MK009PR

CHURCHROCK NO. 1 MINE

KERR-McGEE CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

TECHNOLOGY & ENGINEERING DIVISION

ROY R. SMITH
VICE PRESIDENT, ENVIRONMENTAL OPERATIONS

Mr. Holland Shepherd
State of New Mexico
Energy, Minerals and Natural Resources Department
Chief, Mining Act Reclamation Bureau
Santa Fe, New Mexico 87505

RECEIVED
AUG 30 1994
MINING & MINERALS DIVISION

26 August 1994

Dear Mr. Shepherd,

Your letter dated July 22, 1994 states the Director of the Mining and Minerals Division will make a determination on the adequacy of the reclamation program at the Quivera Mining Co. Church Rock properties by September 30, 1995. It also states the requirement that an application for this inspection be submitted to you by August 31, 1994.

This letter serves as the application for this inspection and includes the following:

1. A check in the amount of $250 which is required as the inspection fee.

2. A copy of the Abandonment and Reclamation Plan for the Church Rock I, IE and II Mines (Attachment 1) which was approved by the Bureau of Land Management on October 9, 1990, and a copy of the approval letter signed by the Area Manager, BLM. (Attachment 1A)

3. A copy of the BLM letter, dated October 1, 1992, approving relinquishment of Navajo Allotted Uranium Leases 14-20-0603-9987, 9988, and 9990 (Attachment 2)

4. A copy of a letter from the Water Development Department, a unit of The Navajo Nation, dated July 26, 1989, which accepts the buildings associated with the three mines and requests that they not be dismantled during the reclamation process. (Attachment 3)

5. A copy of a letter from the Area National Resources Specialist, Bureau of Indian Affairs, dated July 17, 1992, specifying the seed mix to be used during the reclamation process. (Attachment 4)

6. A description of the current condition of the revegetated areas. (Attachment 5)

7. A description of the reclamation work completed including types and amounts of vegetation, acres reclaimed, etc. (Attachment 6)

8. The vegetation Monitoring Plan. (Attachment 7)

9. An aerial photo at a scale of 1:4800 showing the three mine sites and the surface facilities of each, the six vent holes and the lease boundaries.

Kerr-McGee Corporation restates its position that it does not believe the New Mexico Mining Act applies to it and/or these properties. It is submitting the enclosed voluntarily, without admitting the Act applies, and reserves the right to contest application of the Act.

Sincerely,

Roy R. Smith

Roy R. Smith

RRS/slj

ABANDONMENT AND RECLAMATION PLAN

Church Rock I, IE and II Mines
Navajo Nation Lease 14-20-20603-9988

Quivira Mining Company
Church Rock, New Mexico

January, 1987

ABANDONMENT AND RECLAMATION PLAN
Church Rock I, IE and II Mines
Navajo Nation Lease 14-20-20603-9988
Quivira Mining Company
Church Rock, New Mexico

1.0 INTRODUCTION

Upon termination of the uranium mining leases with the Navajo Nation and abandonment of the Church Rock I, IE and II mines, Quivira Mining Company will reclaim and stabilize the mine sites in accordance with this plan. The plan complies with the original lease terms and requirements contained in Quivira's mining plan approved by the USGS which was succeeded by U.S. BLM.

The mines were placed in a "standby mode" on January 31, 1985 and the following steps have been taken:

1. All mining, electrical and haulage equipment were removed from the mine and stored at surface facilities.

2. At the request of the Bureau of Land Management (BLM), fire doors in the station areas were welded shut and reinforced with steel beams. Underground openings to ventilation bore holes were closed with chain link fencing or ventilation control doors.

These closures were inspected and approved by the U.S. BLM.

3. Mine dewatering pumps were removed from the mine in January 1986. The mine water treatment ponds are drying.

4. Buildings and permanently installed equipment (hoists, compressors, generators, etc.) were stabilized for possible future use.

5. 24-Hour security has been maintained at the property.

The following steps will be taken to end the standby mode, complete the mines abandonment and reclaim the sites:

1. All ventilation bore holes and mine shafts will be filled with mine water sediments, protore and mine excavation wastes. Reinforced concrete plugs will be installed at the openings and covered with a minimum of one foot of topsoil.

2. The remaining mine excavation wastepiles will be generally reduced to 3h:1v slope, covered with a

headframes, generators, etc.) will be removed from the property.

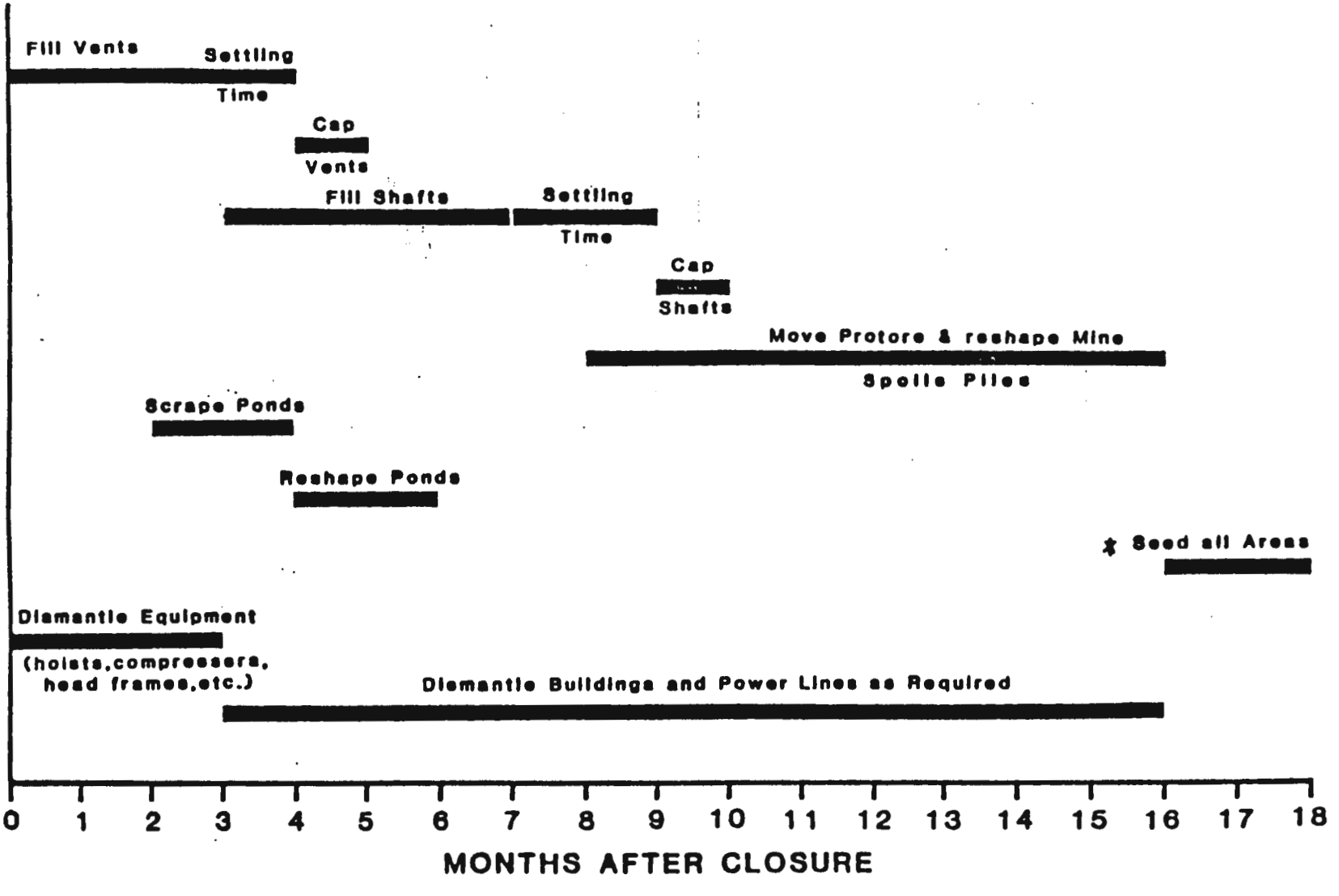
4. Buildings, as designated by the Navajo Nation, will be removed and the foundations destroyed.

5. Final land reclamation will include appropriate steps to insure that radioactive and chemical materials will be contained as required by federal or state regulations.

6. All disturbed areas will be re-seeded to produce natural vegetation after stabilization.

2.0 VENTILATION BORE HOLES

The bore hole foundations supporting the casing will remain in place. The surface ventilation fans, transformers, switches, ductwork, electrical cables and fences will be removed from the bore hole area.



* May depend on weather and time of year.

March 4,1986

SCHEDULE 1
CHURCH ROCK MINE CLOSURE

The concrete piers and foundations used to support the ventilation equipment will be demolished and placed in the bore hole as fill.

The bore hole will be filled within four feet of the surface with protore or waste materials from the mine spoils pile. Water may be added to material during placement to facilitate settling prior to setting the final cap. A settling time of six to eight weeks will be allowed, and additional mine waste materials will then be added if required.

The four-foot thick concrete plug will be secured to the casing by welding 3/4-inch rebar to the casing on 12-inch by 15-inch centers as indicated in Figure 1. The cemented bore hole will then be covered with fill and topsoil and contoured to blend with the local landscape.

Finally, the area will be seeded (See Section 10).

3.0 MINE SHAFTS

In accordance with BLM requirements, bulkheads have been installed on the mining levels by welding in a

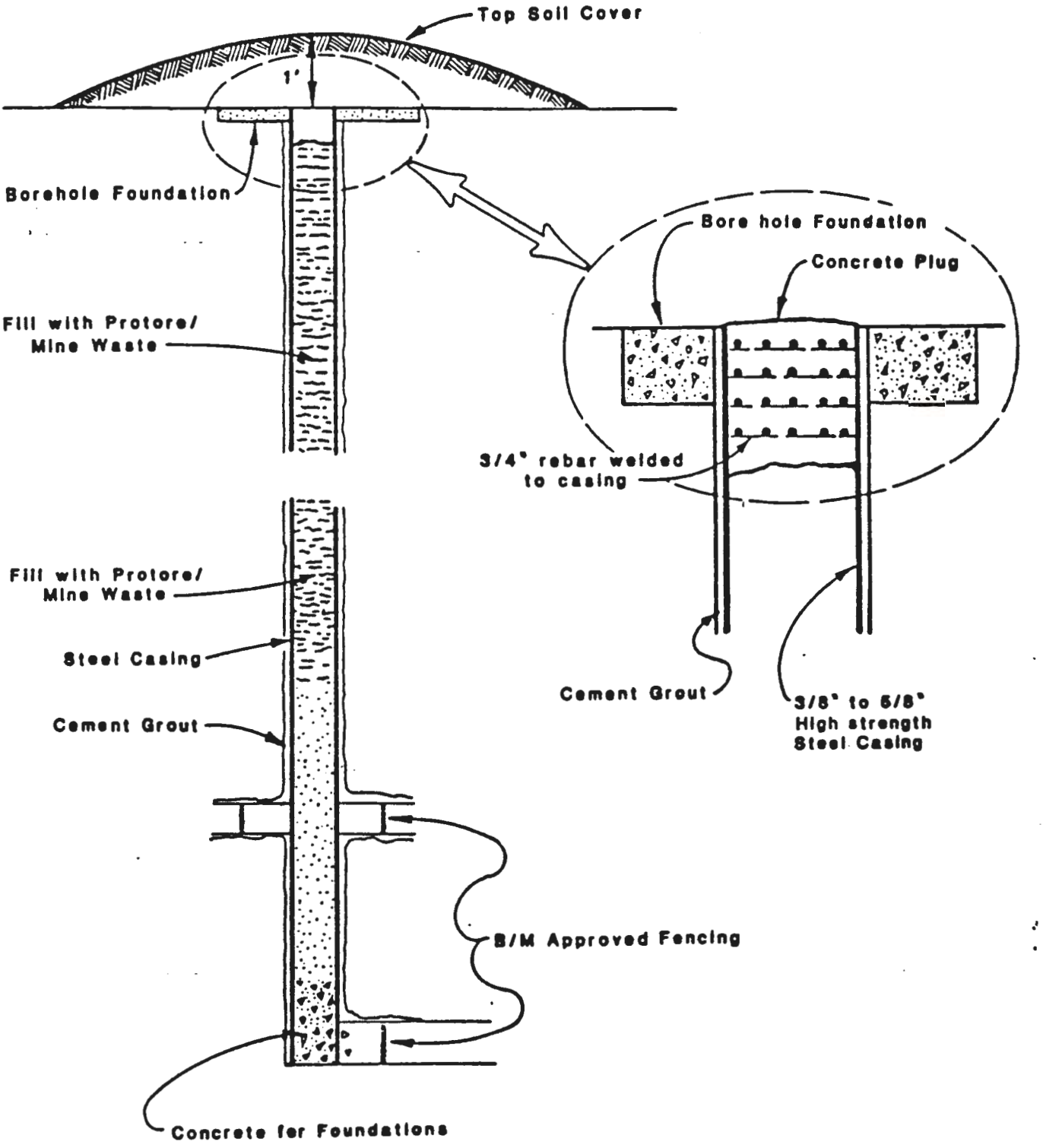


FIGURE 1
VENT HOLE CROSS SECTION
CHURCH ROCK MINE
NO SCALE

March 4,1986

closed position the steel fire doors at the station levels and reinforcing them with four steel beams. Materials in the shaft, pipe, ladders, and steel sets will not be removed.

The shaft will be filled with mine water sediment, protore and mine waste materials up to the lower sub-collar elevation. The sub-collar and collar foundation will be left intact to provide support to the final concrete plug (See Figure 2). Water may be added to the fill material during placement to accelerate natural settling and compaction.

After six to eight weeks, the time allowed for final settling, eight steel beams will be welded in place on the sub-collar foundation, and a four-foot concrete cap will be poured and keyed into the sub-collar as a final cap.

The concrete plug and the immediate shaft pad will then be covered with one foot of earth. The area will be re-seeded as per Section 10 of this plan.

4.0 PERMANENT BUILDINGS AND STRUCTURES

The permanent buildings will remain subject to requests

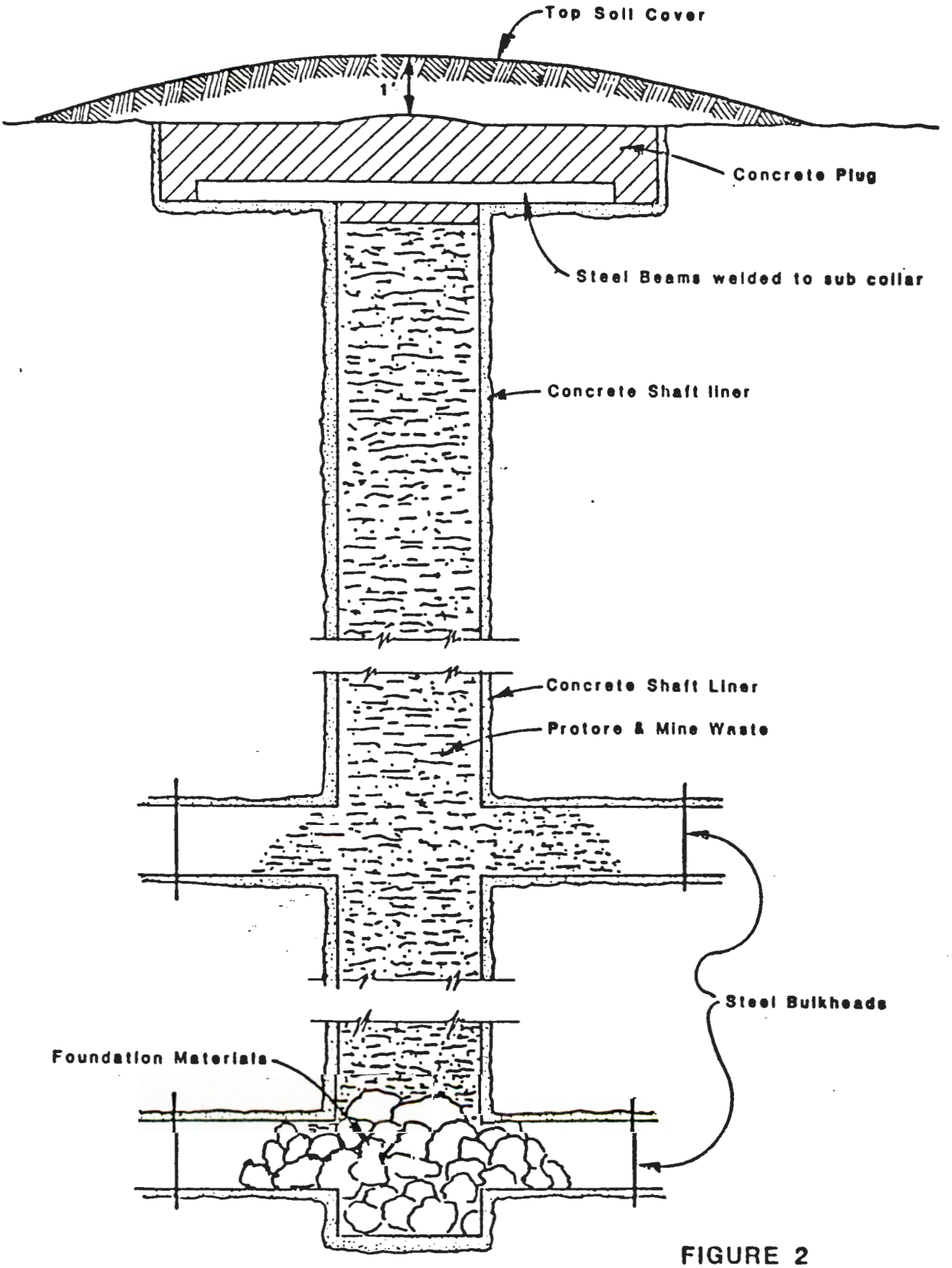


FIGURE 2

MAIN SHAFTS CROSS SECTION

CHURCH ROCK MINE

NO SCALE

March 4,1986

of the Navajo Nation. All buildings will be surveyed for possible contamination. The outcome of this survey will determine the final decommissioning of the buildings for release for other uses (See Section 9). All other buildings, trailers and structures will be removed from the leases. Foundations, pads, and concrete piers will be demolished and placed in the shafts and ventilation bore holes for fill or used as riprap in the final spoils pile reclamation.

The two sewage treatment facilities that serve the buildings at the Church Rock I and Church Rock IE shaft will be left in place in good operating order if so requested by the Navajo Nation. If the Nation desires they be removed, they will be dismantled in accordance with New Mexico Environmental Improvement Division regulations for such systems.

5.0 MINE PONDS

The ponds used as settling basins for mine solids and the radium treatment facility will be drained and allowed to dry. All sludge and settled solids will be scraped from the side and bottoms of the ponds. The material will be used as backfill in the mine shafts

or vent holes. Once the area has been cleaned, the ponds will be closed by folding in the pond berms. The area will then be contoured and seeded in accordance with Section 10 of this plan. Contoured slopes will generally not exceed 3h:1v.

6.0 ROADS

All roadways that are not desired by the Navajo Nation will be removed. A radiation survey will be made of the area to identify any radioactive materials. Any radioactive material with radiation above the limits established in Section 9 will be returned to the mine site in accordance with good practice. The roads will be recontoured, blended into the surrounding environment, and seeded in accordance with Section 10 of this plan.

7.0 FENCES

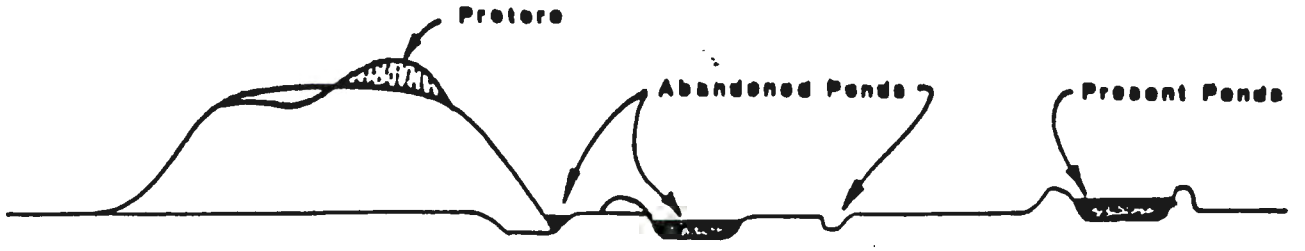
All fences around the mine site and pond areas will be removed unless they are to remain per the request of the Navajo Nation. The fences may aid in land reclamation by keeping livestock and other animals from areas until re-vegetation takes place.

8.0 MINE SPOILS PILES

After the shafts and the ventilation bore holes have been filled, any remaining mine development wastes and protore will be reclaimed. The protore will be relocated over the abandoned ponds (See Figure 3) and covered with waste rock from the Church Rock I site. The spoil piles at Church Rock Mine I and IE will then be contoured and compacted to blend with the surrounding environment, covered with approximately one foot of topsoil and re-seeded per Section 10 of this plan. Contoured slopes will generally not exceed 3h:1v. All contouring will be done to minimize erosion potential with riprap added where required along the major watercourse channels in the area.

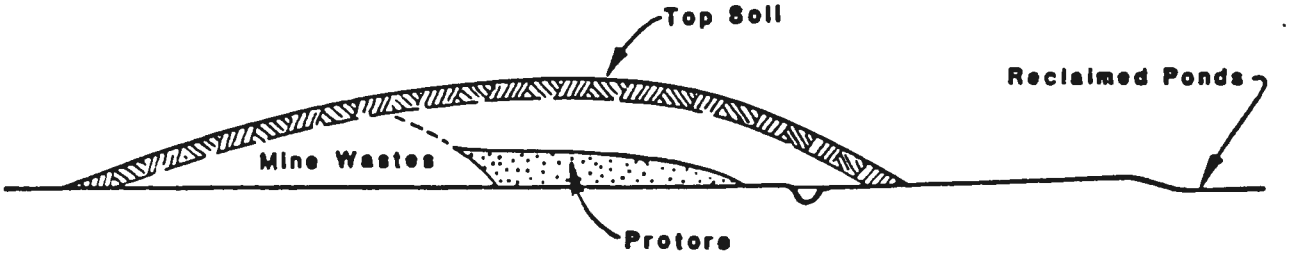
9.0 RADIOACTIVE DECONTAMINATION

A pre-stabilization survey was completed during the summer of 1985 in the area using gamma measurements 1 meter above the ground at specified grid points. As the mines are in a "standby mode" no changes have occurred. The data from this survey were plotted on 200-scale maps, and gamma isopleths developed to



Present Cross Section of CR-1 Mine Waste Dump

No Scale



ReClaimed Cross Section of CR-1 Mine Waste Dump

No Scale

FIGURE 3
MINE RECLAMATION PLAN
CHURCH ROCK 1E MINE

March 4,1986

estimate the areas of contamination. The survey indicates approximately 21 acres will require some reclamation efforts. All radioactive material will be moved and stabilized in accordance with appropriate health physics and engineering practices.

These practices will follow guides set by Federal and State agencies for the protection of public health and the environment and will be used in this plan as follows:

1. Mine Spoils Areas

   Depending on the materials available, gamma radiation will be reduced to 57*uR/hr. above the natural background of 9uR/hr.

   *NOTE: All measurements to be taken 1 meter above the ground level. The 57 uR/hour limit assures individual members of the public not exceed the New Mexico and Federal (NRC) limit of 0.5 mem/yr.

2. Roadways, Fencelines, Vent Holes, Protore Storage Areas and Mine Ponds.

Gamma radiation levels will be reduced to 50uR/hr.

3. In any building left on site

a. Effort shall be made to achieve an annual average (or equivalent) radon decay product concentration (including background) not to exceed 0.02 working levels (WL). In any case where radon decay product concentration (including background) exceeds 0.03 WL, the building will be demolished.

b. The level of gamma radiation shall not exceed the background level by more than 20 uR/hr. within a building. In any case where gamma levels cannot be reduced below this level the building will be demolished.

Qualified environmental health physics personnel will monitor the program to insure good practices are followed, and the personnel performing the work are adequately protected.

10. FINAL CONTOURING AND SEEDING

All areas will be contoured to blend with the

surrounding topography and, to the extent practicable, prevent erosion. Areas around buildings will be sloped to promote drainage away from the structures. Berms will be constructed to divert natural run-off and prevent erosion.

The following horticultural practices will be used for the establishment of natural vegetation after the final earthwork is complete.

1. Fertilizer type and rate will be spread as required. Amount and chemical content will be determined by soil analysis.

2. Discing will be used to break clods and turn soil.

3. Contour furrowing will be used to minimize soil erosion and increase water retention.

4. Rangeland type drill will be used to set seeds and insure adequate soil cover.

5. Mulch (straw) at the rate of 2.5 tons per acre will be blown on the area after seeding for temporary ground cover.

6. All disturbed areas will be seeded with western crested wheat to establish a perennial vegetation cover until such time as natural vegetation cover is re-established. Planting time will be limited from June to September to take advantage of the natural rains.

11.0 CHURCH ROCK II MINE SITE

The site of the proposed Church Rock II Mine Site will require contouring to blend with the environment. The original top soil that was stockpiled on site will be used for final cover and reseeded in accordance with Part 10 of this plan.

The mine hoist building will be removed or allowed to remain depending upon the wishes of the Navajo Nation. Ventilation casing now being stored at the site will be removed. Since there was no mining activity at this site no radioactive decontamination will be required.

12.0 GROUNDWATER ASSESSMENT

HYDROLOGIC SETTING FOR WESTWATER CANYON AQUIFER IN THE CHURCH ROCK AREA

1. Groundwater Flow Conditions

Prior to major groundwater withdrawals from the Westwater Canyon aquifer in the Church Rock area, the natural flow in the aquifer was from the outcrop or surface exposure of this formation, just south of the mining area, northward into the San Juan Basin. Under natural conditions groundwater moved within the aquifer at the rate of less than 100 feet per year toward a distant discharge point along the San Juan River, some 90 miles to the north. Travel time for groundwater from the recharge area to reach the discharge area was on the order of 10,000 years.

In 1967 major dewatering of the aquifer for mining in the Church Rock area began and continued until January 1986. In recent years more than 4,000 gallons per minute were pumped continuously from the Westwater aquifer. Some 25 to 30 billion gallons have been withdrawn over 18 years, creating an extensive pressure relief or depression cone. Maximum pressure relief at the mine site has been approximately 1,400 feet with a northerly trending

pressure relief cone of about 400 feet of depression produced at a distance of 7 miles and about 100 feet produced at a distance of 18 miles from the mining area.

When the pumping in the mining area stopped in early 1986, several related changes began to occur. First, the lowest-level mine workings rapidly flooded in a matter of days. However, this flooding and associated rise in water level quickly brought about a reduced groundwater gradient in the immediate area around the mine and inflow rates began to decrease. Subsequent fill-up of the higher mine workings, vent holes and shafts took much longer. By late 1986 all mine workings were filled with water.

The aquifer more distant from the mining area will gradually adjust to the cessation of pumping as groundwater moves toward a recovering depression rather than a sustained withdrawal point. Total recovery of the depression cone will be on the order of several hundred years because the more advanced recovery becomes, the flatter the gradient toward the depression becomes. Computer model studies by several companies as well as the New Mexico State

Engineer have predicted this slow recovery phenomena around all similar mines or pumping centers in the San Juan Basin. These computer models are based on the physical laws of fluid flow through permeable rock.

2. Groundwater Quality Conditions

Under natural conditions, groundwater in the Westwater aquifer is good in quality near the recharge areas. As groundwater moves in the aquifer to deeper portions of the basin and is in longer contact with the aquifer rock, the fresh water gradually becomes brackish. The groundwater in the Westwater aquifer near the center of the San Juan Basin is considerably higher in dissolved salts than is acceptable for drinking water.

The Church Rock mining area is located sufficiently close to the aquifer recharge sites to recover essentially fresh, potable water. However, opening of the uranium ore body by mine workings and exposure of these rocks to atmospheric conditions has brought about an altered environment for the rock, allowing elements such as uranium and radium to be released

from the rock into the mine waters and radon to be released into the circulating air. Since pumping has stopped and the mine is now flooded, the mine workings are no longer exposed to atmospheric conditions and the mobility of these elements will gradually return to conditions similar to that found in the aquifer during pre-mining time.

If some reduced amount of pumping is continued from the mine shafts or vent holes for non-mining purposes, it would be no different than removing water from a Westwater well except that the well would be very efficient, creating very little drawdown for the amount of water produced. This would be due to the well being fed by the large man-made underground reservoir (the mine) cut into the aquifer.

Water wells in the Westwater aquifer outside the mining area but within the area of mine pumping influence will experience a gradual rise in static water level due to the cessation of mine pumping. These wells should not experience any notable change in water quality.

3. Conclusions

Groundwater in the Westwater Canyon aquifer in the Church Rock area has always been of good quality and will continue to be of good quality after mining is stopped. The mining activity did not introduce any foreign materials into the aquifer. Mine dewatering and rock removal produced a temporary change in environment of the host rock, which allowed some natural release of uranium, radium and radon. The aquifer environment is expected to return to near natural conditions with the cessation of mine pumping.

Groundwater movement over a large area has been inward toward the mining area for the past 18 years as a large pressure relief cone has developed. With the cessation of pumping, groundwater is now moving at slower and slower rates toward the depression created by the mine dewatering. With the exception of overall reduced water levels in the aquifer in the area, no other effects of mining will be evident.

13.0 OTHER

The Friendship II water well located north of the Church

Rock I mine site will be left in operating condition with the diesel generator and pump. Electric service lines will be removed or left at the discretion of the Navajo Nation. Where necessary, the rights of way to these lines will be reclaimed and seeded.

14.0 RECLAMATION COST

The estimated volumes required to fill the shafts and bore holes are based on physical dimensions and fill of the underground shaft stations. Fill requirements are as follows:

Estimated Fill Required

Church Rock I Shaft	10,550 yd^3
Church Rock I Station	19,300 yd^3
Church Rock I-E Shaft	6,490 yd^3
Church Rock I-E Station	4,000 yd^3
Mine Vent Holes	8,870 yd^3
Total Estimated Volumes	49,210 yd^3

The protore and mine wastes would be used for shaft and bore hole backfill. After completion of this phase the final reclamation will require the transfer of any remaining protore or pond solids to the east toe of

the mine spoils pile as indicated in Figure 3. This material would then be covered with mine wastes and final shaping, contouring and vegetation completed.

Stabilization	$ 207,000
Reseed	14,000
Shaft & Vent Plug	17,000
Foundation/Mine Eq. Removal	78,000
Building & Misc. Disposal	30,000
Environmental/Oversite	50,000
	$ 396,000
Contingency	79,000
TOTAL	$ 475,000

15.0 MANPOWER

It is anticipated that the majority of the reclamation work will be accomplished with the five Church Rock company employees including four Navajos. Management and technical support will be supplied from Quivira Mining Company personnel located at Ambrosia Lake.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
RIO PUERCO RESOURCE AREA
435 MONTANO N.E.
ALBUQUERQUE, NEW MEXICO 87107

TAKE PRIDE IN AMERICA

3570 (017)

OCT 9 1990

~~480~~ 1576
BIA 766 3610
602 - 871 5936

Mr. Hal Whitacre
Quivera Mining Company
P.O. Box 218
Grants, New Mexico 87020

Dear Mr. Whitacre:

This letter is to notify you that your January 1987 Abandonment and Reclamation Plan for the Church Rock I, IE and II mines, Navajo Nation Leases 14-20-0603-9987, -9988, and -9990, is approved. Reclamation work may begin subject to the enclosed stipulations. We reserve the right to require any future plan or stipulation changes deemed necessary.

Also, as discussed and noted during our field trip, successful surface reclamation is predicated on keeping livestock off the improvements until forage is successfully established. This normally takes two complete growing seasons. We suggest you meet with chapter officials and local residents to solicit their cooperation, thereby helping to facilitate the success of the reclamation effort.

We appreciate the cooperation Quivera has given the BLM in the past and look forward to a continuing good relationship. If you have any questions, please contact John Gilmore of my staff at the above address or telephone (505) 761-4504.

Sincerely,

Albert Abee
Area Manager

Enclosure

cc: The Navajo Nation - Minerals Dept.
BIA - Area Director

STIPULATIONS

1. Quivera Mining Co. will develop a groundwater monitoring plan to monitor for geochemical alterations. This will be done for any wells contiguous to the mine sites that are accessible to Quivera.

2. The Area Manager reserves the right to require any future changes in the mine closure plan deemed necessary to mitigate any unforseen adverse environmental effects.

3. For all areas to be reclaimed, Quivera Mining Co. will re-establish vegetation at a cover density which approximates or exceeds that of the surrounding terrain or which is satisfactory to the Area Director, Navajo Area Office, BIA, Window-Rock, Arizona. A minimum topsoil thickness of twelve (12) inches is required on all areas reclaimed.

4. Quivera Mining Co. will use the seed mixture recommended by BIA for the Church Rock area.

5. Quivera Mining Co. will place a grizzly over all shaft openings during backfill opoerations to limit the size of material and to provide for personnel safety.

6. If settling takes place during the six to eight week period after backfilling ventilation holes and shafts, Quivera Mining Co. will continue to backfill and monitor quarterly, for up to one year.

7. Fencing of mine sites must remain until revegetation is approved by BIA.

8. Existing roads and trails will be used to the extent possible.

9. Vehicle and equipment access to the site will be limited to dry ground and dry weather conditions.

10. No oil or lubricant shall be drained onto the ground.

11. For all areas, Quivera Mining Co. will reclaim the surface so that gamma radiation, at one meter above the ground, will be reduced to levels below a maximum level of 57 uR/hour, above background standard.

12. If sufficient topsoil is not available in stockpiles located at the mine site, additional topsoil will be obtained from areas approved by the Area Manager.

13. All radioactive material will be moved and stabilized in

accordance with appropriate health physics and engineering practices.

14. Any airborne dust from reclamation activities should be kept to a minimum by spraying roads and dusty areas with water.

15. The placement of protore will be as far as possible from the Puerco River (Rio Puerco) and its tributaries.

16. Slopes will be no greater that 3:1 and no longer than 150 feet. If these parameters must be exceeded, a self draining te rrace(s) must be installed.

17. No archaeological site will be disturbed. If any sites are discovered the Superintendent and Area Manager will be notified.

IN REPLY REFER TO
3590 (017)

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
RIO PUERCO RESOURCE AREA
435 Montano NE
Albuquerque, New Mexico 87107

OCT 01 1992

Memorandum

To: Area Director, Navajo Area Office, BIA

From: Area Manager, BLM, Rio Puerco Resource Area

Subject: Release of Navajo Allotted Uranium Leases 14-20-0603-9987, 9988, 9990

A final reclamation inspection of the subject leases has been completed. The leases were found to be properly abandoned according to approved reclamation plan requirements. Therefore, we have no objection to the relinquishment of the leases, and release of Kerr McGee's liability.

However, before bond release, we recommend a final MMS audit of the subject leases. It is also a good idea to wait at least one year to insure proper revegetation of the reclaimed areas before releasing the bond.

Of course, we will continue our quarterly inspections until final relinquishment of the leases and inform you of any changes. If you need further assistance or have any questions, please contact John Gilmore of my staff at the above address or telephone (505) 761-8704.

Albert Abee
Area Manager

cc: Robert Pounds, Kerr McGee

RECEIVED
OCT 05 1992
PROJECT MANAGEMENT

THE NAVAJO NATION

Leonard Haskie
Interim Chairman
Navajo Tribal Council

Irving Billy
Interim Vice Chairman
Navajo Tribal Council

July 26, 1989

RECEIVED
MAY 0 5 1992
PROJECT MANAGEMENT

Al Phlieger
P.O. Box 218
Grants, New Mexico

Dear Mr. Phlieger:

This memo is in reference to your telephone conversation with Mr. George Little, Jr., on July 25, 1989, regarding the following matters:

1. The transfer of existing buildings from Quivira Mining Co. to the Navajo Tribe. We happily accept buildings with thanks and request that you do not dismantle during your reclamation process.

2. Kerr McGree Camp Domestic System: Buried electrical powerline from vent hole #6 to "Friendship I" Well/ Pumphouse. Navajo Tribal Utility Authority provides the power supply and indicates that the current set up is unsafe. Navajo Tribal Utility Authority indicates they can construct the powerline above the ground but they need to know who will burden the cost.

3. Who will assume the responsibility of paying the electric bill?

Our Department is actively and sincerely seeking answers regarding matter #2 and #3. We thank you once again for the buildings and look forward to work with you in resolving the concerns over power transmission line and the electric bill. We will be in touch with you on these issues soon. Please let us know when we can inspect the building to assume ownership.

If you have any questions, please contact us at (602) 729-5081/84.

Sincerely,

Johnnie D. Francis
Water Development Department

C O N C U R R E D :

Peter Deswood, Jr., Executive Director
Division of Natural Resources

Post Office Box 220 ... Window Rock, Arizona 86515

FILE COPY

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
NAVAJO AREA OFFICE
P.O. Box 1060
Gallup, New Mexico 87305-1060

IN REPLY
REFER TO:

Natural Resources

JUL 17 1992

SURFACE COPY
Area Natural Resources
REVEPRO
7/17/92

Mr. Roy R. Smith
Kerr-McGee Corp.
P.O. Box 25861
Oklahoma City, Oklahoma 73125

Dear Mr. Smith:

We have completed a quick review of the Revegetation Proposal submitted by Fuks Trucking Co. for the 60 acre Underground Uranium Mine NE of Gallup. Our recommendations include the following amendments to your proposal:

(1) Eliminate Crested Wheatgrass from your mixture.
(2) Amend your seed mixture to include these native species:

Western wheatgrass	2.0	#PLS/ac
Streambank wheatgrass (Sodar)	1.0	
Thickspike wheatgrass (Critana)	1.0	
Indian ricegrass	1.0	
Sand dropseed	0.5	
Alkali sacaton	1.0	
Winterfat	0.5	
Fourwing saltbush	2.0	
plus the non-native legume,		
Yellow sweetclover	1.0	
	10.0	#PLS/ac

(3) Indian ricegrass germinates and emerges best from a 2- to 3- inch planting depth. This species should be pre-planted with a deep drill setting.

The wheatgrasses, fourwing saltbush, and yellow sweetclover will emerge well from the 1/2 to 3/4 inch recommended planting depth.

Sand dropseed, alkali sacaton and winterfat should be broadcast and subsequently covered by chain drags or raking.

(4) The targeted area is arid and has a propensity for extreme precipitation events. Accordingly, we believe that mulching with 2 tons of straw or hay per acre followed by crimping is essential for stabilizing the site.

Thanks for the opportunity to provide input to this project. If you have further questions or concerns, contact me at (602) 871-5151 ext. 5353.

Sincerely,

/s/ Dave Koehler

David A. Koehler, Ph.D.

Area Natural Resources Specialist

cc: Area Environmental Quality
Technical Services & Resources Protection

Seventy five acres were reseeded per the seeding mix provided by BIA during August, 1992. After two years of growth, the re-seeded areas appear to have a vegetation density greater than the undisturbed areas. A survey to compare the revegetated areas with the undisturbed areas will be completed during Fall 1994 as described in Attachment 7.

The BLM approved reclamation plan required that the surface of the mine sites be returned as near as possible to natural conditions and that the reclaimed areas be seeded to establish a perennial vegetation cover until the natural vegetation is re-established. The objectives of the reclamation plan were to stabilize both the sub-surface and surface facilities to their pre-mining conditions and to return the surface areas to the pre-mining owners in a condition able to support the pre-mining land use.

The following jobs were completed to accomplish the reclamation objectives:

Church Rock I

1) The main shaft and Vent Hole #1were capped with concrete.
2) Contaminated material, protore, and waste ore were moved from the vent holes, ponds, around the buildings, and the top of the waste pile to the base of the waste pile.
3) The areas around the vent holes and the buildings were compacted and graded.
4) The waste pile was graded to a 3h:1v slope.
5) Miscellaneous concrete foundations and drainage structures were removed.
6) The pond areas were contoured by removing the berms and grading.
7) Cut a main drainage channel and built a flood protection berm along the top of the waste pile.
8) Placed and compacted 12" of alluvium cover over the reclaimed area.

Church Rock 1E

1) The main shaft was capped with concrete.
2) Contaminated material around the buildings was moved to the waste pile.
3) The waste piles were contoured to a maximum 3h:1v slope.
4) Graded and compacted the area adjacent to the piles.
5) Placed and compacted 12" of alluvium cover over the reclaimed area.
6) Installed a culvert under the road for drainage.

Church Rock II

1) Contoured the site.
2) Placed and compacted 12" of alluvium cover over the reclaimed area

Vent Holes

1) Graded all vent hole sites

General

1) Seeded all reclaimed areas. The total acreage reclaimed was slightly more than 74 acres.
2) Restored fencing to protect all reclaimed areas from livestock grazing until vegetation is successful.

Slopes were constructed to no more that 3h:1v in order to prevent severe erosion and the surface areas were contoured to prevent standing water and to promote proper drainage.

The Monitoring Plan to measure vegetation success was approved by both the BLM and BIA during a meeting in August 1994.

MONITORING PLAN
Vegetation Survey
and
Development of Success Standards

Church Rock I, IE, and II Mines
Navajo Nation Lease 14-20-20603-9988

("The Navajo Church," New Mexico Geologic Society Guidebook 1967, p.117)

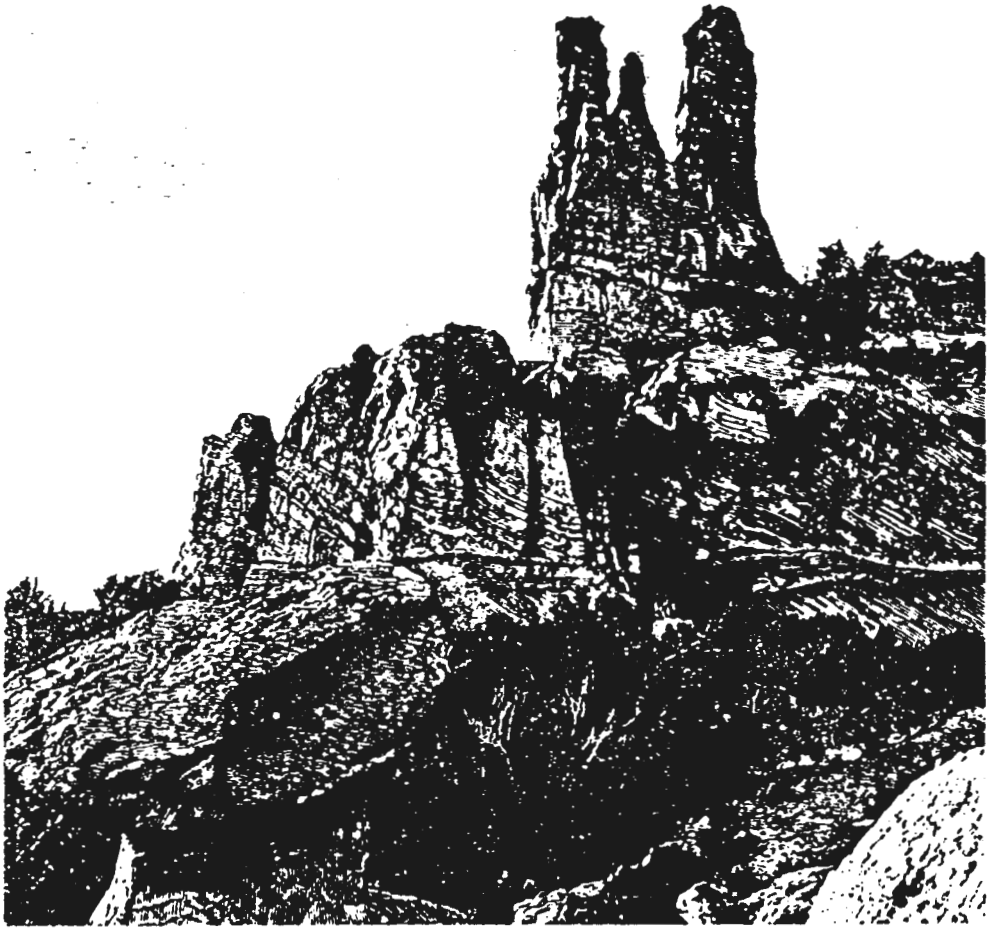
Kerr-McGee Corporation
Oklahoma City, OK

May 1994

MONITORING PLAN

Vegetation Survey
and
Development of Success Standards

Church Rock I, IE, and II Mines
Navajo Nation Lease 14-20-20603-9988



Prepared by: _____

Ed Kelley, Ph.D., Ecologist

Kelley Consultant Services
3620 Wyoming NE #108
Albuquerque, NM 87111

For: **Kerr-McGee Corporation**
Oklahoma City, OK

May 1994

MONITORING PLAN
Vegetation Survey
and
Development of Success Standards

A. Site history

In June of 1966, Kerr-McGee Corporation entered into lease agreements with the Navajo Nation to conduct uranium mining operations in the Church Rock, New Mexico area. Mining activities were conducted by a subsidiary, Quivera Mining Company, until the world-wide demand for uranium declined. In January of 1985, the mines were placed in "standby mode." At that time, all underground equipment was removed and the mine and ventilation shafts were closed with the approval of the BLM. Subsequently, in December of 1988, Kerr-McGee sold QMC and the leases to Rio Algom Mining Company. During operations three mine sites, six ventilation shaft sites, and necessary roadways were disturbed.

In April of 1987, QMC submitted an Abandonment and Reclamation Plan to the Navajo Nation, BIA, and BLM. In October, 1990, that plan received approval. Surface reclamation work, including planting a seed mixture approved by the BIA, was completed in September, 1992. In October of 1992, the BLM wrote the BIA confirming that the conditions of the surface reclamation plan had been met, and recommended release of liability upon determination of successful vegetation.

B. Revegetation monitoring and success

The reclamation plan approved by the Bureau of Land Management (BLM) stipulates that the vegetation in the reclaimed areas would be reestablished "...at a cover density which approximates or exceeds that of the surrounding terrain or which is satisfactory to the Area Director, Navajo Area Office, 13 IA...."

Determination of the existing cover density requires the development of baseline data to determine revegetation success. The data collected are to provide information concerning "...density and foliar cover of both reclaimed sites and undisturbed reference areas." This document presents methods to meet these requirements.

It is proposed that a line-intercept method be used to collect the required data. This method gives more accurate, consistent and repeatable data than do other types of field data collection techniques. This method is the preferred technique described in the New Mexico Coal Surface Mining and Reclamation rules and is also used for revegetation evaluations on Indian and Federal land being mined for coal in New Mexico. All the above listed information can be collected using the line-intercept method.

Reference areas have been established by Kerr-McGee Corporation and will be utilized for collection of vegetation data and used to create a baseline standard and develop a ranking system The data for this standard will be collected from both the reclaimed sites and the reference areas located in the non-mined undisturbed natural landscape. This system will provide criteria based on both the natural landscape and the reclaimed land for final release. An example of the proposed ranking system is included as Figure 1. The evaluation of revegetated areas can then be based entirely on the comparison of reclaimed areas to the baseline standard (Figure 1). The data will be presented in the format

shown in Figure 2. The number of transects estimated to obtain the required data for each site is presented in Figure 3.

Kelley Consultant Services also suggests that livestock grazing be prevented until a release of liability is obtained from the BIA. A grazing plan should be developed and ready for implementation for each revegetated site.

Since the vegetation is to be evaluated for only one time period, it is proposed in this document that vegetation be monitored sometime during the Fall (late August through September). If the collected data shows a negative trend, an evaluation of site conditions should be conducted immediately and a remedial action plan developed and implemented as soon as feasible. This plan would include soil sampling and analyses.

Figure 1. AREAS SUPPORTING VEGETATION

Areas that are presently supporting the growth of vegetation fall into one of the following two general classifications:

1. Land revegetated by human efforts, or
2. Land vegetated by natural invasion of native and introduced plants.

Classification #1 will be referred to as "Reclaimed land",

Classification #2 will be referred to as "Reference Sites".

Both the Reclaimed land and Reference Sites can be subdivided into growth success rankings based on type and amount of vegetation present. The following system for ranking each site is recommended:

	CRITERIA					
RANK	%Cover[a]	>15% RC[b]	Density[c]	Vigor[d] Excellent	Good	Poor
#1 Excellent	(Values	____	____	X		
#2 Very Good	Developed	____	____	X		
#3 Good	From Field	____	____	X		
#4 Fair	Data	____	____	X		
#5 Poor	Collected)	____	____	X	X	
#6 Failure	____	____	____		X	X

(a) Cover is the % of ground surface covered by vegetation growth, as measured along a line

(b) This value is based on the number of species found providing values for (a) in which the % cover for each species is divided by the sum of cover values for all species of that site and the resultant answer is greater than 15%.

(c) Density is the number of plants growing in a measured area, i.e., number of plants M^2.

(d) This is a visual evaluation of the health condition of the plants present on the site.

Figure 2. TABULATED DATA TABLE

CHURCH ROCK VEGETATION SURVEY

	Foliar cover%	Basal cover%	Density	Frequency %
Grass				
Western wheatgrass				
Streambank wheatgrass (Sodar)				
Thickspike wheatgrass (Critana)				
Indian ricegrass				
Sand dropseed				
Alkali sacaton				
Forbs				
Yellow sweetclover				
Shrubs				
Winterfat				
Fourwing saltbush				

NOTE: Cover values are based on line transect data. Density is the number of plants growing in a measured area, i.e., number of plants M^2.

Figure 3. SIZE AND LOCATIONS OF SAMPLE TRANSECTS

Site Name	Length of Transect (Meters)	Number of Transects
Church Rock I	30	10 - 15
Church Rock I - E	30	10 - 15
Church Rock II	30	10 - 15
Vent Site I	30	5 - 10
Vent Site II	30	5 - 10
Test Plot 1	10	5 - 10
Test Plot 2	10	5 - 10
Test Plot 3	10	5 - 10
Test Plot 4	10	5 - 10
Test Plot 5	10	5 - 10
Test Plot 6	10	5 - 10
Test Plot 7	10	5 - 10
Test Plot 8	10	5 - 10
Reference Site 1	20	5 - 10
Reference Site 2	20	5 - 10
Reference Site 3	20	5 - 10

Prior Reclamation Study - Protection of Water Resources
Homestake Mining Co., United Nuclear Corp. and Kerr-McGee Corp.

Submitted in Partial Fulfillment of New Mexico Mining Act
Section 69-36-7 U, Prior Reclamation
Protection of Water Resources

New Mexico Energy, Minerals, and Natural Resources Department
Mining and Minerals Division
Mining Act Reclamation Bureau

Introduction

Purpose of Study

The purpose of this study is to determine if further measures are required to protect water resources from degradation following mining operations at Homestake Mining Company and United Nuclear Corporation Mines prior reclamation sites near Ambrosia Lake, New Mexico and Kerr-McGee Corporation sites near Church Rock, New Mexico. The sites are tabulated in Table I. These companies are applying for release from further obligations pursuant to Section 69-36-7 of the New Mexico Mining Act and Section 5.10 of the New Mexico Mining Act Rules.

According to Section 69-36-7 U of the New Mexico Mining Act and Section 5.10 of the New Mexico Mining Act Rules an operator may apply for release from further requirements of the Act if the director of the State of New Mexico Mining and Minerals Division determines that reclamation measures satisfy requirements of the Act and substantive requirements for reclamation pursuant to applicable regulatory standards. "Reclamation" is defined by the Act as "the employment during and after a mining operation of measures designed to mitigate disturbance of effected areas and permit areas and to the extent practicable, provide for the stabilization of a permit area following closure that will minimize future impacts to the environment from the mining operation and protect air and water resources."

Surface Water Resources

There are no perennial or intermittent streams in the area of Ambrosia Lake. All surface runoff drains to ephemeral water courses and eventually into the San Mateo Drainage (Homestake, 1994). While uranium mines were operating in the area the San Mateo Creek, a tributary of the Rio San Jose, gained flow as a response of mine discharge. This water seldom reached the Rio San Jose because of seepage into the alluvium. The San Mateo Creek is now directly recharged from ground water (Brod, 1979). Before uranium mining the Pureco River was also an ephemeral stream. During mining operations the Puerco River flowed at rates as high as 10 cu ft/sec. The Puerco River is now perennial principally because of municipal effluent discharge (Stone *et al.*, 1983). Water from mine dewatering operations contained elevated levels of radiochemicals and toxic metals. However, there are no lasting impacts on surface water resources because of mine water discharge (Kaufmann et al., 1976). The shallow alluvium in the Ambrosia Lake Area is separated from underlying sandstone units by the impermeable Mancos Shale (Stone, 1983).

Protection of surface water resources with respect to erosion and sediment was accomplished by regrading the area to a stable configuration and reestablishment of permanent vegetation. Post mining topography and vegetation were inspected by Mining and Minerals Division personnel July 13-14, 1995 and will be addressed in a separate report. There were no waste piles of radioactive material left on the surface with the potential to contaminate surface water.

Table I
Prior Reclamation Study Site

Operator	Site	Wet Mine
Homestake Mining Company	Section 13 Mine	Dry
"	Section 15 Mine	Wet
"	Section 23 Mine	Wet
"	Section 25 Mine	Wet (Solution Mined)
"	Section 32 Mine	Wet
United Nuclear Corporation	Anna Lee Mine	Mostly Dry
"	John Bill Mine	Wet
"	Sandstone Mine (Section 34 Mine)	Wet
Kerr-McGee	Church Rock 1 Mine	Wet
"	Church Rock 1East Mine	Wet
"	Church Rock 2 Mine	Wet

Groundwater Resources

Regional Aquifer's

Figure 1 (Stone *et al.*, 1983) shows the geologic section in the Raton Basin. The City of Gallup derives most of its drinking water from the Gallup Sandstone. The San Andres Limestone and Glorieta Sandstone combine to form a significant aquifer along the southern margin of the San Juan Basin between Grants and Gallup. The Cities of Grants and Milan obtain water from this Aquifer. The Village of San Mateo relies primarily on the Point Lookout Sandstone for it's drinking water supply. The Morrison Formation, in which uranium mining took place, is the source of the public water supply for the Village of Crownpoint (Stone *et al.*, 1983).

Regional Groundwater Flow

The geology of the San Juan Basin is characterized by alternating strata of high and low hydraulic conductivities and, therefore, the major component of ground water flow in the San Juan Basin is through the higher conductivity units. The amount of vertical movement between aquifers is difficult to determine using available data. However, differences between vertically adjacent aquifers suggest that leakage rates through intervening shale beds are very low in most areas (Stone *et al.*, 1983). The geologic section in Figure 1 shows the probable direction of flow through confining beds. Note that the flow direction of leakage from the Morrison Formation is downward.

Generally, ground water flow within aquifers is from topraphically high outcrop areas toward lower outcrop areas. Much of the recharge to aquifers in the basin occurs on the flanks of the Zuni, Chuska and Cebolleta Mountains. Also contributing to the regional flow systems is recharge from high areas along the northern and northeastern basin margins, including the San Juan Mountains in Colorado. The San Juan valley in the northwest part of the basin and tributaries of the Rio Grande such as the Rio Salado, Rio Puerco and Rio San Jose in the southeast parts of the basin are the main discharge areas for the basin. Less important in terms of volume of outflow is the Puerco River near Gallup. Ephemeral stream channels filled with alluvium are the principal sources of groundwater recharge at higher elevations and the principal locations of discharge at lower elevations. The alluvial cover usually conceals evidence of discharge. Occasionally, white salt or alkali deposits associated with small-yield springs reveal groundwater discharge. Most discharge to alluvial channels is lost by evapotranspiration. However, some also moves as subsurface flow (Stone *et al.*, 1983).

The stratigraphic units of the prior reclamation sites in the vicinity of Ambrosia Lake are shown in Figure 2 (Kelly, 1963). This figure shows the Cretaceous system of the Mancos Shale and Dakota Sandstone overlying the Jurassic System of the Morrison Formation. Uranium ore was found in the "A" through "D" units of the Westwater Canyon member of the Morrison Formation (Homestake, 1994). Figure 2 shows that the Gallup Sandstone and Point lookout Sandstone Aquifers do not exist in the area of the Homestake and United Nuclear sites (except the northeast corner of United Nuclear's Section 28) and that the Mancos Shale Aquitard isolates the Morrison formation from overlying formations down dip.

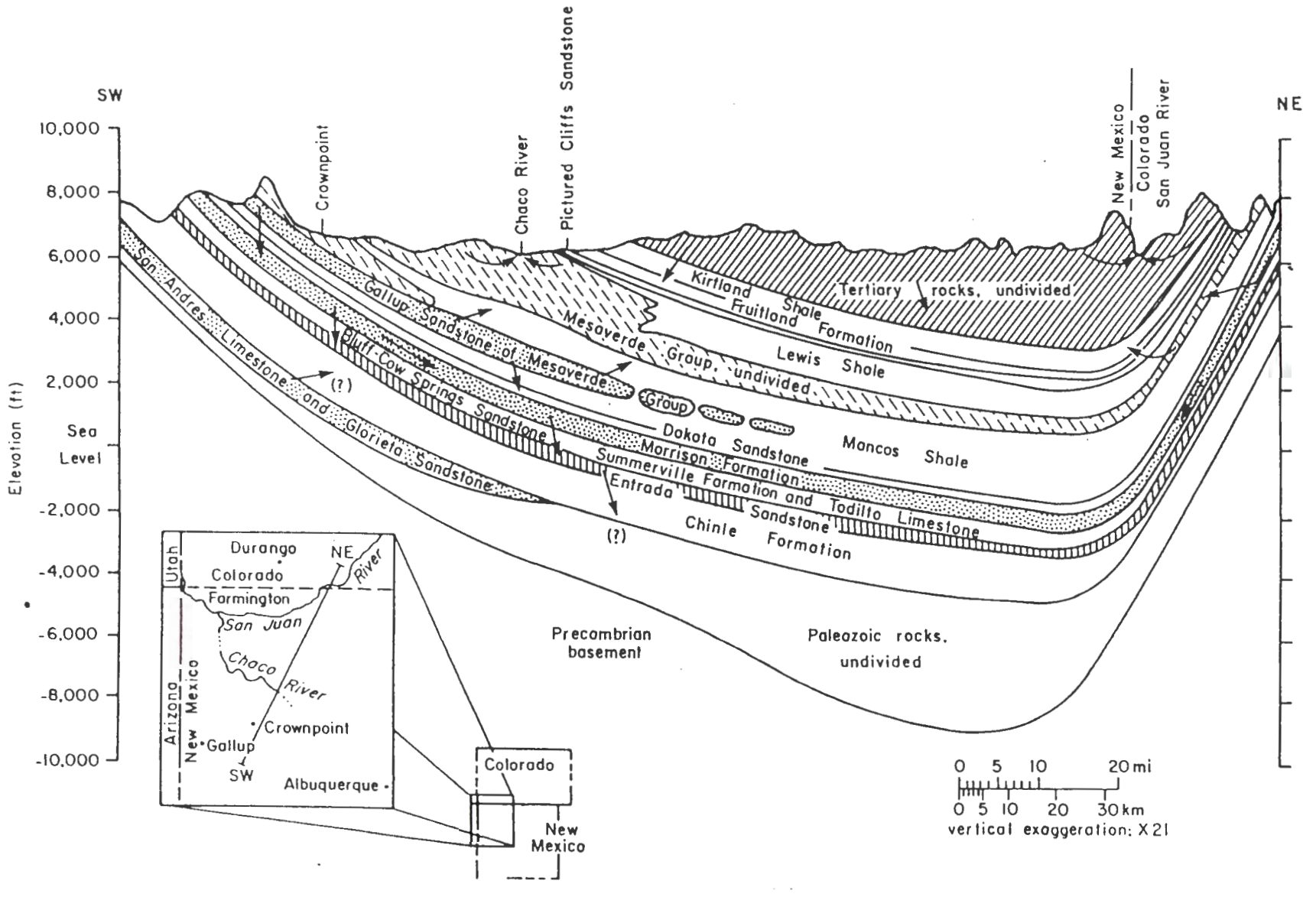


Figure 1 - Generalized Hydrologic Cross Section of San Juan Basin showing major aquifers (stipped), confining confining beds (blank), and directions of groundwater flow (arrows). From Stone et al., 1983

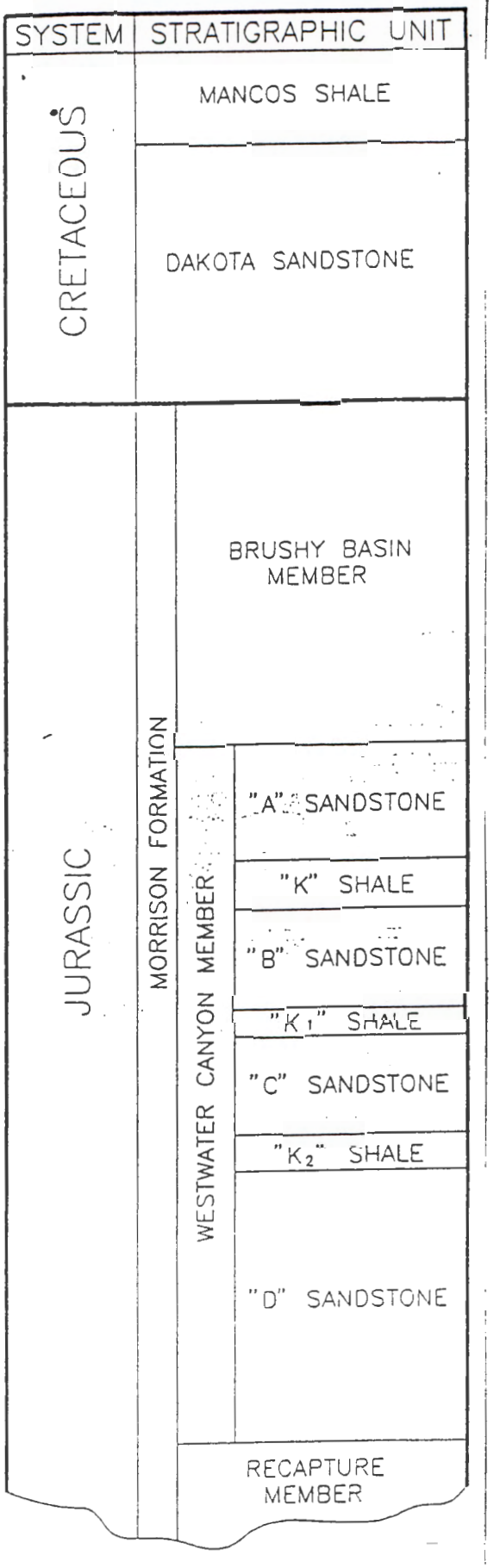


Figure 2 - Divisions of Morrison Formation in the vicinity of Homestake Mining Company prior reclamation sites. From Kelly, 1963

Figure 3 (Stone *et al.*, 1983) shows the potentiometric surface for the Westwater Canyon member of the Morrison Formation. The Morrison Formation is the formation in which mining for uranium took place. This figure shows that the Westwater is recharged from the Nacimento Mountains to the northeast and the Zuni Mountains to the southwest. Figure 4 (Stone et al., 1983) depicts transmissitivity within the Morrison Formation. From Figures 3 and 4 it is intuitive that groundwater within the Morrison Formation in the area of Ambrosia Lake flows primarily to the Rio Puerco discharge area in the southeast, away from Crownpoint. Groundwater within the Morrison Formation in the Church Rock Area flows north, away from Crownpoint, where it discharges into the San Juan River.

Figure 5 (Stone *et al.*, 1983) delineates elevations of the top of the overlying Dakota Sandstone. Figures 3 and Figure 5, show that the potentiometric surface in the Ambrosia Lake and Church Rock areas is well below the top of the Dakota Sandstone. Potentially contaminated water from the Morrison Formation, therefore, lacks potential to migrate to aquifers above. Also, according to Bill Ganus (1995) water levels within the Morrison Formation appeared to be stabilizing at an elevation of approximately 6600 feet (below the top of the Dakota Sandstone) after the cessation of mining operations in the Church Rock Area. In addition, if one considers the thickness and impermeability of the Mancos Shale that overlies both the Morrison Formation and the Dakota Sandstone it becomes oblivious that water within the Morrison Formation is confined to the Morrison Formation.

Mining Impacts on Ground Water Quality

Regional impacts of uranium mining on groundwater were associated with mine discharge, tailings pond effluent, solution mining and collapse of underground workings. Water quality was altered near mining operations because oxidation at the mine face makes some radionuclides soluble. As water levels in the mines return to their original levels it is expected that oxidation of uranium will cease and that water quality will return to pre-mining levels. The mines in which mining occurred in zones of saturated ground are indicated in Table I. All prior reclamation site vertical shafts were backfilled and capped with concrete to prevent contamination of groundwater by surface drainage. The Gallup Sandstone was sealed from the shaft at the Kerr-McGee sites near Church Rock (Ganus, 1995).

Mine discharge from mine dewatering operations was sometimes injected underground as well as discharged in surface drainages. Water pumped from mines often contained elevated levels of radiochemicals and toxic metals (Kaufmann *et al.*, 1976). Although some water pumped from the mines was used for milling, much of the water was injected underground, used for other purposes, or discharged into arroyos. The quality of mine water discharged underground has been monitored by the U.S. Environmental Agency and the New Mexico Environment Department for impacts to groundwater resources since 1977. However, natural groundwater flowing into mine workings and which reenters the ground by gravity flow is exempt from WQCC discharge plan requirements.

Water discharged with mill tailings contained high levels of radioactive and other chemicals added or mobilized during the extraction process. The quality of discharged process water was monitored by the U.S. Environmental Protection Agency and the New Mexico Environment Department for adherence to National Pollutant Discharge Elimination System and the New Mexico Water Quality

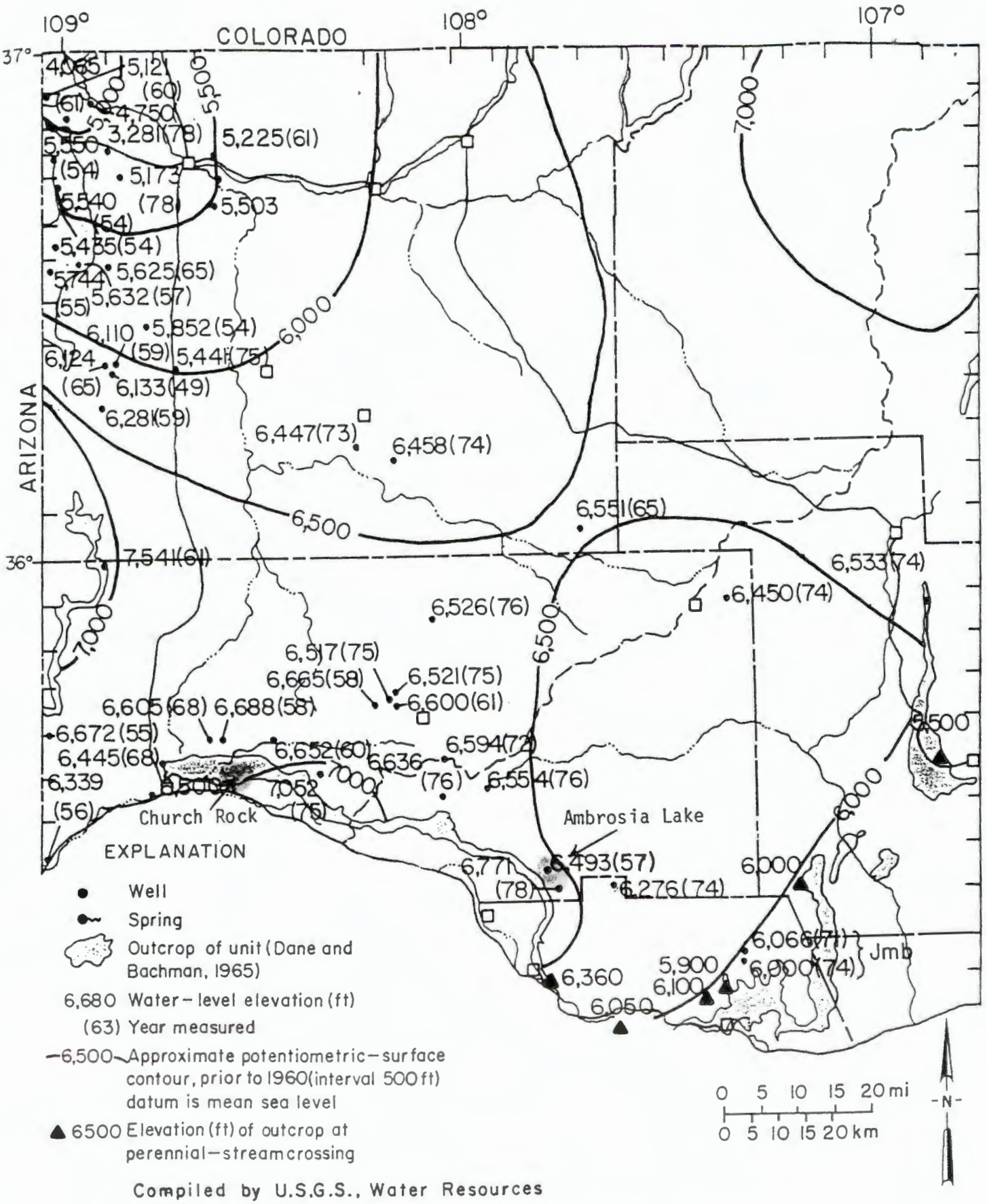


Figure 3 - Water level altitudes and potentiometric surface for Westwater Canyon Member of Morrison Formation. From Stone, et al., 1983

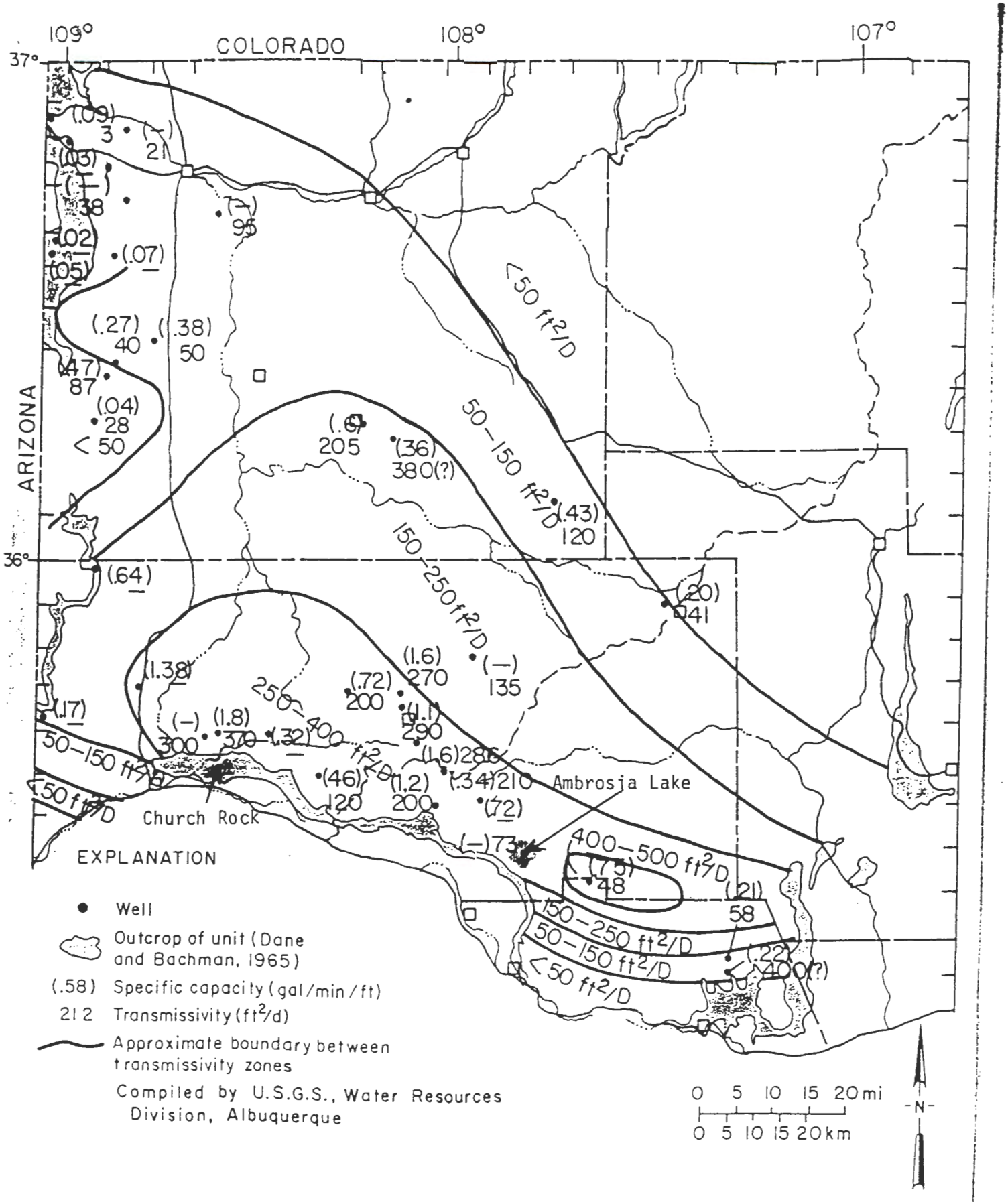


Figure 4 - Transmissivity ans Specific Capacity of wells in Morrison Formation. Frone Stone, et al., 1983

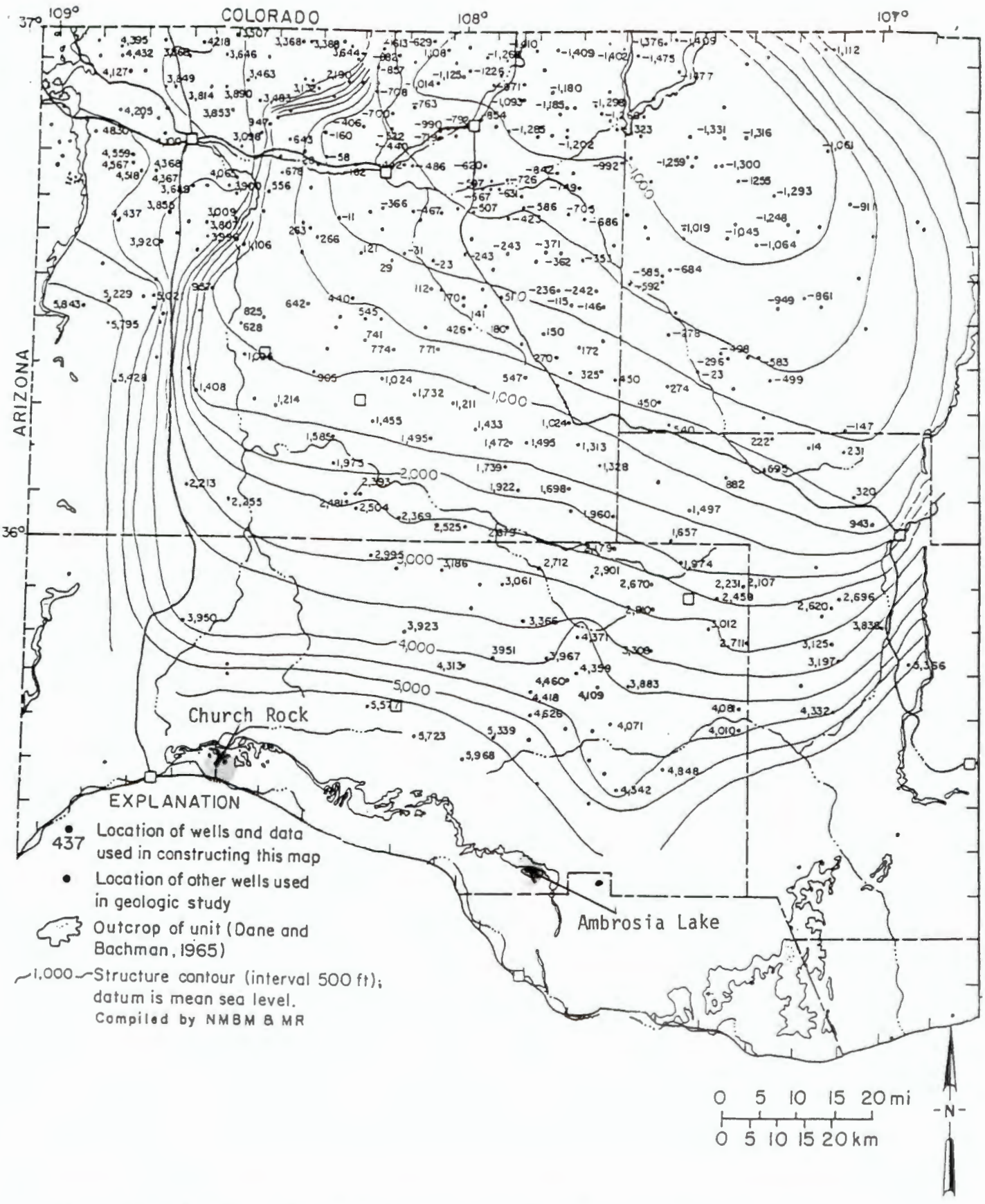


Figure 5 - Elevation of top of Dakota Sandstone structure. From Stone, From Stone, et al., 1983

Control Commission discharge regulations after 1977. Water used in the milling process and discharged with the mill tailings either evaporated or infiltrated to recharge shallow aquifers. Kaufman et al. (1976) said that about 30% of the tailings water in the Ambrosia Lake area infiltrated causing high levels of selenium in shallow groundwater near the tailings piles. Groundwater contamination associated with tailings dams is regulated by the Nuclear Regulatory Commission and is, therefore, beyond the scope of this study.

Collapse of underground workings has probably caused some deterioration of water quality in the Morrison Formation near Ambrosia Lake by providing a connection to the overlying Dakota Sandstone. In the Ambrosia Lake Area the Dakota Sandstone contains higher concentrations of dissolved solids than the Morrison (Cooper and John, 1968). There nothing mine operators can do to prevent further collapse of underground workings. However, sandstone has an especially high swell factor of 66 percent (Caterpillar, 1991). Consequently, it is unlikely that subsurface subsidence will extend to aquifers above the Dakota Sandstone.

At the Homestake Section 23 Mine uranium was extracted by in situ leaching. Although this method eliminated many water resource impacts associated with conventional mining, it caused some new ones, such as control of the leaching fluid and cleanup of the Morrison Aquifer after leaching ceased. Impacts on groundwater by solution mining are regulated via groundwater discharge plans by the New Mexico Environment Department.

Continental Oil Company personnel, after conducting a literature search on the mobility of radium in groundwater systems, concluded that dispersion, ion exchange, and radioactive decay prevents extensive migration of excessive radium concentrations that might persist in the immediate area of a mine (Jensen W.M., 1978). These geochemical processes, by which uranium minerals were deposited in the first place, probably limit migration of uranium as well as other toxic substances.

Mining Impacts to Ground Water Quantity

During mining operations a large quantity of freshwater was pumped to keep the mines dewatered. Much of the water needed for uranium mining and milling was provided by mine water discharge. In addition water for milling was produced from wells completed in the Glorieta Sandstone - San Andres Limestone near Grants and wells tapping the Morrison Formation north of Laguna Dewatering caused large declines in water levels in the Morrison Formation (Lyford *et al.*, 1980). Pumpage of water for uranium exploration drilling also caused water-level declines in the Gallup Sandstone. It is expected, however, that water levels will return to premining levels with the cessation of mining operations.

Summary and Conclusions

Protection of surface water resources with respect to erosion and sediment was accomplished by regrading the area to a stable configuration and reestablishment of permanent vegetation. Post mining topography and vegetation were inspected by Mining and Minerals Division personnel July 13-14, 1995 and will be addressed in a separate report. There are no waste piles of radioactive material left on the surface with the potential to contaminate surface water.

Uranium mining took place within the Morrison Formation and the Morrison Formation is the source of the public water supply for the Village of Crownpoint. However, water within the Morrison potentially contaminated by mining operations would most likely be confined to the Morrison Formation. The flow of groundwater within the Morrison Formation in the area of Ambrosia Lake is to the southeast and in the area of Church Rock to the north, away from the community of Crownpoint.

The quality of water discharged into surface arroyos has been regulated by the U.S. Environmental Protection Agency and the New Mexico Environment Department for adherence to National Pollutant Discharge Elimination System and the New Mexico Water Quality Control Commission discharge regulations after 1977. The quality of water discharged underground has been regulated since 1977 by the New Mexico Environment Department according to respective groundwater discharge plans. Mine dewatering has caused large declines in water levels in the Morrison Formation and the Gallup Sandstone. It is expected, however, that water levels will return to premining levels with the cessation of mining operations.

It is expected that oxidation of uranium minerals will cease and water will return to premining quality as groundwater recovers to premining levels. Geochemical processes such as dispersion, ion exchange, and radioactive decay may prevent extensive migration of excessive radium concentrations that might persist and limit migration of other toxic substances.

No further reclamation measures, that fall within the regulatory authority of the New Mexico Mining Act, are required to protect water resources from degradation following uranium mining at Homestake Mining Company and United Nuclear Corporation Mines prior reclamation sites near Ambrosia Lake, New Mexico and Kerr-McGee Corporation sites near Church Rock, New Mexico.

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September 8, 1995

MEMORANDUM

TO: Kerr-McGee Church Rock Prior Reclamation Inspection File

FROM: Robert Young

RE: Phone Conversation with BIA

I talked with Ms. Drywater of the BIA. She confirmed that the Kerr-McGee Corporation's Church Rock I, IE and II Mines are within the boundaries of the Navajo Indian Reservation and that Kerr-McGee was leasing the mineral rights from the Navajo Nation. The BIA, which had trust responsibility, approved relinquishment of Allotted Uranium Leases 14-20-0603-9987, 9988 and 9990 October 1, 1992.

August 31, 1995

Mr. John C. Stauter, Ph.D
V.P. Cimarron Corporation
Kerr-McGee Center
Post Office Box 25861
Oklahoma City, OK 73125

RE: Prior Reclamation Church Rock I, IE, and II Mines, Kerr-McGee, McKinley County

Dear Mr. Stauter:

The Mining and Minerals Division (MMD) has determined that the Church Rock I, IE and II Mines do not currently fall under the jurisdiction of the New Mexico Mining Act because they lie within the boundaries of the Navajo Indian Reservation and because Kerr-McGee was leasing the mineral rights from the Navajo Nation. The BIA, which has trust responsibility, approved relinquishment of Navajo Allotted Uranium Leases 14-20-0603-9987, 9988 and 9990 on October 1, 1992.

MMD appreciates Kerr-McGee's efforts to comply with the New Mexico Mining Act.

Sincerely,

HOLLAND SHEPHERD, Bureau Chief
Mining Act Reclamation Bureau
Mining and Minerals Division

HS/RY/fg

August 10, 1995

MEMORANDUM

TO: Holland Shepherd

FROM: Robert Young

RE: Kerr McGee Corporation's Prior Reclamation Request

On July 14 Joe DeAguero and myself inspected Kerr McGee's Church Rock I, IE and II prior reclamation sites located about 9 miles northeast of Church Rock, New Mexico. However, it is now evident that the mines do not fall under the jurisdiction of the New Mexico Mining Act. From maps supplied by Kerr McGee, and our own quadrangle maps, it is can be seen that all three mines are within the boundaries of the Navajo Indian Reservation. Further, documents submitted by Kerr McGee show that Kerr McGee was leasing the mineral rights from the Navajo Nation (I have asked the BIA for verification). The BIA, which has trust responsibility, approved relinquishment of Navajo Allotted Uranium Leases 14-20-0603-9987, 9988 and 9990 on October 1, 1992.

Therefore, I suggest that Kerr McGee be advised of MMD's determination that Church Rock I, Church Rock IE and Church Rock II Mines do not fall under the regulatory authority of the New Mexico Mining Act.

KERR-McGEE CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

August 4, 1995

RECEIVED
AUG - 7 1995
MINING & MINERALS DIVISION

Mr. Robert Young
State of New Mexico
Mining and Minerals Division
2040 Pacheco
Santa Fe, NM 87505

Dear Mr. Young:

During your visit to the Church Rock Mine site on July 14, 1995, you requested from Robert Pounds a copy of a stratigraphic cross-section for the Church Rock 1 Mine shaft. I have attached the requested information.

If you need any additional information, please feel free to call me at (405) 270-2665 or Robert Pounds at (918) 358-2345.

Sincerely,

Russell H. Jones
Project Manager

Attachment

cc: (w/ attachment)

Julie Curtiss Navajo EPA
Mary Lou Drywater BIA
John Gilmore BLM

(w/o attachment)

Bill Ganus
Robert Pounds

COMMUNICATIONS LOG

TO: Kerr-McGee File	
FROM: Joe DeAguero	**INITIALS:**
DATE: 8/3/95	**TIME:** 9:15 am
SUBJECT: Churchrock I prior reclamation site	
PERSON CONTACTED: Mr. Robert Pounds	
PHONE # CONTACTED: 918-358-2345	

DISCUSSION: Mr. Pounds and I discussed the removal of the existing building, excess trash, etc. from the mine site. In addition, final reclamation of the site including removal of existing culverts. Kerr-McGee is in the process of working with the Bureau of Indian Affairs (BIA) and the Bureau of Land Management (BLM) for a final determination of the fate of the building. Mr. Pounds will be sending us a letter soon on this determination. I indicated to Mr. Pounds that we will be taking the following steps in addressing the building, excess trash, and culverts. MMD would make the removal or on-site disposal of the building and trash and the removal of the culverts Maintenance Items to be reclaimed by September 30, 1995. If necessary, he could request a 90 day extension to complete the reclamation and we would grant him this extension. Mr. Pounds indicated that additional time may be needed because removal of the building may become complicated by the BIA and the BLM differing requirements. It is in the best interest of the Kerr-McGee Corp and the MMD to work together to release this site.

ADDITIONAL NOTES:

Kerr - McGee 7/1/
Church Rock 1

Tailings - 50' Grid min
12" Top dressing
Good Veg on Ventshaft #3 & 6
Buildings - 40' x 200'
Trailer - 10 x 40'
Scrap Metal

Mine - 1700' - 2000'

Soil depth
Tailings. 12" & 14" 12" min

Pond 3 - 16" min

Ex. 2 Culverts - Will need to
do some Removal of Culverts
& Reseeding - Berm w/ ~~[illegible]~~ be
Used for Topsoil material

get Solid Waste phone &
Contact - Concrete (on or off Site).

Photos

①② Scrap metal & Block

③ Building

O-Ly — Slender atcA

A/cA — Astragalus

Agao7 — Aster

Ce/A — Ce/A

Slender

Mex hat

Me

Mining West water formation

	Tailings	Pile (N)	Tailing	Pile (S)	Tailings	Slope (S)
1	I.H	SPAI	I.H	ATCA	I.H	Atca
2	I.H	Agsm	Agsm	Agsm	I.H	Agda
3	Bare	Agda	Bare	Agda	I.H	Brly
4	I.H	Hoju	Rock	Hoju	AgdA	Agsm
5	Bare	Y. Sweetclover	I.H	Y. Sweet	I.H	Brte
6	I.H		I.H		I.H	
7	Agsm		I.H		Bare	
8	I.H		I.H		Bare	
9	Hoju		AgdA		Bare	
10	AgdA		AgsM		AtcA	
11	I.H		I.H		I.H	
12	I.H		I.H		Bare	
13	I.H		I.H		I.H	
14	I.H		I.H		Agda	
15	I.H		Bare		I.H	
16	Agsm		Bare		Bare	
17	AgdA		I.H		I.H	

Pond 3		Pond 6A	
Bare	Agsm	L.H	Agsm
Atca	Atca	Agu	Agda
L.H	Agda	L.H	Atca
L.H	Orby	L.H	Agu
Bare		Agsm	BrMA
Agsm		L.H	Orby
Agsm		L.H	
Atca		Agsm	
Orby		L.H	
Bare		L.H	
Atca		L.H	
Atca		Agsm	
Agsm		L.H	
Agsm		L.H	
L.H		L.H	
Atca		Agsm	
Agda		Agsm	

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

BRUCE KING
GOVERNOR

December 14, 1994

ANITA LOCKWOOD
CABINET SECRETARY

Mr. Roy R. Smith
Kerr-McGee Corp.
Kerr-McGee Center
Oklahoma City, Oklahoma 73125

RE: Evaluation Guidelines for Prior Reclamation Sites.

Dear Mr. Smith:

The Mining and Minerals Division (MMD) will be conducting inspections for the purposes of prior reclamtion for the site(s) you have requested release. Based on Section 69-36-5 E. of the New Mexico Mining Act, the MMD has developed inventory of items to determine whether the completed reclamation satisfies the requirements of the New Mexico Mining Act and the substantive requirements for reclamation pursuant to the applicable regulatory standards.

This checklist is included for your use to determine if your site meets all of the ten criteria. Based on site-specific information, the MMD will be using this checklist to establish criterion based decisions to release the site from further responsibilities under the Act or not.

MMD will begin inspection of prior reclamtion sites in early 1995 and will make a determination by September 30, 1995. If you have any questions regarding the checklist or questions regarding the inspection of your reclamation sites, please contact me or Joe DeAguero at 505\827-5970.

Sincerely,

Holland Shepherd
Bureau Chief
Mine Act Reclamation Bureau
Mining and Minerals Division

VILLAGRA BUILDING - 408 Galisteo
Forestry and Resources Conservation Division
P.O. Box 1948 87504-1948
827-5830
Park and Recreation Division
P.O. Box 1147 87504-1147
827-7465

2040 South Pacheco
Office of the Secretary
827-5950
Administrative Services
827-5925
Energy Conservation & Management
827-5900
Mining and Minerals
827-5970

LAND OFFICE BUILDING - 310 Old Santa Fe Trail
Oil Conservation Division
P.O. Box 2088 87504-2088
827-5800

CIMARRON CORPORATION
P.O. BOX 25861 • OKLAHOMA CITY, OKLAHOMA 73125

Rec'd 12/12/94 HWS

Mr. Holland Shepherd, Bureau Chief
Mining Act Reclamation Bureau
Mining and Minerals Division
Energy, Minerals and Natural Resources Department
State of New Mexico
Santa Fe, New Mexico 87505

9 December 1994

RE: Kerr-McGee Corporation
Church Rock Reclamation Application

Dear Mr. Shepherd:

Per your November 3, 1994 letter to Mr. Smith, enclosed is Kerr-McGee check #356070 in the sum of $500.00 to cover the other Church Rock mine sites IE and II.

Mr. Smith has retired and I am now the coordinator for the Church Rock project. Please address all correspondence to me:

John C. Stauter, Ph.D.
V.P. Cimarron Corporation
Kerr-McGee Center
P.O. Box 25861
Oklahoma City, Ok 73125

Russ Jones

My phone number is (405) 270-2623.

2225

Sincerely,

John C Stauter

John C. Stauter

JCS/slj

Check enclosed

KERR-McGEE CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

TO CITIBANK DELAWARE
ONE PENN'S WAY
NEW CASTLE, DE 19720

CHECK NO. 356070
62-20
311

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VOID AFTER 6 MONTHS

DATE 12/07/94

CHECK NO. 00356070

NET AMOUNT **********500.00

PAY

FIVE HUNDRED AND 00/100 DOLLARS

TO THE ORDER OF

STATE OF NEW MEXICO
ENERGY, MINERALS & NATURAL
RESOURCES DEPT
SANTA FE, NM 87505

KERR-McGEE CORPORATION
DISBURSING ACCOUNT

Thomas B. Stephens

[redacted]

01-909-A00023752 KERR-MCGEE CORPORATE DIV. CHECK NO. 00356070

VOUCHER NUMBER	INVOICE NUMBER	PURCHASE ORDER	INVOICE DATE	AMOUNT	DISCOUNT	NET AMOUNT
Y0406	112894		11-28-94	500.00	.00	500.00
RUSH -	CALL EXTENSION # 2980		SHERRON			
		TOTALS		500.00	.00	500.00

KM - 1339 - M
DETACH BEFORE DEPOSITING

REMITTANCE ADVICE
THE ENDORSEMENT BY PAYEE OF THE DETACHED CHECK CONSTITUTES RECEIPT IN FULL FOR THE ITEMS LISTED ABOVE

KERR-McGEE CORPORATION

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

New Mexico DRUG FREE It's a State of Mind!

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

December 2, 1994

Terry Fletcher, General Manager
Quivira Mining Company
P.O. Box 218
Grants, NM 87020

RE: SITE ASSESSMENTS FOR CHURCH ROCK I AND IE MINES.

Dear Mr. Fletcher:

Thank you for your letter dated September 23, 1994 in which you clarified the ownership of the Church Rock I and IE Mines. Based on your letter, the Mining and Minerals Division (MMD) will pursue Kerr McGee for reclamation and permitting responsibility of both sites.

Also, we have made the proper corrections in our records to show that Kerr McGee and not Quivira Mining Company is responsible for and has authority over the reclamation of both the Church Rock I and IE Mines. MMD will follow through with the Prior Reclamation Requests submitted by Kerr McGee.

Thank you for your prompt attention to this issue. If you require further information, please contact Fernando Martinez or myself at 505-827-5970.

Sincerely,

Holland Shepherd, Bureau Chief
Mining Act Reclamation Bureau
Mining and Minerals Division

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Forestry and Resources Conservation Division
P.O. Box 1948 87504-1948
827-5830

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Office of the Secretary
827-5950

Administrative Services
827-5925

Energy Conservation & Management
827-5900

Mining and Minerals
827-5970

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Oil Conservation Division
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827-5800

State of New Mexico
ENERG., MINERALS and NATURAL RESOURCE EPARTMENT
Santa Fe, New Mexico 87505

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GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

November 3, 1994

Mr. Roy Smith
Kerr-McGee Corporation
Kerr-McGee Center
Oklahoma City, OK 73125

Re: Kerr-McGee Corporation's Prior Reclamation Application

Dear Mr. Smith:

Thank you for your letter dated August 26, 1994, providing additional close-out information for the Church Rock I, IE and II Mines, McKinley County.

Section 5.10 of the New Mexico Mining Commission Rule 94-1, requires that we conduct an inspection of your mine to determine if the prior reclamation "satisfy the requirements of the Act and the substantive requirements for reclamation pursuant to ..." the rules. In this case the Director of the Mining and Minerals Division will make a determination on the adequacy of your reclamation by September 30, 1995.

Your letter did include a check for $250.00, but the Mining and Minerals Division has interpreted the rules to require $250.00 for each mine site. Therefore, MMD is requesting an additional amount of $500.00. With this payment the application for prior reclamation status can be considered to be complete.

Please call Alan Jager or myself at (505)827-5970 if you have any questions concerning the new regulations, the permit process or any other related issues.

Sincerely,

HOLLAND SHEPHERD, Bureau Chief
Mining Act Reclamation Bureau
Mining and Minerals Division

HS/AJ/fg

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Oil Conservation Division
P.O. Box 2088 87504-2088
827-5800

KERR-McGEE CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

September 26, 1994

RECEIVED
OCT 4 1994
MINING & MINERALS DIVISION

State of New Mexico
Energy, Minerals and
Natural Resources Department
2040 S. Pacheco
Santa Fe, New Mexico 87505

Attention: Mr. Holland Shepherd

Re: Church Rock I, IE and II Mine Sites

Dear Mr. Shepherd:

Regarding our telephone conversation this morning concerning the referenced sites, I am enclosing copies of our June 20 and August 26, 1994, letters, as well as your July 22 letter acknowledging timely receipt of information regarding completed reclamation submitted in lieu of a Site Assessment.

Due to corporate restructuring, Kerr-McGee would appreciate the EM&NRD updating its records to show the current Kerr-McGee contact regarding these sites is as follows:

John C. Stauter, Ph.D.
Project Leader
Kerr-McGee Corporation
P. O. Box 25861
Oklahoma City, Oklahoma 73125
(405) 270-2623

Very truly yours,

John C Stauter

John C. Stauter

Encl.

KERR-McGEE CORPORATION

KERR McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

TO CITIBANK DELAWARE
ONE PENN'S WAY
NEW CASTLE, DE 19720

CHECK NO. 349630

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VOID AFTER 6 MONTHS

PAY

DATE 08/26/94

CHECK NO. 00349630

NET AMOUNT **********250.00

TWO HUNDRED FIFTY AND 00/100 DOLLARS

TO THE ORDER OF

STATE OF NEW MEXICO
ENERGY, MINERALS & NATURAL
RESOURCES DEPT
SANTA FE, NM 87505

KERR-McGEE CORPORATION
DISBURSING ACCOUNT

By Thomas B. Stanton

[redacted]

01-909-A00023752 KERR-MCGEE CORPORATE DIV. CHECK NO. 00349630

VOUCHER NUMBER	INVOICE NUMBER	PURCHASE ORDER	INVOICE DATE	AMOUNT	DISCOUNT	NET AMOUNT
Q2110	082594	INSP FEE	08-25-94	250.00	.00	250.00
RUSH - CALL EXTENSION # 2980 SHERRON J						
		TOTALS		250.00	.00	250.00

KM-1339-M
DETACH BEFORE DEPOSITING

REMITTANCE ADVICE
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KERR-McGEE CORPORATION

CERTIFIED
P 918 188 040
MAIL
RETURN RECEIPT REQUESTED

KERR-McGEE CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

September 26, 1994

RECEIVED
OCT 4 1994
MINING & MINERALS DIVISION

State of New Mexico
Energy, Minerals and
Natural Resources Department
2040 S. Pacheco
Santa Fe, New Mexico 87505

Attention: Mr. Holland Shepherd

Re: Church Rock I, IE and II Mine Sites

Dear Mr. Shepherd:

Regarding our telephone conversation this morning concerning the referenced sites, I am enclosing copies of our June 20 and August 26, 1994, letters, as well as your July 22 letter acknowledging timely receipt of information regarding completed reclamation submitted in lieu of a Site Assessment.

Due to corporate restructuring, Kerr-McGee would appreciate the EM&NRD updating its records to show the current Kerr-McGee contact regarding these sites is as follows:

John C. Stauter, Ph.D.
Project Leader
Kerr-McGee Corporation
P. O. Box 25861
Oklahoma City, Oklahoma 73125
(405) 270-2623

Very truly yours,

John C Stauter

John C. Stauter

Encl.

KERR-McGEE CORPORATION

KERR McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

TO CITIBANK DELAWARE
ONE PENN'S WAY
NEW CASTLE, DE 19720

CHECK NO 349630

62-20
311

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VOID AFTER 6 MONTHS

DATE	CHECK NO.	NET AMOUNT
08/26/94	00349630	********250.0

PAY

TWO HUNDRED FIFTY AND 00/100 DOLLARS

TO THE ORDER OF
STATE OF NEW MEXICO
ENERGY, MINERALS & NATURAL
RESOURCES DEPT
SANTA FE, NM 87505

KERR-McGEE CORPORATION
DISBURSING ACCOUNT

By Thomas B. Stapleton

[redacted]

01-909-A00023752 KERR-MCGEE CORPORATE DIV. CHECK NO. 00349630

VOUCHER NUMBER	INVOICE NUMBER	PURCHASE ORDER	INVOICE DATE	AMOUNT	DISCOUNT	NET AMOUNT
02110	082594	INSP FEE	08-25-94	250.00	.00	250.00
RUSH - CALL EXTENSION # 2980 SHERRON J						
		TOTALS		250.00	.00	250.00

KM-1339-M
DETACH BEFORE DEPOSITING

REMITTANCE ADVICE
THE ENDORSEMENT BY PAYEE OF THE DETACHED CHECK CONSTITUTES RECEIPT IN FULL FOR THE ITEMS LISTED ABOVE

KERR-McGEE CORPORATION

CERTIFIED
P 918 188 040
MAIL
RETURN RECEIPT REQUESTED

QUIVIRA MINING COMPANY
POST OFFICE BOX 218 • GRANTS, NEW MEXICO 87020

September 23, 1994

Certified Mail
Return Receipt Requested P 762 964 203

SEP 26

Mr. John Lingo, Acting Director
Energy, Minerals and Natural Resources Dept.
2040 South Pacheco Street
Santa Fe, New Mexico 87505

Dear Mr. Lingo,

Please note, Quivira Mining Company has submitted a site assessment or a prior reclamation application for all its New Mexico properties in a timely manner pursuant to the New Mexico Mining Act.

In response to your August 31, 1994, letter regarding site assessments for Church Rock mines I, II and IE; I have attached correspondence from Mr. Art Gebeau, June 9, 1993, and myself, June 21, 1994, to NMEMNR explaining that the Church Rock mines are owned and were operated by Kerr McGee Corporation.

I have forwarded your correspondence to Mr. Roy Smith of Kerr McGee. It would be helpful if you would request the needed information directly from Kerr McGee; at Kerr McGee Center, PO Box 25861, Oklahoma City, Oklahoma 73125.

If I can be of further assistance in clarifying this matter, please call me at 505-287-8851, ext. 200.

Sincerely,

Terry J Fletcher

Terry Fletcher
General Manager

Attachments: As stated

xc: Roy Smith
Marvin Freeman
Peter Luthiger
Bill Ferdinand
File

QUIVIRA MINING COMPANY
POST OFFICE BOX 218 • GRANTS, NEW MEXICO 87020

September 22, 1994

Certified Mail
Return Receipt Requested P 762 964 204

Mr. Roy Smith
Kerr McGee Corporation
Kerr McGee Center
PO Box 25861
Oklahoma City, Oklahoma 73125

Dear Roy,

Please find enclosed correspondence from New Mexico EMNR concerning Church Rock I, II and IE. If I can be of assistance with the matter please let me know.

Sincerely,

Terry J Fletcher

Terry Fletcher
General Manager

State of New Mexico
EN[illegible] NERALS and NATURAL RESOU[illegible]ES [illegible]PARTMENT
Santa Fe, New Mexico 87505

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BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

July 22, 1994

Roy R. Smith
Kerr-McGee Corporation
Kerr-McGee Center
Oklahoma City, OK 73125

Dear Mr. Smith:

Thank you for your letter informing us of that you have completed reclamation at the Churchrock 1 & 1E Mine, T12N, R16W, Sec. 35 & 36, in McKinley County, New Mexico. This letter is an acknowledgement you have provided us with this information instead of a Mining Operation Site Assessment and that your letter was post marked on or before the June 30, 1994, deadline prescribed by State law. We have noted for our records that you have complied with this requirement of the New Mexico Mining Act (NMSA 1987 Section 69-36-5(E)).

Section 5.10 of the New Mexico Mining Commission Rule 94-1, requires that we conduct an inspection of your mine to determine if the prior reclamation "satisfy the requirements of the Act and the substantive requirements for reclamation pursuant to ..." the rules. In this case the Director of the Mining and Minerals Division will make a determination on the adequacy of your reclamation by September 30, 1995.

An application for this inspection must be submitted to us by August 31, 1994.
The application must include a $250 inspection fee. In addition, please include the following:

1. a map of 1:24000 or larger scale (1:12000) showing the limits of the reclaimed area and the location, and a description, of any waste units, impoundments, stockpiles, leach piles, open pits or adits that are within this area;

2. a discussion of post-mining land use, for the site reclaimed;

3. a detailed description of the reclamation work performed, including types of reclamation conducted, amount of acres revegetated, the seed mix used, the current condition of the revegetation, etc., and how the reclamation project has been designed to achieve a self-sustaining ecosystem; and,

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Forestry and Resources Conservation Division
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827-5830
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Office of the Secretary
827-5950
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827-5900
Mining and Minerals
827-5970

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P.O. Box 2088 87504-2088
827-5800

4. if part of the reclamation, a discussion of how the current reclamation of waste units, impoundments, stockpiles, tailings piles open pits or adits, have been designed to ensure compliance with all applicable federal and state standards for air, surface and ground water protection and to eliminate any future hazards to health and public safety.

Please call me if you have any questions concerning the new regulations, the permit process or any other related issues.

Thank you for your timely submittal of your site assessment.

Sincerely,

Holland Shepherd
Chief, Mining Act Reclamation Bureau

QUIVIRA MINING COMPANY
POST OFFICE BOX 218 • GRANTS, NEW MEXICO 87020

June 21, 1994

Certified Mail
Return Receipt Requested P 762 964 387

Ms. Kay Hatton, Mine Program Manager
Department of Energy, Minerals and Natural Resources
2040 South Pacheco Street
Santa Fe, NM 87505

Dear Ms. Hatton:

Please find enclosed 8 1/2 X 11 maps depicting the final survey of the underground workings for Quivira Mining Company's mines (Sections 22, 24, 30W, 30, 19, 17, 33, 35 and 36). These maps indicate the present extent of the underground workings.

I have also attached a June 9, 1993, letter from Mr. Art Gebeau to Energy, Minerals and Natural Resources clarifying our position regarding Church Rock I and Church Rock IE as these mines are not owned be Quivira Mining, but rather by Kerr McGee Corporation. Prior to January 1989, Quivira (and its properties at Ambrosia Lake) was a wholly owned subsidiary of Kerr McGee Corporation. In January 1989, Quivira and its Ambrosia Lake properties were purchased from Kerr McGee by Rio Algom Mining Corp. The Church Rock mine I and IE properties were not included in the sale and remained with Kerr McGee. January 1989 to July 1992 Quivira did reclamation work on the Church Rock mines as a contractor on behalf of Kerr McGee, its owner. Commencing in July 1992, Kerr McGee resumed all responsibility for the reclamation and management of the Church Rock mines. As such, Mr. Roy Smith of Kerr McGee, has been notified of your request to provide final closure maps for the Church Rock mines.

I apologize for the delay in providing this information. As I stated to you in our telephone conversation, much of our resources have been committed to participating in the Mining and Mineral Division proposals to establish hard rock mine regulations in New Mexico. If I can be of further assistance or you need additional information, please contact me at (505) 287-8851, extension 200.

Sincerely,

Terry Fletcher
General Manager

Attachments: As stated

xc: B. Ferdinand (RAMC)
M. Freeman (RAMC)
P. Luthiger (Quivira)
R. Smith (Kerr Mc Gee)
file

KERR-McGEE CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

TECHNOLOGY & ENGINEERING DIVISION

ROY R. SMITH
VICE PRESIDENT, ENVIRONMENTAL OPERATIONS

RECEIVED
JUN 23 1994
MINING & MINERALS DIVISION

June 20, 1994

State of New Mexico
EM&NRD
Mining and Minerals Division
2040 South Pacheco
Santa Fe, NM 87505

Re: Church Rock 1 & 1E Sites

Gentlemen:

Over a year ago you sent out a notice indicating that, by the rapidly approaching date of June 30, 1994, a site assessment or notice of intention to close must be furnished under the New Mexico Mining Act. In the alternative, it was indicated that closed, reclaimed mines could request an inspection and release.

Kerr-McGee Corporation has previously corresponded with your office stating it did not believe the Act applied to the referenced sites and that, even if it did, Kerr-McGee Corporation was neither the owner nor operator and, hence, was not the proper party to file or comply with any owner/operator requirements under the Act.

Kerr-McGee has **not** changed its position and continues to believe the Act is inapplicable to it for the referenced sites. Nevertheless, the referenced sites have been closed and reclaimed. They should qualify for a completed reclamation inspection and release in lieu of site assessment pursuant to Section 5E of the New Mexico Mining Act if it **does** apply. Therefore, while not admitting that the Act applies, we respectfully request such inspection and release in lieu of site assessment.

Very truly yours,

Roy R. Smith

T17N, R16W, Sec. 35 & 34
Mckinly County

RRS/slj

cc: Marvin Freeman
Rio Algom Mining Company

KERR-McGEE CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

LAW DEPARTMENT

RECEIVED
OCT 1 1993
MINING & MINERALS DIVISION

September 27, 1993

Writer's Direct No.
(405) 270-2869

State of New Mexico
Energy, Minerals & Natural Resources Department
Mining and Minerals Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Attn: Ms. Lorie Herrera

Re: Owner/Operator Filing Requirements,
Church Rock 1 & 1E

Dear Ms. Herrera:

I wrote to you on September 16, 1993 indicating Kerr-McGee believed that, as it was no longer owner/operator of the referenced sites, the owner/operator information form under the new New Mexico Mining Act was inapplicable.

Since writing, I have received a copy of Quivera Mining Company's September 22, 1993 letter to you on the same matter. Quivera also takes the position that it believes the Act is inapplicable to it. Nevertheless, without admitting any matter or waiving any rights, it furnishes essentially all the information requested by the owner/operator form. Kerr-McGee is willing to furnish you equivalent information for your records on the same basis. By giving the contact information that follows, Kerr-McGee Corporation is not admitting the Act applies to it in this instance and it is waiving no rights it may have to contest such application of the Act:

The Church Rock 1 & 1E mine sites are located as set out in the Attachment to Quivera Mining Company September 22, 1993 letter to you. Though the mines have been closed and reclaimed, they might arguably fall within the very broad "existing operation" definition of the 1993 New Mexico Mining Act. Both the surface and mineral estate are, we believe, owned by the Navajo Tribe whose address is Window Rock, Arizona. Kerr-McGee Corporation at one time held mineral leases on the properties covered by the mines.

Kerr-McGee's mailing address is the letterhead address above. Kerr-McGee Corporation's resident agent in New Mexico is CT Corporation System, 217 West Manhattan Avenue, Santa Fe, New Mexico 87501, telephone (505) 983-9122.

Very truly yours,

Roger G. Addison

RGA/dh
cc: Marvin Freeman
Rio Algom Mining Corp./Quivera Mining Company

Quivira Mining Company

September 22, 1993

Ms. Lorie L. Herrera
Mining and Minerals Division
Energy, Minerals and Natural Resources Department
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Churchrock I and IE

Dear Ms. Herrera:

Receipt is acknowledged of your letter of September 8, 1993. Quivira Mining Company did not respond to the "owner/operator information requirement" form which you sent to us on July 18, 1993, because Quivira believes it is not subject to the provisions of the 1993 New Mexico Mining Act (the "Act") as to the referenced mines, among other reasons because:

1. It neither is nor has been the owner or operator;

2. The property is located on the Navajo Indian Reservation; and

3. A prior reclamation plan was filed with and approved by the BLM, acting on behalf of BIA and the Navajo Tribe, and reclamation thereunder was undertaken before the effective date of the Act.

Receipt is also acknowledged of a copy of letters addressed to the Department by Kerr-McGee Corporation dated June 17 and September 16, 1993. We agree with Kerr-McGee that the site should not be subject to the Act; but if it should be contended that it should be subject to the Act either now or in the future, then we contend that the responsibility, if any, as between Kerr-McGee on the one hand, Quivira or Rio Algom on the other, is Kerr-McGee's. We disagree with some of the other Kerr-McGee statements concerning this matter. The sites were not sold to Rio Algom as stated. Contrary to Kerr-McGee's letter, we contend that neither Rio Algom nor Quivira has mined nor operated the property. We believe that ownership of the lease from the Navajo Tribe and operations thereunder at all times and for many years in the past has been Kerr-McGee's. We also believe that responsibility for the reclamation and its cost was retained by Kerr-McGee.

6305 Waterford Boulevard, Suite 325, Oklahoma City, Oklahoma 73118 • (405) 848-1190 • FAX (405) 848-1208

Only the conduct of the reclamation, as agent or otherwise on behalf of Kerr-McGee and only a limited amount of its cost, was undertaken by Rio Algom under contract with Kerr-McGee; and Kerr-McGee assumed the conduct of reclamation from Rio Algom in 1992.

Quivira is providing the information set forth below for information purposes only and without prejudice to and without waiving any of its rights.

A description of the properties is attached. Quivira's address is shown on its letterhead. The owner of the land, the Navajo Tribe, is located at Widow Rock, Arizona. Kerr-McGee Corporation, P.O. Box 25861 (123 Robert S. Kerr Avenue), Oklahoma City, Oklahoma 73125, has been the lessee under a mining lease from the Navajo Tribe in the past. Official notices may be sent to Quivira at the above address. The company's agent for service of process in New Mexico is Ms. Kathy Lovato, whose address and telephone number are 100 West Spruce, Bluewater, New Mexico 87005, telephone (505) 876-2382.

Sincerely yours,

Marvin D. Freeman

MDF/pb

Attachment as noted

cc: R. P. Luke
R. Smith - Kerr-McGee Corporation

CHURCH ROCK MINE LOCATIONS
NAVAJO RESERVATION, NEW MEXICO

Church Rock I Mine:

Church Rock I mine was an underground uranium mine located on the Navajo Reservation about 5,600 feet North-Northwest of the common corner of Sections 1 & 2, Township 16 North, Range 16 West, on the south section line of Section 36, Township 17 North, Range 16 West. The mine and mine site have been reclaimed per an Approved Reclamation Plan.

Church Rock IE Mine:

Church Rock IE mine was an underground uranium mine located on the Navajo Reservation about 5,000 feet North-Northeast of the common corner of Sections 1 & 2, Township 16 North, Range 16 West, on the south section line of Section 36, Township 17 North, Range 16 West. The mine and mine site have been reclaimed per an Approved Reclamation Plan.

KERR-McGEE CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

September 16, 1993

LAW DEPARTMENT

Writer's Direct No.
(405) 270-2869

State of New Mexico
EM & NRD
Mining and Minerals Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Attn: Lorie Herrera

Re: Church Rock 1 & 1E Sites
Owner/Operator Information Form

Dear Ms. Herrera:

Thank you so much for taking the time today to discuss with me on the phone whether or not Kerr-McGee Corporation must complete the Owner/Operator Information Form on the referenced sites.

As I mentioned to you, Kerr-McGee Corporation formerly held mineral leases on the sites through one of its subsidiaries, Quivera Mining Company. However, all interest in Quivera and the sites was sold in late 1988 to Rio Algom Mining Corp. Kerr-McGee therefore believes it is neither an owner nor an operator of the Church Rock sites. In any event, the mines are closed and reclamation has been fully completed subject only to confirming that revegetation has taken hold.

We previously wrote you on June 17, 1993 regarding these matters. As you advised your file does not contain the letter, I am enclosing a copy herewith for your records.

You did indicate that our action in sending the prior letter and contacting you with our questions today was, under the circumstances, a sufficient response to your letter requesting the completed Owner/Operator Information Form be returned no later than September 22, 1993.

Should you have any further questions, please feel free to contact me.

Very truly yours,

Roger G. Addison

RGA/dh
Enclosure

cc: Marvin Freeman
Rio Algom Mining Corp./Quivera Mining Company

KERR-McGEE CORPORATION
KERR McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

June 17, 1993

TECHNOLOGY & ENGINEERING DIVISION

ROY R. SMITH
VICE PRESIDENT ENVIRONMENTAL OPERATIONS

RECEIVED
SEP 20 1993
MINING & MINERALS DIVISION

State of New Mexico
EM&NRD
Mining and Minerals Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Church Rock Sites

Gentlemen:

Kerr-McGee Corporation received from Quivira Mining Company a letter dated June 9, 1993 wherein Quivira stated it had (a) received certain forms under the 1993 New Mexico Mining Act for the referenced sites, (b) disclaimed to you any and all ownership or responsibility for the referenced sites, (c) asserted that Kerr-McGee Corporation had assumed all responsibility for such mine sites and (d) sent the forms on to Kerr-McGee for further handling.

This is to formally notify you that Kerr-McGee Corporation does not agree with the position in this matter taken by Quivira Mining Company. If the 1993 New Mexico Mining Act "Owner/Operator Information Requirements" even apply to the referenced sites (and we have a strong suspicion that they do not), then someone other than Kerr-McGee Corporation--perhaps Quivira Mining Company, Rio Algom Mining Corp., the Navajo Nation or even the United States of America--has the responsibility to complete the forms. Kerr-McGee Corporation neither owns nor operates the referenced sites.

Kerr-McGee Corporation did take over from Quivira Mining Company certain reclamation activities with respect to the referenced sites. However, such reclamation has already been completed and awaits only final confirmation that revegetation has in fact taken hold. Such limited activity certainly cannot support designating Kerr-McGee an owner/operator for purposes of the 1993 New Mexico Mining Act.

Please advise if we may be of further assistance in this matter.

Very truly yours,

Roy R. Smith
Vice President

cc: Art Gebeau,
Quivira Mining Company

QUIVIRA MINING COMPANY

POST OFFICE BOX 218 • GRANTS, NEW MEXICO 87020

June 9, 1993

State of New Mexico
EM&NRD
Mining & Minerals Division
2040 South Pacheco Street
Santa Fe, NM 87505

Dear Sirs:

I wish to notify you that Quivira Mining Company is not responsible for the Church Rock I and IE minesites located northeast of Gallup, New Mexico. Forms to cover those two operations were sent to us with the forms for our mines in Ambrosia Lake.

Kerr-McGee Corporation resumed responsibility for and authority over the Church Rock mine reclamation work effective July, 1992. I have notified them, sent them the forms and informed them that I would be notifying your group of this information. If I can be of further assistance in clarifying this matter, please feel free to call upon me.

Sincerely,

QUIVIRA MINING COMPANY

Arthur E. Gebeau
General Manager
Ambrosia Lake Operations

cc: Marvin Freeman
Bill Ferdinand
Roy Smith
file