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CRBR 82-33

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FROM: Homer Lowenberg, Chief Engineer
Office of Nuclear Material Safety and Safeguards

SUBJECT: CRBR FUEL CYCLE ENVIRONMENTAL REVIEW - ORIGEN2 OUTPUTS

The enclosed subject material has been received from ORNL. The total package of information is quite voluminous. Accordingly, only the table of contents is provided in this package. One copy of the entire output is available at my office for specific information purposes.

Enclosure 1 is the transmittal letter from ORNL which includes five tables and explanations of the input parameters. Enclosure 2 is the six page table of contents for the fifteen output data bases provided. I believe that we only need to make use of the following twelve sets of data:

1. Summary of Fuel and Structural Material Charged and Discharged - Core-Fuel and Axial Blanket; Inner Blanket-Fuel. Material Compositions in gm./MTHM.

2. Summary of Fuel and Structural Material Charged and Discharged - Inner Blanket-Axial Blanket; Radial Blanket-Fuel and Axial Blanket. Material Compositions in gm./MTHM.

3. Decay of Core-Fuel, Axial Blanket and Structural Material; 60 days-10 years. Units are for one assembly.

4. Decay of Radial Blanket-Fuel, Axial Blanket and Structural Material; 60 days-10 years. Units are for one assembly.

5. Decay of Inner Blanket-Fuel, Axial Blanket and Structural Material; 60 days-10 years. Units are for one assembly.

6. Decay of Reprocessing Materials (Blended Materials, All Zones) including Volatiles; 30 days-180 days. Units are for 1MTHM.

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7. Decay of High-Level Waste from Blended Materials; 10 days-2 years. Unit are for 1MTHM.

8. Decay of High-Level Waste from Blended Materials; 3 years-1,000,000 years. Units are for 1MTHM.

9. Decay of Structural Material Wastes from Blended Materials; 10 days-2 years. Units are for 1MTHM.

10. Decay of Structural Material Wastes from Blended Materials; 3 years-1,000,000 years. Units are for 1MTHM.

11. Decay of Recovered Uranium - 90 days-100 years. Units are for 1MTHM.

12. Decay of Recovered Plutonium - 90 days-100 years. Units are for 1MTHM.

For the purposes of the CRBR Fuel Cycle Environmental Review conversion factors have to be applied to the output data as follows to obtain values for the average annual CRBR equilibrium fuel cycle as follows:

ORIGEN2 Output	Factor	Units
1 - Core-Fuel	2.65	MTHM charged/yr.
1 - Core-Axial Blanket	2.15	MTHM charged/yr.
1 - Inner Blanket-Fuel	2.24	MTHM charged/yr.
2 - Inner Blanket-Axial Blanket	1.74	MTHM charged/yr.
2 - Radial Blanket- Fuel	1.60	MTHM charged/yr.
2 - Radial Blanket-Axial Blanket	1.24	MTHM charged/yr.
3 - Core	81	Assemblies charged/yr.
4 - Radial Blanket	30	Assemblies charged/yr.
5 - Inner Blanket	40	Assemblies charged/yr.
6 - 12	11.63	MTHM charged/yr.

If there are any questions on this material, please contact the writer or Phil Colton. Please make use of the print material and be prepared to discuss it at the April 14-15 meetings with BPNL and ORNL.

Original signed by

Homer Lowenberg, Chief Engineer
Office of Nuclear Material Safety
and Safeguards

Enclosures:
1. Transmittal fm ORNL
2. Table of Contents

OFFICE	CRBR/NMSS	CRBR/NMSS					
NAME	PColton/rj	HLowenberg					
DATE	4/9/82	4/9/82					

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