

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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| In the Matter of | } | |
| KERR-MCGEE CHEMICAL CORPORATION | } | Docket No. 40-2061-ML |
| (West Chicago Rare Earths | } | ASLBP No. 83-495-01-ML |
| Facility) | } | |

TESTIMONY OF CHARLEY YU ON CONTENTION 4(a)

Q.1. Dr. Yu, please state your name, your position, and the nature of your work at the Argonne National Laboratory (ANL).

A.1. My name is Charley Yu. I am employed by Argonne National Laboratory as an Environmental Systems Engineer/Radiological Analyst in the Radiological Sciences Section of the Environmental Assessment and Information Sciences Division. My current duties include developing pathways analysis computer codes and performing site-specific environmental impact assessments.

Q.2. Have you prepared a statement of your professional qualifications?

A.2. Yes, a statement of my professional qualifications is attached to this testimony.

Q.3. What is the purpose of your testimony?

A.3. The purpose of this testimony is to address the infiltration rate issue raised by Contention 4(a) as set forth in the November 14, 1989 Memorandum and Order (Denying Motions for Summary Disposition).

Q.4. Dr. Yu, have you reviewed the Kerr-McGee Engineering Report, Volume II, page 2-80 regarding the estimate of cell infiltration?

A.4. Yes, I reviewed the Kerr-McGee Engineering Report, Volume II, page 2-80. The cell infiltration estimated in this report ranges from 0.025 cm to 12.5 cm per year.

Q.5. What infiltration rate was used in the solute transport analysis in the SFES?

A.5. The infiltration rate used in the SFES is 3 cm per year.

Q.6. How was this 3 cm per year infiltration rate estimated?

A.6. The infiltration rate was estimated based on the annual precipitation, evapotranspiration rate and runoff.

Q.7. Why is the infiltration rate used in the SFES 100 times greater than that used in the Kerr-McGee Engineering Report?

Q.7. In the Kerr-McGee Engineering Report, a range of infiltration rates was studied, i.e., from 0.025 cm to 12.5 cm per year. The 3 cm per year used in the SFES is 100 times greater than the lower bound and it is within the range studied by Kerr-McGee.

Q.8. What is the most probable value of infiltration rate and what is its uncertainty?

A.8. The actual value of infiltration rate depends on the construction of the disposal cell and the integrity of the cell in the long-term. For the analysis of the long-term impacts, a reasonably conservative

infiltration rate was estimated by the staff. This conservatism is consistent for all alternatives. Cell infiltration rate may vary from time to time. The value of 3 cm per year represents the "time-averaged" annual infiltrate rate; it was estimated based on site-specific annual precipitation, evapotranspiration and runoff.