

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

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OFFICE OF SECRETARY
DOCKETING & SERVICE
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IN THE MATTER OF)

KERR-McGEE CHEMICAL CORPORATION)

(West Chicago Rare Earths Facility))

Docket No. 40-2061-ML
ASLBP No. 83-495-01-ML

KERR-McGEE REPLY TO THE STATE MEMORANDUM
IN OPPOSITION TO
KERR-McGEE'S MOTION FOR SUMMARY DISPOSITION

On January 19, 1990, the State of Illinois ("State") submitted its opposition to the motion filed by Kerr-McGee Chemical Corporation ("Kerr-McGee") seeking summary disposition of the State's remaining contentions. The State's opposition profoundly misconstrues the facts and the law. Kerr-McGee thus files this reply in order to correct some of the most egregious of the State's many errors.

I. Contention 2(a)(i).

This contention asserts that, because the "sludge and tailings piles" contain "hot spots" of inorganic contaminants, Kerr-McGee's groundwater modeling is suspect. The State does not seriously dispute Kerr-McGee's assertions that any groundwater impacts derive from the average properties of the wastes and that, in any event, Kerr-McGee's sensitivity analyses included examination of the effects of a worst-case characterization of the wastes. Grant 2(a)(i) Affidavit, ¶¶

6, 7.^{1/} The State asserts, however, that the sampling undertaken by Kerr-McGee was inadequate in various respects.^{2/} The State's assertions, which are not encompassed by the contention in any event, are simply wrong.

Much of the State's argument is premised on the assertion that the samples were "screened" prior to analysis and that the sampling results were thereby biased in Kerr-McGee's favor. State Opposition at 3-4; Enno Affidavit, ¶ 4. As the Engineering Report explains, the Kerr-McGee sampling program applied a statistically based random sampling protocol prescribed by the EPA for characterizing sites containing hazardous waste. VIII Eng. Rep. 8-6; id., Exhibit I at 2-1 to 2-2. The location and number of samples were selected using that protocol, although in fact Kerr-McGee collected far more samples than EPA would have required. Id. at 8-7 to 8-8; id., Exhibit I at 2-2. As the Engineering Report explicitly states, "all randomly selected samples from the tailings pile, pond sediment pile, and Pond 1-5, where disposal was known to have taken place were subjected to EP Toxicity tests." Id. at

^{1/} All references to affidavits herein are to the affidavits submitted by Kerr-McGee with its motion or by the State and staff with their responses.

^{2/} The affidavit filed by the State in support of the contention also includes a variety of other observations that fall far beyond the scope of the contention. Enno Affidavit, ¶¶ 6-9. Although many of these observations are incorrect, they are not addressed here.

8-14. The contention focuses on the "sludge and tailings piles" and, contrary to the State's claim (State Opp. at 3-4), Kerr-McGee conducted no screening whatsoever in selecting samples for detailed analysis from those sources.^{3/} Id.

II. Contention 2(a)(ii).

This contention asserts that the Kerr-McGee site might allow channelized flow like that at a site in Sheffield, Illinois. As Kerr-McGee has explained, the water table at the West Chicago site is found in a sand-and-gravel layer, the E-stratum, which exists under the entire disposal site. Groundwater flow at the Sheffield site, by contrast, is controlled by a pebbly-sand unit deposited in a channel cut through a material of much lower hydraulic conductivity. Fetter Affidavit, ¶¶ 6-8. The State does not challenge these

^{3/} Chemical and radiological screening criteria were used for samples from areas that might not have been affected by facility operations in order to identify those samples that might possibly contain contamination. If the screening indicated the possible presence of contamination, then EP Toxicity tests were undertaken. VIII Eng. Rep. 8-14. In addition, all samples were subjected to analysis for total organic carbon, which was used in selecting samples for analysis for priority pollutant organics. Id. These analyses supplemented the separate comprehensive analyses for priority pollutants. Id. at 8-15. Contrary to the State's assertions (State Opp. at 3), the screening criteria were fully explained and justified in the Engineering Report. Although the State has had the Engineering Report since 1986, the State has never before raised any issue as to whether Kerr-McGee's approach to sampling was in any way suspect.

facts, which serve to show that a channel like that at Sheffield does not exist at the West Chicago site.^{4/}

III. Contention 2(d).

This contention deals with the adequacy of Kerr-McGee's groundwater monitoring plan. Although the contention focuses chiefly on the alleged lack of specificity in the plan, the State's opposition now seeks to criticize certain of the details of the plan. Of course, because an adequate groundwater monitoring plan clearly can be established, the contention could not justify denial of Kerr-McGee's license amendment even if it were meritorious. But, in any event, the State's criticisms are inconsistent with the regulatory requirements.

The State criticizes Kerr-McGee's monitoring of the E-stratum, asserting that other strata should also be monitored. Enno Affidavit, ¶¶ 18-19. The State also criticizes the placement of wells at the upgradient boundary of the disposal area, rather than in an area where groundwater might not have been impacted by past site operations. Enno Affidavit, ¶ 17. The NRC UMTRCA criteria specifically explain, however, that the monitoring is to "detect leakage . . . from

^{4/} The six-fold variation in conductivity in the E-stratum at the West Chicago site (Enno Affidavit, ¶ 12) -- a variation that is completely normal in a glacial outwash deposit -- should be contrasted with the 10^3 to 10^5 difference in conductivity between the 100-lon sand and the Hulick till at the Sheffield site. Fetter Affidavit, ¶ 6.

the disposal area." 10 C.F.R. Part 40, Appendix A, Criterion 7A (1989). The groundwater in the E-stratum would be directly and more significantly affected by a release from the cell than groundwater elsewhere, and hence monitoring should appropriately focus on that stratum. Cf. id. Criterion 5B (monitoring is to protect "the uppermost aquifer"). And placing the wells further upgradient would not enable the necessary assessment of the cell's performance. Cf. id. (monitoring is "to provide the earliest practicable warning that the impoundment is releasing . . . constituents").

- The State claims that the monitoring parameters - should include organics. Enno Affidavit, ¶ 20. But, Kerr-McGee's detailed monitoring has shown no organic chemicals of concern in the wastes. VIII Eng. Rep. 8-21; SFES, 2-14 to 2-17. And the State has already conceded this fact by withdrawing Contention 2(b) which focused on alleged organic contamination.^{5/}

^{5/} The State has raised a scattershot collection of other misguided criticisms. For example, although the State suggests that the waste might be regulated by RCRA (Enno Affidavit, ¶ 22), the staff has concluded otherwise and the State has provided no basis to doubt the staff's conclusion. SFES, 2-14 to 2-17. And, contrary to the State's claims (Enno Affidavit, ¶ 16), the one well that has developed a constriction (Well B-5) will not be retained for post-closure monitoring because it is at the center of the site. II Eng. Rep. 2-50, Fig. 2-73.

IV. Contention 2(h).

This contention asserts that, in light of the 14-billion-year half-life of thorium, the cell is inadequate to prevent human intrusion. The State can not dispute the fact that this matter has already been resolved by the Board contrary to the State's claims. Memorandum and Order, 24-25, 46 (Nov. 22, 1989). Moreover, the arguments advanced by the State to justify litigation of the contention are without merit. The contention cannot plausibly be read to justify the resurrection of the State's flawed erosion and maintenance claims. Thiers Affidavit, ¶¶ 5(A), (B). And, given the 14-billion-year term for which the State claims the cell must protect against intrusion, Dr. Thiers' suggestion (id., ¶ 5(C)) that disposal should be determined by current population distribution is absurd.^{6/}

V. Contention 2(l).

This contention argues that Kerr-McGee's control of radioactive dust releases during the stabilization period might not satisfy the NRC's ALARA requirement. The State's

^{6/} In promulgating its UMTRCA standards, EPA refused to distinguish currently remote sites from other sites. EPA explained:

[D]emographers have concluded that it is not possible to determine that a population at a specific location will remain low in the future, if it is low now.

opposition, which is not supported by an affidavit or other factual showing, does not include any assertion that Kerr-McGee's dust-control program will be inadequate to protect the public. State Opp. at 11. And, the adequacy of Kerr-McGee's compliance with opacity requirements (State Opp. at 11-12) clearly raises a matter that is entirely beyond the scope of the contention, which by its terms is limited to satisfying the NRC ALARA requirements.^{7/}

VI. Contention 2(m).

This contention challenges the adequacy of Kerr-McGee's proposed post-closure air monitoring. The State does not dispute that the NRC regulations do not require any post-closure air monitoring. The State's sole challenge to the Kerr-McGee plan is that Kerr-McGee's proposed monitoring of radon-222 is said not to comply with 40 C.F.R. Part 61, Subpart T. State Opp. at 12-13; Bernhardt Affidavit, ¶ 8(i). But the State has failed to note that those regulations are explicitly limited to uranium mill tailings. 40 C.F.R. §§ 61.220, 61.221(c).^{8/} They have no application to West Chicago.

^{7/} Of course, if the opacity regulations apply in West Chicago, Kerr-McGee will obviously be obliged to comply. The State's claims, even if meritorious, can not justify denial of Kerr-McGee's license amendment.

^{8/} These regulations were recently promulgated. They are found at 54 Fed. Reg. 51654, 51702 (1989).

VII. Contention 2(o).

This contention relates to Kerr-McGee's plan to dispose of any rare earth compounds that remain at the site in the disposal cell. The State has not attempted to rebut the Kerr-McGee showings that the compounds present no health or environmental concerns.

VIII. Contention 2(q).

This contention raises issues as to the radiological doses that might be incurred during the action period. The chief focus of the State's Opposition is that staff's analysis should be based on 50-year committed doses, rather than annual doses. State Opp. at 15; Bernhardt Affidavit, ¶¶ 4(ii), 6, 7(i), 9, 10. This claim is not fairly encompassed by the contention, but is entirely misguided in any event. As the SFES explains, "[u]nless otherwise stated, the term 'dose' in [the SFES] represents the committed 50-year effective dose equivalent." SFES, 5-43. Consistent with this statement, the "total effective dose equivalent" for the maximally exposed individual that is set out in the SFES (Table 5.11) is a committed 50-year effective dose equivalent.^{9/} The State's

^{9/} The doses to organs are given in terms of annual dose equivalent in the SFES. SFES, Table 5.11. This is because 40 C.F.R. Part 192 sets out organ dose limits in terms of "annual dose equivalent." See id. at 5-47.

inexplicable confusion on the point cannot justify further litigation concerning this contention.^{10/}

IX. Contention 2(r).

This contention relates to the State's claim that tailings solutions might adversely affect the liner. The State does not seriously dispute that the issue is largely irrelevant because the Kerr-McGee design is not dependent on the liner for the long-term cell performance. Nonetheless, the State criticizes the test that Kerr-McGee performed to assure that the leachate will not adversely affect cell performance. State Opp. at 16-17; see Grant 2(r) Affidavit, - ¶¶ 5-9.

The State asserts that the test was flawed because the amount of lime added to the tailings in the test might differ from the lime that the Engineering Report had indicated

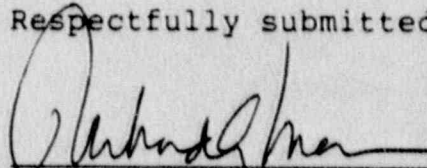
^{10/} Kerr-McGee's expert (Dr. Chambers) was able to replicate the staff's estimate of the total effective dose equivalent to the maximally exposed individual and, as explained in his affidavit, was able to confirm that the estimate was a committed dose. Chambers Affidavit, ¶ 2. In performing this calculation, Chambers also was able to satisfy himself, as the staff has confirmed, that the dose arising from particulates assumed 100 percent outside exposure. Id. ¶ 4. The staff has subsequently also revealed that radon dose was calculated assuming 100 percent indoor exposure -- a conservative assumption that serves to increase dose. Yuan Affidavit, ¶ 4(i). This was not apparent to Chambers in his reproduction of the staff's estimate because, as Chambers explained, the radon dose is far smaller than the dose from particulates. Chambers Affidavit, ¶ 5. (In fact, the 50-year committed effective dose equivalent from radon, thoron, and daughters, assuming a 0.5 equilibrium factor and 100 percent indoor occupancy, is roughly 0.4 mrem/year to the maximally exposed individual.)

would be added to the tailings at the time of disposal. See VII Eng. Rep. 10. In point of fact, one of the purposes of the test was to determine the amount of lime that should be added to the tailings so as to assure that the tailings would remain neutralized. The test was thus fully representative of the performance of the cell because Kerr-McGee will use the test results to guide the neutralization program.^{11/} The State's claim is misguided.

CONCLUSION

The State has offered no issues of law or fact that can justify the denial of Kerr-McGee's motion for summary disposition of the remaining contentions. Kerr-McGee therefore urges that its motion be granted in its entirety.

Respectfully submitted,



Peter J. Nickles
Richard A. Meserve
Herbert Estreicher
COVINGTON & BURLING
1201 Pennsylvania Avenue, N.W.
P.O. Box 7566
Washington, D.C. 20044
(202) 662-6000

Attorneys for Kerr-McGee
Chemical Corporation

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^{11/} The experiment revealed that Kerr-McGee should add roughly 90-95 pounds of lime per ton of tailings to assure neutralization. The estimate in the Engineering Report was based on the best information then available, but these data have now been superseded.

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CERTIFICATE OF SERVICE

I hereby certify that I have caused copies of the foregoing Kerr-McGee Motion for Leave to Reply and Kerr-McGee Reply to the State Memorandum in Opposition to Kerr-McGee's Motion for Summary Disposition to be served by express mail (or, as indicated by an asterisk, by first-class mail), postage prepaid, on this 29th day of January, 1990, as follows:

John H. Frye, III, Chairman
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
4350 East-West Highway
4th Floor
Bethesda, MD 20814

Dr. James H. Carpenter
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
4350 East-West Highway
4th Floor
Bethesda, MD 20814

Dr. Jerry R. Kline
Atomic Safety and Licensing Board Panel
4350 East-West Highway
4th Floor
Bethesda, MD 20814

Ann P. Hodgdon, Esq.
Patricia Jehle, Esq.
Office of the General Counsel
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

Steven J. England, Esq.
Illinois Department of Nuclear Safety
1035 Outer Park Drive
Springfield, Illinois 62704

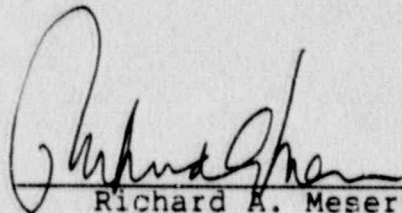
Carla D. Davis
Douglas Rathe, Esq.
J. Jerome Sisul
Assistant Attorney General
Environmental Control Division
State of Illinois Building
100 W. Randolph Street
12th Floor
Chicago, Illinois 60601

Robert D. Greenwalt, Esq.
City of West Chicago
100 Main Street
West Chicago, IL 60185

Adjudicatory File (2)*
Atomic Safety and Licensing Board Panel Docket
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Docketing & Service Section (3)*
Office of the Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Atomic Safety and Licensing Appeal Board Panel*
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555


Richard A. Meserve