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October 30, 1992

10 CFR 50.36a(a)(2)

U. S. Nuclear Regulatory Commission
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Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Supplemental Report to the Semi-Annual
Effluent Release Report January-June, 1992

Reference: 1) Letter from C. A. Schrock (WPSC) to Document Control Desk (NRC)
dated August 31, 1992

Enclosed please find a copy of the supplemental data to the Kewaunee Nuclear Power Plant
Semi-Annual Effluent Release Report for January through June, 1992.

In Reference 1, Wisconsin Public Service Corporation committed to provide appropriate
revisions containing the June, 1992 proportional composites for Gross Alpha, Strontium 89 and
Strontium 90 when these values became available. Please replace the appropriate pages of the
report with the revisions provided in the attachment.

Sincerely,

C. A. Schrock
Manager - Nuclear Engineering

BJD/jac

Enc.

cc - Mr. Patrick Castleman, US NRC
US NRC, Region III

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KEWAUNEE NUCLEAR POWER PLANT

**SEMIANNUAL RADIOACTIVE
EFFLUENT RELEASE REPORT**

January 1 - June 30, 1992

Wisconsin Public Service Corporation
Green Bay, Wisconsin
October 28, 1992
Rev. A

2.0 GASEOUS EFFLUENTS

2.1 Lower Limits of Detecticn (LLD) fcr Gasecus Effluents

Gaseous radioactive effluents are released in both the continuous mode and the batch mode. The auxiliary building stack is sampled continuously for particulates, halogens and Strontium by an "off-line" sample train. This stack is also grab-sampled daily for gaseous gamma emitters. Batch releases are sampled prior to release for principal gaseous and particulate gamma emitters, halogens and tritium.

The LLD's for gaseous radioanalyses, as listed in Table 8.4 of the Kewaunee Technical Specifications, are:

Analysis	LLD ($\mu\text{Ci/ml}$)
Gaseous Gamma Emitters	1.00 E-04
Iodine 131	3.00 E-12
Particulate Gamma Emitters	1.00 E-11
Particulate Gross Alpha	1.00 E-11
Strontium 89, 90	1.00 E-11
Noble Gases, Gross Beta or Gamma	1.00 E-06

The nominal "a priori" LLD values are shown below.

Isotope	a priori LLD ($\mu\text{Ci/ml}$)
---------	------------------------------------

a. Gaseous emissions:

Kr-87	2.97 E-8
Kr-88	3.30 E-8
Xe-133	3.49 E-8
Xe-133m	1.07 E-7
Xe-135	1.06 E-8
Xe-138	3.74 E-8

b. Particulate emissions:

Mn-54	4.61 E-14
Fe-59	7.94 E-14
Co-58	5.99 E-14
Co-60	1.34 E-13
Zn-65	1.40 E-13
Mo-99	2.66 E-14
Cs-134	4.43 E-14
Cs-137	5.52 E-14
Ce-141	3.85 E-14
Ce-144	1.76 E-13

3.0 LIQUID EFFLUENTS

3.1 Lower Limits of Detection (LLD) for Liquid Effluents

Liquid radioactive effluents are released as both batch releases and continuous releases. Each batch is sampled prior to release and analyzed for gamma emitters and tritium. A fraction of each sample is retained for a monthly proportional composite which is then analyzed for Gross Alpha, Strontium 89, Strontium 90 and Iron 55.

The LLD's for liquid batch release radioanalyses, as listed in Table 8.3 of the Kewaunee Technical Specifications, are:

<u>Analysis</u>	<u>LLD ($\mu\text{Ci/ml}$)</u>
Principal Gamma Emitters	1.00 E-06
Iodine 131	1.00 E-06
Tritium	1.00 E-05
Gross Alpha	5.00 E-07
Strontium 89, 90	5.00 E-08
Iron 55	1.00 E-06

The actual obtained "a priori" LLD values for batch releases are shown below.

Isotope	1st Qtr	2nd Qtr	Average a priori LLD ($\mu\text{Ci/ml}$)
Mn-54	8.54E-08	1.21E-07	1.03E-07
Fe-59	1.88E-07	1.88E-07	1.88E-07
Co-58	8.40E-08	8.39E-08	8.40E-08
Co-60	1.63E-07	1.24E-07	1.44E-07
Zn-65	2.12E-07	3.67E-07	2.90E-07
Mo-99	3.43E-08	6.62E-08	5.03E-08
Cs-134	9.63E-08	9.62E-08	9.63E-08
Cs-137	8.34E-08	8.34E-08	8.34E-08
Ce-141	1.13E-07	1.38E-07	1.26E-07
Ce-144	3.62E-07	5.73E-07	4.68E-07
I-131	5.55E-08	5.48E-08	5.52E-08
H-3	3.76E-06	3.80E-06	3.78E-06
Sr-89	1.13E-08	5.67E-09	8.50E-09
Sr-90	2.67E-09	3.00E-09	2.83E-09
Gross Alpha	2.67E-09	3.33E-09	3.00E-09

Continuous liquid releases are grab sampled weekly and analyzed for principal gamma emitters. A fraction of each weekly sample is retained for a monthly proportional composite which is then analyzed for Tritium, Gross Alpha, Strontium 89, Strontium 90 and Iron 55.

The LLD's for liquid continuous release radioanalyses, as listed in Table 8.3 of the Kewaunee Technical Specifications, are:

Analysis	LLD ($\mu\text{Ci/ml}$)
Principal Gamma Emitters	5.00 E-07
Iodine 131	1.00 E-06
Tritium	1.00 E-05
Gross Alpha	5.00 E-07
Strontium 89, 90	5.00 E-08
Iron 55	1.00 E-06

The actual obtained "a priori" LLD values for continuous releases are shown below.

Isotope	1st Qtr	2nd Qtr	Average a priori LLD ($\mu\text{Ci/ml}$)
Mn-54	3.18E-08	2.01E-08	2.60E-08
Fe-59	4.44E-08	3.14E-08	3.79E-08
Co-58	2.42E-08	3.70E-08	3.06E-08
Co-60	3.75E-08	4.17E-08	3.96E-08
Zn-65	6.12E-08	3.53E-08	4.83E-08
Mo-99	2.56E-08	2.66E-08	2.61E-08
Cs-134	4.54E-08	3.93E-08	4.24E-08
Cs-137	2.78E-08	2.78E-08	2.78E-08
Ce-141	3.38E-08	4.49E-08	3.94E-08
Ce-144	1.65E-07	1.54E-07	1.60E-07
I-131	2.75E-08	2.42E-08	2.59E-08
H-3	3.76E-06	3.80E-06	3.78E-06
Sr-89	1.87E-08	8.33E-09	1.35E-08
Sr-90	6.83E-09	4.17E-09	5.50E-09
Gross Alpha	1.67E-09	1.67E-09	1.67E-09
Fe-55	3.17E-08	4.67E-08	3.92E-08

TABLE 3.1
Semiannual Radioactive Effluent Release Report 1992
Liquid Effluents - Summation of all Releases

	1st Quarter	2nd Quarter	Total
Fission and Activation Products			
Total Release Excluding H3 and Dissolved Gases (Ci)			
	5.309E-003	4.760E-002	5.291E-002
Average Concentration (μCi/ml)			
	5.300E-011	2.889E-010	
Tritium			
Total Release (Ci)			
	1.107E+002	1.866E+001	1.294E+002
Average Concentration (μCi/ml)			
	1.105E-006	1.133E-007	
% of Tech. Spec. Limit(3.0E-3 μCi/ml)			
	3.685E-002	3.776E-003	
Dissolved Gases			
Total Release (Ci)			
	0.000E+000	0.000E+000	0.000E+000
Average Concentration (μCi/ml)			
	0.000E+000	0.000E+000	
% of Tech. Spec. Limit(2.0E-4 μCi/ml)			
	0.000E+000	0.000E+000	
Gross Alpha Activity			
Total Release (Ci)			
	0.000E+000	0.000E+000	0.000E+000
Volume of Waste Released			
Batch (liters)	1.183E+006	7.798E+005	1.963E+006
Continuous (liters)	2.434E+007	2.929E+007	5.364E+007
Total (liters)	2.552E+007	3.007E+007	5.560E+007
Volume of Dilution Water			
Batch (liters)	8.844E+009	6.600E+009	1.544E+010
Continuous (liters)	9.131E+010	1.581E+011	2.495E+011
Total (liters)	1.002E+011	1.647E+011	2.649E+011

TABLE 3.2B
Semiannual Radioactive Effluent Release Report 1992
Liquid Effluents - Batch Releases

	April	May	June	<u>Total</u>
Gross Radioactivity				
Total Release				
Excluding H3 and Dissolved				
Gases (Ci)	3.586E-002	6.637E-003	4.820E-003	4.731E-002
Avg. Conc. (μ Ci/ml)	9.515E-009	5.187E-009	3.106E-009	
Tritium				
Total Release				
(Ci)	9.287E+000	3.676E+000	5.701E+000	1.866E+001
Avg. Conc. (μ Ci/ml)	2.465E-006	2.873E-006	3.673E-006	
Dissolved Gases				
Total Release				
(Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (μ Ci/ml)	0.000E+000	0.000E+000	0.000E+000	
Gross Alpha Activity				
Total Release				
(Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (μ Ci/ml)	0.000E+000	0.000E+000	0.000E+000	
Volume of Waste Released				
(liters)	5.287E+005	1.279E+005	1.233E+005	7.798E+005
Volume of Dilution Water				
(liters)	3.768E+009	1.279E+009	1.552E+009	6.600E+009

TABLE 3.2B (Con't)
Semiannual Radioactive Effluent Release Report 1992
Liquid Effluents - Batch Releases

Isotope (Ci)	April	May	June	<u>Total</u>
H-3	9.287E+000	3.676E+000	5.701E+000	1.866E+001
Cr-51	5.117E-003	7.599E-004	0.000E+000	5.877E-003
Mn-54	3.147E-004	1.175E-004	4.394E-005	4.761E-004
Fe-55	6.746E-003	2.800E-004	5.178E-004	7.544E-003
Co-57	2.553E-005	0.000E+000	0.000E+000	2.553E-005
Co-58	1.433E-002	2.643E-003	2.448E-003	1.942E-002
Fe-59	4.838E-004	1.621E-004	6.169E-005	7.075E-004
Co-60	4.301E-003	1.210E-003	7.018E-004	6.213E-003
Zr-95	1.038E-003	2.203E-004	1.221E-004	1.380E-003
Nb-95	1.580E-003	2.875E-004	2.453E-004	2.113E-003
Ag-110m	4.113E-004	8.468E-004	5.840E-004	1.842E-003
Sn-113	2.762E-004	1.095E-004	5.970E-005	4.454E-004
Sn-117m	8.887E-005	0.000E+000	0.000E+000	8.887E-005
Sb-124	4.241E-004	0.000E+000	0.000E+000	4.241E-004
Sb-125	7.200E-004	0.000E+000	3.547E-005	7.555E-004
Total	9.324E+000	3.685E+000	5.706E+000	1.871E+001

Table 3.4
Semiannual Radioactive Effluent Report 1992
Dose From Liquid Effluents

The dose to a member of the public from total liquid radioactive release for each quarter was well below the Technical specification limits of 1.5 mRem to the body and less than or equal to 5 mRem to any organ.

Instantaneous release concentrations are limited by the individual radionuclide concentrations established in 10 CFR 20, Appendix B, for unrestricted areas. During the report period, none of the isotopes released exceed the concentrations specified in Appendix B. The following offsite doses were calculated using equation 1.5 from the Kewaunee ODCM.

Organ	Dose	Quarterly	Percent
1st Qtr Dose	Total	Limit	of Limit
	mRem	mRem	
Total Body	8.437E-004	1.5	0.06
Bone	1.066E-005	5.0	0.00
Liver	8.290E-004	5.0	0.02
Thyroid	8.044E-004	5.0	0.02
Kidney	8.059E-004	5.0	0.02
Lung	8.077E-004	5.0	0.02
GI-LLI	8.452E-003	5.0	0.17

Organ	Dose	Quarterly	Percent
2nd Qtr Dose	Total	Limit	of Limit
	mRem	mRem	
Total Body	3.289E-004	1.5	0.02
Bone	3.755E-004	5.0	0.01
Liver	4.871E-004	5.0	0.01
Thyroid	1.051E-004	5.0	0.00
Kidney	1.270E-004	5.0	0.00
Lung	2.465E-004	5.0	0.01
GI-LLI	6.644E-002	5.0	1.33

Calculated Dose This Year

Organ	Dose	Quarterly	Percent
	Total	Limit	of Limit
	mRem	mRem	
Total Body	1.173E-003	3.0	0.04
Bone	3.861E-004	10.0	0.00
Liver	1.316E-003	10.0	0.01
Thyroid	9.096E-004	10.0	0.01
Kidney	9.328E-004	10.0	0.01
Lung	1.054E-003	10.0	0.01
GI-LLI	7.489E-002	10.0	0.75