RADIATION PROTECTION BUREAU
URANIUM LICENSING SECTION
SUMMARY OF ACTIONS ON JOHNNY M MINE LICENSE

06/21/77 Radioactive Materials License Number NM-RED-MB-00 issued to Ranchers Exploration and Development Corporation (Expiration date February 8, 1978). Twelve separate Conditions are stipulated authorizing the transfer of uranium mill tailings at a set rate per period of time and also stating the conditions under which the Licensee shall operate.

09/20/77 Amendments made to Condition 14 (pertaining to air monitoring) and 15 monitoring) and 15 (to provide information on Licensee's contaminated water discharge during operations; Letter dated September 6, 1977).

02/28/78 Amendments to Conditions 14 and 15 and addition of Condition 21 extending expiration date to July 31, 1978. (Letter dated January 10, 1978 and February 13, 1978).

07/31/78 Amendment to Condition 21 extending expiration date to January 31, 1979. (Letter dated July 17, 1978).

01/18/79 Amendment to Condition 21 extending expiration date to January 31, 1980. (Letter dated January 5, 1979).

11/30/79 Amendment to Condition 21 extending expiration date to January 31, 1982. (Letter dated November 29, 1979).

12/17/79 Letter to Gerald Stewart from James F. Swendseid asking modification of of air monitoring program. (Condition 13)

01/08/80 Amendment to delete Condition 13 and to add Condition 22 (redefining air monitoring program) and Condition 23 stipulating monitoring of administration building on a weekly frequency for three months and for EID to review. (Answer to December 17, 1979 request).

09/10/81 Change to Condition 21, extending expiration date to June 30, 1982. Addition of Condition 24 on submitting of plan for decommissioning and reclaiming of mine site to meet applicable state and federal standards in effect at that time. (Letter of September 3, 1981.)

06/23/82 Change to Conditon 21 extending expiration date to September 30, 1982 "per telephone conversation June 23, 1982 between James M. Rosel and Thomas B. Christianson and in view of the fact that reclamationn of the licensed site has not been completed as programed in the Ranchers letter of January 19, 1982, signed by James M. Rosel."

09/22/82 Change to Condition 21 extending expiration date to December 21, 1982 "per telephone conversation September 22, 1982 . . . . "

12/20/82 Change to Condition 21 extending expiration date to March 31, 1983. Letter accompanying amendment signed by Louis C. Landauer, (Env. Sci.) states "as per conversation this date".

03/29/83 Change to Condition 21 extending expiration date to June 30, 1983, accompanying letter to James M. Rosel does not show requester's name but states "In order to provide Ranchers additional time to complete the reclamation program for the Johnny M. Mine Site, . . ." Letter signed by L.C. Landauer.

06/27/83 Change to Condition 21 extending expiration date to September 30, 1983. Reason quoted is as above and signed by L.C. Landauer.

08/23/83 Termination Report - Johnny M. Mine received August 23, 1983.

08/30/83 Change to Condition 21 extending expiration date to December 31, 1983. Letter, signed by Sam Simpson, states that extension is required by R.P.B. in order to conduct a final reclamation inspection/verification. (Lab tests on soil samples requiring long turn around time).

09/30/83 Trip Report "Survey of Reclaimed Areas in the Vicinity of the Johnny M. Mine". (Memo from Felix Miera to Jere Millard.)

09/30/83 Change to Condition 21 extending expiration date to March 31, 1984. (per conversation of Sam Simpson with Roger A. Kaufman.) 180 day extension to provide sufficient time for receipt of laboratory results involving soil samples taken during termination inspection on September 14, 1983.

01/03/84 "eclamation of the Johnny M. Mine Site. Memo from Sam Simpson to Tom Buhl through Felix Miera. Memo contained:

a. Background history on mine.
b. Reclamation Standards Provided to Ranchers.
c. Reclamation Activities.
d. Measurements.
e. Problem.
f. Summary.
g. Other factors.
h. Recommendation (terminate license after revegetation measure is completed).

02/27/84 Reclamation Activities for the Johnny M. Mine site. Memo from Felix Miera to Jere Millard through Tom Buhl.

03/22/84 Johnny M. Mine Site Reclamation. Memo from Jere Millard to Felix Miera recommending an additonal survey of the site to help determine source of contamination and natural background levels.

03/26/84 Change to Condition 21 extending expiration date to September 30, 1984 per conversation with Roger Kauffman, "180 day extension to provide sufficient time to complete the EID evaluation of Ranchers reclamation program at the Johnny M. Mine site". (Sam Simpson)

03/26/84 Johnny M. Mine Site Reclamation. Memo from Sam Simpson to Jere Millard thru Felix Miera.

09/24/84 Change to Condition 21 extending expiration date to March 31, 1985. 180 day extension due to delays encountered in acquiring laboratory results involving soil samples taken during a follow-up survey of the Johnny M. Mine Site. (Sam Simpson)

09/26/84 Memo from Jere Millard to Felix Miera summarizing results of reclamation survey.

04/02/85 Letter to Colleen Kelley from Felix Miera extending license for indefinite period of time until reclamation is complete. Also reported results of radiochemical analyses indicating contaminating materials is probably tailings.

07/17/85 Meeting with Roger Kauffman and Colleen Kelley of Hecla Mining to discuss needed remedial actions at site. Agreed that additional sampling is needed by Hecla, and EID will concur on the plan.

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONEY ANAYA
GOVERNOR

Joseph Goldberg
SECRETARY

Ted Guambana
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

March 26, 1984

CERTIFIED MAIL
7136515

Mr. James M. Rosel
Ranchers Exploration and Development Corporation
P.O. Box 6217
Albuquerque, New Mexico 87197

Dear Mr. Rosel:

Per my conversation with Mr. Roger Kauffman, Senior Staff Engineer, your amended license #NM-RED-ME-14 is enclosed.

The 180 day license extension should provide sufficient time to complete the EID evaluation of Ranchers reclamation program at the Johnny M. Mine site.

Sincerely,

Sam Simpson
Uranium Licensing Section

SS/cvg

enc.

STATE OF NEW MEXICO
ENVIRONMENT

ENVIRONMENTAL IMPROVEMENT DIVISION

RADIOACTIVE MATERIAL LICENSE

License Number NM-RED-MB-13 is amended to become License Number NM-RED-MB-14

Mr. James Rosel
Ranchers Exploration and
Development Corporation
P.O. Box 6217
Albuquerque, New Mexico 87197

Change Condition 21. to read:

21. The expiration of this license is hereby extended from March 31, 1984 to September 30, 1984.

For the New Mexico HED Environmental Improvement Division

Date March 26, 1984

By _____
Felix R. Miera, Jr.
Program Manager
Uranium Licensing Section

1 017A (Revised 6/80)

HEALTH ENVIRONMENT Department

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

ANITA M. LOCKWOOD
SECRETARY

ROBERT L. CRAIG M.P.A.
DEPUTY SECRETARY

JOSEPH F. [illegible]
DEPUTY SECRETARY

M E M O R A N D U M

TO: Jere Millard, Program Manager,
Surveillance and Assessment Section

THRU: Felix Miera, Program Manager FM
Uranium Licensing Section

FROM: Sam Simpson, ULS SS

DATE: March 26, 1984

SUBJECT: Johnny M. Mine Site Reclamation

In support of your request (memo, dated March 22, 1984) to conduct another gamma survey at the Johnny M. Mine Site, the Ranchers Exploration and Development Corporation Radioactive Material License NM-RED-MB-13 has been amended, this date, to extend the license until September 30, 1984.

Request you inform me of the date(s) you intend to accomplish the survey in order to allow for prior notification of Ranchers personnel. This will assure the survey team access to the Lee Ranch. Request the results of the gamma survey with recommended solution(s) be provided the Uranium Licensing Section by May 30, 1984.

SS/cvg

9802270107 1/1.

TONEY ANAYA
GOVERNOR

ROBERT McNEILL
SECRETARY

ROBERT L. LOVATO, M.A.P.A.
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

STEVEN ASHER, DIRECTOR

August 30, 1983

Mr. James M. Rosel
Ranchers Exploration & Development Corp.
P. O. Box 6217
Albuquerque, NM 87197

Dear Mr. Rosel:

This letter acknowledges receipt of the Johnny M Mine termination report.

The Ranchers Radioactive Material License Number NM-RED-MB-12 is hereby amended to Number NM-RED-MB-13, with an expiration date of December 31, 1983.

This extension is required in order for Radiation Protection Bureau personnel to conduct a final reclamation inspection/verification. Soil samples taken during this inspection will be dispatched to a testing laboratory with turn-around time of at least six to eight weeks.

Our staff will be contacting Mr. Roger Kauffman within a few days to establish a mutually agreeable date for the final inspection of the Johnny M Mine licensed sites.

A copy of the amended license is enclosed.

Sincerely,

Sam Simpson
Environmental Scientist
Uranium Licensing Section

enclosure

cc: Ted Brough, Milan

STATE OF NEW MEXICO
ENVIRONMENT

ENVIRONMENTAL IMPROVEMENT DIVISION

RADIOACTIVE MATERIAL LICENSE

License Number NM-RED-MB-12 is amended to become License Number NM-RED-MB-13

Mr. James M. Rosel
Ranchers Exploration & Development Corporation
P. O. Box 6217
Albuquerque, NM 87197

Change Condition 21 to read:

21. The expiration date of this license is hereby extended from September 30, 1983 to December 31, 1983.

For the New Mexico HED Environmental Improvement Division

Date August 30, 1983

By _____

Gerald W. Stewart, Health Program Manager
Uranium Licensing Section

HEALTH ENVIRONMENT department

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 827-5271

RUSSELL F. RHOADES, M.P.H., DIRECTOR

RADIATION PROTECTION BUREAU

Bruce King
GOVERNOR

George S. Goldstein, Ph.D.
SECRETARY

Larry J. Gordon, M.S., M.P.H.
DEPUTY SECRETARY

September 22, 1982

Mr. James M. Rosel
Ranchers Exploration and
Development Corporation
P. O. Box 6217
Albuquerque, NM 87197

Dear Mr. Rosel:

Per our conversation this date your amended license # NM-RED-MB-09 is enclosed.

The 90 day license extension should provide sufficient time for your company to complete the reclamation program for the Johnny M Mine Site.

Sincerely,

Thomas B. Christiansen
Environmental Scientist
Uranium Licensing Section

TBC/mp

Enclosure

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION

RADIOACTIVE MATERIAL LICENSE

License Number NM-RED-MB-08 is amended to become License Number NM-RED-MB-09

Mr. James M. Rosel
Ranchers Exploration and
Development Corporation
P. O. Box 6217
Albuquerque, NM 87197

Per telephone conversation September 22, 1982, between James M. Rosel and Thomas B. Christiansen and in view of the fact that reclamation of the licensed site has not been completed as programmed in the Ranchers letter of January 19, 1982 signed by James M. Rosel, subject license is amended as follows:

To change Condition 21 to read:

21. The expiration date of this license is hereby extended from September 30, 1982 to December 31, 1982.

For the New Mexico RED Environmental Improvement Division

Date September 22, 1982

By _____

Gerald M. Stewart, Health Program Manager
Uranium Licensing Section

EID 017A Revised 6/80

HEALTH ENVIRONMENT department

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 827-5271

Bruce King
GOVERNOR

George S. Goldstein, Ph.D.
SECRETARY

Larry J. Gordon, M.S., M.P.H.
DEPUTY SECRETARY

RUSSELL F. RHOADES, M.P.H., DIRECTOR

RADIATION PROTECTION BUREAU

June 23, 1982

Mr. James M. Rosel
Ranchers Exploration and Development Corporation
P. O. Box 6217
Albuquerque, NM 87197

Dear Jim:

Per our conversation this date your amended license # NM-RED-MB-08 is enclosed.

The 90 day license extension should provide sufficient time for your company to complete the reclamation program for the Johnny M Mine Site.

Sincerely,

Thomas B. Christiansen
Environmental Scientist
Uranium Licensing Section

TBC/mc

Enclosure

HEALTH ENVIRONMENT STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION

RADIOACTIVE MATERIAL LICENSE

License Number NM-RED-MB-07 is amended to become License Number NM-RED-MB-08

Mr. James M. Rosel
Ranchers Exploration and Development Corporation
P. O. Box 6217
Albuquerque, NM 87197

Per telephone conversation June 23, 1982, between James M. Rosel and Thomas B. Christiansen and in view of the fact that reclamation of the licensed site has not been completed as programed in the Ranchers letter of January 19, 1982 signed by James M. Rosel, subject license is amended as follows:

To change Condition 21 to read:

21. The expiration date of this license is hereby extended from June 30, 1982 to September 30, 1982.

For the New Mexico HED Environmental Improvement Division

Date June 23, 1982

By _____
Gerald W. Stewart, Health Program Manager
Uranium Licensing Section

ID 017A Revised 6/80

STATE OF NEW MEXICO
ENVIRONMENT

ENVIRONMENTAL IMPROVEMENT DIVISION

RADIOACTIVE MATERIAL LICENSE

License Number NM-RED-MB-06 is amended to become License Number NM-RED-MB-07

Mr. James M. Rosel
Ranchers Exploration and Development Corporation
P.O. Box 6217
Albuquerque, New Mexico 87197

In accordance with Ranchers Exploration and Development Corperation letter of September 3, 1981 signed by James M. Rosel, subject license is amended as follows:

To change condition 21 to read:

21. The expiration date of this license is hereby extended from January 31, 1982 to June 30, 1982.

To add license condition 24.

24. The licensee will prior to 90 days before final shutdown of the mining operation submit its plan for decommissioning and reclamation. of the mine site to meet applicable state and federal standards in effect at that time.

For the New Mexico HED Environmental Improvement Division

Date 9/10/81

By Gerald W. Stewart

Gerald W. Stewart, Health Program Manager
Uranium Licensing Section

EID 0174 Revised 6-80

HEALTH ENVIRONMENT department

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87503
(505) 827-5271
Thomas E. Baca, M.P.H., Director

Bruce King
GOVERNOR

George S. Goldstein, Ph.D.
SECRETARY

Larry J. Gordon, M.S., M.P.H.
DEPUTY SECRETARY

September 10, 1981

Mr. James M. Rosel
Ranchers Exploration and Development Corporation
P.O. Box 6217
Albuquerque, New Mexico 87197

Dear Mr. Rosel:

In accordance with your letter request of September 3, 1981 an amendment to License Number NM-RED-MB-06 is enclosed.

The amendment extends the expiration date of the license to June 30, 1982 and requires a site reclamation plan be submitted to the Environmental Improvement Division at least 90 days prior to mine shutdown for approval.

It is our hope that the experimental data obtained from your mine operation and shutdown will be useful in developing procedures and guidelines for mine backfilling that will benefit both the industry and the state.

Sincerely,

Thomas B. Christiansen

Thomas B. Christiansen
Environmental Scientist
Uranium Licensing Section
Radiation Protection Bureau

TBC/dm
Enclosure

NEW MEXICO ENVIRONMENTAL IMPROVEMENT DIVISION

RADIOACTIVE MATERIAL LICENSE

License Number NM-RED-MB-05 is amended to become License Number NM-RED-MB-06

In accordance with Ranchers Exploration and Development Corporation letter received December 17, 1979 signed by Mr. J. F. Swendseid, subject license is amended as follows:

To delete license condition 13.

To add license conditions 22 & 23:

22. The licensee's air monitoring program shall consist of the following:

a. Working level measurements shall be taken at VH-9, VH-10 and VH-11 on a monthly frequency.

b. Particualte samples shall be taken at VH-11 (quarterly) and at an underground location (monthly) in the vicinity of the bottom of the bare hole nearest the sandfill location. Samples shall be analyzed for Ra-226, Th-230 and Pb-210.

c. Working level measurements shall be provided from the north and south mining areas (this information can be data taken from the mine safety inspections records).

d. A record of the sandfill operations shall be forwarded showing dates tons implaced and locations.

e. Quarterly reports shall be provided covering items 22.a through d. inclusive.

23. Working level measurements shall be made in the administration building on a weekly frequency for a three months period and provided to EID for review.

FOR THE NEW MEXICO ENVIRONMENTAL IMPROVEMENT

Date January 8, 1980

By Gerald W. Stewart

Gerald W. Stewart-Program Manager
Uranium Licensing

RPS 17A
Issued 3/73

NEW MEXICO ENVIRONMENTAL IMPROVEMENT DIVISION

RADIOACTIVE MATERIAL LICENSE

License Number NM-RED-MB-05 is amended to become License Number NM-RED-MB-06

In accordance with Ranchers Exploration and Development Corporation letter received December 17, 1979 signed by Mr. J. F. Swendseid, subject license is amended as follows:

To delete license condition 13.

To add license conditions 22 & 23:

22. The licensee's air monitoring program shall consist of the following:

    a. Working level measurements shall be taken at VH-9, VH-10 and VH-11 on a monthly frequency.

    b. Particualte samples shall be taken at VH-11 (quarterly) and at an underground location (monthly) in the vicinity of the bottom of the bare hole nearest the sandfill location. Samples shall be analyzed for Ra-226, Th-230 and Pb-210.

    c. Working level measurements shall be provided from the north and south mining areas (this information can be data taken from the mine safety inspections records).

    d. A record of the sandfill operations shall be forwarded showing dates tons impiaced and locations.

    e. Quarterly reports shall be provided covering items 22.a through d. inclusive.

23. Working level measurements shall be made in the administration building on a weekly frequency for a three months period and provided to EID for review.

FOR THE NEW MEXICO ENVIRONMENTAL IMPROVEMENT

Date January 8, 1980

By Gerald W. Stewart

Gerald W. Stewart-Program Manager
Uranium Licensing

RPS 17A
Issued 3/73

NEW MEXICO ENVIRONMENTAL IMPROVEMENT DIVISION

RADIOACTIVE MATERIAL LICENSE

License Number NM-RED-MB-04 is amended to become License Number NM-RED-MB-05

Rancharra Exploration & Development Corp.
1776 Montano Road, N.W.
Albuquerque, NM 87107

In accordance with letter dated November 29, 1979, signed by Kevin M. Bond, subject License is amended as follows:

Item 9 page condition 21 to read:

21. The expiration date of this License is hereby extended from January 31, 1980 to January 31, 1982.

Date November 30, 1979

FOR THE NEW MEXICO ENVIRONMENTAL IMPROVEMENT DIVISION

Ronald N. Stewart
Director

RPS 11A
Issued 8/73

RADIATION PROTECTION BUREAU

January 8, 1980

Mr. James M. Rosel
Attorney at Law
Ranchers Exploration
and Development Corporation
1776 Montano Road, NW
Albuquerque, NM 87197

Dear Mr. Rosel:

I have reviewed Mr. J. F. Swendseid's letter concerning your radioactivity monitoring program which I received on December 17, 1979. The attached amendment to your license should adequately cover the items which we discussed and Mr. Swendseid proposed.

Sincerely,

Gerald W. Stewart
Program Manager
Uranium Licensing

ENVIRONMENT department

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87503
(505) 827-5271
Thomas E. Baca, M.P.H., Director

Bruce King
GOVERNOR

George S. Goldstein, Ph.D.
SECRETARY

Larry J. Gordon, M.S., M.P.H.
DEPUTY SECRETARY

September 10, 1981

Mr. James M. Rosel
Ranchers Exploration and Development Corporati
P.O. Box 6217
Albuquerque, New Mexico 87197

Dear Mr. Rosel:

In accordance with your letter request of September 3, 1981 an amendment to License Number NM-RED-MB-06 is enclosed.

The amendment extends the expiration date of the license to June 30, 1982 and requires a site reclamation plan be submitted to the Environmental Improvement Division at least 90 days prior to mine shutdown for approval.

It is our hope that the experimental data obtained from your mine operation and shutdown will be useful in developing procedures and guidelines for mine backfilling that will benefit both the industry and the state.

Sincerely,

Thomas B. Christiansen
Environmental Scientist
Uranium Licensing Section
Radiation Protection Bureau

TBC/dm
Enclosure

ENVIRONMENT department

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87503
(505) 827-5271
Thomas E. Baca, M.P.H., Director

Bruce King
GOVERNOR

George S. Goldstein, Ph.D.
SECRETARY

Larry J. Gordon, M.S., M.P.H.
DEPUTY SECRETARY

September 10, 1981

Mr. James M. Rosel
Ranchers Exploration and Development Corporati
P.O. Box 6217
Albuquerque, New Mexico 87197

Dear Mr. Rosel:

In accordance with your letter request of September 3, 1981 an amendment to License Number NM-RED-MB-06 is enclosed.

The amendment extends the expiration date of the license to June 30, 1982 and requires a site reclamation plan be submitted to the Environmental Improvement Division at least 90 days prior to mine shutdown for approval.

It is our hope that the experimental data obtained from your mine operation and shutdown will be useful in developing procedures and guidelines for mine backfilling that will benefit both the industry and the state.

Sincerely,

Thomas B. Christiansen

Thomas B. Christiansen
Environmental Scientist
Uranium Licensing Section
Radiation Protection Bureau

TBC/dm
Enclosure

NEW MEXICO ENVIRONMENTAL IMPROVEMENT DIVISION

RADIOACTIVE MATERIAL LICENSE

License Number NM-RED-MB-05 is amended to become License Number NM-RED-MB-06

In accordance with Ranchers Exploration and Development Corporation letter received December 17, 1979 signed by Mr. J. F. Swendseid, subject license is amended as follows:

To delete license condition 13.

To add license conditions 22 & 23:

22. The licensee's air monitoring program shall consist of the following:

    a. Working level measurements shall be taken at VH-9, VH-10 and VH-11 on a monthly frequency.

    b. Particualte samples shall be taken at VH-11 (quarterly) and at an underground location (monthly) in the vicinity of the bottom of the bare hole nearest the sandfill location. Samples shall be analyzed for Ra-226, Th-230 and Pb-210.

    c. Working level measurements shall be provided from the north and south mining areas (this information can be data taken from the mine safety inspections records).

    d. A record of the sandfill operations shall be forwarded showing dates tons implaced and locations.

    e. Quarterly reports shall be provided covering items 22.a through d. inclusive.

23. Working level measurements shall be made in the administration building on a weekly frequency for a three months period and provided to EID for review.

FOR THE NEW MEXICO ENVIRONMENTAL IMPROVEMENT

Date January 8, 1980

By Gerald W. Stewart

Gerald W. Stewart-Program Manager
Uranium Licensing

RPS 17A
Issued 3/73

NEW MEXICO ENVIRONMENTAL IMPROVEMENT AGENCY

RADIOACTIVE MATERIALS LICENSE

License Number NM-RED-MB-00 is amended to become License Number NM-RED-MB-01

Ranchers Exploration &
Development Corp.
1776 Montano Rd., N.W.
Albuquerque, NM 87107

In accordance with letter dated September 6, 1977, signed by Paul A. Matthews, Vice President, Operations; subject license is amended as follows:

To change Conditions 14 & 15 to read:

14. The results of the above air monitoring program (License Condition No. 13) shall be reviewed by the New Mexico Environmental Improvement Agency and the licensee on or before November 29, 1977. The above air monitoring program may be modified as a result of the review. The above air monitoring program shall be executed by the licensee instead of the air monitoring program described in the licensee's application dated June 17, 1977.

15. By November 29, 1977 the licensee shall provide information to the Agency supporting a finding that the licensee's discharge of water contaminants resulting directly or indirectly from licensed activities will not interfere with human health or domestic or agricultural use of ground water at any place of withdrawal for present or reasonable forseeable future use. Renewal of this license is contingent on Agency approval of said finding by February 27, 1978. This license condition may be fulfilled by the licensee's obtaining on or before February 27, 1978 Agency approval of a discharge plan pursuant to the provisions of New Mexico Water Quality Control Commission Regulations as amended January 11, 1977, and June 14, 1977, and as may be further amended.

FOR THE NEW MEXICO ENVIRONMENTAL IMPROVEMENT AGENCY

Date September 20, 1977

By Alphonso A. Topp

Alphonso A. Topp, Jr.
Environmental Scientist III

RPS 17A
Issued 3/73

NEW MEXICO ENVIRONMENTAL IMPROVEMENT AGENCY

RADIOACTIVE MATERIALS LICENSE

Pursuant to the New Mexico Radiation Protection Act of 1971, and the Radiation Protection Regulations Part 3, and in reliance on statements and representations heretofore made by the licensee designated below, a license is hereby issued authorizing such licensee to transfer, receive, possess and use the radioactive material(s) designated below; and to use such radioactive materials for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations, and orders now or hereafter in effect of the New Mexico Environmental Improvement Agency and to any conditions specified below.

Licensee	3. License number
1. Name: Ranchers Exploration & Development Corp.	NM-RED-MB-00
2. Address: 1776 Montano Rd., N.W. Albuquerque, NM 87107	4. Expiration date: February 28, 1978
	5. Reference number

6. Radioactive materials (element and mass number)	7. Chemical and/or physical form	8. Maximum quantity licensee may possess at any one time
A. All natural radioisotopes encountered in uranium mill tailings.	A. Chemical and physical forms encountered in uranium mill tailings.	A. As necessary for the transfer authorized in Item 9.

CONDITIONS

9. Authorized use. (Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.)

A. This license authorizes the transfer of uranium mill tailings at a nominal transfer rate of 8,000 tons per month from the Kerr McGee Uranium Mill located at Ambrosia Lake, McKinley County, New Mexico, to the Ranchers Exploration and Development Corporation's Johnny M Mine, San Mateo, New Mexico, and authorizes the use of the received tailings for backfilling evacuated mine stopes on an operational test basis in accordance with the statements, representations, and conditions in the licensee's application dated June 17, 1977, as supplemented by letter dated Feb. 3, 1977 signed by G.D. Milligan, Kerr McGee Corp., and letter dated June 2, 1977 signed by J.E. Cleveland, Kerr McGee Corp.

The licensee shall comply with Part 4, New Mexico Radiation Protection Regulations.

The licensee is hereby exempt from the requirement of 4-220.E.2 of the Radiation Protection Regulations for areas within the mine and tailings storage areas provided all entrances to the mine and tailings storage areas are conspicuously posted in accordance with 4-220.E.2 and with the words, "Any Area Within This Boundary May Contain Radioactive Material."

The licensee shall determine that employees leaving work are not contaminated with radioactive materials. When an employee has showered and changed clothing prior to leaving work, the employee may be assumed to be free of external contamination.

NEW MEXICO ENVIRONMENTAL IMPROVEMENT AGENCY

RADIOACTIVE MATERIALS LICENSE

License Number NM-RED-MB-00

The licensee's air monitoring program shall consist of the following:

A. Radon measurements taken at the north vent, the south vent hole, and the tailings unloading and storage area. The first set of radon measurements shall be taken within a week of the beginning of the tailings transfer operation. The second set of radon measurements shall be taken two weeks after the first set. Subsequent measurements shall be taken at monthly intervals or more frequently.

B. Particulate air samples shall be taken at the tailings unloading and storage area and in the area of the mine being backfilled and shall be analyzed for thorium 230, radium 226, and lead 210. Two sets of samples separated by an interval of two weeks shall be taken during the first month of operation. Subsequent measurements shall be taken at monthly intervals or more frequently.

C. Working level measurements of radon daughters shall be made at the tailings unloading and storage area and in the area of the mine being backfilled. These measurements shall be made at weekly intervals.

The results of the above air monitoring program shall be reviewed by the New Mexico Environmental Improvement Agency and the licensee after three months of operation. The above air monitoring program may be modified as a result of the review. The above air monitoring program shall be executed by the licensee instead of the air monitoring program described in the licensee's application dated June 17, 1977.

By September 27, 1977 the licensee shall provide information to the Agency supporting a a finding that the licensee's discharge of water contaminants resulting directly or indirectly from licensed activities will not interfere with human health or domestic or agricultural use of ground water at any place of withdrawal for present or reasonable forseeable future use. Renewal of this license is contingent on Agency approval of said finding by February 27, 1978. This license condition may be fulfilled by the licensee's obtaining on or before February 27, 1978 Agency approval of a discharge plan pursuant to the provisions of New Mexico Water Quality Control Commission Regulations as amended January 11, 1977, and June 14, 1977, and as may be further amended.

The location of water monitoring station designated as MWS-3 in the license application dated June 17, 1977 shall be changed to "the drainage liquid collected as close as possible to the most recently backfilled stope".

The times at which the water and air vent samples are taken shall be keyed as closely as possible to the completion of the backfilling of each stope such that samples from MW-1, MW-2, MWS-3, VH-9, and VH-10 be taken within two days of the completion of the backfilling and drainage of a particular stope; and samples from UG-4, UG-5, UG-6, GW-7, and GW-8 taken within 2 weeks of the completion of the backfilling and drainage of a particular stope.

NEW MEXICO ENVIRONMENTAL IMPROVEMENT AGENCY

RADIOACTIVE MATERIALS LICENSE

License Number NM-RED-MB-00

). Isotopic analysis of all water samples shall include Th 230 and Pb 210.

). Approved waste generating processes and mill tailings management practices may be subject to revision in accordance with the conclusions of the final generic environmental impact statement presently being prepared by the U.S. Nuclear Regulatory Commission (refer to the Federal Register, 41 FR 22430, June 13, 1976) and any related rule making.

). Except as specifically provided otherwise by the license, the licensee shall possess and use radioactive material described in Items 6, 7, and 8 of this license in accordance with statements, representations, and procedures contained in application dated June 17, 1977, signed by J.K. Deuel, and letter dated Feb. 3, 1977, signed by G.D. Milligan, Kerr McGee Corp., and letter dated June 2, 1977, signed by J.E. Cleveland, Kerr McGee Corp.

FOR THE NEW MEXICO ENVIRONMENTAL IMPROVEMENT AGENCY

Date June 21, 1977

By Alphonso A. Topp, Jr.

Alphonso A. Topp, Jr.
Environmental Scientist III

RFS 17A

State of New Mexico
Environmental Improvement Agency
P. O. BOX 2348
SANTA FE, NEW MEXICO 87501

APPLICATION FOR RADIOACTIVE MATERIAL LICENSE

INSTRUCTIONS–Complete Items 1 through 16 if this is an initial application. If application is for renewal of a license, complete only Items 1 through 7 and indicate new information or changes in the program as requested in Items 8 through 16. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail two copies to: Radiation Protection Section, Box 2348, Santa Fe, New Mexico 87501. Upon approval of this application, the applicant will receive a Radioactive Material License. A Radioactive Material License is issued in accordance with the general requirements contained in the New Mexico Radiation Protection Regulations, Part 3, Licensing and the License is subject to Part 4, Standards for Protection Against Radiation.

1. (a) NAME AND STREET ADDRESS OF APPLICANT (Institution, firm, hospital, person, etc.)

Ranchers Exploration & Development Corp.
1776 Montano Road NW
Albuquerque, N.M. 87107

Phone (505) 344-3542

1. (b) STREET ADDRESS(ES) AT WHICH A RADIOACTIVE MATERIAL WILL BE USED (If different from 1 (a).)

Johnny M Mine
San Mateo, New Mexico

Phone (505) 287-8886

2. DEPARTMENT TO USE RADIOACTIVE MATERIAL

Operations Department

3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.)

None

4. INDIVIDUAL USER(S). (Name and title of individual(s) who will use or directly supervise use of radioactive material. Give training and experience in Items 8 and 9.)

Arnold Buchanan, Mine Manager
Roger Kaufman, Chief Mine Engineer
Phil Ulibarri, Jr., Safety & Ventilation Technician
Bill Dampier, Safety Assistant

5. RADIATION PROTECTION OFFICER (Name of person designated as radiation protection office if other than individual user. Attach resume of his training and experiences as in Items 8 and 9.)

J. K. Deuel, Cdr., USN (Ret.)

Phone (505) 344-3542

6. (a) RADIOACTIVE MATERIAL. (Elements and mass number of each.)	6. (b) CHEMICAL AND/OR PHYSICAL FORM AND MAXIMUM NUMBER MILLICURIES OF EACH CHEMICAL AND/OR PHYSICAL FORM THAT YO WILL POSSESS AT ANY ONE TIME. (If sealed source(s), also state name manufacturer, model number, number of sources and maximum activity per source
U-natural, U-235, U-238, Th-210, Ra-226	Particle size ranges from 75-500 micron, or 200-mesh. The material has various constituents but sists chiefly of SiO_2. There are minor amounts of Al, Fe, Ca, Mg, Mn, Na, K, Ni, Mo, Zn, U and The sand will range from 26-100 pCi/gm(dry) of R and 0.005-0.01% of U_3O_8. The Th content is abou pCi/gm.

7. DESCRIBE PURPOSE FOR WHICH RADIOACTIVE MATERIAL WILL BE USED. (If radioactive material is for "human use supplement RPS 16A must be completed in lieu of this item. If radioactive material is in the form of a sealed source, include t make and model number of the storage container and/or device in which the source will be stored and/or used.)

Uranium mill tailings will be used to backfill evacuated stopes in mine to p vent caving and possible break in the integrity of the Dakota acquifer above

8. INDIVIDUAL USER(S) TRAINING

Complete the following information on the individual user(s) and his training in:

A) Nuclear physics, atomic structure, and interaction of radiation with matter

B) Radiation detection instrumentation, calibration, and standardization

C) Radiation protection, waste disposal, and survey and dosimetric procedures

D) Radiobiology, including effects of radiation on the human body

Name, Title, Degree(s)	Where Trained	Length of Academic Training in A, B, C, and D	Length of On-the-job Training in A, B, C, and D
J. K. Deuel, BS & graduate nuclear engr. training	Natl Reactor Test.Stn,Idaho & Adv.Nuc.Pwr. Sch,New London	A,B,C,D-1 yr.	A,B,C,D-9 yrs.
Arnold Buchanan	28 yrs.field exp.	None	C-3 yrs.
Roger Kaufman,BS(Min.Engr)	N.M.Tech,Socorro	B,C-16 hrs. & AEC workshop (1 hr.)	B,C-4 yrs.
Phil Ulibarri, Jr.	UNC-Homestake P.	None	B,C-5 yrs.
Bill Dampier	Rad.Monitor Crse	B,C-3 days	B-C, 1 month

9. EXPERIENCE WITH RADIATION. (Actual use of radioisotopes or equivalent experience.)

Isotope	Maximum Amount	Where Experience Was Gained	Duration of Experience	Type of Use
J.K.Deuel N-16 Sr-90 I-131 Cs-137	microcurie/litre quantities	U.S.Nuclear Sub. Force (Nautilus, Barb, Dace & Lafayette)	9 yrs.	pressurized water reactor operations

10. RADIATION DETECTION INSTRUMENTS. (Use supplemental sheets if necessary.)

Type	Number Available	Radiation Detected	Sensitivity Range (mr/hr)	Window Thickness (mg/cm^2)	Use (Monitoring, surveying, measuring)
PRM-4R with SPA-1 detector	1	alpha	25% efficiency or better on 4π geometry	1 to 2 mg/Cm^2	Monitoring & surveying

11. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE.

Instrument calibrated every 3 months against state-certified SAC-1 instrument owned by UNC. Mathematical comparison method utilized.

12. FILM BADGES, DOSIMETERS, AND BIO-ASSAY PROCEDURES USED. (For film badges, specify method of calibrating and processing, or name of supplier.)

Computer-based, working level months (WLM) radiation exposure recording system utilized.

INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS

13. FACILITIES AND EQUIPMENT. Describe laboratory facilities and remote handling equipment, storage containers, shielding, fume hoods, etc. Explanatory sketch of facility is attached. (Circle answer) Yes (No)

14. RADIATION PROTECTION PROGRAM. Describe the radiation protection program including control measures. If application covers sealed sources, submit leak testing procedures where applicable, name, training, and experience of person to perform leak test, and arrangements for performing initial radiation survey, servicing, maintenance and repair of the source. (Samples of employee exposure record & mine radiation measurements enclosed)

15. WASTE DISPOSAL. If a commercial waste disposal service is employed, specify name of company. Otherwise, submit detailed description of methods which will be used for disposing of radioactive wastes and estimates of the type and amount of activity involved.

NA

CERTIFICATE (This item must be completed by applicant)

16. THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE APPLICANT NAMED IN ITEM 1, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH THE NEW MEXICO RADIATION PROTECTION REGULATIONS, PART 3, LICENSING, AND THAT ALL INFORMATION CONTAINED HEREIN, INCLUDING ANY SUPPLEMENTS ATTACHED HERETO, IS TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

RANCHERS EXPLORATION AND DEVELOPMENT CORPORATION
Applicant Named in Item 1

DATE June 17, 1977

By: J. K. Deuel
for P. A. Matthews
Vice President, Operations
Title of Certifying Official

ADDITIONAL INFORMATION FOR BACKFILLING MINES WITH URANIUM MILL TAILINGS

I. Transport

Currently accepted transportation procedures will be followed in shipping the moist, 15-20%, tailings material to the Johnny M Mine. The Kerr-McGee tailings will be picked up at their mill and trucked by state highway. The trucks will commence their journey on Highway #509, the so-called Ambrosia Lake turn-off. They will head south on #509 to the San Mateo road, Highway #53. At the junction, prominently marked by Jay's Liquor Store, the trucks will turn east towards San Mateo until they reach the access road to the Johnny M Mine just a few yards past the Marquez Ranch. The mine access road is an unpaved, graded road approximately one mile long. At the mine, the trucks, each with about 31 tons of tailings sands, will unload the tailings into heaps. They will then be picked up by front-end loaders and placed in storage piles. It is anticipated that approximately 4,000 tons will be transported at a time and that this will occur twice month, thereby utilizing 8,000 tons per month. Kerr-McGee has indicated that they will conduct working-level-month (WLM) monitoring at the loading site each week, and Ranchers will conduct similar weekly monitoring at the unloading station.

II. Receiving and Backfilling

The interim tailings storage area at the mine will nominally be one acre, with two acres a maximum, and will be piled to a height of approximately 15 feet. Full security is available at the Johnny M, which includes armed security guards any time the mine is not open, an access surveillance station at the entrance to the mine proper, and on-going security procedures. It is emphasized that there will be materials of far greater value to Ranchers than the spent mill tailings and security procedures are well established to protect these as well as the stored tailings piles. The storage area will be graded and provided with peripheral drainage ditches. The tailings sands will be dampened as necessary to minimize wind erosion.

Sand or mill tailings will be slurried with water to about 50% solids by weight and then pumped underground to the stopes or open areas for backfill. The open areas are first bulkheaded off with chain link fencing reinforced by timbers and covered with burlap. As the filling commences, the transporting water drains from the sand to previously installed drainage outlets and thence to the general mine drainage and pumping system. The fill at this point resembles drained wet sand. Fill is carried up to the back or roof of the mine, as close as possible. This fill, by occupying previous voids, now prevents significant roof collapse. By using uranium mill tailings sands, the percolation or drainage time is minimized. In less than 48 hours, the majority of the transport water is drained out of the tailings sands. The fill drain waters, now part of the general mine discharge water, are pumped to the surface into settling ponds where fine particulate matter settles out before it is discharged or re-used.

III. Sands

No radiometric or chemical analyses have been taken of the proposed backfill tailings sands. However, Kerr-McGee has agreed to supply this information shortly after the commencement of the transfer and backfill operations. Also, to the best of our knowledge, no leaching column experiments have been conducted on mill sands. The only data on experience in other mines with water drainage from sandfill areas was reported in a letter dated June 2, 1977 from Kerr-McGee to Mr. A. A. Topp, Jr. of the EIA.

IV. Monitoring

Ranchers proposes to establish an eight-station water-quality-monitoring program accompanied by two new air-quality measuring stations to complement the existing radon-monitoring program. Specifically, the program proposed would have measurement stations as follows:

a. Surface waters
   - MW-1 — At the discharge of second of two settling ponds.
   - MW-2 — At the discharge of the drainage canal prior to entry into San Mateo Creek.
   - MWS-3 — Analysis of slurry mixture being used for backfill operation.

b. Underground water (in the Morrison formation)
   - UG-4 — Midway between north and south ore bodies
   - UG-5 — In northern ore body
   - UG-6 — In southern ore body

   (refer to circled red *'s on company confidential map for exact locations)

c. Ground water (alluvium) monitoring
   - GW-7 — Monitor well near mine discharge canal.
   - GW-8 — Monitor well further distant from mine discharge ditch.

   (Refer to red *'s on company confidential map for exact locations. Monitor wells will be drilled to 200' or to bedrock, whichever is reached first.)

d. Air monitoring stations
   - VH-9 — North vent hole
   - VH-10 — South vent hole

The eight water-monitoring stations will be sampled for Ra-226, TDS, Se, Mo, V, and As. Recent indication from Argonne National Laboratories suggests there may be difficulty in establishing valid thorium measurement techniques. Ranchers will investigate and if there appears to be a satisfactory measurement technique, Th-230 will be added to the above. These readings will be taken on a monthly interval for three months and then reduced to quarterly analyses as indicated by the base line information. The air-quality program will monitor the uranium decay chain, i.e., U, Th, and Ra, in addition to having working-level (WL) readings taken for radon information.

Prior to the commencement of backfill operations, three months of data for MW-1 and MW-2 are available and samples of VH-9 and VH-10 have just been taken. An attempt will be made to sample UG-4, UG-5 and UG-6 prior to the commencement of operations. At this time, no unique problems are anticipated from backfilling as it would affect the venting system. It is further not anticipated that there will be leaching of any consequence of the sand storage fills because of the minimal percolation time.

V. Miscellaneous

The height difference between the stope areas to be backfilled and the Dakota acquifer above varies between 130-150'. Ranchers is unaware of any wells within a one-mile radius of the backfill area. The backfilling methods and procedures have been approved by the State Mine Inspector's office, and Ranchers will comply with NRC Regulatory Guides 8.10 and 8.13.

Vi. Summary

Ranchers has tried to cooperate fully with the State on very short notice. It is believed that the proposed monitoring program and the initiatives taken in getting pre-operational data on the mine vents and mine discharge waters is positive indication of this cooperation. Although this procedure for backfilling a mine is an historic one that has been used in the area for at least 15 years, Ranchers is willing to consider, from the EIA standpoint, that it is a test operation. There are six major gains for the parties involved if this backfilling procedure is approved:

1. Minimal effect on surface environment. If mill tailings are not used, surface blow sands must be substituted as a backfill material. This would entail destroying existing naturally-contoured sand dunes. In the process of preparing the sand for adequate percolation characteristics, an undesirable "gunk" would be left on the surface for ultimate disposal somewhere. Approximately 30-40% of any non-mill sandfill would remain behind as this "gunk" material.
2. Provides a permanent, isolated storage for uranium mill tailings. With the great attention currently being given to disposal questions for these mill tailings, a site 1300 feet underground should offer many advantages over any alternatives on the surface.
3. Protection of the Dakota water above. Should caving occur, the Dakota acquifer would be penetrated from below with many undesirable effects.
4. Physical safety of the miners. If backfilling is not resorted to, the alternative is cribbing or other mechanical support procedures. This requires miners to work in unsupported stopes while placing the supports and introduces an undesired element of risk.
5. Improved air quality underground. Blocking off unused stopes with backfill materials will increase the effectiveness of the underground ventilation system by reducing the volumes involved.
6. More efficient mining. With backfilling, fewer and smaller supporting rock pillars with imbedded ore need be left behind.