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February 25, 2005

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
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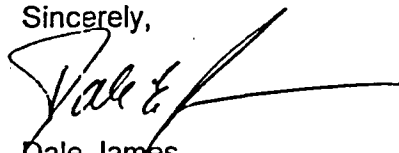
Subject: Annual Radioactive Effluent Release Report for 2004  
Arkansas Nuclear One - Units 1 and 2  
Docket Nos. 50-313 and 50-368  
License Nos. DPR-51 and NPF-6

Dear Sir or Madam:

Arkansas Nuclear One, Units 1 & 2 (ANO-1 and ANO-2) Technical Specifications (TSs) 5.6.3 and 6.6.3, 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 2004 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 6.5.1, the ODCM is also submitted as an attachment to the Annual Radioactive Effluent Release Report. Should you have any questions regarding this report, please contact Dee Hawkins at (479) 858-5589.

There are no new commitments contained in this submittal.

Sincerely,

  
Dale James  
Manager, Licensing

DEJ/dh  
Attachments

6/39

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Attachment 1  
to 0CAN020501

Annual Radioactive Release Report for 2004

**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, 2004**

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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, 2004. 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, 2004 THROUGH JUNE 30, 2004

### 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	9.80E+01 3.72E+01	±2.5E+01
b. Dry compressible waste, contaminated equip, etc.	m <sup>3</sup> Ci	2.54E+02 1.39E+00	±2.5E+01
c. Irradiated components, control rods, etc.	m <sup>3</sup> Ci	0.00E+00 0.00E+00	±2.5E+01
d. Other (describe): Oil	m <sup>3</sup> Ci	0.00E+00 0.00E+00	±2.5E+01

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

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

	%	Curies
H-3	0.188	6.98E-02
C-14	0.326	1.21E-01
Mn-54	3.839	1.43E+00
Fe-55	19.067	7.09E+00
Co-57	0.792	2.95E-01
Co-58	3.090	1.15E+00
Co-60	8.601	3.20E+00
Ni-59	0.582	2.16E-01
Ni-63	58.436	2.17E+01
Sr-90	0.027	9.94E-03
Cd-109	0.461	1.71E-01
Sb-125	0.563	2.09E-01
Cs-134	0.970	3.60E-01
Cs-137	2.762	1.03E+00
Cs-138	0.283	1.05E-01

b. Dry compressible waste, contaminated equipment, etc.

	%	Curies
Cr-51	5.316	7.40E-02
Mn-54	2.239	3.12E-02
Fe-55	37.139	5.17E-01
Fe-59	0.207	2.89E-03
Co-57	0.031	4.36E-04
Co-58	20.940	2.92E-01
Co-60	11.161	1.55E-01
Ni-59	5.370	7.48E-02
Ni-63	1.194	1.66E-02
Zr-95	0.892	1.24E-02
Nb-95	2.488	3.46E-02
Ag-110m	0.081	1.13E-03
Sn-113	0.046	6.41E-04
Cs-137	12.888	1.80E-01

c. Irradiated components, control rods, etc.

	%	Curies
None		

d. Other (Oil)

	%	Curies
None		

None

3. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
3	Flatbed/Sea Van	Oak Ridge, TN
2	Cask	Erwin, TN
6	Flatbed/Sea Van	Memphis, TN

B. Irradiated Fuel Shipments (Disposition)

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



REGULATORY GUIDE 1.21 REPORT  
 EFFLUENT AND WASTE DISPOSAL ANNUAL SUMMARY REPORT  
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS  
 JULY 1, 2004 THROUGH DECEMBER 31, 2004

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>	1.91E+01	
	Ci	1.89E+02	±2.5E+01
b. Dry compressible waste, contaminated equip, etc.	m <sup>3</sup>	3.62E+01	
	Ci	1.79E-01	±2.5E+01
c. Irradiated components, control rods, etc.	m <sup>3</sup>	0.00E+00	
	Ci	0.00E+00	±2.5E+01
d. Other (describe):	m <sup>3</sup>	0.00E+00	
	Ci	0.00E+00	±2.5E+01

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

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

	%	Curies
H-3	0.661	1.25E+00
Be-7	0.346	6.55E-01
C-14	0.036	6.74E-02
Mn-54	2.393	4.53E+00
Fe-55	15.875	3.01E+01
Co-57	0.795	1.51E+00
Co-58	4.111	7.79E+00
Co-60	8.236	1.56E+01
Ni-59	0.194	3.68E-01
Ni-63	51.811	9.81E+01
Sr-90	0.085	1.60E-01
Ag-110m	0.020	3.83E-02
Sb-125	0.945	1.79E+00
Cs-134	4.115	7.79E+00
Cs-137	10.164	1.93E+01
Ce-144	0.200	3.79E-01

b. Dry compressible waste, contaminated equipment, etc.

	%	Curies
Mn-54	2.349	4.21E-03
Fe-55	44.549	7.99E-02
Co-58	18.772	3.37E-02
Co-60	14.431	2.59E-02
Nb-95	1.838	3.30E-03
Cs-137	18.060	3.24E-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>
1	Flatbed/Sea Van	Memphis, TN
5	Cask	Erwin, 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 2004, 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.

During 2004, there was no radioactive effluent instrumentation inoperable for longer than 30 days.

## **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 2 of the Process Control Program (ENS-RW-105) was implemented on October 1, 2004. The changes implemented under this revision were as follows:

The purpose of the Process Control Program (PCP) was modified and the site specific references were removed. A definition of "Batch" was added to the definition section of the procedure. Editorial changes were made in the responsibilities section to update the actual names of positions and the applicable discipline group. A major portion of the procedure was revised to adequately address the approval authority for each Entergy South site in reference to changes to the PCP along with vendor usage/approval. The vendor related requirements were also addressed in detail in Section 5.5. Section 8.0, "Commitments and Obligations", was revised to include Grand Gulf Nuclear Station. The overall procedure format was changed to match the company's current revision for procedure formatting in NMM Procedure AD-101, "Procedure Process". A copy of the PCP (Rev. #2) has been included behind Attachment 3.

There were no other changes made to the Process Control Program during 2004.