



## **CONTACT INFORMATION**

Mining Records Curator  
Arizona Geological Survey  
1520 West Adams St.  
Phoenix, AZ 85007  
602-771-1601  
<http://www.azgs.az.gov>  
[inquiries@azgs.az.gov](mailto:inquiries@azgs.az.gov)

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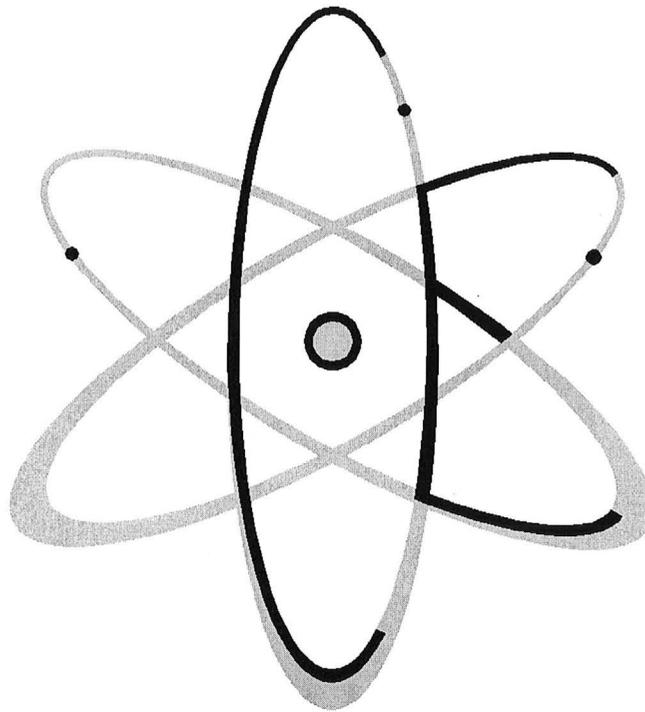
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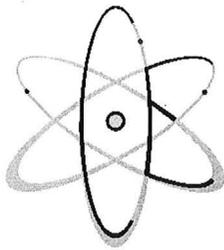
Concentric Energy, Corp.

**A New Force in the Uranium Market**

2905 Greencastle Rd.  
Burtonsville, MD 20866  
301-580-9257(phone), 301-236-0480(fax)  
[ralph@concentricenergy.com](mailto:ralph@concentricenergy.com)  
[www.concentricenergy.com](http://www.concentricenergy.com)

**Corporate Information Packet**

**September 2004**



# Concentric Energy Corp.

**A New Force in the Uranium Market**

2905 Greencastle Rd.  
Burtonsville, MD 20866  
301-236-0480 fax  
[ralph@concentricenergy.com](mailto:ralph@concentricenergy.com)  
[www.concentricenergy.com](http://www.concentricenergy.com)

## Executive Summary

Concentric Energy Corp. is a development stage natural resources company specializing in energy related commodities. The primary focus of the company since its inception has been on uranium, and in fact the first asset which Concentric acquired was the Anderson Mine which is the largest known reserve/resource of uranium in the United States. This focus has intensified during 2004 as a result of dramatically rising uranium prices.

The Anderson Mine was explored extensively by Unocal from 1974 to 1978, and an adjacent group of claims were explored by Urangesellschaft (UG) from 1975 to 1979. Unocal had a final feasibility study in 1978, which projected production of 1.2Mlbs of  $U_3O_8$  per year. Unocal and UG spent more than \$20M in exploration and engineering expenses on Anderson and delineated 27Mlbs of reserves and 70Mlbs of resources. Concentric has acquired the data from Unocal and is in the process of entering the drill hole data into a computer data base. The company is currently working with Agapito Associates, Inc. which is a Geotechnical and Mining Engineering firm in Grand Junction, Colorado. This effort will culminate in a feasibility study which is the first step in putting the Anderson Mine into production.

Uranium and uranium resource stocks are in a massive bull market. The price of yellowcake has soared from \$11.00/lb a year ago to \$19.25/lb today, and has been rising from a three decade low of \$7.00/lb since early 2001. Currently, 35 power plants are under construction world-wide which amount to an 8 percent increase from an existing base of 434 plants. Three industry groups of utilities and nuclear equipment suppliers have filed for initial applications to build new U.S. nuclear plants. Ontario has announced plans to build the first nuclear plant in North America in 20 years. The anti-nuclear pendulum has reversed course and is quickly swinging into nuclear positive territory. Demand for uranium looks to be strong for the next 10 to 20 years.

The supply situation for uranium is inadequate to say the least. The United States produced only 2.2Mlbs of uranium in 2003 which is far less than the approximately 50Mlbs that the U.S. power plants consumed. Most of the uranium mines in the U.S. have been closed as a result of low commodity prices. The overhang from the previous nuclear boom is gone and much of the sales of reprocessed weapons uranium is also gone or committed. Therefore, the shortfall must be supplied by new mines. The process of bringing a new mine on stream is a lengthy one due to permitting, bonding, financing, engineering and construction. The price of uranium will likely have to go much higher while the market works out the supply/demand imbalance. Concentric Energy feels that it can play a major role in helping to fill the hole in the uranium supply which currently exists and is manifesting itself in dramatically higher uranium prices, currently at 20 year highs.

Concentric Energy has two other properties which are industrial mineral properties. The first is a world-class fluorite and beryllium deposit in Eureka County, Nevada. It was extensively explored back in the 1950s and 1960's by Union Carbide Nuclear and an enormous reserve and resource was defined. Fluorite is in short supply as a result of the steel boom in China and there are currently no U.S. producers of the commodity. There is only one operating beryllium mine in the United States. The other property is an iron-ore property in Pershing County, Nevada which the initial exploration indicates could contain 150 million tons of magnetite ore at a 30 to 35% grade.

Concentric Energy seeks to become the premier uranium mining company in a resurgent uranium mining industry in the United States. Concentric has the core asset, the Anderson Mine, around which to initiate this process. The company is in the process of assembling the team and resources necessary to turn this vision into reality, and capitalize on the current mega-bull in uranium and uranium resource stocks.

# Officers and Directors

## **Ralph W. Kettell, II, P.E.– President and Director**

Mr. Kettell is an electrical engineer and has been extensively involved in mining corporate development and finance since 1999 as an entrepreneur and an investor. He was a founding partner of Nevada Sunrise, LLC., is the lead investor and a Director of AuEx Ventures, Inc., the lead investor of a Nevada Silver Exploration Company, the founder of a mineral exploration company in Newfoundland, and an experienced real estate investor. He has been involved in numerous engineering design projects involving radio communications and radar systems for the space program for NASA and various projects for the Department of Defense. Mr. Kettell designed the radio frequency (RF) portion of the Space to Space Communications System (SSCS) which is used in the construction of the International Space Station. The SSCS consisted of three distinct radios, one in the Space Shuttle, one in the Space Station, and an astronaut backpack version. Mr. Kettell has a B.S. and M.S. in Electrical Engineering from Lehigh University.

## **J. Stewart Hollingsworth, P.G. – Director**

Mr. Hollingsworth is an exploration geologist and exploration manager with over 35 years of mining industry experience. He worked for 27 years with Union Carbide (1959-1986) primarily exploring for uranium, and most recently as their Director of Exploration and Exploration Manager. During his tenure at Union Carbide, uranium reserves and resources of approximately 30 million pounds were discovered and delineated. Mr. Hollingsworth has worked all over the world in that time, but with an emphasis on the U.S., Canada, Australia, and South Africa. His experience spans both the exploration side of the business as well as the mining side. He holds a degree in Geological Engineering from the Colorado School of Mines.

## **Thomas Howell – Director**

Mr. Howell is a prospector who has been active in the uranium exploration business for the past 30 years. Most recently he was the President of Hanson Exploration which had numerous uranium exploration properties in Wyoming, Utah, Arizona, and New Mexico. During the uranium boom of the 1970s, Mr. Howell discovered two previously unknown uranium deposits. Mr. Howell has a business degree from the University of Georgia with a minor in geology. He also served as an officer in the United States Air Force and served as a pilot in Southeast Asia where he earned the Distinguished Flying Cross.

## **Pete Ingersoll, C.F.A. – Director**

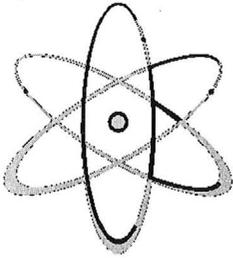
Mr. Ingersoll is a financial analyst in the metals and mining industry, and he has an M.B.A from Harvard Graduate School of Business Administration. From 1959 to 1992, he worked on Wall Street as a financial analyst for Salomon Brothers (1982-1987) and Lehman Brothers (1987-1992). For nine consecutive years, he was honored as a member of the Institutional Investor All-Star Team for both the Gold and Non-ferrous Metals Industries. Mr. Ingersoll served on the Board of Directors of Getchell Gold Corporation, a Nevada-based mid-size gold producer, from 1994 until their merger with Placer Dome in May of 1999 and served on the Board of Directors of Stillwater Mining Company, a Montana-based producer of platinum and palladium, from May 1997 to December 1998.

## **Arden Larson – Vice President of Operations**

Mr. Larson is an experienced exploration geologist and manager with over 30 years of mining industry experience. Currently he is the President of E-VAT, a start-up company developing a VAT leaching system to recover gold with a patent pending. He has been the President and founder of other gold mining and exploration companies including a public company. He is experienced both as an explorationist and as a miner and has worked on projects in precious metals and base metals, including gold, silver, lead and uranium. While Mr. Larson's degree is in geology, he also has a significant amount of experience in mining engineering and metallurgy.

## **Ronald L. Parratt, C.P.G., Advisor**

Mr. Parratt is an experienced exploration geologist and exploration manager with over 30 years of mining industry experience. Most recently, he served as Exploration Manager, North America for Homestake Mining Company with responsibilities for all of Homestake's grass roots and mine site exploration activity in North America. Prior to that, he served as Vice President of Exploration for Santa Fe Pacific Gold, Inc. Mr. Parratt has had direct involvement in the discovery of several gold deposits with three of these, including Rabbit Creek, Lone Tree and Trenton Canyon, resulting in mines. Mr. Parratt is Vice Chairman of the Nevada Commission on Mineral Resources, a Director for the Society for Mining, Metallurgy and Exploration, a member of the Dean's Advisory Board for the Mackay School of Mines and a Director of Golden Phoenix Minerals, Inc. Mr. Parratt has extensive knowledge of Nevada geology, gold deposits and gold prospects in Nevada.



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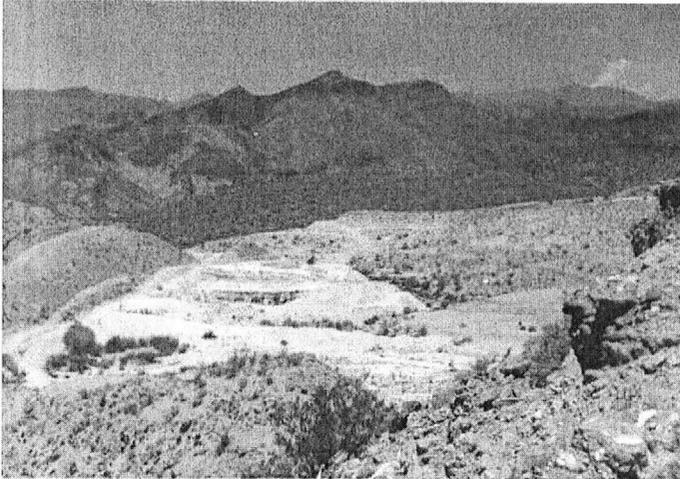
Burtonsville, MD 20866

301-236-0480 fax

[ralph@concentricenergy.com](mailto:ralph@concentricenergy.com)

[www.concentricenergy.com](http://www.concentricenergy.com)

## The Anderson Mine



### Location

The property is about 75 miles northwest of Phoenix, Arizona in Yavapai County.

### Climate

The elevation is 2000 feet, dry desert, hot summers, mild winters.

### Access

The property is served by a good 24-mile gravel road that connects to a state highway.

### History

The property was discovered in 1955 by an airborne radiation detector. Production was 33,230 pounds of  $U_3O_8$  from 1955 to 1959. It was drilled by a major oil company in 1967. Then the claims were optioned by Unocal in 1974 and purchased by Unocal in 1975 after extensive drilling. Adjacent claims were explored by Urangesellschaft from 1975 to 1979. Unocal was planning a 2000-ton-per-day mill in 1978, with ore to be mined by open pit.

The Three Mile Island Nuclear Reactor accident on March 28, 1979 started a drastic price decline for  $U_3O_8$  from \$45 per pound to eventually \$7.00 per pound in 2001. All of the claims were abandoned by Unocal and Urangesellschaft by 1983. They were re-staked immediately by a former company geologist who held on until 1988. It was re-staked by an underfinanced exploration company in 1995 and then dropped it by 1998. Finally the claims were re-staked by Concentric Energy in 2001.

### Geology

Ore occurs in lake beds of the Miocene age (about 12 million years ago). Lake beds are between impermeable lava flows. Uranium was precipitated in portions of lake beds with organic carbon particles from carbonate-rich solutions. The lake beds contain significant calcium carbonate. Numerous stacked zones of mineralization exist, up to seven zones in some areas. They are

continuous over a wide area of at least 10,000 feet by 20,000 feet, with mineralized thicknesses averaging 20 feet, but some over 50 feet.

### Ore Reserves

Unocal was planning to mine 10.1 million pounds of .08%  $U_3O_8$  of proven reserves.

Urangesellschaft stated they had 10.9 million pounds of .09%  $U_3O_8$  in one bed and another 4 to 6 million pounds in the remaining beds.

**Total proven reserves are 25 to 27 million pounds of  $U_3O_8$ .**

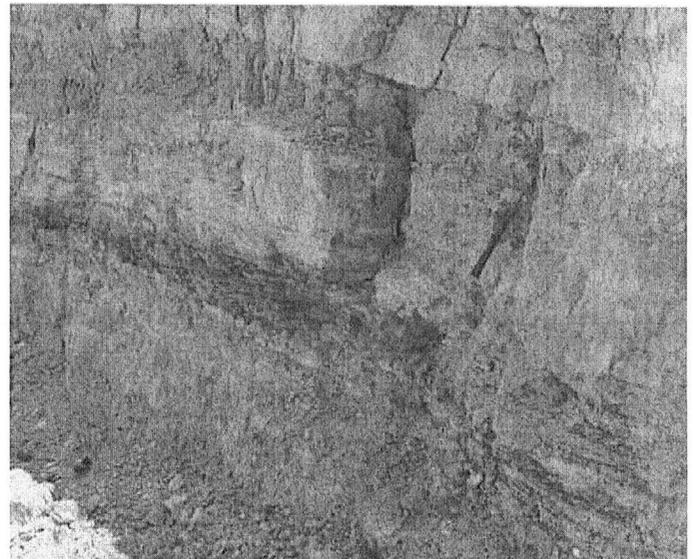
### Ore Resources

Unocal reported geologic resources of 28 million pounds of  $U_3O_8$  which included the 10.1 million pounds of proven reserves. Urangesellschaft geologic resources are estimated at 42 million pounds  $U_3O_8$ . Neither geologic resource includes low-grade material between mineralized beds as the reserve criteria was a minimum cutoff of 2 feet of .02%  $U_3O_8$ .

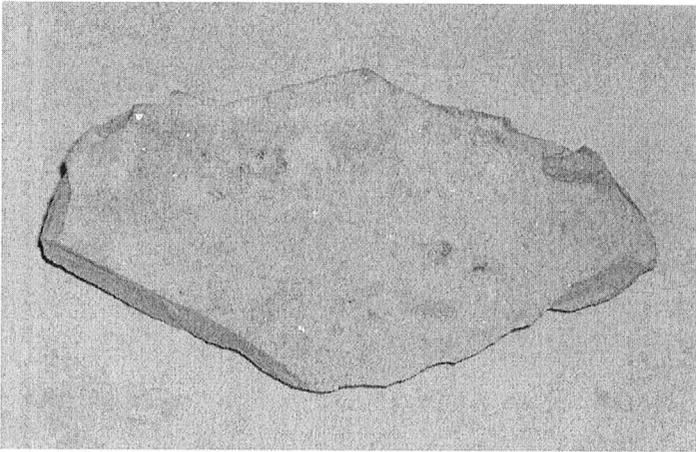
**Total geologic resources are in excess of 70 million pounds of  $U_3O_8$ .**

### Geological Data

Concentric Energy has obtained much of the data which was gathered in the property in the past 30 years. The entire Unocal drill hole data package, assays, and metallurgical



data along with reports, etc. and a feasibility study. has been forwarded to the Arizona Bureau of Mines. We have copied some of the data and are in the process of copying the drill logs and drill data so that it can be entered into a computerized data base. The ultimate purpose is to advance the property towards feasibility and put it into production.



We have located the UG data and are in the process of trying to acquire it.

### Land Position

Concentric Energy currently controls all of the land which was explored by both Unocal and UG which had resources or reserves on it. The deposit is open to the south so we also have a substantial land buffer in that direction. In total, we have 272 claims which is approximately nine square miles. The land is currently owned 80% by Concentric Energy and 20% by Jerry Baughman. However, we have negotiated a buyout of Baughman's 20% interest for \$100,000 which expires on December 15, 2004. Concentric plans to exercise the buyout prior to its expiration and then will control 100% of the Anderson Deposit with no royalty.

### Environmental

Unocal was planning huge open pit mine with 38-to-1 strip ratio. They intended to mine 500 million tons of waste rock and leave a huge hole. Such an operation would be most difficult to permit now. Two varieties of cactus exist on the property, the Saguaro and the Barrel cactus, both of which are near and dear to Arizonans as they take centuries to grow. Any operation has to be very sensitive to this issue. Otherwise, the property is well located for an operation with

no nearby neighbors. Fortunately, the state of the art has advanced in the past 25 years and there are more cost effective ways to mine the uranium than a huge open pit.

### Economics

This property contains well over a **Billion dollars** of  $U_3O_8$  at current prices of \$19.25 per pound. It will be difficult, if not impossible to get a permit to mine it by open-pit methods. However, portions of the property may be suited to be mined by in-situ leaching. In this method a solvent is injected into the ore bed and then pumped out after it has dissolved the uranium. The ore beds are confined between impermeable beds, much like an Oreo cookie. The method of dissolving the uranium is simply to reverse the chemistry that precipitated it. The  $U_3O_8$  was precipitated by the reducing action of organic carbon particles from an alkaline solution; therefore it can be dissolved by an oxidizing alkaline solution. The key to the economics will be the cost of the oxidant and the percolation rate of the solutions within the ore zones. This can only be determined by actually testing on the property with a pilot operation.

Should the property not be amenable for in-situ leaching, we believe that it can be mined using coal mining equipment as the ore occurs in approximately 6 foot high seams which is ideal for that type of equipment. The deposit could first be mined underground starting from where the mineralization is near surface and following the underground mining operation a secondary in-situ leach could be performed to capture the remaining  $U_3O_8$ . We are currently working with Agapito Associates, Inc. a Geo-technical and Mining Engineering Firm out of Grand Junction, CO to move the Anderson Mine towards feasibility. They have a vast amount of experience in mining coal and solution mining which are both important to advancing the Anderson Mine towards production.

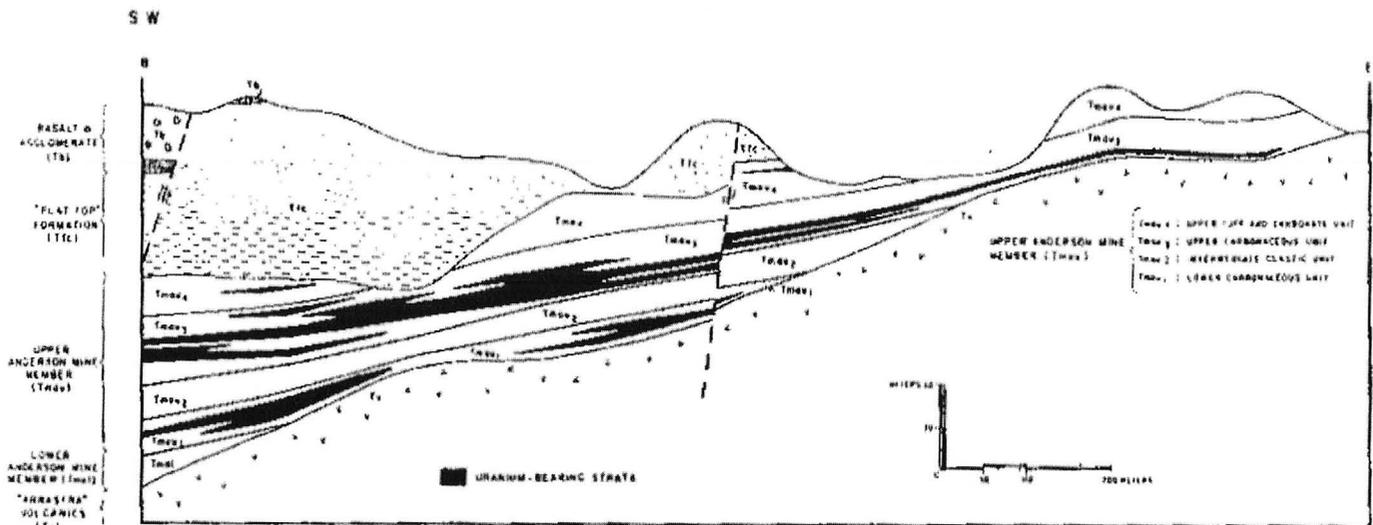


FIG. 13—Southwest-northeast-trending cross section of uranium-bearing interval in Anderson Mine area. See Figure 11 for location.



United States Department of the Interior

OFFICE OF HEARINGS AND APPEALS  
INTERIOR BOARD OF LAND APPEALS

4015 WILSON BOULEVARD  
ARLINGTON, VIRGINIA 22203

IN REPLY REFER TO

UNION OIL CO.

IBLA 81-454

Decided July 22, 1981

Appeal from a final wilderness decision of the Arizona State Office of the Bureau of Land Management fixing the boundaries of a wilderness study area, unit AZ-020-059.

Decision set aside and case remanded.

1. F.L.P.M.A.--Wilderness Study Areas--designation of--effect of mine; PRACTICE AND PROCEDURE--Appeals--considerable deference standard--Board of Land Appeals; WILDERNESS ACT.

While the Board of Land Appeals will give "considerable deference" to Bureau of Land Management designations of Wilderness Study Areas if thorough investigation underlies the Bureau's decision, where an appellant can specifically and convincingly show that there is sufficient reason to change the Bureau's decision, the Board must resolve the issue in favor of appellant. Such is the case where appellant has convinced the Board that the designated Wilderness Study Area is not "wilderness," as that term is described in 16 U.S.C. § 1131(c) (1976), by submitting detailed maps and photographs showing the adverse impact of appellant's open-pit mining operation on the area.

APPEARANCES: John C. Lacy, Esq., Tucson, Arizona, for appellant; Dale D. Goble, Esq., Office of the Solicitor, U.S. Department of the Interior, for the Bureau of Land Management.

INDEX CODE: None

## OPINION BY ADMINISTRATIVE JUDGE HENRIQUES

This appeal is taken from a decision of the Arizona State Office of the Bureau of Land Management (BLM) declaring the final boundaries of a wilderness study area (WSA), unit AZ-020-059 (Arrastra Mountains).

The appellant is Union Oil Company of California whose wholly owned subsidiary, Minerals Exploration Company, owns the Anderson Mine located about 35 miles to the northwest of Wickenburg, Arizona. This open-pit uranium ore mine was originally discovered in 1955 and purchased by appellant in 1975. In 1976 appellant announced the discovery of a uranium orebody in secs. 9-16, T. 11 N., R. 10 W., Gila and Salt River meridian, Yavapai County, Arizona, which is to be developed from Anderson Mine. Appellant has completed most of the steps necessary for the permitting of the mining development, and has initiated the process leading to patent of this land.

On October 21, 1976, Congress passed the Federal Land Policy and Management Act (FLPMA) charging BLM with the responsibility of inventorying all BLM managed lands, their resources and other values. 1/ Under section 603(a) of FLPMA 2/ the Secretary of the Interior (through his delegate, BLM) is directed to identify tracts of public land, generally of 5,000 or more roadless acres, 3/ which may properly be characterized as wilderness; the term "wilderness" is to receive its meaning from the Wilderness Act of September 3, 1964. 4/ If there are sufficient indicia that an identified tract of land has wilderness characteristics, it is designated as a WSA and receives closer study by BLM to determine its suitability as a permanent wilderness area. These studies culminate in recommendations by the Secretary to the President as to whether or not such tracts should be preserved as wilderness. The President will then report his recommendations to Congress, which will make the final determinations.

Pursuant to this statutory authority, BLM designated unit AZ-020-059 as a WSA. 5/ Because of objections made by appellant, the boundary lines of this WSA have been changed by BLM twice, with each change still leaving appellant's concerns unresolved. Appellant argues that the WSA would include portions of waste dumps and tailings areas of the mine's proposed site plan. Appellant also contends that

1/ 43 U.S.C. § 1711(a) (1976).

2/ 43 U.S.C. § 1782(a) (1976).

3/ The Secretary is also required to review "roadless islands of the public lands" in the same manner as the 5,000-acre areas. 43 U.S.C. § 1782(a) (1976). BLM's Wilderness Inventory Handbook also calls for the inclusion of areas of less than 5,000 acres if the tracts are of sufficient size to make their preservation practicable.

4/ 16 U.S.C. § 1131(c) (1976).

5/ This decision was announced by the Arizona State Director by publication in 43 FR 67780 (Oct. 14, 1980).

## United States Department of the Interior

OFFICE OF HEARINGS AND APPEALS  
 INTERIOR BOARD OF LAND APPEALS  
 4015 WILSON BOULEVARD  
 ARLINGTON, VIRGINIA 22203

JAMES I. THOMPSON

I.D.

BLA 80-749

Decided November 26, 1980

Appeal from decision of the Arizona State Office, Bureau of Land Management, dismissing protest against right-of-way A-10891.

**Affirmed.**

1. NATIONAL ENVIRONMENTAL POLICY ACT OF 1969--  
Environmental Impact Statements--Major Federal Action.

Where it is implicit in an administrative decision that a proposed action is not a major Federal action which will significantly affect the quality of the human environment, so that no environmental impact statement need be filed, that decision will be affirmed on review if it appears to have been made by an authorized officer, in good faith, based upon a proper and sufficient environmental analysis record compiled in accordance with established procedures, and is the reasonable result of his study of such record.

2. NATIONAL ENVIRONMENTAL POLICY ACT OF 1969--  
Environmental Impact Statements--Major Federal Action; RIGHTS OF WAY; URANIUM.

The grant of a right-of-way over public lands, authorizing the construction of a

INDEX CODE: None

roadway to provide access to a uranium mining property, where such grant is made contingent upon the necessary licenses being obtained prior to commencement of any mining activity, does not require the preparation of an environmental impact statement, as no major Federal action is present within the terms of 42 U.S.C. § 4332(c) (1976).

APPEARANCES: James R. McArthur, Esq., Law Office of James L. Corbett, Wickenburg, Arizona, for appellant; John C. Lacy, Esq., DeConcini, McDonald, Brammer, Yetwin & Lacy, P.C., Tucson, Arizona, for appellee Minerals Exploration Company.

OPINION BY ADMINISTRATIVE JUDGE FISHMAN

On February 15, 1979, the Arizona State Office, Bureau of Land Management (BLM), granted an easement for a road right-of-way to the Yavapai County Board of Supervisors (grantee) for the construction, use, and maintenance of a paved road affecting public lands in T. 11 N., Rs. 9 and 10 N., Gila and Salt River meridian, Arizona. The purpose of the road is to obtain access to a uranium mineral development known as the Anderson Mine owned by Minerals Exploration Company (MEC), appellees herein.

Appellant James I. Thompson, the owner of a grazing allotment on a portion of the lands traversed by the right-of-way, initially protested the grant contending, inter alia, that it violated the Federal

allotment; whereas, the alternative routes B and C would have serious impacts on three other allotments. The EAR also lists mitigating factors. One of these is the construction of "underpasses \* \* \* to allow livestock movement under the road" (EAR p. 39). Another mitigating factor is the limitation of points of ingress and egress "to reduce the impact on range resources from the general public" (EAR p. 40). Both the EAR and the instrument of the grant fully detail the impacts, compensatory measures, and improvements to be made with respect to the Thompson allotment. 2/

Appellant's assertion that BLM was unaware of the amount of traffic to be carried by the road ignores page 1 of the EAR which states in pertinent part:

Approximately 350 permanent employees will be needed to operate the Anderson Uranium Project 24 hours per day,

2/ The grant speaks not only of mitigating the impacts, but of the necessity to "protect and enhance range improvements, grazing operations," etc. (Emphasis supplied.) The following elements are listed, inter alia:

"(1) Identification of all impacted fences, pipelines, reservoirs, water troughs and other range improvements and measures necessary to maintain or enhance their level of effectiveness through mitigation or replacement at Grantee's expense.

"(2) Identification of all cattle crossings, trails, underpasses, cattle guards, fence gates, and other controls needed along the road, keeping in mind the objectives of limiting ingress to and egress from the highway while still providing necessary access to the adjacent public lands for legitimate users.

"(3) The development at Grantee's expense of permanent livestock waters north and south of the right-of-way in the west pasture of the Thompson Allotment. Location and design of these two waters shall be subject to the approval of the Bureau of Land Management under applicable statutes and directives."

lant argues that BLM cannot properly select a route and right-of-way when it does not know the amount of traffic which using the road on which radioactive materials will be transported.

Appellant further argues that the Environmental Assessment Record (EAR) fails to assess the impact of the road, that the grant is contrary to FLPMA in that it does not follow the route which will cause least damage to the environment, 1/ and that some of the State Director's conclusions specifically relating to archeological and wildlife impacts are inconsistent with the findings of the EAR.

Finally, appellant has adopted the protest submitted below by AFSE. The encompassing argument made therein was that an environmental impact statement concerning the "entire project," i.e., the mining operation and the access road, was required and should have been prepared.

[1, 2] We turn first to the arguments stressing the disruptive effects of the proposed road on appellant's ranching operations. The EAR states that route A (the route chosen) affects only the Thompson

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1/ 43 U.S.C. § 1765 (1976) provides in part as follows:

"Each right-of-way shall contain--

(a) terms and conditions which will (i) carry out the purposes of this Act and rules and regulations issued thereunder; (ii) minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment; \* \* \*."

s per year. It is estimated that there would be a  
of 230 cars per day using the road if "car pooling"  
sidered. This would require a total of 460 trips per  
An additional 12 tractor-trailer combinations would  
the road daily for a total of approximately 484 trips  
day. Since the road would be a county road, it would  
open to the general public, and the extent to which  
his would add to the total traffic count is not known.  
The maximum amount of vehicles utilizing the road at any  
one time would be approximately 175.

ne option of no road at all was also considered:

The alternative of no action or to deny the permit  
must also be considered. This type of action would require  
Union Minerals to utilize existing dirt roads, which is  
not practical from a safety standpoint. It is not physi-  
cally possible to construct a road to the mine without  
crossing public lands. The alternative of no action or  
permit denial would also allow the possibility of Union  
Minerals constructing its own access pursuant to the Mining  
Law of 1872 without futher federal authorization or  
comment.

EAR, p. 3.

Appellant's suggestions that the EAR fails to assess the impacts  
of the road, that the grant is contrary to FLPMA, and that the Director's  
decision is arbitrary are devoid of merit. We have appended to this  
decision excerpts from the summary of the EAR which shows that the impacts  
of all three alternatives were meticulously investigated and rationally  
projected based upon a thorough collection of data. An accurate reading  
of the EAR shows that the Direcor's conclusions regarding archeological  
and wildlife values are in complete accord with the findings in the EAR.

Appellant argues that an Environmental Impact Statement (EIS) should have been prepared for the entire project (road and uranium mine). The State Director initially answered this argument in his dismissal of AFSE protest by stating that the EAR adequately provided for environmental protection and that the only significant disruptions would come as a result of road construction.

An EIS is required to be included "in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332 (1976). An argument similar to that advanced here was made by the appellant in Oregon Wilderness Coalition, 45 IBLA 347 (1980).<sup>a</sup> That case involved BLM's grant of a right-of-way across public lands to enable a logging concern to cut timber on privately held land. The Oregon Wilderness Coalition there contended that "major federal actions" must not be confined to BLM's grant of a right-of-way across public lands but must instead include the logging concern's expressed intention to clear cut almost 500 acres of privately owned land. Nonetheless, the Board held that "the grant of the subject right-of-way is not a major Federal action significantly affecting the quality of the human environment." Oregon Wilderness Coalition, supra at 353.

We hold that the grant of the right-of-way in the case before us is not a major Federal action requiring the preparation of an EIS. The licensing of a uranium mining and milling project with its attendant consequences is a matter within the competence of other agencies of the Federal and local governments. As was noted earlier, construction of

a) GFS(MISC) 18(1980)

ad cannot proceed until the uranium project has been approved by appropriate authorities. Quite possibly an EIS will be a prerequisite to such approval.

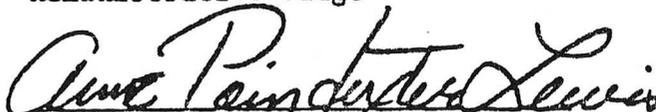
We conclude that BLM properly granted the initial right-of-way on the basis of a comprehensive record. The State Director had full authority to make the grant and there is nothing to suggest that he acted capriciously or abused his discretion. Appellant's call for an EIS is not required by law and fails to take account of the contingencies pursuant to which the right-of-way was issued.

Therefore, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 CFR 4.1, the decision appealed from is affirmed. 3/

  
Frederick Fishman  
Administrative Judge

We concur:

  
James L. Burski  
Administrative Judge

  
Anne Poindexter Lewis  
Administrative Judge

3/ Judge Lewis concurs in this decision in reliance on the fact that the right-of-way grant was issued with the stipulation that construction of the road would not be permitted to begin until satisfactory evidence was presented by Minerals Exploration Company that approval had been or would be granted by the Arizona Atomic Energy Commission (AAEC) for construction and operation of the ore processing mill at the Anderson mine. This condition was set forth in the decision below.

## APPENDIX

A. Route A

Construction of the access road along Route A would result in the greatest overall impact to wildlife values, primarily due to higher quality of habitat disrupted, the greater sensitivity of the species involved, and the deterrent created to further consideration of reintroduction of Big Horn sheep in the Tres Alamos area, as compared to Routes B and C. Route A requires construction over the least distance (12.2 miles) and consequently involves the least total disturbance to surface resources, the least amount of materials excavated and used in road construction, and the least amount of road construction where no road currently exists. Some cut and fill activity would be required in the vicinity of Aso Pass.

The quality of aesthetics is generally higher along Route A, although these would not necessarily be destroyed by the proposed access but would be made more accessible to the general public.

The road would bisect the Thompson grazing allotment, impacting current patterns of use and subjecting the area to significantly more human activity than currently takes place. Some livestock improvements would be temporarily disrupted but would be replaced through mitigation. Development of permanent waters in the west pasture where none currently exist could mitigate, in part, some of the impact on the range resource.

Compared to Routes B and C, impacts on soils and soil erosion due to road construction will be least on Route A.

B. Route B

Wildlife values would experience low to moderate impacts adjacent to the road along Route B of less severity when compared to the proposed route. Highest impacts would occur in and near the Date Creek drainage.

Route B requires 6.5 miles more construction than the proposed route with greater disturbance of surface resources, greater amounts of materials excavated and used during construction, and greater construction in areas where roads do not currently exist. Approximately 4 miles of the Alamo Road (total length of 35 miles) would be paved as well as portions of the Palmerita Ranch Road which would facilitate travel by the existing users.

Route B would have a severe impact on the Pipeline Allotment through disruption of the established Allotment Management Plan and the requirement for extensive and complex mitigation to restore an effective management system. Portions of three other allotments would also be adversely affected.

## APPENDIX

A. Route A

Construction of the access road along Route A would result in the greatest overall impact to wildlife values, primarily due to higher quality of habitat disrupted, the greater sensitivity of the species involved, and the deterrent created to further consideration of reintroduction of Big Horn sheep in the Tres Alamos area, as compared to Routes B and C. Route A requires construction over the least distance (12.2 miles) and consequently involves the least total disturbance to surface resources, the least amount of materials excavated and used in road construction, and the least amount of road construction where no road currently exists. Some cut and fill activity would be required in the vicinity of Aso Pass.

The quality of aesthetics is generally higher along Route A, although these would not necessarily be destroyed by the proposed access but would be made more accessible to the general public.

The road would bisect the Thompson grazing allotment, impacting current patterns of use and subjecting the area to significantly more human activity than currently takes place. Some livestock improvements would be temporarily disrupted but would be replaced through mitigation. Development of permanent waters in the west pasture where none currently exist could mitigate, in part, some of the impact on the range resource.

Compared to Routes B and C, impacts on soils and soil erosion due to road construction will be least on Route A.

B. Route B

Wildlife values would experience low to moderate impacts adjacent to the road along Route B of less severity when compared to the proposed route. Highest impacts would occur in and near the Date Creek drainage.

Route B requires 6.5 miles more construction than the proposed route with greater disturbance of surface resources, greater amounts of materials excavated and used during construction, and greater construction in areas where roads do not currently exist. Approximately 4 miles of the Alamo Road (total length of 35 miles) would be paved as well as portions of the Palmerita Ranch Road which would facilitate travel by the existing users.

Route B would have a severe impact on the Pipeline Allotment through disruption of the established Allotment Management Plan and the requirement for extensive and complex mitigation to restore an effective management system. Portions of three other allotments would also be adversely affected.

Appellant argues that an Environmental Impact Statement (EIS) should have been prepared for the entire project (road and uranium mine). The State Director initially answered this argument in his dismissal of AFSE protest by stating that the EAR adequately provided for environmental protection and that the only significant disruptions would come as a result of road construction.

An EIS is required to be included "in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332 (1976). An argument similar to that advanced here was made by the appellant in Oregon Wilderness Coalition, 45 IBLA 347 (1980).<sup>a</sup> That case involved BLM's grant of a right-of-way across public lands to enable a logging concern to cut timber on privately held land. The Oregon Wilderness Coalition there contended that "major federal actions" must not be confined to BLM's grant of a right-of-way across public lands but must instead include the logging concern's expressed intention to clear cut almost 500 acres of privately owned land. Nonetheless, the Board held that "the grant of the subject right-of-way is not a major Federal action significantly affecting the quality of the human environment." Oregon Wilderness Coalition, supra at 353.

We hold that the grant of the right-of-way in the case before us is not a major Federal action requiring the preparation of an EIS. The licensing of a uranium mining and milling project with its attendant consequences is a matter within the competence of other agencies of the Federal and local governments. As was noted earlier, construction of

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a) GFS(MISC) 18(1980)

lant argues that BLM cannot properly select a route and right-of-way when it does not know the amount of traffic which using the road on which radioactive materials will be transported.

Appellant further argues that the Environmental Assessment Record (EAR) fails to assess the impact of the road, that the grant is contrary to FLPMA in that it does not follow the route which will cause least damage to the environment, 1/ and that some of the State Director's conclusions specifically relating to archeological and wildlife impacts are inconsistent with the findings of the EAR.

Finally, appellant has adopted the protest submitted below by AFSE. The encompassing argument made therein was that an environmental impact statement concerning the "entire project," i.e., the mining operation and the access road, was required and should have been prepared.

[1, 2] We turn first to the arguments stressing the disruptive effects of the proposed road on appellant's ranching operations. The EAR states that route A (the route chosen) affects only the Thompson

1/ 43 U.S.C. § 1765 (1976) provides in part as follows:

"Each right-of-way shall contain--

(a) terms and conditions which will (i) carry out the purposes of this Act and rules and regulations issued thereunder; (ii) minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment; \* \* \*."

\* \* \* \* \*

\* \* \* The proposed action may result in disturbance to more sensitive wildlife values than the two alternate routes, but cumulative adverse environmental impacts are anticipated to be less severe than either of the alternate routes.

Archeological sensitivity is nearly the same for all three routes except where the alternate routes would cross over Date Creek where higher values are anticipated.

\* \* \* \* \*

\* \* \* The right-of-way was issued under the authority provided by Title V of the Act of 10/21/76, 90 Stat. 2775, 43 U.S.C. 1761.

\* \* \* \* \*

The right-of-way grant was issued with the stipulation that construction of the road shall not begin until satisfactory evidence is presented by Minerals Exploration Company that approval has been or will be granted by the Arizona Atomic Energy Commission (AAEC), for construction and operation of the ore processing mill at the Anderson Mine.

Authorization from the Arizona State Land Department must also be received prior to commencement of construction activities.

It is the BLM's understanding that application to the AAEC has been suspended pending revision of engineering data of the mill and tailings ponds. Changes in the operation of the mill have little, if any, additional impact on the right-of-way that has been granted.

Appellant challenges the decision as arbitrary, capricious, and not justified by the record. Appellant states that the road will make it difficult, if not impossible, to move cattle from one portion of his ranch to another, will present safety hazards, and will bring more sightseers, rockhounds, and fourwheel drive enthusiasts to his area.

\* \* \* \* \*

\* \* \* The proposed action may result in disturbance to more sensitive wildlife values than the two alternate routes, but cumulative adverse environmental impacts are anticipated to be less severe than either of the alternate routes.

Archeological sensitivity is nearly the same for all three routes except where the alternate routes would cross over Date Creek where higher values are anticipated.

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 Policy and Management Act of 1976 (FLPMA), 43 U.S.C. §§ 1701-1782  
 . Arizonans for Safe Energy (AFSE), a nonprofit organization con-  
 d with the environmental and socioeconomic effects of energy  
 uction, also protested the grant as being in violation of FLPMA  
 the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-  
 7 (1976). In separate decisions dated May 23, 1980, the Arizona  
 State Director (BLM) dismissed both protests. AFSE did not appeal.  
 It is solely the dismissal of appellant Thompson's protest which is  
 here before us.

In his dismissal of appellant's protest the State Director stated,

inter alia:

The right-of-way was issued for a period of 30 years with  
 right of renewal as requested by the applicant, Yavapai  
 County Board of Supervisors, at the request of Minerals  
 Exploration Company (name changed to Union Energy Mining  
 Division). It has been estimated that Minerals Exploration  
 Company will be using the county road for a period of 10 to  
 15 years while mining, milling, processing, and transport-  
 ing uranium ore from the Anderson Mine. In addition to  
 providing access to Minerals Exploration Company, the road  
 will provide improved access to other mining interests that  
 have mining claims in the area. The county-maintained road  
 will also provide improved access for ranchers, recreation-  
 oriented public use, such as sightseeing, hunting, rock-  
 hounding, etc., and thus warrant continued use beyond the  
 earliest anticipated closeout of the Anderson Mine.

\* \* \* \* \*

\* \* \* The provisions of 43 U.S.C. 1765 were met by  
 stipulations and mitigating measures that are part of the  
 right-of-way grant. It was determined through the environ-  
 mental assessment process that the proposed route would  
 cause the least amount of environmental disturbance, all  
 factors considered. Adjacent users of the area were con-  
 sidered in the impact analysis, and stipulations and miti-  
 gating measures of the grant were developed.

roadway to provide access to a uranium mining property, where such grant is made contingent upon the necessary licenses being obtained prior to commencement of any mining activity, does not require the preparation of an environmental impact statement, as no major Federal action is present within the terms of 42 U.S.C. § 4332(c) (1976).

APPEARANCES: James R. McArthur, Esq., Law Office of James L. Corbett, Wickenburg, Arizona, for appellant; John C. Lacy, Esq., DeConcini, McDonald, Brammer, Yetwin & Lacy, P.C., Tucson, Arizona, for appellee Minerals Exploration Company.

OPINION BY ADMINISTRATIVE JUDGE FISHMAN

On February 15, 1979, the Arizona State Office, Bureau of Land Management (BLM), granted an easement for a road right-of-way to the Yavapai County Board of Supervisors (grantee) for the construction, use, and maintenance of a paved road affecting public lands in T. 11 N., Rs. 9 and 10 N., Gila and Salt River meridian, Arizona. The purpose of the road is to obtain access to a uranium mineral development known as the Anderson Mine owned by Minerals Exploration Company (MEC), appellees herein.

Appellant James I. Thompson, the owner of a grazing allotment on a portion of the lands traversed by the right-of-way, initially protested the grant contending, inter alia, that it violated the Federal

Therefore, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 CFR 4.1, the petition for reconsideration is granted, the decision of the Board, reported at 56 IBLA 206, is vacated, and the decision of the State Director is affirmed.

James L. Burski  
James L. Burski  
Administrative Judge

We concur:

Gail M. Frazier  
Gail M. Frazier  
Administrative Judge

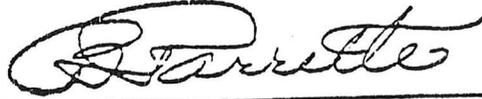
Bruce R. Harris  
Bruce R. Harris  
Administrative Judge

Anne Poindexter Lewis  
Anne Poindexter Lewis  
Administrative Judge

Edward W. Stuebing  
Edward W. Stuebing  
Administrative Judge

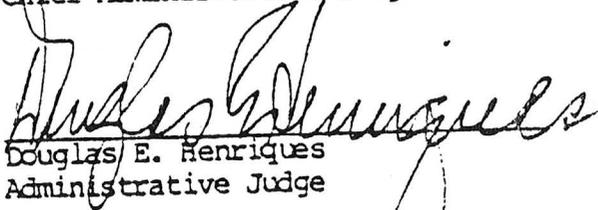
CHIEF ADMINISTRATIVE JUDGE PARRETTE AND ADMINISTRATIVE JUDGE HENRIQUES  
DISSENTING:

We respectfully dissent for the reasons set forth in the original  
decision.



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Bernard V. Parrette  
Chief Administrative Judge



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Douglas E. Henriques  
Administrative Judge

affirmatively required to manage the lands pending ultimate determination of suitability, so as not to impair such suitability. Clearly, a finding that these lands were not suitable for wilderness designation based on these monitoring sites would be implicit recognition that the Department had failed of its obligations. Such a finding must have a clear and convincing basis in fact—a basis which is not manifest in the present record.

Similarly, to the extent that Union Oil's argument concerning the Santa Maria River was premised on utilization of these monitoring sites, it must also be rejected. Insofar as appellant relies on any future right of access to the claims we would note first, that this, too, is more properly determined in the context of the study phase and second, that while access may be guaranteed, no one has a right to demand specific routing across Federal land, and, thus, future use of the river is not an unfettered right of appellant.

With regard to the visual impact of the Anderson Mine on the adjacent land, we feel that appellant's submissions, which BLM reviewed prior to the decision here appealed, are insufficient to overcome the great weight which we should accord opinions of BLM officials which are premised by visual inspection in addition to photographic review. It is not enough to show an arguable difference of opinion. Richard J. Leumont, supra. An appellant seeking reversal of a decision to include or exclude land from a WSA must show that the decision below was premised either on a clear error of law or a demonstrable error of fact. This was not done in the instant case. Accordingly, it was error for us to reverse the decision of the Arizona State Director.

This does not mean, however, that the concerns of the appellant were groundless. We do not so find them. Indeed, we expect the study phase to examine rigorously the impacts generated by the present existence of the Anderson Mine, or any future mining activity on lands within the WSA. It is because we feel that these impacts are best examined in the context of the study phase, that we have set aside our prior decision and affirmed the inclusion of the subject land into the WSA. 4/

4/ To the extent that the new aliquot description may actually impinge areas presently within appellant's mining and mill site claims, we note that there is one simple solution available to appellant. Should appellant obtain patent to those claims they would no longer be public lands within the meaning of BLM's wilderness program, and thus not subject to any of the interim guideline rules. We do not, of course, express any opinion as to the validity of the claims or the propriety of patent issuance herein.

its activities "is presently suspended pending engineering changes and because of the depressed market for uranium ores." Rather than being premised on a view that the mine was ongoing and thereby aurally and visually affecting the adjacent WSA areas, as a present fact, the decision was premised on what was then seen as the likely result of future activities. It is here, however, that, on reconsideration, we believe error was committed.

We think it is of particular importance that the distinctions between the nature and aims of the inventory phase, vis-a-vis the study phase, be kept clearly in mind. As the WIH notes, wilderness review involves three distinct phases: (1) inventory, (2) study, and (3) reporting. The inventory phase was designed to determine and demarcate those areas of the public lands which were possessed of the wilderness criteria established by Congress. Upon the determination that such characteristics were presently existent (or could, in certain circumstances be developed by natural forces or manual means), the areas were to be designated as WSA's, which would then be studied for possible inclusion in the wilderness system.

During this study phase, BLM would endeavor to analyze each WSA's suitability for wilderness designation in conjunction with the whole range of other public land uses that Congress has authorized. Thus, the mineral potential of any tract would be examined in the study phase to determine the impact that a permanent wilderness designation might have on such values. Moreover, this analysis is not limited to only mineral values, but embraces the full range of public uses, including grazing and recreational use, with an aim to determining the relative merits of a specific parcel's inclusion in the wilderness system. Indeed, the entire purpose of the study phase is the generation of data sufficient to make informed choices between competing claims to the land.

We feel, in retrospect, that our initial decision in the instant case misapplied these concepts. The extent that ongoing mining activities are impinging upon adjacent areas so as to deprive them of wilderness characteristics is properly the subject of determination during the inventory process. The extent, however, that future mining activities might adversely affect adjacent areas is properly a matter for analysis during the study phase.

[2] Then, too, with respect to existing intrusions, such as the visual impact of the open pit mine and the effect of the monitoring stations, we feel that our decision failed to give sufficient weight to the initial findings of BLM. It is, of course, axiomatic that "considerable deference" is not tantamount to "absolute deference." Yet, the findings of BLM with respect to the wilderness character of adjacent lands was premised on expressed provisions of the WIH, which noted that water quality and quantity measuring devices and air quality monitoring devices were allowable within WSA's in certain circumstances. (WIH at 12-13.) Moreover, these sites are of post-FLPMA origin, and in section 603(c) of FLPMA, 43 U.S.C. § 1782(c) (1976), the Secretary was

the existing boundary of WSA unit AZ-020-059 (Arrastra Mountains) includes within it lands not suitable for designation as wilderness, and it will now be incumbent upon BLM to establish a boundary for this WSA which abates the defects of the existing proposal.

56 IBLA at 209.

Following the rendition of this Board's decision, the Office of the Solicitor moved for reconsideration or clarification of the decision. In essence, it argued that the Board's decision was premised on factual and legal errors which fatally flawed the conclusion reached. In the event that reconsideration was denied, the Board was requested to "draw the line" itself, rather than remand the case files to BLM for that action. Union Oil filed a brief in opposition to these various requests.

Because of the importance of some of the questions presented, the petition was considered en banc. It was determined both that reconsideration was warranted and that, for reasons which we will set forth infra, the original decision should be vacated and the decision of the State Director affirmed.

[1] In its petition for reconsideration, the Solicitor's Office argued that the Board was factually mistaken in that it had assumed that there was a large ongoing mining operation occurring at the Anderson Mine. <sup>3/</sup> The Solicitor's Office pointed out that such was not the case, and that, inasmuch as this misperception served as an essential predicate of the Board's decision, the decision must fall.

The panel, however, was well aware of the fact that the mine was not presently operative. Indeed, in its statement of reasons for appeal, Union Oil had admitted as much, stating that the licensing of

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<sup>3/</sup> We do wish to note that an errant phrase in the Board's original decision apparently gave rise to a misapprehension on the part of the Solicitor's Office. The Board's decision had stated that "[a]ppellant has provided us with several detailed maps and photographs." The Solicitor's Office interpreted this as meaning that Union Oil had submitted these maps and photographs with its appeal. Since the Solicitor's Office had not received a copy of such a filing, it moved to dismiss the appeal for failure to adequately serve the Office of the Solicitor as required by 43 CFR 4.413.

The maps and photographs to which the Board was referring, however, were part of the exhibits filed with BLM in Union Oil's protest. Thus, they were part of the case record properly before the Board. While it is regrettable that a misinterpretation may have resulted from the Board's language, this misinterpretation cannot, of course, serve as a basis for dismissing Union Oil's appeal.

with its protest, as indicative of the visual impact. <sup>2/</sup> Thus, Union Oil argued that the perimeter of the proposed WSA near and adjacent to its mining properties lacked naturalness, a precondition for inclusion in a WSA.

Finally, appellant objected to the boundary adjustment made in response to its protest which changed the description to one of aliquot parts and actually increased the area of the WSA in potential conflict with its activities. Union Oil argued that this move created a direct conflict with areas proposed for waste dumps and tailing ponds.

In its decision of July 22, 1981, the panel noted the traditional deference with which this Board has approached decisions which have their basis in the technical expertise of Departmental officers. See, e.g., Richard J. Leumont, 54 IBLA 242, 245, 88 I.D. (1981);<sup>b</sup> Save the Glades Committee, 54 IBLA 215 (1981);<sup>c</sup> cf. Jerry D. Reynolds, 54 IBLA 300 (1981).<sup>d</sup> However, the decision then went on to note:

Appellant has provided us with several detailed maps and photographs showing the areas affected by the open-pit mine and its incidental operations, and we are convinced that appellant's mining operations will invade, visually and aurally, the proposed WSA to such an extent as to disqualify it as "wilderness" as that term is described in the controlling Wilderness Act, 16 U.S.C. § 1131(c): It is not "an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain." Moreover, the mining operation represents an "imprint of man's work" which is substantially noticeable. We note also that the present detractions from the wilderness quality of the area will be exacerbated as appellant pursues its plan to expand mining operations. We hold that

<sup>2/</sup> The quoted phrase is found in Change 3 to the WIH, also referred to as OAD (Organic Act Directive) 78-61, issued July 12, 1979. Change 3 analyzed the impact of off-unit imprints on land within a unit. Thus, it stated:

"Assessing the effects of the imprints of man which occur outside a unit is generally a factor to be considered during study. Imprints of man outside the unit may be considered during inventory only in situations where the imprint is adjacent to the unit and its impact is so extremely imposing that it cannot be ignored, and if not used, reasonable application of inventory guidelines would be questioned. Imprints of man outside the unit, such as roads, highways, and agricultural activity, are not necessarily significant enough to cause their consideration in the inventory of a unit. However, even major impacts adjacent to a unit will not automatically disqualify a unit or portion of a unit."

Change 3, l.g.

b) GFS(MISC) 37(1981)

c) GFS(MISC) 36(1981)

d) GFS(MISC) 40(1981)

APPEARANCES: John C. Lacy, Esq., Tucson, Arizona, for Union Oil Co.;  
Dale D. Goble, Esq., Office of the Solicitor, U.S. Department of the  
Interior, for the Bureau of Land Management

OPINION BY ADMINISTRATIVE JUDGE BURSKI

By decision of July 22, 1981, styled Union Oil Co., 56 IBLA 206,<sup>a</sup> a panel of this Board reversed a decision of the Arizona State Office fixing final boundaries for proposed wilderness study area (WSA) AZ-020-059. 1/ The appeal, brought by Union Oil Company (Union Oil), had alleged that past and future activities at a large open pit mining site, known as the Anderson Mine, adjacent to the boundaries of the WSA, would negatively impact on certain areas within the WSA and thus deprive these areas of wilderness characteristics. Union Oil had originally protested the State Director's decision designating unit 2-59 as a WSA on this same basis, asking that the southern boundary be moved north of Santa Maria River. The State Director's decision had denied its protest.

Union Oil's appeal to this Board was based on a number of considerations. First, while recognizing that the situs of the mine was, itself, excluded from the WSA, it pointed out that a number of intrusions into the WSA, associated with the mine, existed. It specifically referenced various stations established to monitor both surface and ground water activity (a total of 13 stations) as well as a single station to monitor soil and vegetation and two for air quality. While recognizing that the Wilderness Inventory Handbook (WIH) made specific reference to the allowability of such stations within a WSA in certain circumstances, appellant argued that, in this specific case: "It is difficult to conceive of a wilderness in the shadows of an open pit mining operation with the sights and sounds that are related to the operation, and being further intruded on a regular basis by personnel employed by the mineral operation visiting monitoring sites" (Statement of Reasons at 7).

Additionally, appellant argued that inasmuch as the bed of the Santa Maria River constituted a regular means of access to the stations, that, when taken as a whole, including two access roads to the river, the river should have been treated as a road and thus excluded from the WSA.

Union Oil also argued that the visual impact of the mine was so great as to constitute "an imprint of man that is so extremely imposing that it cannot be ignored," referencing exhibits, originally provided

1/ As our original decision noted, the appeal was actually brought by Minerals Exploration Company, a wholly owned subsidiary of Union Oil Company of California.

a) GFS(MIN) 218(1981),  
GFS(MISC) 73(1981)



## United States Department of the Interior

OFFICE OF HEARINGS AND APPEALS  
INTERIOR BOARD OF LAND APPEALS  
4015 WILSON BOULEVARD  
ARLINGTON, VIRGINIA 22203

*Anderson  
memo*

UNION OIL CO.  
(ON RECONSIDERATION)

IBLA 81-454

Decided September 28, 1981

Petition for reconsideration of Board decision which set aside a decision of the Arizona State Office of the Bureau of Land Management fixing the boundaries of wilderness study area unit AZ-020-059.

Petition granted en banc; prior Board decision, 56 IBLA 206, vacated; State Office decision affirmed.

1. F.L.P.M.A.--Wilderness Study Areas--designation of--effect of mine; WILDERNESS ACT.

The extent to which ongoing activities outside of a wilderness study area are impinging upon adjacent areas inside a wilderness study area so as to deprive them of wilderness characteristics is properly the subject of determination during the inventory process of the wilderness program; the effect of future or potential activities is properly analyzed in the study phase.

2. F.L.P.M.A.--Wilderness Study Area--designation of--effect of mine; PRACTICE AND PROCEDURE--Appeals--showing of error; WILDERNESS ACT.

An appellant seeking reversal of a decision to include or exclude land from a wilderness study area must show that the decision appealed was premised either on a clear error of law or a demonstrable error of fact.

INDEX CODE:  
43 CFR 4.413

## OPINION BY ADMINISTRATIVE JUDGE HENRIQUES

This appeal is taken from a decision of the Arizona State Office of the Bureau of Land Management (BLM) declaring the final boundaries of a wilderness study area (WSA), unit AZ-020-059 (Arrastra Mountains).

The appellant is Union Oil Company of California whose wholly owned subsidiary, Minerals Exploration Company, owns the Anderson Mine located about 35 miles to the northwest of Wickenburg, Arizona. This open-pit uranium ore mine was originally discovered in 1955 and purchased by appellant in 1975. In 1976 appellant announced the discovery of a uranium orebody in secs. 9-16, T. 11 N., R. 10 W., Gila and Salt River meridian, Yavapai County, Arizona, which is to be developed from Anderson Mine. Appellant has completed most of the steps necessary for the permitting of the mining development, and has initiated the process leading to patent of this land.

On October 21, 1976, Congress passed the Federal Land Policy and Management Act (FLPMA) charging BLM with the responsibility of inventorying all BLM managed lands, their resources and other values. <sup>1/</sup> Under section 603(a) of FLPMA <sup>2/</sup> the Secretary of the Interior (through his delegate, BLM) is directed to identify tracts of public land, generally of 5,000 or more roadless acres, <sup>3/</sup> which may properly be characterized as wilderness; the term "wilderness" is to receive its meaning from the Wilderness Act of September 3, 1964. <sup>4/</sup> If there are sufficient indicia that an identified tract of land has wilderness characteristics, it is designated as a WSA and receives closer study by BLM to determine its suitability as a permanent wilderness area. These studies culminate in recommendations by the Secretary to the President as to whether or not such tracts should be preserved as wilderness. The President will then report his recommendations to Congress, which will make the final determinations.

Pursuant to this statutory authority, BLM designated unit AZ-020-059 as a WSA. <sup>5/</sup> Because of objections made by appellant, the boundary lines of this WSA have been changed by BLM twice, with each change still leaving appellant's concerns unresolved. Appellant argues that the WSA would include portions of waste dumps and tailings areas of the mine's proposed site plan. Appellant also contends that

<sup>1/</sup> 43 U.S.C. § 1711(a) (1976).

<sup>2/</sup> 43 U.S.C. § 1782(a) (1976).

<sup>3/</sup> The Secretary is also required to review "roadless islands of the public lands" in the same manner as the 5,000-acre areas. 43 U.S.C. § 1782(a) (1976). BLM's Wilderness Inventory Handbook also calls for the inclusion of areas of less than 5,000 acres if the tracts are of sufficient size to make their preservation practicable.

<sup>4/</sup> 16 U.S.C. § 1131(c) (1976).

<sup>5/</sup> This decision was announced by the Arizona State Director by publication in 43 FR 67780 (Oct. 14, 1980).

Several areas within the WSA from which current mining is extremely imposing it cannot be ignored," and that this is a factor for a wilderness designation.

3

As stated above, the controlling factors in determining wilderness designations are found in the Wilderness Act, 16 U.S.C. § 1131(c) which states:

A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this chapter an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

BLM has instructed its personnel that "[i]mprints of man outside the unit may be considered during inventory only in situations where the imprint is adjacent to the unit and its impact is so extremely imposing that it cannot be ignored \* \* \*." Organic Act Directive No. 78-61, Change 3, at 4 (July 12, 1979). In support of its contention that its "imprints" "cannot be ignored," appellant has recited several necessary incidents of its mining operations which appellant asserts are sufficiently intrusive as to render the area nonwilderness. For example, appellant has established several monitoring stations throughout the area in order to prevent possible contamination of surface and ground waters, soil and vegetation, and air quality. In addition to these stations, many of which are within the subsequently designated WSA, the more centralized open-pit mining operations, located for the most part outside of the proposed WSA, assertedly constitute a constant source of visual and auditory intrusion that will preclude the possibility of any wilderness experience in the area.

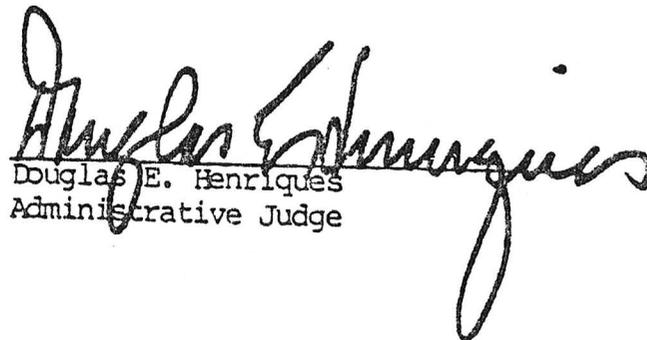
In its statement of reasons for appeal, appellant requests this Board to require BLM to modify the boundaries of the WSA to exclude those portions of the unit where the Anderson Mine constitutes a visual impact. Appellant suggests that this be accomplished by eliminating (1) the area of unit AZ-020-059 to the east of the east boundary of sec. 5, T. 11 N., R. 10 W., and sec. 32, T. 12 N., R. 10 W., and (2) the area south of the Santa Maria River not otherwise eliminated by suggestion (1).

The Office of the Solicitor of the Department of the Interior, which is representing BLM in this matter, has made several plausible arguments in support of BLM's position, but the strongest and most fundamental of these arguments assert that appellant has failed to meet its burden on appeal. The Solicitor notes that this Board has recently stated that "[c]onsiderable deference must be accorded the conclusions reached by such a process [of a thorough field investigation performed by BLM specialists] notwithstanding that such conclusions might reach a result over which reasonable men could differ." Richard J. Leumont, 54 IBLA 242, 245 (1981).<sup>a</sup> Also cited in this connection is Sierra Club, 53 IBLA 159 (1981).<sup>b</sup>

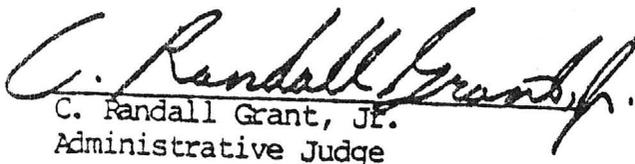
[1] The Solicitor has correctly stated the appropriate standard of review for this case, but we emphasize that "considerable deference" is not tantamount to absolute deference. Where an appellant can specifically and convincingly "show that there is sufficient reason to change the result," Save the Glades Committee, 54 IBLA 215, 220 (1981),<sup>c</sup> we must resolve the issue in his favor. Appellant has provided us with several detailed maps and photographs showing the areas affected by the open-pit mine and its incidental operations, and we are convinced that appellant's mining operations will invade, visually and aurally, the proposed WSA to such an extent as to disqualify it as "wilderness" as that term is described in the controlling Wilderness Act, 16 U.S.C. § 1131(c): It is not "an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain." Moreover, the mining operation represents an "imprint of man's work" which is substantially noticeable. We note also that the present detractions from the wilderness quality of the area will be exacerbated as appellant pursues its plan to expand mining operations. We hold that the existing boundary of WSA unit AZ-020-059 (Arrastra Mountains) includes within it lands not suitable for designation as wilderness, and it will now be incumbent upon BLM to establish a boundary for this WSA which abates the defects of the existing proposal. In this regard, appellant's suggested modification of the boundaries might profitably be considered.

Accordingly, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 CFR 4.1, the decision appealed from is set aside and the case is remanded for action consistent with this opinion.

- a) GFS(MISC) 37(1981)
- b) GFS(MISC) 26(1981)
- c) GFS(MISC) 36(1981)

  
Douglas E. Henriques  
Administrative Judge

I concur:

  
C. Randall Grant, Jr.  
Administrative Judge

The Office of the Solicitor of the Department of the Interior, which is representing BLM in this matter, has made several plausible arguments in support of BLM's position, but the strongest and most fundamental of these arguments asserts that appellant has failed to meet its burden on appeal. The Solicitor notes that this Board has recently stated that "[c]onsiderable deference must be accorded the conclusions reached by such a process [of a thorough field investigation performed by BLM specialists] notwithstanding that such conclusions might reach a result over which reasonable men could differ." Richard J. Leumont, 54 IBLA 242, 245 (1981).<sup>a</sup> Also cited in this connection is Sierra Club, 53 IBLA 159 (1981).<sup>b</sup>

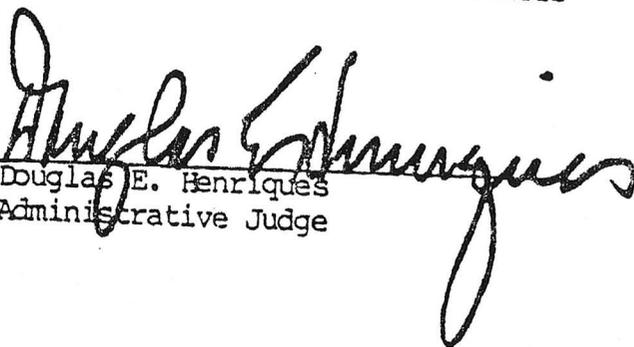
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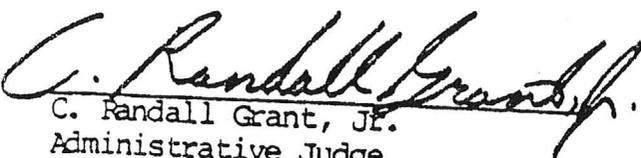
a) GFS(MISC) 37(1981)

b) GFS(MISC) 26(1981)

c) GFS(MISC) 36(1981)

  
Douglas E. Henriques  
Administrative Judge

I concur:

  
C. Randall Grant, Jr.  
Administrative Judge

Therefore, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 CFR 4.1, the petition for reconsideration is granted, the decision of the Board, reported at 56 IBLA 206, is vacated, and the decision of the State Director is affirmed.

*James L. Burski*

James L. Burski  
Administrative Judge

We concur:

*Gail M. Frazier*

Gail M. Frazier  
Administrative Judge

*Bruce R. Harris*

Bruce R. Harris  
Administrative Judge

*Anne Poindexter Lewis*

Anne Poindexter Lewis  
Administrative Judge

*Edward W. Stuebeling*

Edward W. Stuebeling  
Administrative Judge

affirmatively required to manage the lands pending ultimate determination of suitability, so as not to impair such suitability. Clearly, a finding that these lands were not suitable for wilderness designation based on these monitoring sites would be implicit recognition that the Department had failed of its obligations. Such a finding must have a clear and convincing basis in fact--a basis which is not manifest in the present record.

Similarly, to the extent that Union Oil's argument concerning the Santa Maria River was premised on utilization of these monitoring sites, it must also be rejected. Insofar as appellant relies on any future right of access to the claims we would note first, that this, too, is more properly determined in the context of the study phase and second, that while access may be guaranteed, no one has a right to demand specific routing across Federal land, and, thus, future use of the river is not an unfettered right of appellant.

With regard to the visual impact of the Anderson Mine on the adjacent land, we feel that appellant's submissions, which BLM reviewed prior to the decision here appealed, are insufficient to overcome the great weight which we should accord opinions of BLM officials which are premised by visual inspection in addition to photographic review. It is not enough to show an arguable difference of opinion. Richard J. Leumont, supra. An appellant seeking reversal of a decision to include or exclude land from a WSA must show that the decision below was premised either on a clear error of law or a demonstrable error of fact. This was not done in the instant case. Accordingly, it was error for us to reverse the decision of the Arizona State Director.

This does not mean, however, that the concerns of the appellant were groundless. We do not so find them. Indeed, we expect the study phase to examine rigorously the impacts generated by the present existence of the Anderson Mine, or any future mining activity on lands within the WSA. It is because we feel that these impacts are best examined in the context of the study phase, that we have set aside our prior decision and affirmed the inclusion of the subject land into the WSA. 4/

4/ To the extent that the new aliquot description may actually impinge areas presently within appellant's mining and mill site claims, we note that there is one simple solution available to appellant. Should appellant obtain patent to those claims they would no longer be public lands within the meaning of BLM's wilderness program, and thus not subject to any of the interim guideline rules. We do not, of course, express any opinion as to the validity of the claims or the propriety of patent issuance herein.

the existing boundary of WSA unit AZ-020-059 (Arrastra Mountains) includes within it lands not suitable for designation as wilderness, and it will now be incumbent upon BLM to establish a boundary for this WSA which abates the defects of the existing proposal.

56 IBLA at 209.

Following the rendition of this Board's decision, the Office of the Solicitor moved for reconsideration or clarification of the decision. In essence, it argued that the Board's decision was premised on factual and legal errors which fatally flawed the conclusion reached. In the event that reconsideration was denied, the Board was requested to "draw the line" itself, rather than remand the case files to BLM for that action. Union Oil filed a brief in opposition to these various requests.

Because of the importance of some of the questions presented, the petition was considered en banc. It was determined both that reconsideration was warranted and that, for reasons which we will set forth infra, the original decision should be vacated and the decision of the State Director affirmed.

[1] In its petition for reconsideration, the Solicitor's Office argued that the Board was factually mistaken in that it had assumed that there was a large ongoing mining operation occurring at the Anderson Mine. <sup>3/</sup> The Solicitor's Office pointed out that such was not the case, and that, inasmuch as this misperception served as an essential predicate of the Board's decision, the decision must fall.

The panel, however, was well aware of the fact that the mine was not presently operative. Indeed, in its statement of reasons for appeal, Union Oil had admitted as much, stating that the licensing of

<sup>3/</sup> We do wish to note that an errant phrase in the Board's original decision apparently gave rise to a misapprehension on the part of the Solicitor's Office. The Board's decision had stated that "[a]ppellant has provided us with several detailed maps and photographs." The Solicitor's Office interpreted this as meaning that Union Oil had submitted these maps and photographs with its appeal. Since the Solicitor's Office had not received a copy of such a filing, it moved to dismiss the appeal for failure to adequately serve the Office of the Solicitor as required by 43 CFR 4.413.

The maps and photographs to which the Board was referring, however, were part of the exhibits filed with BLM in Union Oil's protest. Thus, they were part of the case record properly before the Board. While it is regrettable that a misinterpretation may have resulted from the Board's language, this misinterpretation cannot, of course, serve as a basis for dismissing Union Oil's appeal.

APPEARANCES: John C. Lacy, Esq., Tucson, Arizona, for Union Oil Co.; Dale D. Goble, Esq., Office of the Solicitor, U.S. Department of the Interior, for the Bureau of Land Management

OPINION BY ADMINISTRATIVE JUDGE BURSKE

By decision of July 22, 1981, styled Union Oil Co., 56 IBLA 206,<sup>a</sup> a panel of this Board reversed a decision of the Arizona State Office fixing final boundaries for proposed wilderness study area (WSA) AZ-020-059. <sup>1/</sup> The appeal, brought by Union Oil Company (Union Oil), had alleged that past and future activities at a large open pit mining site, known as the Anderson Mine, adjacent to the boundaries of the WSA, would negatively impact on certain areas within the WSA and thus deprive these areas of wilderness characteristics. Union Oil had originally protested the State Director's decision designating unit 2-59 as a WSA on this same basis, asking that the southern boundary be moved north of Santa Maria River. The State Director's decision had denied its protest.

Union Oil's appeal to this Board was based on a number of considerations. First, while recognizing that the situs of the mine was, itself, excluded from the WSA, it pointed out that a number of intrusions into the WSA, associated with the mine, existed. It specifically referenced various stations established to monitor both surface and ground water activity (a total of 13 stations) as well as a single station to monitor soil and vegetation and two for air quality. While recognizing that the Wilderness Inventory Handbook (WIH) made specific reference to the allowability of such stations within a WSA in certain circumstances, appellant argued that, in this specific case: "It is difficult to conceive of a wilderness in the shadows of an open pit mining operation with the sights and sounds that are related to the operation, and being further intruded on a regular basis by personnel employed by the mineral operation visiting monitoring sites" (Statement of Reasons at 7).

Additionally, appellant argued that inasmuch as the bed of the Santa Maria River constituted a regular means of access to the stations, that, when taken as a whole, including two access roads to the river, the river should have been treated as a road and thus excluded from the WSA.

Union Oil also argued that the visual impact of the mine was so great as to constitute "an imprint of man that is so extremely imposing that it cannot be ignored," referencing exhibits, originally provided

<sup>1/</sup> As our original decision noted, the appeal was actually brought by Minerals Exploration Company, a wholly owned subsidiary of Union Oil Company of California.

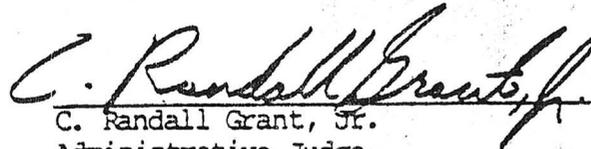
a) GFS(MIN) 218(1981),  
GFS(MISC) 73(1981)

## ADMINISTRATIVE JUDGE GRANT CONCURRING:

Although I was originally convinced that the boundary of the wilderness study area improperly included certain land not possessing wilderness characteristics, I am persuaded on reconsideration that my colleagues are correct that the impacts which I initially perceived to be disqualifying are not of such a nature at the present time. Because they are essentially potential future impacts as opposed to present impacts, these potential impacts may be appropriately considered during the wilderness study phase.

The most critical conflict in this case, in my view, is that between the wilderness study area boundary and appellant's millsite claims associated with the mine. To the extent that these claims have not been contested, are not clearly spurious, and are associated with a mining operation which has undergone significant development, my opinion was that the subject land did not qualify as wilderness. I now believe that a distinction is properly drawn between present and future development and that such legal claims, to the extent there is no present activity or development thereon do not bar wilderness consideration of the subject land even though there are plans for future development of the tract. I am persuaded that the wilderness inventory process requires a decision based on the present state of the tract in question in terms of whether there is any development thereon or adjacent thereto which would preclude consideration of the tract as wilderness.

The significance which I attributed to the presence within the wilderness study area of the monitoring sites was not that the sites themselves represented disqualifying intrusions, but rather that they indicated the scope of magnitude of the anticipated impact of the mining operation. Once this distinction between present impact and potential development is made, the sites lose their significance. The visual impact of the mine pit located outside the wilderness study area when considered alone as a factor becomes less compelling and I cannot find error in reserving a determination of suitability to the wilderness study phase of consideration.

  
C. Randall Grant, Jr.  
Administrative Judge

This route would require the construction of a substantial bridge structure in crossing the Date Creek drainage, which would involve greater impacts in sensitive soils and on soil erosion than on Route A.

C. Route C

Impact to wildlife values along Route C are comparable to those anticipated along Route B with the additional temporary disruption of certain wildlife waters in the Pipeline Allotment.

Construction on Route C would take place over the greatest distance (20.5 miles) and would involve the greatest amount of surface disturbance, by far the greatest amount of construction where roads do not now exist (15.0 miles), and the greatest amount of material excavated and used for construction purposes.

Development of Route C would have a high impact on the Pipeline Allotment through disruption of the successful Allotment Management Plan. Although this impact would be slightly less severe than that imposed by Route B, it would still require complex mitigation to restore its former level of effectiveness. Three other allotments would also be adversely affected by this route.

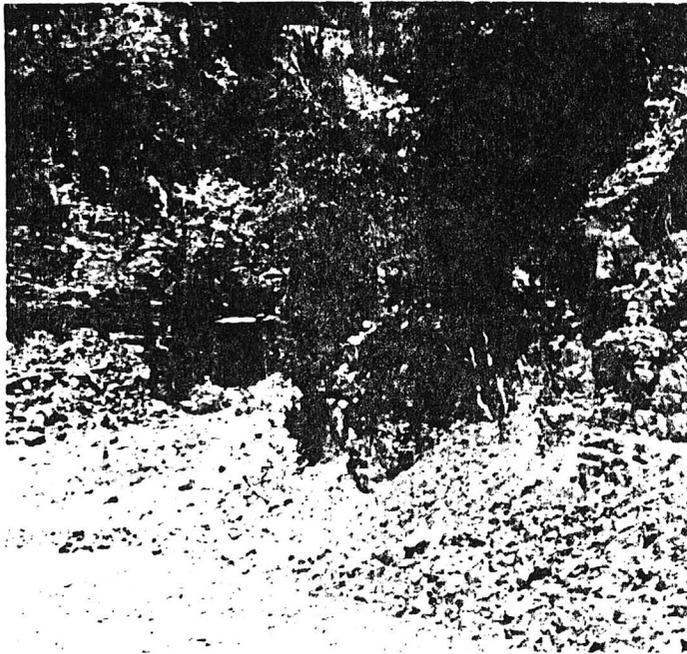
Some users of Alamo State Park would benefit from the development of this route inasmuch as 7 miles of the Alamo Road would be paved. An additional 28 miles would still remain in a graded dirt condition, however.

Route C would also involve the construction of a major Bridge structure in order to cross the Date Creek drainage. Impacts would be high on soils and soil erosion in this vicinity due to the extensive cut and fill operations through the rough terrain and the sensitive nature of the soils.

D. General

Impacts to cultural resources, social welfare, air quality, water quality, and general land use are roughly equivalent on each of the routes. All three alternatives would encourage increased human activity within the study area and would impact current land uses. They would satisfy the needs of the mining interests for employee access and a safe, efficient transportation corridor, although construction and maintenance costs would differ significantly in direct proportion to the length of the road.

No one route appears to be totally unacceptable from an environmental standpoint. Although none of the routes stand clearly above the others in terms of overall environmental suitability, the severe impacts on the Pipeline Allotment Management Plan with the accompanying difficult mitigation stand out for Route B and to a lesser extent for Route C. The Date Creek crossings also pose a concern. The greater value of existing wildlife habitat and related impacts stand out on Route A.



Adits in the Little Joe-Workman mine areas of the Sierra Anchas of Gila County. Uranium is contained in the late Precambrian Dripping Spring Quartzite. This area is continuing as an exploration target in the 1980s. Photo by R. Scarborough.

1959 on, ore was hoisted through a crosscut and 1,600 foot shaft directly to the canyon rim. Most ore was trucked to the Rare Metals Mill in Tuba City.

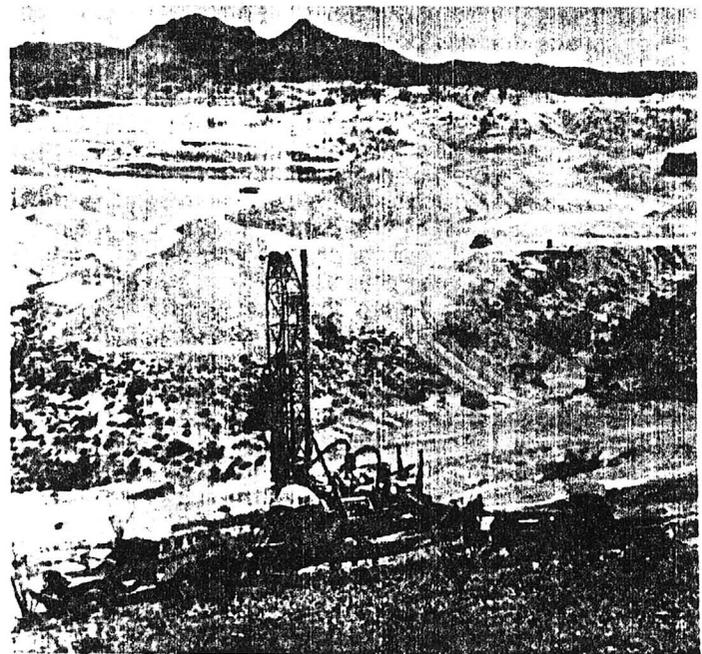
More than 60 exotic minerals have been identified at the Orphan mine. Detailed analyses indicate primary ore deposition at temperatures of 60° to 110° C, with uranium-lead age dates suggesting a Jurassic age of ore deposition. Interestingly, this very nearly coincides with the age of the Morrison Formation sedimentation in the Four Corners region to the east.

#### Other Arizona Production

Between 10,000 and 20,000 tons of uranium ore have been shipped from each of three other sources in Arizona: The Cretaceous Toreva Formation on the eastern extent of Black Mesa; the Precambrian Dripping Spring Quartzite of the Sierra Ancha of Gila County; and scattered shipments from 11 different sources in the Basin and Range portion of the state. The Toreva Formation and Dripping Spring Quartzite ores are both interpreted as stratabound deposits (Chenoweth and Malan, 1973; Williams, 1957). The two largest southern Basin and Range sources (both in the 1950s) have been the Anderson mine of Yavapai County (consisting of Miocene carbonaceous and siliceous sediments) and the Duranium mine of Santa Cruz County (a shear zone in Cretaceous quartzites).

#### RECENT TRENDS IN URANIUM INDUSTRY

The 1970s has been a decade of increased exploration and mining of uranium on a national scale. During this ten-year period, average production figures (DOE open file report 100(80)) for New Mexico were 6,200 tons of  $U_3O_8$  concentrate *per year*, 4,400 tons *per year* for Wyoming, and 4,300 tons *per year* for all other states combined (Colorado, Utah, Washington and Texas). Viewed in comparison with these figures, the total *cumulative* Arizona uranium output to date is 9,164 tons of  $U_3O_8$ , or 2.82% of the U.S. cumulative total production for 324,900 tons of  $U_3O_8$  as of January 1, 1980. Nationally, 1979 drilling footage for uranium was distributed geographically as follows: 35% in Wyoming basins, 33% on the Colorado Plateau, 20% in west Gulf Coast plains, about 2.5% in the Basin and Range Province, and about 10% in all other areas.



Mining and drilling in 1958 at the Anderson mine of Yavapai County. Renewed drilling in the 1970s outlined a large low-grade uranium orebody nearby which now awaits favorable economic conditions for further development. Photo by W. Chenoweth, Dept. of Energy.

#### RECENT ACTIVITY IN ARIZONA

Although Arizona has only produced moderate amounts of uranium in the past, considerable exploration efforts have been expended in the state during the last decade, particularly in reference to breccia pipe and Cenozoic sedimentary targets. Recent trends of exploration drilling in Arizona are illustrated in Table 2. Land held for exploration and development by companies and individuals in Arizona was at an all-time high at about 1.7 million acres, as of January 1, 1980, up 30% over the January 1979 holdings. Drilling in the first half of 1980 was down about 50% from the same time in 1979, probably related at least in part to nuclear reactor cancellations following the Three Mile Island incident. The drilling peak in 1976 was centered around renewed interest in the Miocene sediments of the Date Creek basin of Yavapai and Yuma Counties. During this surge, Minerals Exploration and Urangeshel-shaft drilled out low-grade ore reserves in excess of 30 million pounds of  $U_3O_8$  in the shallow subsurface near the Old Anderson mine (*Fieldnotes*, v. 9, n. 3, p. 15). Announcements in 1977 of new mining and milling plans were temporarily canceled in mid-1980 because of financial considerations. However, considerable interest remains in the Date Creek basin area and many other Cenozoic sedimentary deposits (see Otton, 1977; Scarborough and Wilt, 1979).

TABLE 2

EXPLORATION DRILLING FOR URANIUM IN ARIZONA, 1970-1980

Calendar Year	Number of Holes	Footage
1970	14	3,500
1971	24	2,200
1972	37	6,000
1973	50	8,700
1974	127	52,000
1975	1,165	176,200
1976	1,465	544,700
1977	1,035	500,400
1978	1,372	688,300
1979	663	378,400
1980*	98	64,300

\*First six (6) months only

Source: W. Chenoweth, DOE, Grand Junction

## CHIEF ADMINISTRATIVE JUDGE PARRETTE CONCURRING:

Both briefs in this case are excellent, and I recognize the merit in the Solicitor's arguments that (1) a determination whether the sights and sounds of appellant's mining operation are so extremely imposing that they cannot be ignored necessarily involves a judgment on which people may disagree, and that (2) the effect of the mine ordinarily ought to be left to the study phase.

In my view, however, in its obvious desire to include the Santa Maria River within the boundaries of the wilderness study area, BLM has failed to take sufficiently into consideration what effect upon the apparently primeval character of the river basin a full resumption of appellant's mining operations might entail. Appellant argues, for example, that Minerals Exploration Company also owns the Palmarita Ranch and that one means of access from the ranch to the mine is along the bed of the Santa Maria River. Further, it argues that the resources of the ranch, including water, may be used in conjunction with the ultimate mine operation. Thus, appellant's potential use of the river appears to exceed mere access to its "minor" monitoring devices.

Moreover, appellant's map No. 1, appended to its brief, indicates that BLM's proposed wilderness area boundary overlaps appellant's mill-site claims boundary, as well as its proposed patent claims area, to a considerable extent. I find it questionable whether such an overlap is necessary where the proposed wilderness area consists of well over 100,000 acres, and the mining activity involved is not only substantial but goes back more than 25 years.



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Bernard V. Parrette  
Chief Administrative Judge

Economic Geology 1983

*Economic Geology*  
Vol. 78, pp. 275-292

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The Anderson Mine (Arizona)—An Early Diagenetic Uranium  
Deposit in Miocene Lake Sediments

ANDREAS MUELLER

Schlumberger Middle East S. A., P.O. Box 21, Abu Dhabi, United Arab Emirates

AND PETER HALBACH

*Sedimentary Ore Formation Research Group, Mineralogical-Petrographical Institute, Technical University of Clausthal,  
D-3392 Clausthal-Zellerfeld, Federal Republic of Germany*

Completed  
Reference List

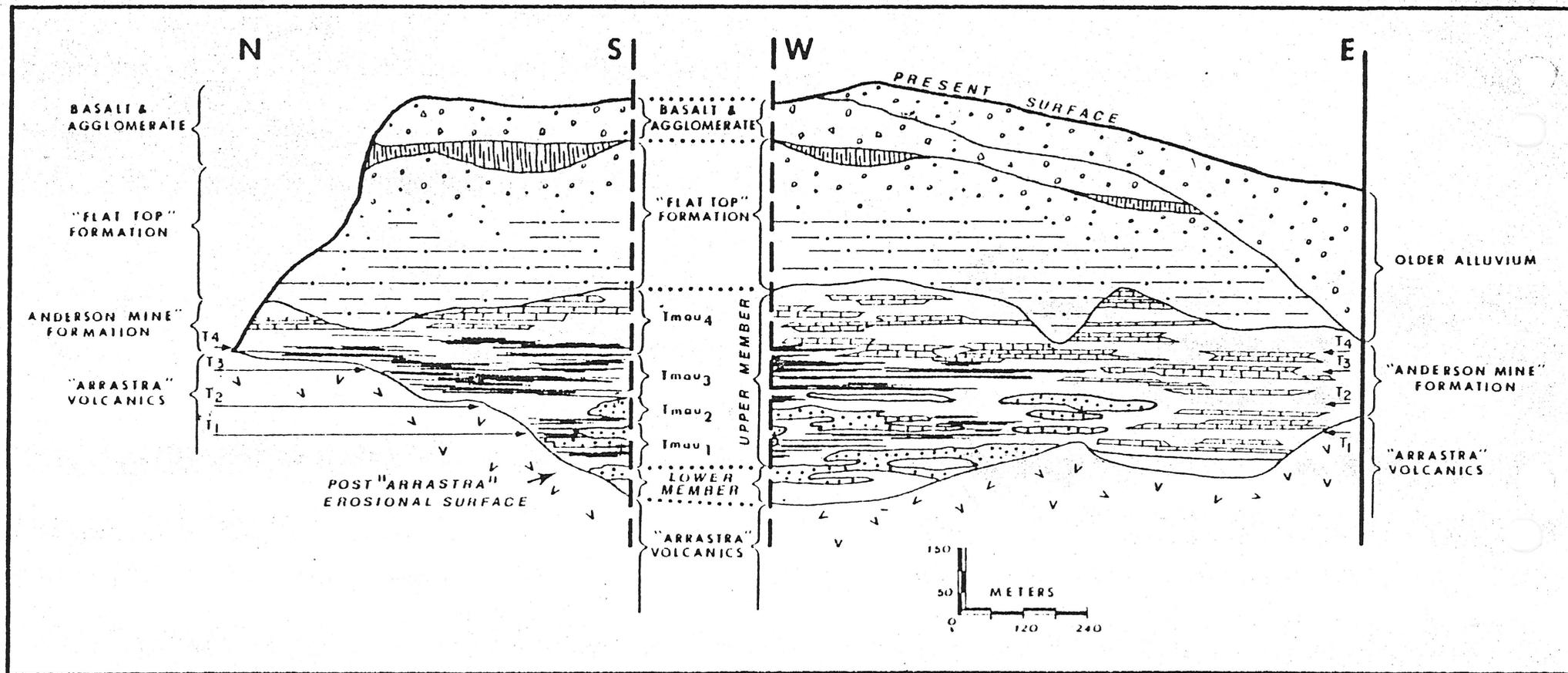


FIGURE 6

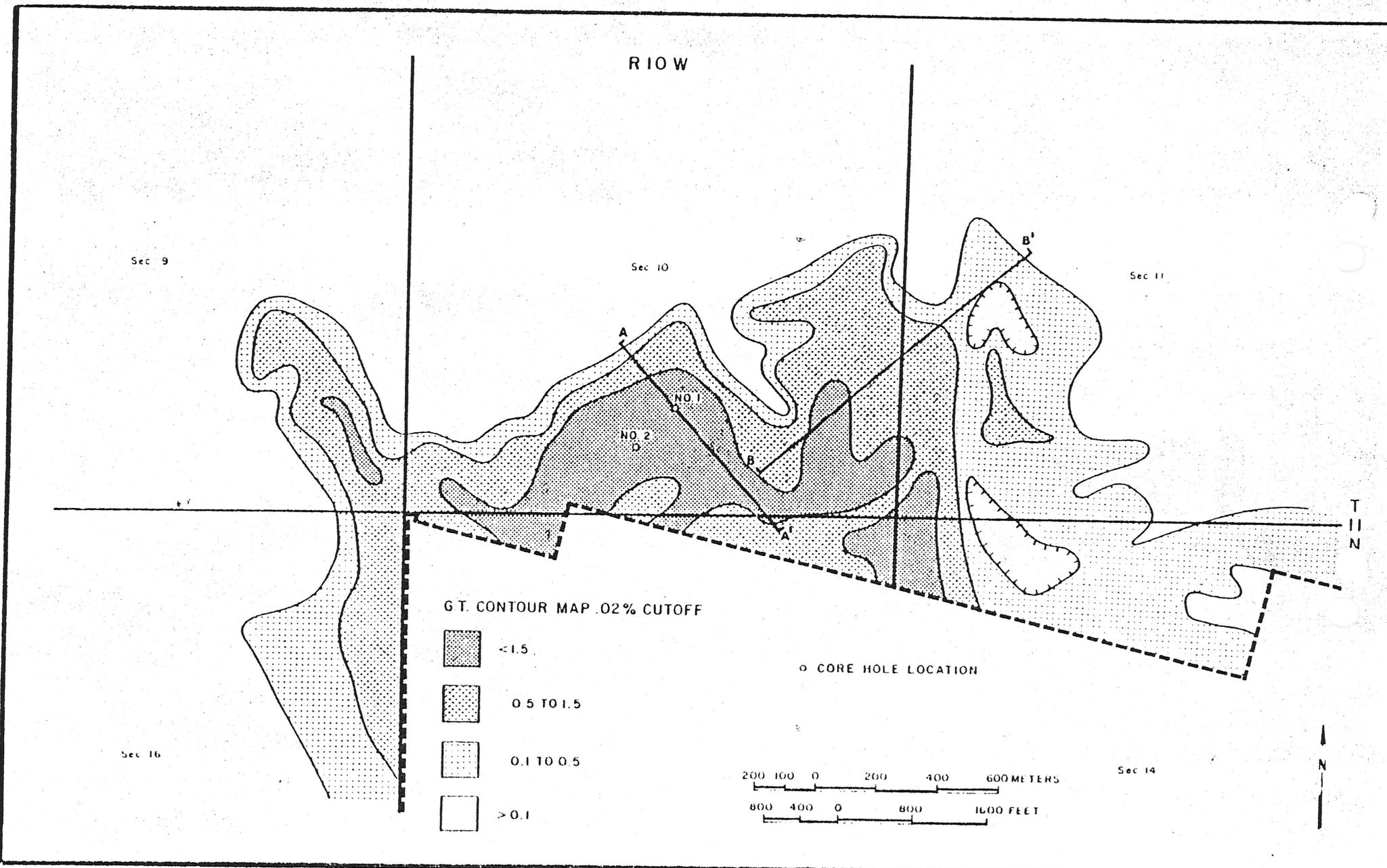


FIGURE 8



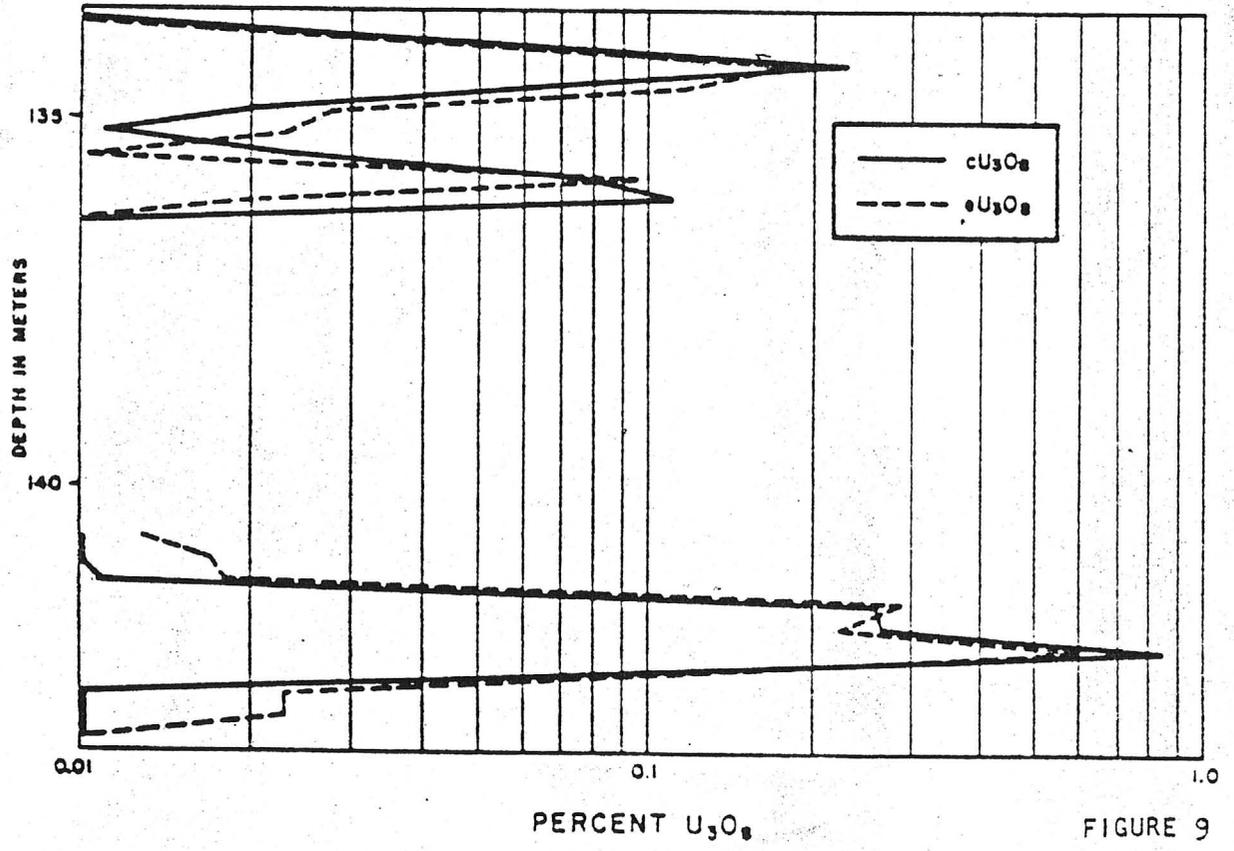
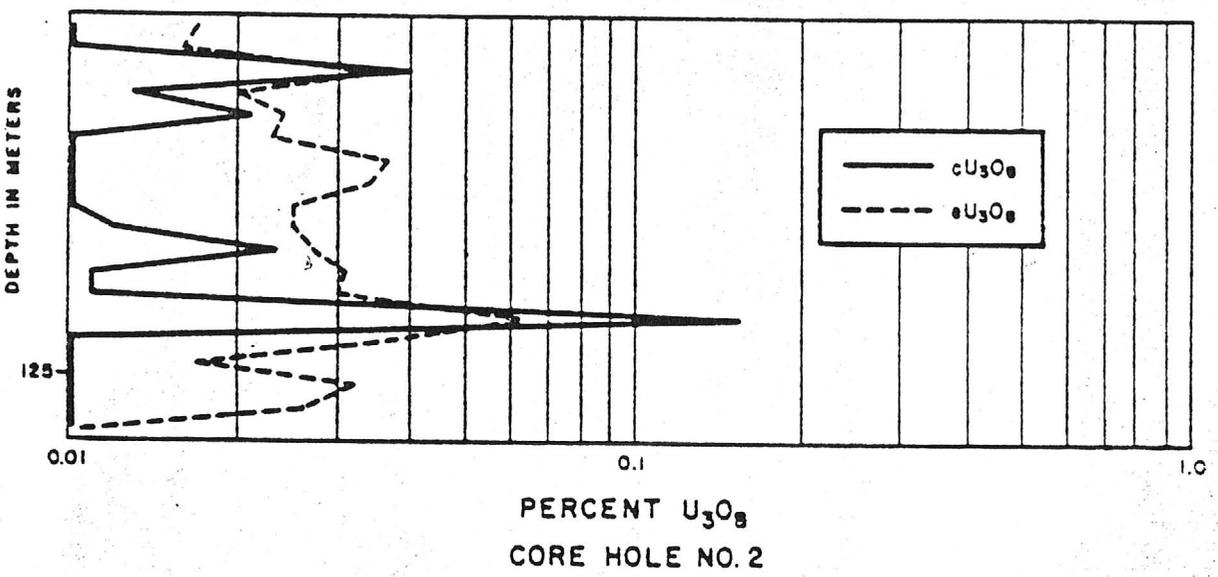
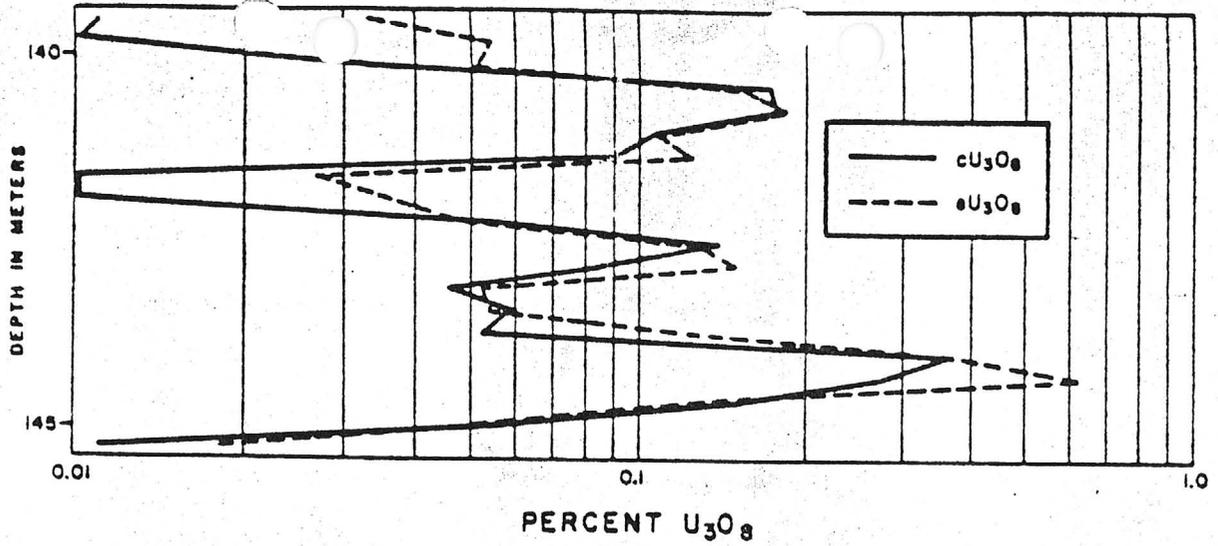


FIGURE 9

MEETING AREA - Route 93 and Alamo Road Junction.

The meeting area is slightly east of the eastern edge of the Date Creek Basin. To the northeast, across the highway are the granite gneiss' and schists of the Date Creek Mountains. To the northwest the Black Mountains composed of tertiary volcanics are apparent. To the west-southwest the Harcuvar Mountains composed of granite gneiss may be visible.

As we continue we will enter the date creek basin at approximately the first cattle guard we cross. As we continue into the basin, note the curvature of the Black Mountains (northeast) northwestward into the Poachie range. The Harcuvar Mountains are to the southwest.

The large drainage cutting the Date Creek Basin surface is Date Creek. As we come up out of Date Creek and continue west, the Artillery, Rawhide and Buckskin mountain ranges are seen on the western horizon.

STOP NO 1. ASSEMBLY.

This stop is made to let everyone catch up. We are on the approximate drainage divide between Date Creek to the south, and the Santa Maria River to the north. The lowest point on the skyline to the north-northeast is the Santa Maria River Canyon which delineates the boundry of the Black Mountains and the Poachie Range. To the north, note the onlap of the Tertiary volcanics onto and against the granitic portions of the Poachie Range. To the west note the dip of the Miocene Basalt into the Date Creek Basin as noted in the mesas along the flank of the Poachie Range. The general structural fabric of the area is northwest-southeast hinge faulting. Several major faults may be noted in the Poachie Range.

STOP No. 2

As we drive to this stop the Santa Maria River Channel will be seen to the west. We are drilling on the upper conglomeritic unit of Plio-Pleistocene age. As we approach our second stop we will drive onto a Miocene basalt. Vehicles will be parked at this point and the tour will continue on foot.

From this high vantage point on the basalt note the onlap of the lacustrine sediments on the underlying andesitic volcanics to the northeast.

Immediately beneath the basalt is the lower conglomerate which overlies the lacustrine sediments. To the northwest across the river note the pyramid-like peak. The lower conglomerate may be seen overlying the Arrastra Volcanics and in turn capped by the basalt. No lacustrine sediments are present there between the lower conglomerate and the Arrastra Volcanics. Note the fault zone beneath us to the northwest in the Arrastra Volcanics. From here we will proceed downslope to the stop no. 3.

STOP No. 3.

At this location is one of the only out-crops of the carbonaceous material on the property. Note that the unit here is exposed only due to the bulldozer cut made for bulk sampling purposes. This is the middle carbonaceous zone which is the thickest and most continuous mineralized unit across the area. The unit thickens rapidly to the south (down dip) beneath the hill. The carnotite mineralization noted above the carbonaceous unit was not observable when the cut was made but "bloomed" two weeks later after a rain. Note the small tare zones and the close proximity of the fault zone to the north and the differences in elevation of the Arrastra volcanics.

STOP No. 4

This is the area of the old Anderson Mine. During the late 1950's, 33,230 pounds of  $U_3O_8$  were produced from this area. In this cut a resistant tuffaceous siltstone with large silicified pods overlies a green tuffaceous siltstone. Near the base of the cut is a thin slightly carbonaceous zone which carries most of the uranium. Beneath these beds are varicolored siltstones exhibiting various degrees of silicification. This will be our lunch break.

STOP No. 5.

This stop will provide a look at the volcanics, volcanoclastics and intrusives older than the lacustrine sediments and thus unmineralized. Therefore those who wish to poke around in the lake beds longer or who wish to return to the vehicles may. At Stop No. 5, we are standing on the andesitic volcanic flows which forms the drilling basement as no mineralization has been noted in or below this unit. To the east the onlap and different thicknesses of the lacustrine sediments overlying the andesite can be seen. In various outcrops in the valley to the northeast the volcanoclastic unit can be observed beneath the andesite. In general the basal portions of this unit are very tuffaceous and waterlain while the unit coarsens upwards becoming less tuffaceous and more sandy and conglomeritic. To the north and to the west are two light gray intrusive bodies. Flow structures may be noted and on close inspection can be clearly seen. Note the thick section of Tertiary volcanics northeastward in the Black Mountains and the granites to the north in the Poachie Range. This concludes the tour and we will proceed back to the vehicles. Union Oil thanks you for your participation and hopes that the tour has been enjoyable and informative for you.