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AREA CODE 405
272-9221

DRM

September 10, 1973

File
Ken McGee
Hearing

Mr. Roy E. Kinsey, Jr.
U. S. Atomic Energy Commission
Washington, D. C. 20545

Re: Amendment to Source Material
License SUB-1010

Dear Mr. Kinsey:

Pursuant to our telephone conversation enclosed is the amended Joint Statement of Proposed Issues which you forwarded to me.

Changes in Issues 1 and 2 were discussed over the telephone.

In Issue 4 we suggest striking out the words "and integrity" since the entire question is directed toward the integrity of the faults themselves and these two words seem redundant and perhaps confuse the real issue.

I felt that Issues 5 and 6 really belonged together and I put them back together as one issue and I would be happy to have your thoughts on this matter.

The remaining issues have been renumbered to correspond with the addition of Issue 8 which we discussed on the phone.

Very truly yours,

Francis S. Irvine

For the Firm

FSI/as
Enc.

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

IN THE MATTER OF	)	
	)	Amendment to Source
KERR-McCEE CORPORATION	)	Material License
Kerr-McGee Building	)	SUB-1010
Oklahoma City, Oklahoma	)	

JOINT STATEMENT OF PROPOSED ISSUES

Pursuant to the Board's request during the prehearing conference held on August 14, 1973, in connection with the captioned proceeding (Tr. p. 4), the AEC Regulatory Staff and the applicant herewith jointly propose that the following be considered as the issues before this Board in this matter:

1. Whether the Webers Falls fault exists and, if it does, at what distance is it located northeast of the proposed disposal well?
2. Whether the South fault exists and, if it does, at what distance is it located southwest of the proposed disposal well?
3. Whether additional faults exist within the disposal formation (fault block) that may act as either barriers to fluid movement within the fault block or conduits for fluid movement within the formation.
4. Whether the nature of the faults comprising the fault block are such that the faults will act as barriers to fluid movement under increasing fluid pressure.

5. Whether the five disposal zones composing the Arbuckle Formation can be assumed to be homogeneous, isotropic, and constant in thickness, porosity, and permeability, thereby permitting the calculation of the movement of the disposed waste fluid from the well bore.

6. Whether a three dimensional analysis of geohydrologic problems by the finite difference method, based on test data obtained from a single well, can accurately predict the nature and performance of the injection horizons.

7. Whether monitoring by pressure testing at the well head is adequate to detect fluid movement, or whether there is a need for direct monitoring of the recipient formation.

8. Whether in the event of a demonstrated leak in the retention reservoir or fault block the waste fluid can be recovered.

Respectfully submitted,

_____

Francis Irvine, Attorney for
Kerr-McGee Corporation

_____

Roy E. Kinsey, Jr.
Counsel for AEC Regulatory Staff

Dated at Bethesda, Maryland
this _____ day of September,
1973.

OKLAHOMA CITY, OKLA.
OKLAHOMAN
SEP 23 1973
M - 176,403
S - 270,486

AEC Sets Hearing on Kerr-McGee Disposal Request

By Jim Reid

Kerr-McGee Corp. and many other energy producers in the atomic age share a common problem.

It's an environmental problem — the disposal of radioactive wastes.

The company wants to pour its waste — radio-nuclides — into a 3,000-foot well near the community of Vian in eastern Oklahoma.

However, the Atomic Energy Commission's licensing and safety board won't approve the plan until it learns more about the effect it would have on the environment, particularly on underground water reservoirs.

Hearing Is Set

So, the board has called a hearing, tentatively set for Oct. 15 and 16, to give Kerr-McGee time to educate its three members on the technical problems involved.

Kerr-McGee reported it has run tests to make certain there would be no contamination of underground water.

Meanwhile, the Natural Resources Defense Council, an environmental protection group, has filed a federal lawsuit against the AEC calling for a halt to all underground dumping of nuclear wastes.

Radioactivity Low

Kerr-McGee's nuclear waste comes from the company's Sequoyah Facility between Gore and Sallisaw in Sequoyah County near the confluence of the Illinois and Arkansas rivers.

The $25 million plant converts uranium oxide (called yellow cake) into uranium hexafluoride gas (UF-6), one step in the process of making fuel for nuclear reactors.

Since the waste from the operation has a low level of radioactivity, it is now stored in several holding ponds on the plant site.

The company has drilled the 3,000-foot well, similar to an oil well, near the plant for storage of the wastes.

Opened in 1970, the Sequoyah plant receives uranium oxide from Kerr-McGee's mill near Grant, N.M., as well as from other miners and millers.

Compressed into Pellets

The uranium hexafluoride gas produced is sent to AEC gaseous diffusion plants in Tennessee, Kentucky and Ohio where it is enriched.

After enrichment, the gas becomes a powder and is compressed into pellets that go in rods that fuel atomic reactors used to generate electricity.

Ever since the dawn of the atomic age, nuclear experts have begen wracking their brains to find some permanent resting place for radioactive wastes, some of which remain "hot" for several years.

At one time, the AEC was considering an abandoned Kansas salt mine as a candidate for a nuclear "garbage" dump. Because of political pressure, the plan was abandoned, however.

New Site Studied

Now under consideration is an underground salt dome in the vicinity of Carlsbad, N.M.

Kerr-McGee has submitted environmental and engineering reports to the AEC that outline the company's proposed Vian site, a company official said.

This method of underground disposal, he said, is superior — in the company's opinion — to other approved disposal methods now in use.

The official said the method is favored by the State Department of Health and the Oklahoma Geological Survey, both of which have issued notices to that effect.

New Data Planned

He said additional information to be submitted to the AEC licensing and safety board at next month's hearing will consist of a more detailed geological and engineering description of the reservoir and the methods and procedures by which the reservoir has been determined. He said this material has not as yet been completed.

Because Kerr-McGee's application for AEC permission to store its wastes underground was carried only in the Federal Register, the Natural Resources Defense Council lodged its complaint that the AEC's notification procedures are inadequate.

A council spokesman said people living in the vicinity of the Kerr-McGee well did not know about the company's plan because the Federal Register, a daily publication of government action, is accessible to only a few people.

A Kerr-McGee spokesman said the company has made no special effort to inform Vian residents of its plan to dispose the waste from the Sequoyah Facility underground.

"The company has complied with all rules and regulations regarding its plans for utilizing a deep well for the disposal of waste," he said.

The spokesman said a public meeting in the vicinity of the facility is nei-

(CONT'D)

OKLAHOMAN 9-23-73

ther required nor, in the company's opinion, necessary for several reasons.

"The proposed deep well waste disposal system, if approved and utilized, would not endanger the surrounding environment any more than the deep well disposal of salt water, which is a common practice throughout Oklahoma," he said.

"In addition, all documents that the company has supplied the Atomic Energy Commission in support of its proposal are available for public inspection at the library in Sallisaw, the Sequoyah County seat. The drilling and testing of the well for this intended use has been general knowledge to numerous employees, many of whom reside in Vian and the surrounding communities.

The waste which Kerr-McGee is seeking to dispose of underground is the liquid waste from the solvent extraction of uranium-rich nitric acid solution of uranium concentrates. It contains a very low degree of radioactivity.

The liquid waste, according to company records, is generated at the rate of about 19 gallons a minute.

The total capacity of the underground reservoir reached by the well is estimated to be not less than 38 billion gallons.

TRI-CITY HERALD 9-23-73

9-23-73

Hanford plutonium-contaminated building to be buried

By TOM RIGERT
Herald Science Writer

A small Hanford building contaminated with plutonium in a 1951 "criticality" accident and fire is scheduled for careful disposal.

Painstaking care will be taken to make sure no radioactivity enters the environment, an Atomic Energy Commission spokesman said.

A plastic tent-like bag probably will surround the building while the walls and floor are torn up, and the entire building will be buried at Hanford.

"This is not an emergency measure," the spokesman emphasized. "It's just a matter of good housekeeping."

The 15-foot tall corrugated metal structure, located in the reactor areas, has been closed and surrounded by a fence for years.

Plastic-bag disposal methods have been used before at Hanford, he added, and probably will be used again for operations such as the Z-9 trench mining.

The building became contaminated during an accident whose details have never been made public, the spokesman said.

A small amount of plutonium went critical during criticality studies and several workers received more than the maximum allowed radiation dose.

However, they suffered no ill effects and have experienced no problems since, the spokesman said.

Then during efforts to clean up the plutonium, a fire started in cleaning rags.

Plutonium became embedded in the floor and walls and stubbornly resisted efforts to remove it. Finally the building was closed.

Some $750,000 has been allocated for the project, with $250,000 in this year's budget, the spokesman said. Dismantling is expected to begin next year.

The AEC also is considering what to do with its four abandoned plutonium reactors and other empty buildings.

One possibility would be to "entomb" sections of the reactors with concrete until the radioactivity decays to safe levels in about 200 years.

No schedule has been set for disposal of any of those facilities, the spokesman said.

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Chron.
file
Ken McGee
Hearing

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Washington, D. C. 20545

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ATOMIC ENERGY COMMISSION

IN THE MATTER OF	)	
	)	Amendment to Source
KERR-McGEE CORPORATION	)	Material License
Kerr-McGee Building	)	SUB-1010
Oklahoma City, Oklahoma	)	

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4. Whether the nature of the faults comprising the fault block are such that the faults will act as barriers to fluid movement under increasing fluid pressure.

5. Whether the five disposal zones composing the Arbuckle Formation can be assumed to be homogeneous, isotropic, and constant in thickness, porosity, and permeability, thereby permitting the calculation of the movement of the disposed waste fluid from the well bore.

6. Whether a three dimensional analysis of geohydrologic problems by the finite difference method, based on test data obtained from a single well, can accurately predict the nature and performance of the injection horizons.

7. Whether monitoring by pressure testing at the well head is adequate to detect fluid movement, or whether there is a need for direct monitoring of the recipient formation.

8. Whether in the event of a demonstrated leak in the retention reservoir or fault block the waste fluid can be recovered.

Respectfully submitted,

Francis Irvine, Attorney for
Kerr-McGee Corporation

Roy E. Kinsey, Jr.
Counsel for AEC Regulatory Staff

Dated at Bethesda, Maryland
this _____ day of September,
1973.

Vassbaumer File

September , 1973 Kerr McGee Hearing

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
Kerr-McGee Corporation	)	Amendment to Source
Kerr-McGee Building	)	Material License SUB-1010
Oklahoma City, Oklahoma	)	

JOINT STATEMENT OF PROPOSED ISSUES

Pursuant to the Board's request during the prehearing conference held on August 14, 1973 in connection with the captioned proceeding (Tr. p. 4), the AEC Regulatory Staff and the applicant herewith jointly propose that the following be considered as the issues before this Board in this matter:

1. Whether the Webers Falls fault exists northeast of the well and, if it does, whether it is located approximately 1200 feet from the well.

2. Whether the South fault exists southwest of the well and, if it does, whether it is located approximately 5 miles from the well.

3. Whether additional faults exist within the disposal formation (fault block) that may act as either barriers to fluid movement within the fault block or conduits for fluid movement within the formation.

4. Whether the nature and integrity of the faults comprising the fault block are such that the faults will act as barriers to fluid movement under increasing fluid pressure.

5. Whether the five disposal zones composing the Arbuckle Formation can be assumed to be homogeneous, isotropic, and constant in thickness, porosity, and permeability.

6. Whether distance and direction of fluid movement within the formation from the well bore can be accurately calculated.

7. Whether a three dimensional analysis of geohydrologic problems by the finite difference method, based on test data obtained from a single well, can accurately predict the nature and performance of the injection horizons.

8. Whether monitoring by pressure testing at the well head is adequate to detect fluid movement, or whether there is a need for direct monitoring of the recipient formation.

Respectfully submitted,

Francis Irvine, Attorney for
Kerr McGee Corporation

Roy E. Kinsey, Jr.
Counsel for AEC Regulatory Staff

Dated at Bethesda, Maryland
this day of September, 1973.

Meeting

August 27 1973
4th National Bank Bldg.
Tulsa, Okla.

1	Francis A. Irvine	Kerr-McGee Corp.
2.	Forrest Gage	H. J. Gruy & Assoc.
3	Philip A Clemonth	Consulting Geologist
4.	J. H. Wright	Kerr-McGee
5	W. Shelley	
6	R.E Kinsey	Office of Gen. Counsel - AEC
7.	Don L. Warneil	Consultant to AEC
8.	J. E. Rothfleisch →	Rolla, Mo.
		F.F.&R.B. AEC. (Licensing)

- Proposed Issues -

8/27/73.
Meeting

1. The existance and location of the Wilbers Falls faults.

2. The existance and location of the (South) fault.

3. The integrity of the faults enabling up the fault block as barriers to fluid movement under increasing fluid pressure.

4. The existance of other faults within the fault block that may act as either barriers to the movement of fluids within the fault block or conduits to the movement of fluids within the fault block.

5. The assumption that the Arbuckle Formation are homogeneous, ~~and~~ isotropic, and constant in thickness, porosity and permeability and therefore that the calculation of the rate and direction of fluid movement are speculative as predicted by the model. five depositional zones in the

6. The ability to make an emergency recovery of the injected fluid

1. On the basis of geologic evidence, two major faults are shown on 1970 and 1972 Kerr-McGee maps to be present in the vicinity of the Kerr-McGee well. There is one located about a mile southeast of the well and one about five miles northwest of the well. As a result of the reservoir studies performed by Gruy and Associates, two other faults are shown on the 1972 maps to be present ~~and~~ about 1200 feet northeast and five miles southwest of the well. All four faults are interpreted to be hydrologic barriers by Kerr-McGee, thus forming a closed reservoir of limited extent in the Arbuckle Formation. The interpretation presented by Kerr-McGee is one possibility, but many other interpretations could be made. Insufficient evidence has been presented to show that the present interpretation is a unique and correct one, and the that the faults shown are in fact where they are postulated that in fact that no other faults exist.

If the faults are all present, and if ~~there~~ they are indeed presently barriers to fluid movement, then the question arises as to the nature of the barriers and their strength under increasing fluid pressure. Such a feature could act as a barrier one day and as a leak the next under proper circumstances. No answer to this question has been presented or is likely to be available.

2. The Arbuckle Formation at the well site has been interpreted to be five porous and permeable zones and for the purpose of the computations that have been made, these zones have been assumed to be homogeneous, isotopic, and constant in thickness, porosity, and permeability. It is well known that such assumption is unrealistic, but little alternative is available when only one well is available ~~shown~~ from which to obtain data. Because of the extreme variation in the character that such zones have in limestone and dolomite, any calculations of the rate and direction of fluid movement are speculative ~~pure speculation~~ and could easily be grossly inaccurate. Excellent examples are available to show that instead of being radial or nearly so, fluid from the well bore could be channeled in narrow paths and extend far from the well in a very short time in an entirely unpredictable horizontal and vertical direction.

3. Based on the discussions in items 1 and 2 above it can be concluded that the emergency recovery of the injected fluid could be difficult or practically impossible, if such a recovery should be necessary.

Don Warner's comments dictated over phone then edited by Warner at 8/27 meeting

File
Ken McGee
Hearing

ATLANTA, GA.
CONSTITUTION

M - 203,790

AUG 24 1973

DuPont Asks State To OK Waste Test

By JEFF NESMITH

The E. I. du Pont de Nemours Co. asked state officials for permission to "test" a plan to dispose of millions of gallons of waste from a proposed paint pigment plant near Brunswick by pumping the material into underground caverns.

State Environmental Protection Division Director R. S. (Rock) Howard said his department would not approve the proposal, which he said would risk ruining a vital underground water supply.

Howard offered to "cooperate to the fullest extent" in developing other means of disposing of waste from the plant, proposed for development on Colonel's Island, near the Brunswick harbor.

"I'd like to see Du Pont down there," Howard said, "but I think Glynn County and Brunswick ought to be very, very careful about safeguarding their underground water supply, which is so important to that area's tourist industry."

According to plans for the plant, filed three weeks ago with state officials, its operation would generate an annual waste load of 163.7 million gallons, including 34 million pounds of hydrochloric acid and 172,600 pounds of chrome. Du Pont had proposed pumping it underground.

To get rid of the effluent would mean pumping it about 4,000 feet underground, Howard said, under a pressure of approximately 2,800 pounds per square inch.

This pressure, he said, would theoretically force the waste material into porous rocks at that level beneath the surface of the ground.

However, he said such a plan would risk contaminating artesian water supplies with the toxic waste.

At depths of from 1,400 to 1,700 feet, Howard said, the "Ocala aquifer" flows through porous limestone rocks. "This is an ocean of fresh, underground water," Howard said.

Water for industrial use and human consumption in the Brunswick area is pumped from the aquifer, Howard said.

"The possibility of vertical leakage of the waste is a great risk of contamination to the fresh water aquifer," he said.

He suggested in a letter to Du Pont officials that the huge corporation has the "resources and the capabilities" to develop other means of dealing with the waste.

The company had asked for permission to sink a test shaft to study the feasibility of the deep well disposal plan.

Howard said that a single test well, "or even a larger number" would not provide the "essential, complete assurance against any adverse effects" to the water supply.

He pointed out that once contaminated, the underground supply would likely remain contaminated for a long period of time, unlike surface waters which, exposed to sunlight and oxygen, can purify themselves when a source of pollution is removed.

Howard said he was opposed even to drilling the test well because of the risk to the subterranean water.

Howard has outspokenly opposed plans by the U. S. Atomic Energy Commission to develop underground disposal caverns for used nuclear feul.

Only a few plants in the country manufacture paint pigment. One is the American Cyanamid Co. plant at Savannah where Howard's office has for years pressed for pollution abatement.