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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

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

NRC STAFF PROPOSED FINDINGS
OF FACT AND CONCLUSIONS OF LAW

The NRC Staff submits its proposed findings of fact and conclusions of law pursuant to the Licensing Board's Order of December 20, 1989, and the Commission's regulations in 10 C.F.R. § 2.754. ^{1/}

KERR-MCGEE'S PROPOSED FINDINGS OF FACT

I. INTRODUCTION

A. Background

1. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 1-2.
2. The Staff adopts proposed ¶ 3 and would add the following

language:

^{1/} In preparing its proposed findings, the Staff has considered the findings proposed by both Kerr-McGee and the State of Illinois. The Staff indicates whether it adopts a proposed finding and, where it disagrees, provides the basis of disagreement and, in some instances, alternative language.

DS07

Of this amount, 81,900 cubic meters is considered source material and may be the responsibility of the State of Illinois. CLI-88-6, 28 NRC 75 (1988).

3. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 4-9. Footnote 3 should read:

NRC, Supplement to the Final Environmental Statement Related to the Decommissioning of the Rare Earths Facility, West Chicago, Illinois (April 1, 1989) (NUREG-0904, Supp. No. 1).

B. The Hearing

4. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 10-12.

5. In lieu of ¶ 13, the Staff proposes:

The NRC Staff submitted testimony by various officials from Argonne National Laboratories who had assisted in the preparation of the SFES. The NRC witnesses were Dr. Paul Benioff, Dr. Charley Yu and Mr. Jeffrey P. Schubert. Dr. Benioff is an environmental chemist and served as project manager in the preparation of the SFES. Dr. Yu is an environmental systems engineer/radiological analyst with responsibilities for developing pathways analysis computer codes and performing site-specific environmental impact assessments. Mr. Schubert serves as a Scientific Associate in the Environmental Research Division at Argonne and has engaged in a variety of the projects involving the assessment of the geochemical evolution and transport of contaminants in subsurface systems.

[Jeffrey P. Schubert's correct title is "Mr." See "Jeffrey P. Schubert, Professional Qualifications," at 2, ff. Tr. 688.]

6. The Staff adopts Kerr-McGee's proposed finding of fact ¶¶ 14-16.

II. Modeling

7. The Staff adopts Kerr-McGee's proposed finding of fact ¶ 17.

A. Kerr-McGee Groundwater Modeling

8. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 18-40.

B. NRC Modeling

9. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 41-53.

III. Contention 4(a)

10. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 54-55.

A. Infiltration

11. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 56-68.

B. Hydrologic Properties

12. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 69-75.

13. In lieu of ¶ 76, the Staff proposes:

The array of different analyses provides ample reason for confidence that the cell will not have an adverse impact on groundwater.

C. Fluoride Concentrations

14. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 77-83.

D. Groundwater Flow

15. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 84-86.

E. Recharge of the Silurian Dolomite

16. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 87-90.

F. Groundwater Usage

17. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 91-100.

IV. Contention 3(g)(2)

18. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 101-105.

V. November 20, 1989 Order

19. The Staff adopts Kerr-McGee's proposed finding of fact ¶ 106.

A. Leachate

20. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 107-113.

B. Cyanide

21. The Staff adopts Kerr-McGee's ("KM") proposed findings of fact ¶¶ 114-117.

22. In lieu of KM ¶ 118, the Staff proposes that the paragraph read as follows:

The waste sample with a reported concentration of cyanide above the detection limit probably represents a laboratory reporting error. KM Ex. 2, at. 44; but see Tr. 791-98 (Benioff).

[Dr. Benioff's testimony was that although the one positive data point might be laboratory error, it might also be a real number, as other contemporaneous data are consistent with both conclusions.]

23. The Staff adopts Kerr-McGee's proposed findings of fact ¶¶ 119-120.

PROPOSED CONCLUSIONS OF LAW

1. The Staff adopts proposed conclusion of law 1.
2. The Staff adopts KM proposed conclusion of law 2; the Staff would add:

To the extent that Contention 3(g)(2) raises an issue under the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 et seq., the Licensing Board finds that Contention 3(g)(2) lacks merit and that the NRC Staff's modeling is in full compliance with the requirements of NEPA.

ILLINOIS' PROPOSED FINDINGS OF
FACT AND CONCLUSIONS LAW

On January 16, 1990, Illinois filed both findings of fact based on Kerr-McGee's proposed findings and its own proposed findings. However, contrary to the requirements of 10 C.F.R. § 2.754, which governs proposed findings in NRC proceedings, Illinois has failed to provide exact citations to the transcript of record and exhibits in support of each proposed finding. Illinois' proposed findings based on Kerr-McGee's findings provide neither citations to the record nor the basis for disagreement required by the Licensing Board in its order of December 20, 1989. The Board should not adopt any of these findings proposed by Illinois, as Illinois has provided no basis for adopting them.

ILLINOIS' PROPOSED FINDINGS

As regards Illinois' proposed findings that are not based on the Kerr-McGee findings, the NRC Staff believes that the Licensing Board need not adopt any of these findings, as those that are consistent with Kerr-McGee's proposed findings are merely repetitive. Others are objectionable in that they distort the test results. Further, Illinois has not offered a comprehensive set of findings. In some instances, the Staff has suggested rewording in the event the Licensing Board determines to adopt some of Illinois' proposed findings. In other instances, the Staff has merely indicated its disagreement with the proposed finding and has given the basis for the disagreement. Staff comments are enclosed in brackets.

IV. Modeling

24. In lieu of I-1, the Staff proposes:

Kerr-McGee, as the applicant, has the burden of persuading the Licensing Board that those allegations made in the Illinois contentions on which the hearing was held are not true.

[Illinois' proposed finding I-1 misstates the applicant's burden. The applicant has the burden of proof only on matters put into controversy by the parties to the proceeding. 10 C.F.R. § 2.760a.]

25. [The Licensing Board should not adopt I-2, as it mischaracterizes Mr. Schubert's testimony. Contrary to the statement made in the finding, Mr. Schubert's testimony does not speak to the necessity for performing both two-dimensional and three-dimensional modeling in order to determine which is preferable for a given site. Further, when asked whether both a two-dimensional and a three-dimensional model should have been run, Mr. Schubert stated that perhaps a two-dimensional model

with some sensitivity analysis, which Kerr-McGee did to some extent, is one way to determine sensitivity. Tr. 750 (Schubert).]

26. [The Staff does not object to ¶¶ I-3 and I-4 except as noted supra at 5.]

27. [Illinois proposed finding I-5 misrepresents the testimony. Dr. Grant stated that he believed Kerr-McGee had sufficient data for three-dimensional modeling. Tr. 570. Later, in a different context, Dr. Grant stated that three-dimensional modeling is usually more costly and that it is more time-consuming. Tr. 572.]

28. The Staff adopts proposed ¶ I-6.

29. [The Staff's objections to ¶¶ I-7 through I-9 are those noted supra at 5.]

30. In lieu of ¶ I-10 as proposed, the Staff proposes:

The NRC Staff model did not take into account the heterogeneity of the West Chicago site. Conservative single values were chosen for hydraulic conductivity, waste cell shapes and contaminates. Tr. 769 (Benioff)

[Dr. Benioff's testimony was that the values chosen by the Staff were conservative.]

31. [The Staff's does not object to ¶¶ I-11 and I-12.]

32. [Proposed finding I-13 should be rejected because it mischaracterizes Dr. Grant's testimony. Dr. Grant testified at Tr. 565 that he was not able to assign a percentage of reliability to the modeling Kerr-McGee undertook. Dr. Grant did not make the statements attributed to him in proposed finding I-13.]

33. [The Staff does not object to ¶ 1-14.]

34. [The Staff does not object to ¶ 1-15.]

35. [1-16 should be rejected, as it distorts the testimony.]

Dr. Warner said the cap might have imperfections. Tr. 655.]

36. [Proposed finding 1-17 mischaracterizes Dr. Benioff's testimony. Dr. Benioff testified that he did not know of quantitative data. He did not testify that there was no reported experience to prove or disprove how well a cover similar to the proposed cover will function.]

37. [Proposed finding 1-18 is incomprehensible; among other things, it misstates the Licensing Board's responsibility.]

VII. Infiltration

38. [The Staff does not object to ¶ 1-19.]

39. [Proposed finding 1-20 improperly characterizes the testimony. Dr. Fetter testified that cracks can occur, not that they inevitably occur.]

40. [The Staff does not object to ¶ 1-21.]

41. In lieu of ¶ 1-22, the Staff proposes:

At the Sheffield site, relatively small cracks in the clay liner transmitted a significant quantity of water through the disposal cell. Dr. Warner would not expect similar subsidence at the West Chicago site. Tr. 650 (Warner).

42. [The Staff does not object to ¶ 1-23.]

43. [Proposed finding 1-24 distorts Dr. Yu's testimony. Dr. Yu's testimony was that the cover might develop cracks and fissures, not that it would develop cracks and fissures.]

44. In lieu of I-25, the Staff proposes:

While most subsidence in waste cells occurs within five years of capping, subsidence continues to occur even after ten years, never dropping to zero. Tr. 722 (Schubert).

[The testimony concerned waste cells generally.]

45. [Proposed finding I-26 distorts Dr. Stauter's testimony, which was that the term of monitoring on Kerr-McGee's part would be negotiated through the NRC and would be a part of NRC license conditions. Tr. 532.]

46. [The Staff does not object to ¶ I-27.]

47. [Proposed finding I-28 distorts the testimony of Dr. Grant. Dr. Grant testified, at Tr. 528, that generally landfills subside. He testified at Tr. 524 that the HELP model did not include subsidence as a factor.]

48. [The conclusion stated in I-29 should be rejected as Illinois has provided no record basis for reaching such a conclusion.]

VIII. Hydrology

49. [The Staff does not object to ¶¶ I-30 through I-31].

50. [Proposed finding I-32 distorts Mr. Schubert's testimony. Mr. Schubert's testimony was that a certain percentage of water from the glacial drift aquifer enters the Silurian dolomite aquifer. Tr. 780-81.]

51. [The Licensing Board should reject proposed finding I-33. Dr. Fetter's testimony was that the site is hydrologically heterogeneous in that the several different aquifers and confining layers present vary in terms of their thickness and in terms of hydraulic conductivity. Tr. 554.]

52. [Paragraph I-34 distorts the testimony and should be rejected.]

53. [The Staff does not object to ¶¶ I-35 through I-36.]

54. [Proposed finding I-37 distorts Dr. Grant's testimony.

Dr. Grant's testimony at the pages cited, Tr. 558-59, does not relate the general discussion of modeling saturated thickness to the matter at issue, modeling the West Chicago site.]

55. [I-38 should be rejected as unnecessary.]

56. [Proposed finding I-39 should be rejected, as the statement attributed to Mr. Schubert is not to be found at Tr. 757.]

57. [The Licensing Board should reject the conclusion stated in I-40 as it does not follow from proposed findings I-30 through I-39.]

IX. Recharge of the Silurian Dolomite

58. [The Staff does not object to ¶ I-41.]

X. Leachate

59. In lieu of ¶ I-42, the Staff proposes:

Kerr-McBee used an EP toxicity test for leachate, which involves leaching materials with acid. The NRC Staff thought the test would give an unnecessarily unrealistic high value for concentration in the leachate, in that the water -- even if acid rain -- would be neutralized by the time it contacted the wastes. Tr. 781-82 (Benioff).

60. [The Staff does not object to ¶¶ I-43 and I-44.]

61. In lieu of I-45, the Staff proposes:

Dr. Benioff thought that the method of pouring a solution into a fixed column more closely approximated reality [i.e., the downward movement of water through the cell] than did the method used by

Kerr-McGee, which involved shaking the material with water for twenty-four hours. Tr. 786-87 (Benioff).

62. [The Licensing Board should reject the conclusion in I-46 because it doesn't follow from Paragraphs I-42 through I-45.]

XI. Cyanide

63. In lieu of ¶ I-47 as proposed, the Staff proposes:

The NRC Staff used Kerr-McGee data for contaminants. Tr. 791 (Benioff).

64. [The Staff does not object to ¶ I-48.]

65. In lieu of ¶ I-49, the Staff proposes:

Dr. Benioff believed that further inquiries were appropriate because the cyanide value may indeed have been a real number and not laboratory error. Tr. 792 (Benioff).

66. [The Staff does not object to ¶ I-50.]

67. In lieu of ¶ I-51, the Staff proposes:

Data from 1985 showing cyanide above detection limits in the KM wells shows that there might have been cyanide there at that time. Tr. 797 (Benioff).

68. [The Staff objects to ¶ I-52.]

69. In lieu of ¶ I-53, the Staff proposes:

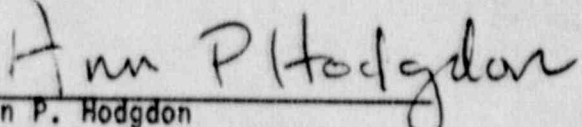
The most recent data, the Weston data, show no cyanide. Previous data are consistent and are also consistent with the conclusion that there was cyanide previously present at the site. In any event, the conclusion that no cyanide is present now makes immaterial the question of whether a previous positive indication was laboratory error.

PROPOSED CONCLUSIONS OF LAW

3. In lieu of proposed conclusion of law Illinois-1, the Staff proposes:

The Kerr-McGee plan complies with 10 C.F.R. Part 40, Appendix A, Criterion 1 (1989).

Respectfully submitted,



Ann P. Hodgdon
Counsel for NRC Staff

Dated at Rockville, Maryland
this 23rd day of January, 1990

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CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or as indicated by an asterisk through deposit in the Nuclear Regulatory Commission's internal mail system or as indicated by a double asterisk by use of express mail this 23rd day of January, 1990:

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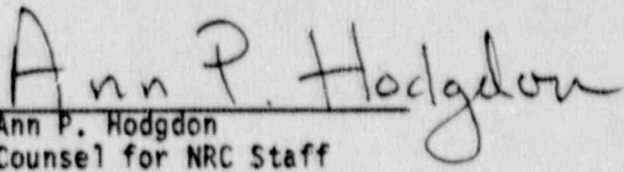
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