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FCPF:EYS 70-36

Missouri Department of Natural Resources ATTN: Mr. R. F. Rankin Director of Staff Missouri Clean Water Commission 2010 Missouri Road Jefferson City, Missouri 65102

Dear Mr. Rankin:

Enclosed for your record are Tables 1-4 summarizing the potential radiological impact from the normal operation of Combustion Engineering's (CE) Hematite Plant. These tables were presented at the November 30, 1978 public hearing concerning the change in CE's NPDES discharge permit.

If there are any questions please feel free to call.

Sincerely,

W.C. Chan

W. T. Crow, Section Leader Uranium Fuel Fabrication Section Fuel Processing & Fabrication Branch Division of Fuel Cycle and Material Safety

Enclosure: As stated

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RADIOLOGICAL IMPACT

The average annual discharge of radiological effluents from the C-E plant operation and the significant pathways that lead to individual dose commitment at the nearest residence are summarized in Table 1.

Table 1

Annual Rate of Discharge (Ci/yr)

- 1. Gaseous 4.09x10⁻⁴ (atmosphere)
- 2. Liquid 0.0266 (surface water)
- Liquid 0.0019 (site retention pond)

Significant Environmental Pathways

Inhalation, Ingestion (terrestrial)

Ingestion (water, fish)

None

Table 2

Estimated Maximum Annual Dose To A Hypothetical Individual At The Nearest

Site Boundary

Pathy	ay	EPA Standard	Organ Dose (Organ Dose (millirem/yr)	
			Lung	Bone	
. Inha	lation		5.4(a)		
. Inges (crop bees	stion p-milk- f-fish)		-	<0.1(b)	
тот	AL	25 mr/yr	5.4	<0.1	

Table 3

Estimated Maximum Annual Dose To An Individual At The Nearest Residence

Pathway	EPA Standard	Organ Dose (millirems)	
		Lung	Bone
. Inhalation		0.0076(a)	
. Ingestion (crop-milk- beef-fish)			0.0060(b)
TOTAL	25 mr/yr	0.0076	0.0060

(a) Assumes 20 m³ of air inhaled daily

1

2

(b) Assumes all food consumed is produced at the site; daily intake 1.0 liter of milk, 0.25 kg of vegetables and 0.3 kg of beef.

¹ Task Group on Lung Dynamics of Committee II of the International Commission on Radiological Protection, "Deposition and Retention Modes for Internal Dosimetry of the Human Respiratory Tract," Health Physics 12:173, 1966.

² INREM Code - A Methodology for Calculating Dose from Radioactivity Released to the Environment ORNL-4992, March 1976.

Table 4

17.2

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Concentration of Uranium In Joachim Creek and the Mississippi River

		Concentration (ppm)	Drinking Water Standard	% of Standard
1.	Joachim Creek	7.3x10- ⁵ ppm (0.14 pC/1)	5 ppm	0.0015%
2.	Mississippi River	5.5x10 ⁻⁸ ppm (0.00011 pC/1)	5 ppm	0.0000011%