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April 26,2001

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United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50A54 and STN 50A55

Subject: 2000 Annual Radioactive Effluent Release Report

Enclosed is the Annual Radioactive Effluent Release Report for Byron Station. This report is being submitted in accordance with 10 CFR 50.36a, "Technical specifications on effluents from nuclear power reactors," and includes a summary of radiological liquid and gaseous effluents and solid waste released from the site from January 2000 through December 2000.

If you have any questions regarding this information, please contact P. Reister, Regulatory Assurance Manager, at (815) 234-5441, extension 2280.

Respectfully,

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Site Vice President
Byron Nuclear Generating Station

RP L/DATIrf/dpk

Attachment

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector- Byron Station
Director of Nuclear Reactor Regulations - U.S. Nuclear Regulatory
Commission

Safety
Region V

NRR Project Manager - Byron Station (w/o enclosure)
Illinois Department of Nuclear Safety - Office of Nuclear Facility
U.S. Environmental Protection Agency, Air and Radiation Division -

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BYRON NUCLEAR POWER STATION
UNIT 1/2 DOCKET NUMBER STN-504541455
RADIOACTIVE EFFLUENT RELEASE REPORT
January', 2000 THROUGH December, 2000
Supplemental Information

1. Regulatory Limits

- a. Fission and activation gases:
 - Tech Spec Whole Body = 500 mrem/year
 - Skin = 3000 mrem/year
 - 10CFR50 Gamma = 5 mrad/quarter; 10 mrad/year
 - Beta = 10 mrad/quarter; 20 mrad/year
- b. Iodine: (summed with particulate, see below)
- c. Particulates with half-lives > 8 days:
 - Tech Spec Organ = 1500 mrem/year
 - 10CFR50 Organ = 7.5 mrem/quarter; 15 mrem/year
- d. Liquid Effluents:
 - 10CFR50 Whole Body = 1.5 mrem/quarter; 3 mrem/year
 - Organ = 5 mrem/quarter; 10 mrem/year
- e. Total Effective Dose Equivalent:
 - 10CFR20 TEDE = 100 mrem/year

2. Maximum Permissible Concentration

- a. Fission and Activation Gases: 10CFR20 Appendix B Table 2
- b. Iodine: 10CFR20 Appendix B Table 2
- c. Particulates: 10CFR20 Appendix B Table 2
- d. Liquid Effluents: 10 X 10CFR20 Appendix B Table 2

3. Average Energy: This item is not applicable. Release rates are calculated using an isotopic mix rather than average energy.

4. Measurements and Approximations of Total Radioactivity

a. Fission and Activation Gases: Prior to release, the isotopic content is determined. Released activity is calculated using volume of release, which is determined by the change in tank or containment pressure. Additional methods of calculation utilize historical data and assign an isotopic mix which is representative of normal vent stack isotopics.

b. Particulate, Tritium and Iodine sampling media for the plant vent stacks are collected and isotopically analyzed weekly for the plant vent stacks.

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UNIT 1/2 DOCKET NUMBER STN-50-454/455
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Supplemental Information

C. Liquid effluents: Batch releases are isotopically analyzed prior to release. Total release activity is calculated using volume of release. Total tritium activity released is calculated from the highest of a monthly circulating water blowdown composite activity or a sum of the input composite activities.

d. Analysis results which are less than the lower limit of detection (<LLD) are reported in units of Ci/mI unless otherwise noted. All LLD values are listed in Attachment A.

5. Batch Releases:

a. Liquid:

1. Number of batch releases = 112
2. Total time period for batch releases = 14,091 minutes
3. Maximum time period for a batch release = 438 minutes
4. Average time period for a batch release = 126 minutes
5. Minimum time period for a batch release = 45 minutes
6. Average stream flow during periods of release of effluent into a flowing stream = 214 m /sec, based on information from the National Weather Service or Army Corps of Engineers for the Rock River.

b. Gaseous:

1. Number of batch releases = 283
2. Total time period for batch releases = 47,226 minutes
3. Maximum time period for a batch release = 9,041 minutes
4. Average time period for batch releases = 167 minutes
5. Minimum time period for a batch release = 34 minutes

6. Abnormal Releases:

a. Liquid - None

b. Gaseous - Unit I B Power Operated Atmospheric Release Valve Steam Leak Release
Data is listed in Attachment B. Dose attributed to these releases is included in dose

calculations.

c. Gaseous - Unit 2 C Power Operated Atmospheric Release Valve
Steam Leak Release
data is listed in Attachment C. Dose attributed to these
releases is included in dose
calculations.

d. Gaseous - Unit 1/2 Radioactive Waste Volume Reduction
Effluent Pathway Ground is
listed in Attachment D. Dose attributed to these releases is
included in dose
calculations.

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BYRON NUCLEAR POWER STATION
UNIT 1 DOCKET NUMBER STN-5~454
RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY, 2000 THROUGH DECEMBER, 2000

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

Quarter	4th Quarter	UNITS	1st Quarter	2nd Quarter	3rd
A~ FISSION AND ACTIVATION GAS RELEASES					
		1. Total Release Activity: I Ci	I	1.44E-01	I
1.76E-01	3.19E-01 I	5.91E-01			
		2. Maximum Release Rate for Quarter:	uCilsec		
2.06E+00	1 .77E+00	3.10E+00	1 .23E+00		
3. % of Tech. Spec. Limits *					
		a. Whole Body (500 mremlr):	I I	0.00	0.00 I
0.00	I	0.00			
		b. Skin (3000 mremlr):	0.00	0.00	0.00
0.00					
4. % of 10CFR50 Limits					
		a. Gamma Quarterly (5 mrad):	0.00	0.00	0.00
0.00					
		b. Beta Quarterly (10 mrad):	0.00	0.00	0.00
0.00					
		c. Gamma Annual (10 mrad):	0.00	0.00	0.00 I
0.00					
		d. Beta Annual (20 mrad):	0.00	0.00	0.00
0.00					
B. IODINE RELEASES					
		1. Total 1-131 Activity: I Ci	<LLD I	<LLD I	<LLD
1.54E-06	I				

2. Average I-i 31 Release Rate: uCi/sec 0.00E+00 0.00E+00
 0.00E+00 1.94E-07
 C. PARTICULATE (>8 day half-life) RELEASES **
 1. Total Particulate Activity: Ci <LLD <LLD
 9.91E-07 1.78E-06
 2. Average Particulate Release Rate: J uCi/sec 0.00E+00 0.00E+00
 I .25E-07 2.24E-07
 3. Gross Alpha Activity for Quarter: Ci <LLD <LLD
 <LLD <LLD
 D. TRITIUM RELEASES
 1. Total Tritium Activity: Ci I 1.53E-01 I
 1.73E-01 I 1.88E-01 I 3.31E-01
 2. Average Tritium Release Rate: uCi/sec 1 .95E-02
 2.20E-02 2.36E-02 4.16E-02

* % of Tech. Spec. limits is based on the maximum release rate for the period considered.

** Iodine, particulate, and tritium are expressed as a total limit.
See Step E.

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 UNIT 1 DOCKET NUMBER STN-50-454
 RADIOACTIVE EFFLUENT RELEASE REPORT
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GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES (CONT.)
 UNITS 1st Quarter 2nd Quarter 3rd

Quarter 4th Quarter

E. TOTAL OF IODINE, PARTICULATE (>8 day half-life), AND TRITIUM
 RELEASES
 1. Total Activity: Ci 1 .53E-011 .73E-01 1 .8BE-01 3.31 E-
 01
 2. % of Tech. Spec. Limits
 a. Any Organ (1500 mrem/yr): 0.00 0.00 0.00 0.00
 3. % of 10CFR50 Limit
 a. Quarterly Any Organ
 (7.5 mrem): 0.00 0.00 0~00 0.00
 b. Annua Any Organ
 (15 mrem): 0.00 0.00 0.00 0.00

GASEOUS EFFLUENTS - VENT STACK RELEASES - BATCH MODE

F. FISSION AND ACTIVATION GAS RELEASES

Ar-41:	Ci	<LD	3.85E-03	I	.59E-02	2.25~E-04	
Kr-85:	Ci	<~LLD	<LLD	~<~LLD	___<~LLD		
Kr-85m:	Ci	<ILD	<LLD	4.05E-04	5.49E-05		
Kr-87:	Ci	<LLD	<LLD	~<~LLD	___<~LLD		
Kr-88:	Ci	<TLD	<LLD	2.97E-04	<ILD		
Xe-131m:	Ci	~LLD	<LLD	~LLD	~<~LLD		
Xe-133:	Ci	1.19E-01	6.98E-02	2.24E-01	6.62E-02		
Xe-133m:	Ci	5.5~5E-04	1.83E-04	3.17E-03	6.58~E-03		
Xe-135:	Ci	4.4~3E-04	8.44E-05	2.43E-02	3.8~8E-03		
Xe-i 38:	Ci	<~LLD	<LLD	~	<~LLD		

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GASEOUS EFFLUENTS - VENT STACK RELEASES - BATCH MODE (CONT.)
UNITS 1st Quarter 2nd Quarter 3rd

Quarter 4th Quarter

G. IODINE RELEASES

1-131:	Ci	*	[*	I	*	*
1-133:	I Ci	I	*	I	*	I	*
1-135:	Ci		j	*	I	*	*

* Valuerreported as CONTINUOUS

RELEASE MODE.

H. PARTICULATE (>8 day half-life) RELEASES

Sr-89:	Ci	I	*]	*	I	*	I	*
Sr-90:	Ci		*	j	*	I	*		*

* Value reported as CONTINUOUS RELEASE

MODE.

GASEOUS EFFLUENTS - VENT STACK RELEASES - CONTINUOUS MODE

3. % of IOCFR50 Limits				
a. Quarterly Whole Body	0.04	0.05	0.04	0.02
(1.5 mrem):				
b. Quarterly Any Organ	0.02	0.01	0.01	0.01
(5.0 mrem):				
c. Annual Whole Body	0.02	0.04	0.06	0.08
(3.0 mrem):				
d. Annual Any Organ	0.01	0.01	0.02	0.02
(10.0 mrem):				

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BYRON NUCLEAR POWER STATION
UNIT I DOCKET NUMBER STN-50-454
RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY, 2000 THROUGH DECEMBER, 2000

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES (CONT.)
UNITS 1st Quarter 2nd Quarter 3rd

Quarter 4th Quarter
M. TRITIUM

3.62E+02	1. Total Activity Released: I	Ci	12.87E+02	I		
	I 3.33E+02 I 1.75E+02 I					
05	2. Average Concentration uCi/mI	8.60E-05	1.10E-04	9.71E-05	5.60E-	
	Released For Quarter:					
	3% of Tech Spec Limit	0.86	1.10	0.97	0.56	
	(1.00E-2 uCi/mI):					
	N. DISSOLVED NOBLE GASES					

04	1. Total Activity Released: I	Ci	11.33E-03	I	2.82E-	
I	1.2BE-03 6.37E-03 I					
09	2. Average Concentration uCi/mI	3.97E-10	8.54E-11	3.75E-10	2.04E-	
	Released For Quarter:					
0.00	3. % of Tech. Reqt. Manual Limit		0.00	0.00	0.00	
	(2.00E-4 uCi/mI):					
	0. GROSS ALPHA					

<LLD	1. Total Activity Released: I	Ci I	<LLD	I	<LLD	I
<LLD						
0.00E+00	2. Average Concentration	uCi/mI	0.00E+00	0.00E+00	0.00E+00	
	Released For Quarter:					
.45E+06	P. VOLUME OF WASTE	liters	7.61 E+05	8.07E+05	1.58E+06	
	RELEASED PER UNIT:					
3.13E+09	Q. VOLUME OF DILUTION	liters	3.34E+09	3.30E+09	3.43E+09	
	WATER PER UNIT:					

LIQUID EFFLUENTS - CONTINUOUS MODE

D. TRITIUM RELEASES

	1. Total Tritium Activity:	I	Ci	I	3.85E-01	I
4.32E-01	I	1	.05E+00	I	3.80E-01	
	2. Average Tritium Release Rate:		uCi/sec		4.90E-02	5.49E-
02	1	.32E-01		4.78E-02		

* % of Tech. Spec. limits is based on the maximum release rate for the period considered.

Iodine, particulate, and tritium are expressed as a total limit. See Step E.

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 UNIT 2 DOCKET NUMBER STN-50-455
 RADIOACTIVE EFFLUENT RELEASE REPORT
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GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES (CONT.)
 UNITS 1st Quarter 2nd Quarter 3rd

Quarter 4th Quarter

E. TOTAL OF IODINE, PARTICULATE (>8 day half-life), AND TRITIUM RELEASES

01	1. Total Activity:	Ci	3.85E-01	4.32E-011	.05E+00	3.80E-
	2. % of Tech. Spec. Limits					
	a. Any Organ (1500 mrem/yr):		0.00	0.00	0.00	0.00
	3. % of 10CFR50 Limit					
	a. Quarterly Any Organ (7.5 mrem):		0.00	0.01	0.02	0.00
	a. Annual Any Organ (15 mrem):		0.00	0.00	0.02	0.02

GASEOUS EFFLUENTS - VENT STACK RELEASES - BATCH MODE

F. FISSION AND ACTIVATION GAS RELEASES

Ar-41:	CT	<LLD	1.92E-03	1.25E-02	5.60E-03
Kr-85:	CT	<LLD	<LLD	<LLD	<LLD
Kr-85m:	CT	<LLD	<LLD	4.05E-04	5.49E-05
Kr-87:	CT	<LLD	<LLD	<LLD	<LLD
Kr-88:	CT	<LLD	<LLD	2.97E-04	<LLD
Xe-131m:	CT	<LLD	<LLD	<LLD	<LLD

Xe-i 33: Ci 7.08E-02 2.78E-02 1 .33E-016.74E-02
 Xe-133m: Ci 5.55E-04 1.83E-04 3.17E-03 1.35E-03
 Xe-i 35: Ci 1 .82E-041 .44E-031 .28E-023.88E-03
 Xe-138: Ci <LLD <LLD <LLD <LLD

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GASEOUS EFFLUENTS - VENT STACK RELEASES - BATCH MODE (CONT.)
 UNITS 1st Quarter 2nd Quarter 3rd

Quarter 4th Quarter

G. IODINE RELEASES

1-133: CC: * I I
 *
 1-135: Ci * *j I *
 * Value reported as CONTINUOUS RELEASE

MODE.

H. PARTICULATE (>8 day half-life) RELEASES

Sr-89: I Ci I * I * I * I *
 Sr-90: Ci * * I * *
 * Value reported as CONTINUOUS RELEASE

MODE.

GASEOUS EFFLUENTS - VENT STACK RELEASES - CONTINUOUS MODE

I. FISSION AND ACTIVATION GAS RELEASES

Xe-i 33: Ci 4.36E-021 .74E-01 7.68E-02 4.97E-

01

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 RADIOACTIVE EFFLUENT RELEASE REPORT
 JANUARY, 2000 THROUGH DECEMBER, 2000

GASEOUS EFFLUENTS - VENT STACK RELEASES - CONTINUOUS MODE (CONT.)

UNITS 1st Quarter 2nd Quarter 3rd

Quarter 4th Quarter

J. IODINE RELEASES

1-131: Ci <LLD <LLD <LLD [<LLD
 1-133: Ci <LLD I<LLDJ 1 .39E-06 [<LLD
 1-135: Ci <LLD 1<LLDt <LLD [<LLD

1

]

K. PARTICULATE (>8 day half-life) RELEASES

	Sr-89:	Ci	<LLD	~	<LLD	<LLD	
[___<LLD]							
	Sr-90:	Ci	[<LLD	~	<LLD	<LLD	J
<LLD j							
2.45E-06 j	Co-58	Ci	<LLD		<LLD	<LLD	

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

L. FISSION AND ACTIVATION PRODUCT RELEASES

3.71E-02 I	1. Total Activity Released:	Ci	I 5.19E-02	I 1.49E-02	I 4.38E-03	
08	2. Average Concentration	uCi/mI	1.55E-08	4.52E-09	1.28E-09	1.19E-
	Released For Quarter:					
	3. % of 10CFR50 Limits					
	a. Quarterly Whole Body		0.04	0.05	0.04	0.02
	(1.5 mrem):					
	b. Quarterly Any Organ		0.02	0.01	0.01	0.01
	(5.0 mrem):					
	c. Annual Whole Body		0.02	0.04	0.06	0.08
	(3.0 mrem):					
	d. Annual Any Organ		0.01	0.01	0.02	0.02
	(10.0 mrem):					

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 BYRON NUCLEAR POWER STATION
 UNIT 2 DOCKET NUMBER STN-50-455
 RADIOACTIVE EFFLUENT RELEASE REPORT
 JANUARY, 2000 THROUGH DECEMBER, 2000

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES (CONT.)
 UNITS 1st Quarter 2nd Quarter 3rd

Quarter	4th Quarter				
	M. TRITIUM				
<hr/>					
.75E+02 I	1. Total Activity Released:	Ci	I 2.87E+02	I 3.62E+02	I 3.33E+02 I 1
05	2. Average Concentration	uCi/mI	8.60E-05	1.10E-04	9.71E-05 5.60E-
	Released For Quarter:				

		3. % of Tech Spec Limit	0.86	1.10	0.97	0.56
		(1 .00E-2 uCilmI):				
		N. DISSOLVED NOBLE GASES				

04	I	1. Total Activity Released:	I	Ci	I	1 .33E-03	2.82E-
		1 .28E-03 I	6.37E-03 I				
09		2. Average Concentration uCilmI	3.97E-10	8.54E-11	3.75E-10	2.04E-	
		Released For Quarter:					
0.00		3. % of Tech. Reqt. Manual Limit			0.00	0.00	
		0.00					
		(2.00E-4 uCilmI):					
		0. GROSS ALPHA					

I	<LLD	1. Total Activity Released:	I	Ci	I	<LLD	I	<LLD	I	<LLD
0.00E+00		2. Average Concentration	uCilmI	0.00E+00	0.00E+00	0.00E+00				
		Released For Quarter:								
.45E+06		P. VOLUME OF WASTE	liters	7.61 E+05	8.07E+05	1 .58E+06				
		RELEASED PER UNIT:								
3.13E+09		Q. VOLUME OF DILUTION	liters	3.34E+09	3.30E+09	3.43E+09				
		WATER PER UNIT:								

LIQUID EFFLUENTS - CONTINUOUS MODE

R. LIQUID EFFLUENTS

I	Fe-55:	C	I	*	*	*	I	*
I	Sr-89:	C:	I	*	*	*	I	*
	Sr-90:	Ci		*	*	*		*

* Value reported as LIQUID EFFLUENTS -

BATCH MODE

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UNIT 1/2 DOCKET NUMBER STN-50454/455
RADIOACTIVE EFFLUENT RELEASE REPORT
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A~ Changes to Radioactive Waste Process Control Program for 2000 were primarily administrative. The Process Control Procedures were standardized to a corporate format. Operationally, the Process Control Program remains unchanged.

In addition, a filtration system was installed to treat floor equipment drain water.

B. Error Analysis

The following is an estimate of the errors associated with effluent monitoring and analysis. The estimate is calculated using the square root of the sum of the squares methodology.

1. Gaseous Effluents

Sampling error = 1 to 3.5%
Calibration error = 5%
Counting statistics error = 5%
Vent stack flowrates error = 1.5%
Total error = 7-8%

2. Liquid Effluents

Sampling error = 1%
Calibration error = 5%
Sample volume error = 1 %
Discharged volume error = 2%
Counting statistics error = 0.41 %
Total error = 5.6%

3. Waste Resin

Sample prep = 5%
Sampling error = 1 %
Counting statistic error = 1 %
Weight error = 0.5%
Calibration error = 5%
Total error = 7.2%

4. DAW, Mechanical Filters, and Contaminated Metal

Counting statistic error = 1 %
Calibration error = 5%
Instrument calibration error = 10%
Total error = 11 %

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C. Meteorological and environmental impact information is reported in the Station Annual

Radiological Environmental Operating Report as required by Technical Specification 5.6.2.

D. No limits were exceeded in liquid hold up tanks as stated in Technical Specification

5.5.12 or in waste gas decay tanks as stated in Technical Specification 5.5.12.

E. There were no irradiated fuel shipments during this period.

F. There were no elevated releases. All releases are considered vent or ground level releases.

G. No liquid or Gaseous Effluent Monitor exceeded the specified LCO time limit.

H. In July of 2000, the REMP control sample for Milk was changed. The previous collection site opted out of the program. The current location is in Sector D at a distance of 20.6 km.

J. Attached are Offsite Dose Calculations for January through December of 2000.

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Attachment B, 2000 Radioactive Effluent Release Report

BYRON NUCLEAR POWER STATION
UNIT 1, (DOCKET NUMBER STN~0~54)
RADIOACTIVE EFFLUENT RELEASE REPORT
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1B POWER OPERATED ATMOSPHERIC RELEASE VALVE STEAM LEAK

In January 1999, it was discovered that the B power operated atmospheric release valve (PORV) was whisping steam. After multiple attempts at repairs, the PORV would leak steam when in the unisolated position. The PORV was repaired on June 9, 2000. The following is the analysis of this leak and allributed dose to an off-site recipient during the year 2000.

It was determined that the leak had a flow rate of 0.05 ft3lmin. A radiological isotopic analysis from the steam jet air ejectors was used to determine the nuclide composition and associated concentrations.

With this information, it was determined that:

IsotoDe	Units	Activity
Ar-41	Ci	7.96E-3
Xe-133	Ci	1.12E-4
Xe-135	Ci	9.88E-4
Xe-135m	Ci	1.73E-4
Total	Ci	9.24E-3

was released.

Since the radionuclide composition of the steam was Noble Gas, all four off-site recipient models were calculated

to have received the same dose. The table, below, shows the calculated dose for the two quarters to the highest theoretical individual.

	First Quarter	Second Quarter
Gamma (mrad)	1.51E-6	1.17E-6
Beta (mrad)	2.10E-6	1.61E-6
Total Body (mrem)	1.14E-6	8.74E-7
Skin (mrem)	2.88E-6	2.21 E-6

The percentage of the respective 10 CFR 50 Design Objectives is:

	Quarterly Objective	First Quarter	Second Quarter
Gamma	5.0 mrad	0.00	0.00
Beta	10.0 mrad	0.00	0.00
Total Body	2.5 mrem	0.00	0.00
Skin	7.5 mrem	0.00	0.00

BYRON NUCLEAR POWER STATION
UNIT 2, (DOCKET NUMBER STN~0~55)
RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY, 2000 THROUGH DECEMBER, 2000

2C POWER OPERATED ATMOSPHERIC RELEASE VALVE STEAM LEAK

In July 2000, it was discovered that the C power operated atmospheric release valve (PORV) was whispering steam. This leak continued through the remainder of the calendar year. The following is the analysis of this leak and attributed dose to an oft-site recipient during the year 2000.

It was determined that the leak had a flow rate of 0.5 ft³/min. A radiological isotopic analysis from the steam jet air ejectors was used to determine the nuclide composition and associated concentrations.

With this information, it was determined that:

IsotoDe	Units	Activity
Ar-41	Ci	1.06E-3
Total	Ci	1.06E-3

was released.

Since the radionuclide composition of the steam was Noble Gas, all four off-site recipient models were calculated to have received the same dose. The table, below, shows the calculated dose for the two quarters to the highest theoretical individual.

	Third Quarter	Fourth Quarter
Gamma (mrad)	1.46E-7	1.95E-7
Beta (mrad)	1.92E-7	2.55E-7
Total Body (mrem)	1.10E-7	1.47E-7
Skin (mrem)	2.71 E-7	3.61 E-7

The percentage of the respective 10 CFR 50 Design Objectives is:

	Quarterly Objective	Third Quarter	Fourth Quarter
Gamma	5.0 mrad	0.00	0.00
Beta	10.0 mrad	0.00	0.00
Total Body	2.5 mrem	0.00	0.00
Skin	7.5 mrem	0.00	0.00

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 UNIT 1/2, (DOCKET NUMBER STN~04541455)
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 JANUARY, 2000 THROUGH DECEMBER, 2000

RADIOACTIVE WASTE VOLUME REDUCTION EFFLUENT PATHWAY

In September, 2000, while performing a radioactive waste shipment, the doors that connect the inner radioactive waste volume reduction building to the outer truck bay and the outer truck bay to the environment were open simultaneously. This configuration was put into place to accommodate the movement of a cask containing radioactive waste from the inner building to the exterior of the building in preparation for shipment. During this

evolution approximately 55 nanoCuries were calculated to have been released. The radionuclide analysis showed a make up of:

Isotope	Units	Activity
Co-58	Ci	5.52E-8

The above data was used to calculate the 10 CFR 50 maximum dose to the organs. The following table lists the organ dose, in mrem, to the maximally exposed infant, child, teenager, and adult member of the public. This calculated dose would be assigned to both units since the Volume Reduction Building is common to both units.

DOSE TO THE MAXIMALLY EXPOSED ORGAN BY AGE GROUP	% of 10 CFR 50 Quarterly mrem Design Objectives (7.5 mrem)		
Infant	7.53E-9		0.00
Child	8.73E-9		0.00
Teenager	9.59E-9	0.00	
Adult	8.08E-9		0.00

UNIT: 1
PERIOD: 01/01/00 12/31/00
NAME: ROBINSON
REPORT: ANNUAL
MODE: ACTUAL

STATION: BYRON STATION
UNIT: 2
PERIOD: 01/01/00 12/31/00
NAME: ROBINSON
REPORT: ANNUAL
MODE: ACTUAL

STATION: BYRON STATION
UNIT: 1
PERIOD: 01/01/00 12/31/00
NAME: ROBINSON
REPORT: ANNUAL
MODE: ACTUAL

STATION: BYRON STATION
UNIT: 2
PERIOD: 01/01/00 12/31/00
NAME: ROBINSON
REPORT: ANNUAL
MODE: ACTUAL

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Total Effective Dose Equivalent - 10CFR20 Listing

STATION: BYRON STATION
UNIT: 1
PERIOD: 01/01/00 12/31/00
NAME: ROBINSON
REPORT: ANNUAL
MODE: ACTUAL

For ADULT dose calculations, the included pathways are:

INHALATION
MILK
PRODUCE
VEGETABLES
MEAT
GROUND DEPOSITION
FISH
WATER
SKYSHINE
WHOLE BODY

Airborne Effluents are complete from 01/01/00 to 12/31/00
Aquatic Effluents are complete from 01/01/00 to 12/31/00
Skyshine entries are complete from N/A to N/A

10 CFR 20 COMPLIANCE ASSESSMENT

PERIOD OF ASSESSMENT 01/01/00 TO 12/31/00

CALCULATED 02/28/01

1. 10 CFR 20.1301 (a) (1) Compliance
Total Effective Dose Equivalent, mrem/yr 1.79E-03
10 CFR 20.1301 (a) (1) limit mrem/yr 100.0
% of limit 0.00

Compliance Summary - 10CFR20

	1st	2nd	3rd	4th	% of
	Qtr	Qtr	Qtr	Qtr	Limit
TEDE	4.32E-04	4.89E-04	4.96E-04	3.79E-04	0.00

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

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Total Effective Dose Equivalent - 10CFR20 Listing

STATION: BYRON STATION
UNIT: 2
PERIOD: 01/01/00 12/31/00
NAME: ROBINSON
REPORT: ANNUAL
MODE: ACTUAL

For ADULT dose calculations, the included pathways are:

INHALATION
MILK
PRODUCE
VEGETABLES
MEAT
GROUND DEPOSITION
FISH
WATER
SKYSHINE
WHOLE BODY

Airborne Effluents are complete from 01/01/00 to 12/31/00

Aquatic Effluents are complete from 01/01/00 to 12/31/00

Skyshine entries are complete from N/A to N/A

10 CFR 20 COMPLIANCE ASSESSMENT

PERIOD OF ASSESSMENT 01/01/00 TO 12/31/00

CALCULATED 02/28/01

1. 10 CFR 20.1301 (a) (1) Compliance
Total Effective Dose Equivalent, mrem/yr 2.73E-03
10 CFR 20.1301 (a) (1) limit mrem/yr 100.0
% of limit 0.00

Compliance Summary 10CFR20

	1st	2nd	3rd	4th	% of
	Qtr	Qtr	Qtr	Qtr	Limit
TEDE	4.87E-04	6.41E-04	1.19E-03	4.15E-04	0.00

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

