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June 6, 1990

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Subject: McGuire Nuclear Station, Units 1 and 2
Docket Nos. 50-369 and 50-370
NUREG/CR-2850 Population Dose, Model Effluent Pathway Assumptions

NUREG/CR-2850 Revision No. 8, Table No. 6 located on page 1.12 provides population dose information for McGuire Nuclear Station. The dose listed for McGuire Nuclear Station is based on outdated information.

Please find attached a population dose analysis summary for McGuire Nuclear Station liquid release pathways based on 1986 release estimates. The analysis uses the liquid dose pathway assumptions consistent with NUREG/CR-2850 except for the total fish consumed by the fifty mile radius population. A value of 400,000 kilogram/year is used versus the 1,000,000 kilogram/year assumed in NUREG/CR-2850. The new value is derived from Lake Norman, Lake Wylie, and Mountain Island Lake creel survey data collected by Duke Power Company. These three lakes are considered the major downstream sources of fish harvested by persons living within a fifty mile radius of McGuire Nuclear Station.

This new information should be used in future revisions of NUREG/CR-2850.

If there are any questions, please contact Steve Le Roy at (704)373-6233.

Very truly yours,

Hal B. Tucker

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Attachment

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ATTACHMENT

TABLE 1 - SUMMARY OF PARAMETERS USED POPULATION DOSE ANALYSIS
MCGUIRE LIQUID PATHWAYS

EXPOSED 50-MILE POPULATION (DRINKING)	7.20E+05 [1]
TOTAL FISH HARVEST	4.00E+05 kg/yr [2]
RADIONUCLIDE RELEASES	TABLE 2 Ci/yr
DILUTION FLOW (FISH & DRINKING)	2.60E+03 CFS [1]
DILUTION FACTOR (FISH & DRINKING)	1.0 [1]

AGE DEPENDENT PARAMETERS

	INFANT	CHILD	TEEN-AGER	ADULT
POPULATION FRACTION	1.44E-02	1.60E-01	1.17E-01	7.09E-01
FISH CONS'N (kg/yr) [3]	0.00E+00	2.20E+00	5.20E+00	6.90E+00
DRINK'G WATER (L/yr) [4]	1.70E+02	2.60E+02	2.60E+02	3.70E+02

NOTES:

- [1] Consistent with NUREG/CR-2850 assumptions.
- [2] Based on creel survey data: Duke Power Company, Production Environmental Services Research Reports PES/83-33, PES/85-01, and PES/88-11. In cases where more than 1 year of survey data is available, maximum harvest values are used to estimate total harvest from McGuire receiving waters.
- [3] Average fish intake for individuals in population including fish harvested outside of McGuire receiving waters.
- [4] Average drinking water intake from McGuire receiving waters for affected population (i.e., 720,000 persons obtaining drinking water from McGuire receiving waters).

TABLE 2 - MCGUIRE LIQUID POPULATION DOSE CALCULATION SUMMARY
1986 RADIONUCLIDE RELEASES

NUCLIDE	RELEASE (CURIES)	NUCLIDE	RELEASE (CURIES)
H3	9.17E+02	RU103	2.39E-03
F18	4.90E-05	RU106	4.24E-03
NA24	1.80E-03	AG108M	1.18E-05
K40	2.14E-02	AG110M	4.19E-03
CR51	5.61E-02	CD115M	5.72E-05
MN54	4.30E-02	IN115M	1.34E-06
MN56	2.73E-05	I131	7.53E-02
FE55	4.26E-01	I132	2.66E-03
FE59	6.99E-03	I133	3.50E-02
CO57	1.08E-03	I135	3.56E-03
CO58	3.44E-01	SB122	9.31E-04
CO60	2.44E-01	SB124	1.09E-02
NI65	5.71E-05	SB125	7.48E-02
ZN65	7.37E-04	SN113	2.53E-04
ZN69M	4.82E-06	TE131M	1.78E-05
BR82	2.31E-04	TE132	1.55E-04
BR84	7.61E-05	CS134	3.32E-02
RN86	7.76E-05	CS136	2.23E-04
RB88	9.35E-03	CS137	3.86E-02
SR69	1.91E-04	CS138	4.91E-04
SR90	1.69E-05	BA139	4.53E-04
SR92	1.79E-03	BA140	1.48E-04
Y91M	1.74E-05	LA140	5.45E-03
Y92	1.87E-05	CE141	2.04E-03
Y93	9.05E-05	CE143	2.26E-05
ZR95	1.20E-02	CE144	1.52E-02
NB95	2.34E-02	W187	1.19E-03
NB97	9.73E-03	BI214	2.45E-04
MO99	2.31E-04	PB214	2.60E-02
TC99M	1.89E-03	NP239	2.75E-04

TABLE 3 - POPULATION DOSE ANALYSIS SUMMARY AND RESULTS

FISH PATHWAY DOSE SUMMARY (POPULATION person-Rem)

	TOTAL BODY	GI-LLI	THYROID	BONE	LIVER
INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	9.94E-02	1.29E-01	6.63E-02	4.28E-01	5.22E-01
TEEN	1.85E-01	2.66E-01	4.78E-02	2.57E-01	4.47E-01
ADULT	1.98E+00	2.30E+00	3.15E-01	1.50E+00	2.67E+00
TOTAL	2.27E+00	2.69E+00	4.29E-01	2.18E+00	3.64E+00

DRINKING WATER PATHWAY DOSE SUMMARY (POPULATION person-Rem)

	TOTAL BODY	GI-LLI	THYROID	BONE	LIVER
INFANT	2.27E-01	2.28E-01	1.04E+00	3.32E-02	2.60E-01
CHILD	2.55E+00	2.64E+00	8.10E+00	3.61E-01	2.81E+00
TEEN	9.92E-01	1.13E+00	2.65E+00	9.10E-02	1.06E+00
ADULT	8.56E+00	9.78E+00	1.99E+01	5.69E-01	8.77E+00
TOTAL	1.23E+01	1.38E+01	3.17E+01	1.05E+00	1.29E+01

TOTAL WATER PATHWAY (POPULATION person-Rem)

	TOTAL BODY	GI-LLI	THYROID	BONE	LIVER
INFANT	2.27E-01	2.28E-01	1.04E+00	3.32E-02	2.60E-01
CHILD	2.65E+00	2.77E+00	8.17E+00	7.89E-01	3.33E+00
TEEN	1.18E+00	1.40E+00	2.69E+00	3.48E-01	1.51E+00
ADULT	1.05E+01	1.21E+01	2.03E+01	2.07E+00	1.14E+01
TOTAL	1.46E+01	1.65E+01	3.22E+01	3.2E+00	1.65E+01