UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of KERR-MCGEE CHEMICAL CORPORATION (West Chicago Rare Earths

Facility)

8912060120 8911 PDR ADOCK 0400 Docket No. 40-2061-ML ASLBP No. 83-495-01-ML

TESTIMONY OF PAUL BENIOFF ON CONTENTION 4A, ISSUE 4

- Q.1. What is the purpose of your testimony?
- A.1. The purpose of this testimony is to respond to the concern that the SFES does not describe what groundwater flow is indicated by the observed decrease with time in the sulfate, chloride, and fluoride concentrations in the glacial drift strata.
- Q.2. Does the analysis presented in the SFES show a decrease with time in the observed sulfate, chloride, and fluoride concentrations in the glacial drift strata?
- A.2. The analysis presented in the SFES on pp 4-97 to 4-99 shows a decrease in the average concentrations of sulfate with time for the glacial drift strata under the disposal site (the B series wells) and under the factory site (the F series wells). The averages were calculated in the same way as described in the testimony for ISSUE 3 for the average fluoride concentrations. Separate averaging calculations were made for the B series wells and the F series wells.

No decrease with time was noted for the average fluoride concentrations in either the B series wells or the F series wells. The data for the B series wells were discussed in the testimony presented for ISSUE 3. The time dependence of chloride concentrations was not examined in the SFES.

- Q.3. Why was the time dependence of chloride concentrations not examined in the SFES?
- A.3. Both chloride and sulfate are parameters that are present in groundwater in concentrations in the mgs/L range and both move in the groundwater without appreciable retardation. As a result both should show similar rates of decrease with time in the average concentrations in the wells. Since more sulfate was discarded as waste at the site than chloride (Table 2.1 on p 2-3 of the SFES) it was considered sufficient to limit the discussion to sulfate.
- Q.4. Does the SFES describe what groundwater flow is indicated by the time dependent changes in the average sulfate and fluoride concentrations, and if not, why not?
- A.4. No. The reason is that, as was noted in the testimony presented for ISSUE 3, the analysis in the SFES on pp 4-97 to 4-99 was presented to show the rate of cleanup or removal of contaminants from the aquifers and contaminated soils at the Disposal and Factory Sites. Cleanup or removal would occur by means of percolating rainwater or snowmelt or through the movement of groundwater. The speed and direction of groundwater flow is discussed in detail on pp 4-87 to

- 2 -

14

4-89 of the SFES. The time dependence of the average concentrations of parameters in the monitor wells is of little use in determining details of the groundwater flow in any of the strata.