



Entergy

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10CFR72.44(d)(3)

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   RI U2  
   Intern  
   ROA  
   File/Tes.

OCAN020405

February 27, 2004

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-001

Subject: Annual Radioactive Effluent Release Report for 2003  
Arkansas Nuclear One - Units 1 and 2  
Docket Nos. 50-313 and 50-368  
License Nos. DPR-51 and NPF-6

Dear Sir or Madam:

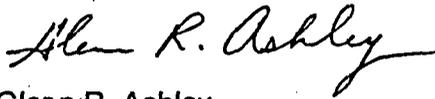
Arkansas Nuclear One, Units 1 & 2 (ANO-1 and ANO-2) Technical Specifications (TSs) 5.6.3 and 6.9.3, respectively, require the submittal of an Annual Radioactive Effluent Release Report. 10CFR72.44(d)(3) also requires the annual submittal of a summary of effluents from the independent spent fuel storage facility. The purpose of this letter is to fulfill these reporting requirements for the 2003 calendar year at ANO. Liquid and gaseous release data show that the dose from both ANO-1 and ANO-2 was considerably below the Offsite Dose Calculation Manual (ODCM) limits, while no effluents were attributed to the spent fuel stored in the independent spent fuel storage installation. This data reveals that the radioactive effluents had an overall minimal dose contribution to the surrounding environment. Pursuant to ANO-1 TS 5.5.1 and ANO-2 TS 6.14, the ODCM is also submitted as an attachment to the Annual Radioactive Effluent Release Report.

ANO discovered that a calculational error resulted in previous Annual Radioactive Effluent Release Reports containing discrepancies regarding the average time of liquid and gaseous releases, as reported in Sections 3 and 4, "Summary of Liquid Effluent Data" and "Summary of Gaseous Effluent Data," respectively. Since these errors were determined to be insignificant and had no impact on reported dose, corrected values will not be submitted. This condition has been corrected for the current and future submittals. Should you have any questions regarding this report, please contact Dee Hawkins at (479) 858-5589.

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There are no new commitments contained in this submittal.

Sincerely,



Glenn R. Ashley  
Manager, Licensing

GRA/dh  
Attachments

cc: Dr. Bruce S. Mallett  
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U. S. Nuclear Regulatory Commission  
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Attachment 1  
to OCAN020405

Annual Radioactive Release Report for 2003

**ARKANSAS NUCLEAR ONE**

**UNIT 1 AND UNIT 2**

**OPERATING LICENSE NOS. DPR-51 AND NPF-6**

**ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT**

**JANUARY 1 THROUGH DECEMBER 31, 2003**

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## 8. SOLID WASTE SUMMARY

As required by Regulatory Guide 1.21, Rev. 1, a summary of data for solid wastes shipped offsite is provided in the annual Radioactive Effluent Release Report.

This summary covers shipments from January 1 through December 31, 2003. The summary for solid waste shipments is as follows:

REGULATORY GUIDE 1.21 REPORT  
EFFLUENT AND WASTE DISPOSAL ANNUAL SUMMARY REPORT  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS  
JANUARY 1, 2003 THROUGH JUNE 30, 2003

### A. Solid Waste Shipped Offsite for Burial or Disposal (Not Irradiated Fuel)

1. Type of Waste	Unit	6-Month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m <sup>3</sup> Ci	2.50E+02 2.72E+03	±2.5E+01
b. Dry compressible waste, contaminated equip, etc.	m <sup>3</sup> Ci	3.62E+01 1.18E-02	±2.5E+01
c. Irradiated components, control rods, etc.	m <sup>3</sup> Ci	6.74E-01 1.04E+00	±2.5E+01
d. Other (describe): Oil	m <sup>3</sup> Ci	1.14E+01 2.82E-01	±2.5E+01

2. Estimate of Major Nuclide Composition (by Type of Waste)

a. Spent resins, filter sludges, evaporator bottoms, etc.

	%	Curies
C-14	3.06	8.33E+01
FE-55	11.22	3.06E+02
CO-58	4.70	1.28E+02
CO-60	6.31	1.72E+02
NI-59	7.60	2.07E+02
NI-63	48.90	1.33E+03
CS-134	1.02	2.77E+01
CS-137	14.63	3.99E+02

b. Dry compressible waste, contaminated equipment, etc.

	%	Curies
CR-51	18.82	2.23E-03
MN-54	1.94	2.29E-04
FE-55	18.54	2.19E-03
CO-58	26.90	3.18E-03
CO-60	3.07	3.64E-04
NI-59	17.90	2.12E-03
NI-63	3.98	4.71E-04
ZR-95	3.05	3.61E-04
NB-95	4.31	5.10E-04

c. Irradiated components, control rods, etc.

	%	Curies
MN-54	3.06	3.18E-02
FE-55	50.15	5.21E-01
CO-60	41.42	4.30E-01
NI-63	1.39	1.44E-02
PM-147	2.35	2.44E-02

d. Other (Oil)

	%	Curies
NI-59	97.01	2.74E-01
NI-63	1.61	4.54E-03

3. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
15	Cask	Barnwell, SC
32	Cask	Erwin, TN
1	Flatbed/Sea Van	Oak Ridge, TN
7	Flatbed/Sea Van	Memphis, TN

.B. Irradiated Fuel Shipments (Disposition)

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
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None		
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REGULATORY GUIDE 1.21 REPORT  
 EFFLUENT AND WASTE DISPOSAL ANNUAL SUMMARY REPORT  
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS  
 JULY 1, 2003 THROUGH DECEMBER 31, 2003

A. Solid Waste Shipped Offsite for Burial or Disposal (Not Irradiated Fuel)

1. Type of Waste	Unit	6-Month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m <sup>3</sup>	5.08E+01	±2.5E+01
	Ci	3.02E+05	
b. Dry compressible waste, contaminated equip, etc.	m <sup>3</sup>	1.81E+02	±2.5E+01
	Ci	1.81E+00	
c. Irradiated components, control rods, etc.	m <sup>3</sup>	0.00E+00	±2.5E+01
	Ci	0.00E+00	
d. Other (describe):	m <sup>3</sup>	0.00E+00	±2.5E+01
	Ci	0.00E+00	

2. Estimate of Major Nuclide Composition (by Type of Waste)

a. Spent resins, filter sludges, evaporator bottoms, etc.

	%	Curies
CO-60	55.62	1.68E-05
CD-109	9.57	2.89E-06
CS-134	1.24	3.74E-07
CS-137	33.58	1.01E-05

b. Dry compressible waste, contaminated equipment, etc.

	%	Curies
CR-51	18.89	1.62E-01
MN-54	1.94	1.66E-02
FE-55	18.51	1.58E-01
CO-58	26.90	2.30E-01
CO-60	3.07	2.63E-02
NI-59	17.86	1.53E-01
NI-63	3.97	3.40E-02
ZR-95	3.05	2.61E-02
NB-95	4.32	3.70E-02

c. Irradiated components, control rods, etc.

	%	Curies
None		

d. Other

	%	Curies
None		

3. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
4	Flatbed/Sea Van	Memphis, TN
4	Flatbed/Sea Van	Oak Ridge, TN

B. Irradiated Fuel Shipments (Disposition)

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
None		

## 9. UNPLANNED RELEASES

An unplanned release is defined as any release of radioactive material to the environment that does not meet the following criteria:

- A. Sample analysis prior to release, and
- B. Release calculations performed prior to release.

During 2003, there were no unplanned releases to an unrestricted area.

## 10. RADIATION INSTRUMENTATION

As required by ODCM Appendices 1 and 2, any radioactive effluent instrumentation inoperable for more than 30 days shall be reported in the annual Radioactive Effluent Release Report.

On June 26, 2003, while performing the monthly Noble Gas Source Check surveillance on the Unit 1 Containment Purge SPING (SPING #1), the high range noble gas detector (channel 9) failed high prior to the introduction of the check source. A 30 day time clock was entered per the ODCM and a Condition Report (CR-ANO-1-2003-00686) and a Work Request (#4699) were issued to document and repair the condition. It was determined that the interface box between the SPING computer and the channel 9 detector had failed and needed to be replaced. A new interface box had to be ordered from an offsite vendor. On July 26 at 16:29 hrs the 30 day time clock expired. Condition Report CR-ANO-1-2003-00801 was issued to document the exceeded time clock. The new interface box was received onsite on August 21 and the SPING successfully repaired and the time clock exited on August 26, 2003. It is important to note that the Unit 1 Containment Vent was secured during the time SPING 1 was out of service and no gaseous releases occurred via the Containment Vent during this period.

## 11. CHANGES TO THE PROCESS CONTROL PROGRAM

As required by ODCM Appendices 1 and 2, a description of changes made to the Process Control Program (PCP) shall be included in the annual Radioactive Effluent Release Report for the period in which the change was made effective.

Revision 1 of the Process Control Program (RW-105) was implemented on January 2, 2003. The changes implemented under this revision were as follows:

1. The procedure classification was changed from "Non-Quality" to "Quality".
2. Section 5.4, "Administrative Controls", was revised to include the requirement that vendors performing radwaste services under 10CFR61 and 10CFR71 (Step 5.4.5) must be on the Entergy Qualified Suppliers List.
3. Section 8.0, "Requirements and Commitment Cross Reference", was updated to list correct section numbers.

There were no other changes made to the Process Control Program during 2003.