ± 13.1
19	41.0 ± 2.4	39.8 ± 3.3	47 ± 4.2	50.8 ± 5.7
20	35.0 ± 3.2	35.6 ± 3.9	41.8 ± 2.6	43.0 ± 4.2
21	51.0 ± 8.7	52.0 ± 12.9	56.4 ± 16.7	52.0 ± 4.9

All TLD's greater than 5 miles from the plant are considered Control TLD's.

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
1-05-93	.035±.003	.048±.003	.053±.004	.048±.004	.050±.003
1-12-93	.053±.004	.061±.004	.062±.004	.060±.004	.054±.003
1-19-93	.030±.003	.040±.003	.036±.003	.033±.003	.035±.003
1-26-93	.022±.003	.030±.003	.026±.003	.030±.003	.026±.002
2-02-93	.033±.003	.038±.003	.042±.003	.041±.003	.034±.003
2-09-93	.028±.003	.034±.003	.040±.003	.035±.003	.034±.004
2-15-93	.026±.003	.030±.003	.043±.004	.036±.004	.034±.003
2-23-93	.037±.003	.036±.003	.050±.003	.042±.004	.046±.003
3-02-93	.046±.004	.046±.003	.053±.004	.052±.004	.050±.003
3-09-93	.027±.003	.031±.003	.047±.004	.037±.004	.030±.002
3-16-93	.021±.003	.023±.003	.049±.004	.028±.003	.017±.002
3-23-93	.023±.003	.027±.003	.032±.003	.028±.003	.033±.003
3-30-93	.041±.003	.023±.002	.025±.003	.023±.002	.015±.002
4-06-93	.020±.002	.024±.002	.026±.003	.026±.003	.021±.002
4-13-93	.014±.002	.018±.002	.018±.002	.016±.002	.019±.002
4-20-93	.021±.002	.014±.002	.008±.002	.021±.003	.015±.002
4-27-93	.017±.002	.018±.002	.016±.002	.023±.002	.019±.002
5-03-93	.013±.002	.016±.002	.020±.002	.019±.002	.008±.002
5-11-93	.021±.003	.020±.002	.021±.002	.040±.003	.021±.002
5-18-93	.020±.002	.016±.002	.019±.002	.023±.002	.017±.002
5-25-93	.013±.002	.012±.002	.019±.002	.019±.002	.017±.002
6-02-93	.012±.002	.011±.002	.016±.002	.020±.002	.014±.002
6-08-93	.011±.002	.013±.002	.013±.002	.017±.003	.016±.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
6-15-93	.023±.003	.021±.002	.022±.002	.025±.003	.021±.002
6-22-93	.012±.002	.011±.002	.013±.002	.015±.002	.014±.002
6-29-93	.021±.003	.018±.002	.021±.002	.020±.002	.019±.002
7-06-93	.020±.003	.021±.002	.025±.003	.026±.003	.024±.002
7-13-93	.014±.002	.016±.002	.015±.002	.019±.002	.023±.002
7-20-93	.015±.003	.020±.002	.021±.002	.023±.003	.022±.002
7-27-93	.022±.003	.024±.002	.021±.002	.032±.003	.019±.002
8-03-93	.016±.002	.017±.002	.017±.002	.018±.003	.018±.002
8-10-93	.012±.002	.013±.002	.015±.002	.016±.002	.018±.002
8-17-93	.016±.003	.026±.002	.026±.003	.025±.003	.026±.003
8-24-93	.026±.003	.022±.002	.023±.002	.024±.003	.026±.003
8-31-93	.026±.003	.027±.002	NO SAMPLE	.029±.003	.026±.003
9-07-93	.018±.003	.020±.002	.022±.003	.020±.003	.022±.003
9-14-93	.019±.003	.019±.002	.023±.003	.020±.003	.022±.002
9-21-93	.014±.003	.015±.002	.015±.003	.014±.003	.016±.002
9-28-93	.018±.003	.021±.002	.022±.003	.018±.003	.021±.002
10-05-93	.020±.003	.021±.002	.021±.003	.019±.003	.021±.002
10-12-93	.031±.003	.025±.002	.030±.003	.034±.003	.032±.002
10-19-93	.035±.003	.030±.002	.035±.003	.054±.004	.043±.003
10-26-93	.042±.003	.033±.002	.041±.003	.063±.004	.042±.003
11-02-93	.049±.010	.011±.002	.019±.002	.022±.003	.019±.002
11-09-93	.019±.001	.021±.002	.021±.002	.024±.003	.020±.002
11-16-93	.033±.003	.026±.003	.025±.003	.028±.003	.027±.002

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

LOCATION START DATE END DATE	RADIO TOWER	LACBWR	TRAILER COURT	DAM NO. 8	LA CROSSE
	1-5-93 2-2-93	1-5-93 2-2-93	1-5-93 2-2-93	1-5-93 2-2-93	1-5-93 2-2-93
ISOTOPES/RL*					
Cs-134/10	<6.50E-4	<5.55E-4	<4.37E-4	<5.13E-4	<3.90E-4
Cs-137/20	<6.99E-4	<6.45E-4	<5.22E-4	<6.09E-4	<4.01E-4

*RL = REPORTING LEVEL

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

LOCATION START DATE END DATE	RADIO TOWER	LACBWR	TRAILER COURT	DAM NO. 8	LA CROSSE
	4-27-93	4-27-93	4-27-93	4-27-93	4-27-93
	6-1-93	6-1-93	6-1-93	6-1-93	6-1-93
ISOTOPES/RL*					
Cs-134/10	<4.76E-4	<5.80E-4	<4.35E-4	<4.89E-4	<4.49E-4
Cs-137/20	<7.7E-4	<8.92E-4	<6.97E-4	<7.46E-4	<6.6E-4

*RL = REPORTING LEVEL

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

LOCATION START DATE END DATE	RADIO TOWER	LACBWR	TRAILER COURT	DAM NO. 8	LA CROSSE
	6-29-93 8-2-93	6-29-93 8-2-93	6-29-93 8-2-93	6-29-93 8-2-93	6-29-93 8-2-93
ISOTOPES/RL*					
Cs-134/10	<5.03E-4	<7.15E-4	<4.71E-4	<4.60E-4	<4.53E-4
Cs-137/20	<6.51E-4	<7.10E-4	<5.28E-4	<5.98E-4	<4.88E-4

*RL = REPORTING LEVEL

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

LOCATION START DATE END DATE	RADIO TOWER	LACBWR	TRAILER COURT	DAM NO. 8	LA CROSSE
	8-2-93 8-31-93	8-2-93 8-31-93	8-2-93 8-31-93	8-2-93 8-31-93	8-2-93 8-31-93
ISOTOPES/RL*					
Cs-134/10	<8.60E-4	<7.94E-4	<6.27E-4	<7.60E-4	<5.22E-4
Cs-137/20	<1.26E-3	<1.21E-3	<8.69E-4	<1.21E-3	<8.42E-4

*RL = REPORTING LEVEL

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

LOCATION START DATE END DATE	RADIO TOWER	LACBWR	TRAILER COURT	DAM NO. 8	LA CROSSE
	8-31-93	8-31-93	8-31-93	8-31-93	8-31-93
	10-5-93	10-5-93	10-5-93	10-5-93	10-5-93
ISOTOPES/RL*					
Cs-134/10	<7.33E-4	<6.25E-4	<4.23E-4	<5.91E-4	<4.83E-4
Cs-137/20	<6.51E-4	<6.56E-4	<4.71E-4	<6.73E-4	<5.27E-4

*RL = REPORTING LEVEL

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

LOCATION START DATE END DATE	RADIO TOWER	LACBWR	TRAILER COURT	DAM NO. 8	LA CROSSE
	10-5-93	10-5-93	10-5-93	10-5-93	10-5-93
	11-2-93	11-2-93	11-2-93	11-2-93	11-2-93
ISOTOPES/RL*					
Cs-134/10	<9.40E-4	<8.63E-4	<4.81E-4	<6.28E-4	<5.42E-4
Cs-137/20	<9.55E-4	<9.34E-4	<4.72E-4	<6.53E-4	<5.66E-4

*RL = REPORTING LEVEL

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

LOCATION START DATE END DATE	RADIO TOWER	LACBWR	TRAILER COURT	DAM NO. 8	LA CROSSE
	11-29-93	11-29-93	11-29-93	11-29-93	11-29-93
	12-28-93	12-28-93	12-28-93	12-28-93	12-28-93
ISOTOPES/RL*					
Cs-134/10	<5.31E-4	<5.56E-4	<4.81E-4	<5.81E-4	<4.70E-4
Cs-137/20	<5.59E-4	<5.80E-4	<4.58E-4	<5.84E-4	<4.78E-4

*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 1-5-93 VICTORY	SAMPLE #2 1-5-93 DAM #8	SAMPLE #3 1-5-93 OUTFALL	SAMPLE #1 2-2-93 DAM #8	SAMPLE #2 2-2-93 OUTFALL	SAMPLE #3 2-2-93 VICTORY
ISOTOPES/RL *						
H-3/ 20000	< 252	< 252	< 252	< 256	< 256	< 256
Mn-54/1000	< 8.97	< 7.14	< 8.08	< 6.99	< 7.73	< 7.41
Co-60/300	< 12.1	< 13.6	< 11.5	< 15.5	< 15.9	< 15.7
Zn-65/300	< 18.1	< 18.8	< 18.9	< 18.2	< 15.8	< 22.4
Cs-134/30	< 7.28	< 8.39	< 7.90	< 7.99	< 7.90	< 8.86
Cs-137/50	< 8.65	< 8.31	< 8.40	< 7.55	< 7.94	< 8.89

* 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 3-2-93 VICTORY	SAMPLE #2 3-2-93 OUTFALL	SAMPLE #3 3-2-93 DAM #8	SAMPLE #1 4-6-93 VICTORY	SAMPLE #2 4-6-93 OUTFALL	SAMPLE #3 4-6-93 DAM #8
ISOTOPES/RL *						
H-3/ 20000	< 262	< 262	< 262	358	< 262	< 262
Mn-54/1000	< 7.39	< 7.66	< 7.78	< 6.25	< 7.21	< 7.31
Co-60/300	< 15.5	< 15.7	< 16.6	< 14.6	< 13.9	< 13.4
Zn-65/300	< 17.6	< 17.4	< 16.5	< 16.2	< 20.5	< 16.9
Cs-134/30	< 8.63	< 8.71	< 8.23	< 8.07	< 8.47	< 7.46
Cs-137/50	< 8.65	< 8.27	< 8.04	< 9.01	< 8.26	< 8.65

* 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 5-4-93 VICTORY	SAMPLE #2 5-4-93 OUTFALL	SAMPLE #3 5-4-93 DAM #8	SAMPLE #1 6-2-93 VICTORY	SAMPLE #2 6-2-93 OUTFALL	SAMPLE #3 6-2-93 DAM #8
ISOTOPES/RL *						
H-3/ 20000	< 263	< 263	< 263	< 256	< 256	< 256
Mn-54/1000	< 7.17	< 7.79	< 7.75	< 7.64	< 7.13	< 8.34
Co-60/300	< 16.9	< 17.4	< 18.1	< 11.2	< 10.9	< 10.8
Zn-65/300	< 18.8	< 17.8	< 16.9	< 15.4	< 17.1	< 18.2
Cs-134/30	< 7.46	< 7.99	< 6.82	< 9.23	< 8.31	< 8.15
Cs-137/50	< 7.94	< 8.06	< 8.27	< 8.89	< 8.27	< 8.40

* 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 7-6-93 VICTORY	SAMPLE #2 7-6-93 OUTFALL	SAMPLE #3 7-6-93 DAM #8	SAMPLE #1 8-3-93 DAM #8	SAMPLE #2 8-3-93 OUTFALL	SAMPLE #3 8-3-93 VICTORY
ISOTOPES/RL *						
H-3/ 20000	< 252	< 252	< 252	< 252	< 252	< 252
Mn-54/1000	< 6.93	< 5.87	< 7.39	< 7.62	< 9.27	< 9.41
Co-60/300	< 12.5	< 12.5	< 12.9	< 12.4	< 13.7	< 13.3
Zn-65/300	< 19.8	< 20.4	< 13.4	< 17.9	< 17.4	< 17.4
Cs-134/30	< 7.10	< 8.15	< 8.31	< 8.07	< 7.37	< 8.39
Cs-137/50	< 8.27	< 7.84	< 9.35	< 11.9	< 11.2	< 11.7

* 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 9-7-93 DAM #8	SAMPLE #2 9-7-93 OUTFALL	SAMPLE #3 9-7-93 VICTORY	SAMPLE #1 10-5-93 VICTORY	SAMPLE #2 10-5-93 OUTFALL	SAMPLE #3 10-5-93 DAM #8
ISOTOPES/RL *						
H-3/ 20000	479	383	308	< 285	335	< 285
Mn-54/1000	< 7.35	< 7.24	< 7.65	< 8.01	< 8.00	< 7.29
Co-60/300	< 14.3	< 13.7	< 13.0	< 13.7	< 15.8	< 14.0
Zn-65/300	< 17.1	< 18.0	< 18.5	< 17.9	< 20.7	< 25.0
Cs-134/30	< 6.90	< 7.00	< 8.63	< 9.16	< 8.31	< 8.15
Cs-137/50	< 7.55	< 8.52	< 7.55	< 7.53	< 9.57	< 7.61

* 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 11-1-93 DAM #8	SAMPLE #2 11-1-93 OUTFALL	SAMPLE #3 11-1-93 VICTORY	SAMPLE #1 12-7-93 DAM #8	SAMPLE #2 12-7-93 OUTFALL	SAMPLE #3 12-7-93 VICTORY
ISOTOPES/RL *						
H-3/ 20000	< 295	< 295	< 295	< 284	< 284	< 284
Mn-54/1000	< 8.47	< 10.0	< 9.18	< 3.13	< 3.23	< 3.09
Co-60/300	< 10.9	< 9.25	< 11.0	< 1.78	< 1.69	< 2.00
Zn-65/300	< 23.7	< 27.9	< 23.3	< 4.25	< 4.38	< 4.03
Cs-134/30	< 7.73	< 9.44	< 8.39	< 2.36	< 2.32	< 2.14
Cs-137/50	< 7.49	< 7.63	< 8.27	< 2.50	< 2.38	< 2.28

* RL = REPORTING LEVEL

TABLE 14

RESULTS OF ANALYSIS OF MILK SAMPLES IN THE VICINITY OF LACBWR
 (Report Concentrations in pCi/Liter)

SAMPLE LOCATION	COLLECTION DATE	ISOTOPES/RL *		
		Cs-134/60	Cs-137/70	Mn-54
PEDRETTI	1-12-93	< 8.55	< 11.8	6.51 ± 3.99
PEDRETTI	2-9-93	< 7.46	< 7.73	
PEDRETTI	3-9-93	< 7.28	< 8.57	
A. MALIN	4-6-93	< 6.99	< 8.27	
P. MALIN	5-10-93	< 7.90	< 8.05	
PEDRETTI	6-7-93	< 7.82	< 11.7	
P. MALIN	7-13-93	< 8.47	< 7.68	
A. MALIN	8-25-93	< 8.07	< 8.60	
PEDRETTI	9-13-93	< 8.15	< 8.06	
A. MALIN	10-11-93	< 8.31	< 8.52	
P. MALIN	11-8-93	< 2.59	< 2.57	
A. MALIN	12-13-93	< 7.49	< 7.34	

* RL = REPORTING LEVEL

TABLE 15
 FISH SAMPLE ACTIVITY IN THE VICINITY OF LACBWR
 (Report Concentrations in pCi/Kg)

COLLECTION DATE: FISH SPECIES:	SAMPLE #1	SAMPLE #2	SAMPLE #1	SAMPLE #2	SAMPLE #1	SAMPLE #2
	3-2-93	3-2-93	6-4-93	6-4-93	9-28-93	9-28-93
	CARP	BUFFALO	WALLEYE	CARP	CARP	WALLEYE
ISOTOPES/RL*						
Mn-54/3E4	<12.3	<10.2	<11.4	<11.0	<8.39 ± 5.03	<15.7
Co-60/1E4	<22.0	<19.2	<21.1	<19.3	67.6 ± 14.0	<29.5
Zn-65/2E4	<29.4	<25.1	<29.3	<27.7	<30.8	<41.0
Cs-134/1E3	<10.4	<9.45	<11.3	<10.4	<10.8	<14.0
Cs-137/2E3	<10.0	<9.69	<11.5	<10.2	<14.1	<16.9

*RL =REPORTING LEVEL

TABLE 15
 FISH SAMPLE ACTIVITY IN THE VICINITY OF L.A. BWR
 (Report Concentrations in pCi/Kg)

COLLECTION DATE: FISH SPECIES:	SAMPLE #1	SAMPLE #2	SAMPLE #1	SAMPLE #2	SAMPLE #1	SAMPLE #2
	10-20-93 CARP	10-20-93 WALLEYE				
ISOTOPES/RL*						
Mn-54/3E4	<10.1	<23.5				
Co-60/1E4	<18.1	<42.7				
Zn-65/2E4	<33.6	<60.8				
Cs-134/1E3	<9.54	<26.3				
Cs-137/2E3	<10.7	<21.5				

*RL =REPORTING LEVEL

TABLE 16
VEGETATION SAMPLE ACTIVITY IN THE VICINITY OF LACBWR
 (Report Concentrations in pCi/Kg)

COLLECTION DATE	SAMPLE # <u> 1 </u>	SAMPLE # <u> 2 </u>	SAMPLE # <u> </u>	SAMPLE # <u> </u>	SAMPLE # <u> </u>	SAMPLE # <u> </u>
	<u> 5/9/93 </u>	<u> 5/10/93 </u>				
	<u> DAM #8 </u>	<u> Boat Landing S. of Plant </u>				
ISOTOPES						
	NO	NO				
	ACTIVITY	ACTIVITY				
	ABOVE	ABOVE				
	MDA	MDA				
	FOUND	FOUND				

*RL - REPORTING LEVEL