12-19-73

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

IN THE MATTER OF	)	
	)	Amendment to Source
KERR-McGEE CORPORATION	)	Material License
Kerr-McGee Center	)	SUB-1010
Oklahoma City, Oklahoma	)	Docket No. 40-8027

REPLY BRIEF

Pursuant to the provisions of 10 CFR 2.754, Kerr-McGee Corporation, Applicant herein, files its Reply Brief in support of its Proposed Findings of Fact and Conclusions of Law and in answer to the Proposed Findings of Fact and Conclusions of Law filed by the AEC Regulatory Staff.

At the risk of superfluity, but because the correct concept is vital, Kerr-McGee would like to reiterate that the contested issues in this cause must be established in accordance with 10 CFR 40.32(c) and (d), which require that the licensee's equipment, facilities and procedures proposed for use are "adequate to protect health and minimize danger to life or property", and that issuance of the amendment will not be "inimical to the health and safety of the public."

As previously pointed out, the term "adequate" is not an absolute term in that it requires that there must be a positive guarantee that the health of the population will under no circumstances be affected by the requested action. Webster's Seventh New Collegiate Dictionary defines adequate as meaning "sufficient for a specific requirement", but immediately it goes on to point out that specifically such term means "barely sufficient". The word "minimize" clearly recognizes that there will be some danger, but that it should be reduced to a minimum. It is clear that the granting of an application is not grounded on an absolute guarantee of the protection of the health of the population in the area and positive determination that all danger to life and property have been removed, but that a license will be granted if the licensee's equipment, facilities and procedures proposed for use are sufficient to protect health and reduce danger to life or property to a minimum.

It is likewise abundantly clear that the position of the Staff throughout, and as revealed in their Proposed Findings of Fact and Conclusions of Law, is that Kerr-McGee must prove conclusively and absolutely that there will be no possible danger to the health, life or property of the population in and around the fault block into which Kerr-McGee desires to dispose of the waste products from its Sequoyah Facility. There is no warrant for such position under the statutes or under the rules and regulations of the Commission.

If the fault block into which it is proposed to dispose of the waste products could be exposed, measured, examined and tested by direct observation, then the absolute finality desired by the Staff could be obtained, even though not required by the statutes or by the rules and regulations of the Commission.

Kerr-McGee asserts, however, that using the best industry practices available to it, that it has shown that the equipment, facilities and procedures it proposes for use are "adequate to protect health and minimize danger to life or property", and that the issuance of the amendment will not be "inimical to the health and safety of the public."

Let us then address ourselves specifically to some of the matters raised in the Proposed Findings of Fact and Conclusions submitted by the Staff.

ISSUES 1 AND 2

Issues 1 and 2 concern themselves with the existence and distance from the disposal well of the Webbers Falls Fault and the South Fault. In paragraphs 1-6 and 2-1 are the proposed findings of the Staff in which the Staff states that the evidence submitted by Kerr-McGee does not "conclusively establish" the existence of the faults. Nor can any evidence conclusively establish the location of the faults unless a well is drilled which directly cuts the fault, or unless, as Dr. Chenoweth pointed out, a trench is dug which cuts such faults.

But is the drilling of enough wells to cut each individual fault, or the digging of trenches to cut the faults necessary? The "hard" evidence from the logs of the various wells examined by Dr. Chenoweth clearly show that such faults must exist. The surface formations indicate the locations of such faults. The numeric modeling has located one of such faults 1164 feet from the well and has established a point which is the nearest that the South Fault could be to the well.

None of the consultants or the Staff has taken the position that either a fault or a permeability barrier does not exist in the two areas pointed out by Kerr-McGee. They simply point out that it could be one or the other, and that it could vary slightly in location. It is interesting to note, however, that not one of the consultants disagrees with any of the hard evidence that Kerr-McGee presented, and this hard evidence sustains the interpretation made by Kerr-McGee's consultants. The Staff has presented no contrary evidence, and no contrary interpretation, but merely the statement that other interpretations are possible, and then states that Kerr-McGee's evidence is not "conclusive".

Kerr-McGee asserts that the evidence submitted is well within the range of adequacy to protect health and minimization of danger to life or property.

The Staff further asserts, in paragraph 1.2, that the water injection tests and pressure fallout tests were inconclusive because "it is generally assumed that the reservoir is a one layer, homogeneous system." The Staff goes on to say that this reservoir consists of five layers, but that separate injection tests were not performed for each of the five layers.

Kerr-McGee's consultants did not assume that the reservoir was a one layer, homogeneous system. As a matter of fact, in their radioactive tracer testing, they established that the reservoir consisted of a number of layers with permeability, which could be grouped into five layers for testing purposes. The method of testing and the use of the numeric model to determine boundaries has been adequately discussed. Suffice it to say, that separate injection tests were not performed for each of the five layers because such separate injection tests were not needed.

The Staff also challenged the number of computer runs necessary to complete the model, indicating that the number of runs reflected difficulty in arriving at a model. Considering, however, the number of parameters to be used, and the number of questions to be answered, certainly thirty-two computer runs is not an excessive number.

In paragraph 1.7 the Staff challenges the photogeologic analysis introduced as Exhibit C-F. It should first be pointed out that such interpretation is that of a well known geologist in Oklahoma, Mr. Frank A. Melton, and was not made by any consultant for Kerr-McGee. Dr. Warner first obtained a copy of the interpretation from the Oklahoma Geological Survey and attached it as an exhibit to one of his reports. Kerr-McGee had nothing to do with the location of the inferred faults cited by the Staff, and the fact that so few of them exist in the fault block area is another reason why the fault block is a satisfactory place in which to dispose of the waste material.

In addition, as pointed out by Mr. Gruy, Dr. Van Poollen and Mr. Robertson, if any of the inferred faults which appear in the fault block area (other than boundary faults) affected the movement of liquid within the fault block, such information would have been revealed by the numeric model. Mr. Gruy categorically states that no such information was revealed.

ISSUE 3

In connection with the existence of additional faults within the fault block, the Staff points to the branching of a fault from the Carlile School Fault into the fault block, and alludes to the two inferred faults shown on the photogeologic interpretation of Mr. Melton. Surface investigation of the two inferred faults shows that they are lines of vegetation resulting from joints, which are merely surface folds and are not faults in any sense of the word. The branch from the Carlile School Fault has been revealed as having no influence on the movement through the formation by the numeric model, which revealed that the direction of flow from the well was radial throughout the reservoir.

ISSUE 4

In connection with possible leakage of the faults making up the fault block, apart from any consideration given to the extensive investigation by Mr. Gruy, the consultants for Kerr-McGee unanimously agreed (and none of the consultants of the Staff disagreed) that Petroleum

Geologists and Engineers consider all faults as sealing since they are almost universally so.

It is true that faults leak, and that they do provide pathways for mineral substances to travel to the surface in some instances. However, the reasonable inference to be drawn from the testimony is that for a fault to be leaking is the exception that proves the rule that most faults do not leak.

Further, there is no evidence of leakage of the faults at the present time. As pointed out by the consultants for the Staff, the rise in pressure of 200 pounds psig after five years of injection is very small, and, in fact, as compared to the pressure of many thousands of pounds found in oil and gas reservoirs discovered adjacent to faults (which do not leak) it is insignificant. The chances that such a pressure increase will cause the rupture of a fault are so small as to be incalculable.

As to another disposal well in the area which could raise the pressure in the formation to the rupture point, such disposal wells must be permitted by appropriate State agencies in Oklahoma and any such activity could be amply guarded against.

ISSUE 5

In connection with Issue 5, Kerr-McGee would refer the Board to paragraphs 27 through 32 of its Proposed Findings and the various citations to the record contained therein.

However, concerning the new Johnsonville Wells alluded to by a consultant for the Staff, on which the Staff bases a great deal of its objections to the method of determining direction and rate of movement of liquid waste from the well bore in the disposal well, Kerr-McGee would point out that although various methods were alleged to have been used to determine the rate and direction of movement in the new Johnsonville Wells, numeric modeling was not used. Consultants for both the Staff and Kerr-McGee have clearly pointed out that numeric modeling will determine the rate and direction of movement from the well bore, and therefore Kerr-McGee asserts that the experience of the new Johnsonville Wells is not relevant, since Kerr-McGee did use numeric modeling to make such determinations.

In addition, it should be pointed out that at no point in the testimony was any information given us concerning the new Johnsonville Wells except that one of them had movement cf disposed liquids in a preferred direction which was not determined beforehand. What were the parameters of the well or wells? What were the testing procedures? What was the result of the testing? These and many other facts are necessary before it can be determined that the new Johnsonville experience is relevant to the problem at hand. Therefore, Kerr-McGee asserts that the new Johnsonville experience provides no basis for determining the issues at bar.

REMAINING ISSUES

As to the remaining issues, Kerr-McGee would refer to its Findings of Fact and its Brief filed herein.

CONCLUSION

The use of the disposal well is important to Kerr-McGee. It has put much time and effort and much money into the preparation for and presentation of evidence in support of its amendment for the use of such well. Kerr-McGee believes that it has presented evidence that its equipment, facilities and procedures proposed for use are "adequate to protect health and minimize danger to life and property", and that the issuance of the amendment will be not be "inimical to the health and safety of the public."

The Staff throughout has demanded, contrary to the provisions of CFR 40.32(c) and (d), that Kerr-McGee present absolute proof not that its equipment, facilities and procedures were adequate to protect and minimize danger, but that there would be absolute protection and no danger. Kerr-McGee asserts that such proof is not required, and reiterates its prayer set forth in its initial brief heretofore filed with this Board.

Respectfully submitted,

Francis S. Irvine

Francis S. Irvine

ATTORNEY FOR KERR-McGEE CORPORATION

600 Fidelity Plaza
Oklahoma City, Oklahoma 73102
Telephone No. (405) 272-9221

OF COUNSEL:

KERR, DAVIS, IRVINE, BURBAGE & GREEN, INC.

CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the above and foregoing instrument were mailed to the following by depositing in the United States Mail at Oklahoma City, Oklahoma on the 19th day of December, 1973:

John B. Farmakides, Esq.
Atomic Safety and Licensing Board Panel
U. S. Atomic Energy Commission
Room 1013 - 1717 H Street N.W.
Washington, D.C. 20545

Mr. Frank W. Karas
Chief, Public Proceedings Staff
Office of the Secretary of the
  Commission
U. S. Atomic Energy Commission
First Floor, 1717 H Street N.W.
Washington, D. C. 20545 (20 copies)

Atomic Safety and Licensing Appeal Board
U. S. Atomic Energy Commission
10th Floor - 1717 H Street N.W.
Washington, D. C. 20545

Mr. Lester Kornblith, Jr.
Atomic Safety and Licensing Board Panel
U. S. Atomic Energy Commission
10th Floor - 1717 H Street N.W.
Washington, D. C. 20545

Mr. Roy E. Kinsey, Jr.
U. S. Atomic Energy Commission
7920 Norfolk Avenue
Bethesda, Maryland

Mr. James P. Murray, Jr.
U. S. Atomic Energy Commission
7920 Norfolk Avenue
Bethesda, Maryland

Dr. Dale F. Babcock
711 River Road
Wilmington, Delaware 19809

Francis S. Irvine

Francis S. Irvine