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CONCERNING WEST CHICAGO RARE EARTHS FACILITY
KERR-McGEE CHEMICAL CORPORATION

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

CONCERNING CONTENTION 2(q)

1. My name is David E. Bernhardt. I am a Chief Scientist with Rogers and Associates Engineering Corporation of Salt Lake City, Utah. I am certified by the American Board of Health Physics, and have about 28 years experience in environmental radiation assessments. I submitted an affidavit concerning Contention 2(q) on January 16, 1990. I have reviewed the "Kerr-McGee Reply to the State Memorandum In Opposition to Kerr-McGee's Motion for Summary Disposition," and provide the following clarification comments.

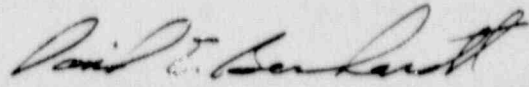
2. In Item 6 of my affidavit dated January 16, 1990, I mistakenly interpreted that all of the "maximally exposed individual" doses in Table 5.11 of the "Supplement to the Final Environmental Statement, related to the Decommissioning of the Rare Earths Facility" (NUREG-0904), dated April 1989 (SFES), were ANNUAL doses, and more specifically were not committed doses. The Kerr-McGee reply to the State Memorandum, dated January 29, 1990, clarifies that the "Total Effective Dose Equivalent," the fourth column from the right is a committed dose. However, the subject Kerr-McGee reply goes on to state (Note 9 on p. 8) that the individual organ doses for the bone and lung are given as "annual" doses because that is what was set out in 40 CFR 192. This is in error. The lung and bone doses should be based on the human intake due to environmental releases for an "annual" or one year period. But, OF PRIME IMPORTANCE, THE DOSE SHOULD ACCOUNT FOR THE TOTAL DOSE RECEIVED FROM THE MATERIAL TAKEN IN DURING THE YEAR PERIOD; it should account for retention of material in the body. That is, the reported exposures for the lung and bone doses in Table 5.11 of the SFES and the January 29th comments by Kerr-McGee misrepresent the use of the word "annual" in the U.S. Environmental Protection Agency (EPA) Standards (40 CFR 192) and the proper calculation of the dose.

The "annual dose equivalents" are to include the dose equivalent resulting from the "annual intake." At the time 40 CFR 192 was promulgated EPA did NOT use committed doses, rather EPA USED dose factors for the "annual" dose after about 50 years of continuous intake. This concept was very similar to the concept of committed doses, and accounted for the total dose.

3. The concept of dosimetry for the EPA standards in 40 CFR 192 is basically the same as that used for deriving values for the U.S. Nuclear Regulatory Commission regulations in 10 CFR 20. The inhalation and ingestion criteria in 10 CFR 20, Appendix B, are for annual intakes and are based on annual dose equivalents. However, these criteria are not based on "annual" doses as used in Table 5.11 of the SFES, they are based on the International Commission on Radiological Protection Publication No. 2, 1956, which calculated the doses after 50 years of intake.

The proposed revisions to 10 CFR 20, Federal Register 51/6:1092, January 9, 1986, are based on committed doses.

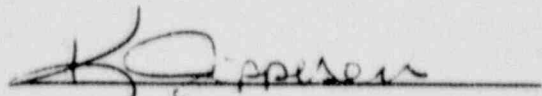
4. The doses for the lung and bone in Table 5.11 of the SFES do NOT account for all of the dose, and I believe it is incorrect to use these values to assess compliance with 40 CFR 192. The procedures used for calculating the lung and bone "annual" doses in Table 5.11 do not comply with standard accepted dose calculation procedures used at the time the 40 CFR 192 standards were promulgated or today.



David E. Bernhardt

Dated February 8, 1990

Subscribed and sworn to before me on this 8th day of Feb, 1990



My Commission expires: 9-17-91
Notary Public