

Editor's note: 81 LD. 370; Appealed – rev'd, sub nom. Shell Oil v. Kleppe, Civ. No. 74-F-739 (D. Colo. Jan. 17, 1977), 426 F.Supp. 894, aff'd, No. 77-1346 (10th Cir. Jan. 25, 1979), 591 F.2d 597, aff'd, S.Ct. No. 78-1815 (June 2, 1980) 446 U.S. 657, 100 S.Ct. 1932

UNITED STATES

v.

FRANK W. WINEGAR ET AL.

IBLA 70-549      Decided June 28, 1974

Appeal from a decision of Administrative Law Judge Dent D. Dalby, holding that five and a portion of a sixth oil shale placer mining claims are valid and can proceed to patent. (Colorado Contests 359, 360)

Reversed.

Mining Claims: Determination of Validity--Mining Claims: Discovery:  
Marketability

To satisfy the requirement of discovery of a valuable mineral deposit within the boundaries of an oil shale placer claim located prior to February 25, 1920, it must appear that at that time the mineral deposit could have been developed,

extracted, and marketed at a reasonable profit; it must also appear that such marketability has continued without substantial interruption from that time to the time of the contest proceedings. Where it has been shown that at no time would a prudent man have expended further labor or means in order to develop actual mining operations, discovery of a valuable mineral deposit has not been made, and the claims must be declared null and void.

Mining Claims: Determination of Validity—Mining Claims: Discovery:  
Marketability

In order for an oil shale deposit to be considered valuable within the meaning of the general mining law, it must appear as a present fact, as of February 25, 1920, and at all times thereafter that the deposit could be developed, extracted, and marketed at a reasonable profit. The possibility of dramatic technological breakthroughs or changes in market conditions

some future date has no bearing on value as a present fact.

Mining Claims: Determination of Validity – Mining Claims: Discovery – Rules of Practice: Evidence

What men have or have not done over a period of years is proper evidence as to the conduct of a prudent man in the same or very nearly the same circumstances.

Where oil shale claims had been held for fifty years and no commercial production was achieved on such claims, it must be concluded that no prudent man would have been justified in the belief that the mineral deposit could be developed, extracted, and marketed at a reasonable profit.

Rules of Practice: Generally

Departmental precedent will be overruled where it is shown: 1) that it is contrary to the law as interpreted by the courts and this Department, and 2) it would result

in the disposition of public lands to those not entitled to receive them.

Freeman v. Summers, 52 L.D. 201 (1927), is overruled.

APPEARANCES: Albert V. Witham, Esq., Office of the Regional Solicitor, Department of the Interior, Denver, Colorado, for appellant; Tweedy & Mosley, Denver, Colorado, and Clearly, Gottlieb, Steen & Hamilton, New York, New York, attorneys for appellees, Frank W. Winegar and Shell Oil Co.; Senior and Senior, Salt Lake City, Utah, attorneys for appellee, D. A. Shale, Inc.

OPINION BY CHIEF ADMINISTRATIVE JUDGE FRISHBERG

The United States appeals from that part of the decision by Administrative Law Judge (formerly Hearing Examiner) Dent D. Dalby dated April 17, 1970, validating placer mining claims Mountain Boy Nos. 6 and 7, and Harold Shoup Nos. 1, 2, 3 and 4. <sup>1/</sup> The basic

---

<sup>1/</sup> There were nine claims involved in the proceedings below: the Mountain Boy Nos. 1, 6, and 7, the K. C. Schuyler Nos. 2 and 3, and the Harold Shoup Nos. 1, 2, 3, and 4. The Mountain Boy No. 1, and the K. C. Schuyler Nos. 2 and 3 were declared invalid by Judge Dalby for lack of a physical finding of oil shale on the claims prior to February 25, 1920. Additionally, Judge Dalby found that 35.4 acres of the Harold Shoup No. 3 were non-mineral in character. That portion of the decision is final since no appeal was taken as to those claims.

issue presented in this appeal is whether the oil shale on the subject claims was a valuable mineral deposit as of February 25, 1920, when oil shale was withdrawn from location under the general mining law by the Mineral Leasing Act of February 25, 1920, 30 U.S.C. § 181 et seq. (1970), and, if so, whether such oil shale has continued to be a valuable mineral deposit within the meaning of the general mining law, 30 U.S.C. § 22 et seq. (1970). 2/

The Mountain Boy Nos. 6 and 7 were surveyed in 1917 in 160-acre legal subdivisions. The location certificates were recorded February 6, 1918, showing location on January 8, 1918, by the same eight locators for both of the claims. Between 1917 and the early 1950's ownership of the claims changed several times. In 1956 Frank Winegar made an agreement with Shell Oil Company that he would attempt to purchase the Mountain Boy claims and use due diligence to obtain patents thereto for Shell. Shell agreed to buy the claims after patenting for \$60 per acre and to reimburse Winegar's expenses up to \$12,800.00. Winegar obtained title to a number of Mountain Boy claims, including Nos. 6 and 7. On August 7, 1958, he filed a patent application with the Bureau of Land Management for Mountain Boy Nos.

---

2/ Section 37 of the Act, 30 U.S.C. § 193, also excepted claims on which a discovery had not been made by February 25, 1920, but on which work leading to a discovery was being diligently prosecuted on that date and was thereafter continued to a discovery. See Starks v. Mackey, 60 I.D. 309, 310 (1949). No party asserts that the claims in issue fall within this exception. Therefore, this exception will not be restated in further discussion below.

1-8. In a report of December 14, 1959, a Bureau evaluation engineer recommended that patents be issued for the Mountain Boy Nos. 1, 6 and 7. A final certificate was issued by the Bureau of Land Management on November 30, 1960, for such claims. On March 21, 1961, the final certificate was approved for patent by a Minerals Adjudicator of the Bureau. The application was sent to the Director of the Bureau of Land Management for issuance of patent. A patent was not issued. Instead, some three and one-half years later, Colorado Contest 359 was initiated. Subsequently, Shell purchased the Mountain Boy Nos. 1, 6 and 7 from Winegar in November 1964 for \$30,000.

The Harold Shoup Nos. 1, 2, 3 and 4 were located on September 29, 1917, by eight co-locators. The location certificates were recorded by October 27, 1917. S. D. Crump acquired such claims and quitclaimed them to Karl C. Schuyler, Sr., on May 24, 1923. When Schuyler died testate on July 31, 1933, the claims passed to his wife. On July 6, 1960, she incorporated D. A. Shale, Inc., under the laws of the State of Colorado, and transferred possessory title of the claims to such corporation. On September 29, 1960, the corporation filed an application for patent of these and other claims.

The instant case arose on September 8, 1964, when the Manager, Colorado Land Office, Bureau of Land Management, issued two complaints on behalf of the United States alleging the invalidity, inter alia, of

the claims herein and requesting that they be declared null and void. Both complaints charged that:

- A. Valuable minerals were not found within the limits of the Claims on or before February 25, 1920, or subsequent to February 25, 1920, as a result of diligent prosecution of work leading to a discovery on February 25, 1920, and thereafter continued, so as to constitute a valid discovery within the meaning of the mining law.
- B. If a valid discovery was made on or before February 25, 1920, or subsequent to February 25, 1920, as a result of diligent prosecution of work leading to a discovery on February 25, 1920, and thereafter continued, the discovery was subsequently lost and the lands within the claims reverted to and became a part of the vacant unappropriated public domain.
- C. Valuable minerals do not now exist within the limits of the claims so as to constitute a valid discovery within the meaning of the mining law.

On October 7, 1964, contestee D. A. Shale, Inc., filed an answer to the complaint denying the allegations. On November 9, 1964, contestee Frank W. Winegar, having obtained an extension of time in which to respond, filed an answer similarly controverting the allegations. At the same time Shell Oil Company filed a motion to intervene, alleging that it had purchased the Mountain Boy claims from Winegar. This motion was granted on November 9, 1964.

On March 9, 1967, leave was granted to the contestees to amend their answers to the complaints. The two cases were joined for hearing and decision. The hearing on the complaints was commenced

on June 20, 1967, at Denver, Colorado, and continued until October 13, 1967. A further hearing was held on November 20, 1967, at Salt Lake City, Utah.

After these adjudicatory proceedings Judge Dalby made an extensive review of the applicable mining law with respect to the evidence presented in the proceedings and concluded:

If this were a case of first impression I would, for the foregoing reasons, find that \* \* \* oil shale was not a valuable mineral deposit. (Dec. at 55).

However, because of prior departmental precedent, particularly Freeman v. Summers, 52 L.D. 201 (1927), Judge Dalby felt that he was precluded from entering such a finding; accordingly he held that five claims and a portion of a sixth were valid.

Appellant contends that there is no basis in fact or law for that holding and that prior departmental precedent with respect to oil shale is in error and should be overruled. Appellees argue that prior departmental precedent is a correct statement of both fact and law, but even if that precedent is to be overruled, such action may only be given prospective effect.

## I. The Mining Law

The general mining law provides in pertinent part that

all valuable mineral deposits in lands belonging to the United States \* \* \* shall be free and open to exploration and purchase \* \* \*. Act of May 10, 1872, as amended, 30 U.S.C. § 22 (1970). (Emphasis added).

From 1872 to 1920 oil shale was locatable under the general mining law. However, the Mineral Leasing Act of February 25, 1920, withdrew oil shale from disposition under the mining law, except as provided in Section 37 thereof, 30 U.S.C. § 193.

Since enactment of the general mining law, the courts and the Department of the Interior have consistently held that a valuable mineral deposit has been discovered where there have been found within the limits of a claim minerals of such quantity and quality that a prudent man would be justified in the expenditure of his labor and means with a reasonable prospect of success in developing a valuable mine. United States v. Coleman, 390 U.S. 599, 602 (1968); Cameron v. United States, 252 U.S. 450, 460 (1920); United States v. Iron Silver Mining Co., 128 U.S. 673, 675 (1888); United States v. Zweifel, 11 IBLA 53, 80 I.D. 323, 328-29 (1973); Oregon Basin Oil and Gas Co. (On Rehearing), 50 L.D. 253, 254 (1924); Castle v. Womble, 19 L.D. 455, 457 (1894).

Although both appellant and appellees agree with that general statement of the law, appellant contends that the facts of this case mandate the conclusion that oil shale is not now and was not in 1920 a valuable mineral deposit, while appellees assert the opposite.

The clear purpose of the law has always been to obtain the development of actual mining operations. Several years after enactment of the general mining law the Supreme Court stated:

It is the policy of the government to favor the development of mines of gold and silver and other metals, and every facility is afforded for that purpose \* \* \*.

United States v. Iron Silver Mining Co., 128 U.S. 673, 675 (1888).

Eighty years later the Court adhered to the same view:

Under the mining laws Congress has made public lands available to people for the purpose of mining valuable mineral deposits and not for other purposes.

United States v. Coleman, 390 U.S. 599, 602 (1968).

Decisions of this Department are in accord with that reasoning. We have stated several times that actual mining operations are the best evidence that a mineral deposit is valuable. See, e.g., United States v. Kosanke Sand Corp. (On Reconsideration), 12 IBLA 282, 304; 80 I.D. 538, 549 (1973); United States v. McKenzie, 4 IBLA

97, 100 (1971). It is where actual mining operations have not been initiated that the difficulty arises in determining whether a mineral deposit is valuable. While proof of actual sales of minerals from a claim is not an indispensable element in establishing their marketability, lack of development and sales may raise a presumption that the market value of the minerals found thereon was not sufficient to justify the cost of their extraction. Barrows v. Hickel, 447 F.2d 80 (9th Cir. 1971); Palmer v. Dredge Corp., 398 F.2d 791 (9th Cir. 1968), cert. denied, 393 U.S. 1066 (1969); United States v. Humboldt Placer Mining Co., 8 IBLA 407 (1972). Although such a presumption can be overcome by evidence showing that a mineral deposit could have been extracted, removed and marketed at a profit on or prior to a given date, such findings have been rare. Cf. Verrue v. United States, 457 F.2d 1202 (9th Cir. 1972), rev'g United States v. Verrue, 75 I.D. 300 (1968); United States v. Gibbs, 13 IBLA 382 (1973); United States v. Harenberg, 9 IBLA 77 (1973), with cases cited above.

The Department of the Interior's seminal decision in determining whether there has been a discovery of a valuable mineral deposit is Castle v. Womble, supra. In that case an agricultural entryman had applied for a patent. Several mining claimants protested on the basis that they had discovered a valuable mineral

deposit. In resolving the dispute, the Department tied the test of value to the concept of an operating mine as the desired end of the general mining law:

[W]here minerals have been found and the evidence is of such a character that a person of ordinary prudence would be justified in the further expenditure of his labor and means, with a reasonable prospect of success, in developing a valuable mine, the requirements of the statute have been met.

19 L.D. at 457.

This formulation, often referred to as "the prudent man test," has received the continuing approval of the courts.

Chrisman v. Miller,

197 U.S. 313, 322 (1905); Cameron v. United States, *supra*; United States v. Coleman, *supra*.

In the years since promulgation of the prudent man test, the Department has found it necessary to state explicitly that for a mineral deposit to be considered valuable it must be capable of extraction, removal and marketing at a profit. This test of marketability has been approved by the Supreme Court in United States v. Coleman, *supra*, as a logical complement to the prudent man test:

Minerals which no prudent man will extract because there is no demand for them at a price higher than the cost of extraction and transportation are hardly economically valuable. Thus, profitability is an important consideration in applying the prudent-man test, and the marketability test which the Secretary has used here merely recognizes this fact.

390 U.S. at 602.

The ruling in Coleman, approving the marketability test employed by the Department, is and has always been applicable to all mining claims. Converse v. Udall, 399 F.2d 616 (9th Cir. 1968), cert. denied, 393 U.S. 1025 (1969), and cases cited therein at pp. 621-22.

The courts clearly defined value with respect to the purpose of the general mining law: the development of actual mining operations. It is equally clear that the level of anticipated profits must be sufficient to attract prudent investment capital to develop actual mining operations. For that reason we have held on several occasions that mineral deposits which will yield only meager profits are not valuable within the meaning of the general mining law, since no prudent man would invest in actual operations in those circumstances. E.g., United States v. Edwards, 9 IBLA 197, 203 (1973); United States v. Harper, 8 IBLA 357, 369 (1972).

In addition to the prudent man test and its logical complement, the marketability test, 3/ the Department has developed several standards to aid in the determination of value.

First, it must appear as a present fact that there would be a reasonable prospect of success in developing an operating mine

---

3/ For an incisive and more extensive analysis of the application of the marketability test, see United States v. Larsen, 9 IBLA 247 (1973) .

that would yield a reasonable profit. Castle v. Womble, *supra*; Davis's Admr. v. Weibbold, 139 U.S. 507, 523 (1891). Speculation with respect to future changes in market conditions, dramatic break-throughs in technology, or the hoped-for discovery of a mother lode will not demonstrate as a present fact that a prudent man would be justified in initiating actual mining operations. Foster v. Seaton, 271 F.2d 836, 838 (D.C. Cir. 1959); United States v. Denison, 76 I.D. 233, 239 (1969); United States v. Jenkins, 75 I.D. 312, 318 (1968); United States v. Larsen, 9 IBLA 247, 266 (1973).

The Castle v. Womble decision, as already noted, issued as a result of proceedings between an agricultural entryman and mineral claimants; this was the typical situation in which the mining law developed.<sup>4/</sup> It would have been inequitable to allow the defeat of a homestead entry by those asserting that the lands might someday be valuable for mining without demonstrating present value.

In addition to the historical concern for equity between competing claimants, there is a more fundamental reason for continued adherence to the present value requirement: there is no

---

<sup>4/</sup> There were other similar situations which give emphasis to the requirement that the property be valuable for mining as a present fact: 1) disputes between two mining claimants for the same area, where prior in time of discovery was prior in right; Clipper Mining Co. v. Eli Mining & Land Co., 194 U.S. 220 (1904); and 2) disputes over whether a placer claim was known to contain a mineral deposit at the time patent was issued. United States v. Iron Silver Mining Co., 128 U.S. 673 (1888).

practical alternative. Lands may not pass from the public domain under the general mining law unless the Department is persuaded that they are valuable for mining. United States v. Coleman, *supra*. If marketability could be predicated upon possibilities of the future, the variables introduced would be endless. Since few, if any, of these variables are susceptible to reasonable predictability, the marketability test would be reduced to mere speculation, and any meaningful conclusion as to value would disappear in a sea of conjecture. The effects of permitting such vagueness in the administration of the law were accurately forecast by Judge Friendly in his lectures on administrative law: 1) capriciousness and 2) undue political influence. 5/

A second standard is that actions of others in the same or very nearly the same circumstances may be used as evidence of what would constitute prudent investment activity. For example, a mining claimant would be justified in initiating actual mining operations on mineral showings that are the same or very nearly the same as those where actual mining operations have been successfully brought to fruition by others. See, e.g., Cascaden v. Bortolis, 162 F. 267, 270 (9th Cir. 1908).

---

5/ H. FRIENDLY, THE FEDERAL ADMINISTRATIVE AGENCIES 19-24 (1962).

In the same manner, failure to undertake actual operations may be used as evidence that no prudent man would be justified in so doing. For instance, if mining claimants have held claims for several years and have attempted little or no development of actual operations, a presumption may be raised that there has been no discovery of a valuable mineral deposit. This was the case in Cameron v. United States, *supra*, where six years had elapsed from the date of location to the date of the hearing. There the Supreme Court stated:

Sufficient time has elapsed since these claims were located for a fair demonstration of their mineral possibilities.

252 U.S. at 457.

For similar holdings, see United States v. Ruddock, 52 I.D. 313 (1927), where 17 years had elapsed without production; Starks v. Mackey, 60 I.D. 309 (1949), 29 years; United States v. White, 72 I.D. 522 (1965), 38-39 years; and United States v. Flurry, A-30887 (March 5, 1968), where the Department stated:

\* \* \* the most persuasive evidence as to what a man of ordinary prudence would do with a particular mining claim is what men have, in fact, done or are doing, not what a witness is willing to state that a prudent man would do.

A third standard is that money expended on further exploration or further research, but not on initiation of actual operations, is

evidence only that further exploration or research may be justified; it is not evidence that the mineral exposed is valuable, or that prudent men would be justified in initiating actual operations. United States v. New Mexico Mines, Inc., 3 IBLA 101, 106 (1971). <sup>6/</sup>

As previously noted, oil shale was withdrawn from location under the general mining law by the Mineral Leasing Act of February 25, 1920, 30 U.S.C. §§ 181, 193, 241 (1970). The mining claims which are the subject of the present appeal were located prior to the date of such withdrawal. Therefore, the validity of such claims must be tested by the value of the mineral deposit as of the date of the withdrawal, as well as at the date of determination. Barrows v. Hickel, *supra*; Mulkern v. Hammitt, 326 F.2d 896 (9th Cir. 1964). If the claims were not supported by a qualifying discovery of a valuable mineral deposit at the time of withdrawal, the land embraced within the boundaries of the claims would not have been excepted from the effect of the withdrawal, and the claims could not thereafter become valid even though the value of the deposit subsequently increased due to a change in the market value of the mineral. United States v. Henry, 10 IBLA 195, 199 (1973); United States v. Gunsight Mining Co., note 6, *supra*; United States v. Pulliam, 1 IBLA 143 (1970); United States v. Duval, 1 IBLA 103 (1970).

---

<sup>6/</sup> For an imaginative analogy, see United States v. Gunsight Mining Co., 5 IBLA 62, 69 (1972).

Even if the mining claims are supported by a valid discovery, it is clear that a discovery may be lost. We have frequently held that discovery may be "lost" due to exhaustion of the deposit or to changes in market conditions of substantial duration. Best v. Humboldt Placer Mining Co., 371 U.S. 334, 336 (1963), citing with approval United States v. Logomarcini, 60 I.D. 371, 373 (1949), and United States v. Houston, 66 I.D. 161, 165 (1959). See also Mulkem v. Hammitt, *supra*; Adams v. United States, 318 F.2d 861, 871 (9th Cir. 1963); Multiple Use Inc. v. Morton, 353 F. Supp. 184 (D. Ariz. 1972), *affg* United States v. Silverton Mining and Milling Co., 1 IBLA 15, 18 (1970); United States v. Charleston Stone Products, Inc., 9 IBLA 94, 100 (1973); United States v. Denison, *supra*.

## II. The Distribution and Development of Oil Shale

The geographic distribution and the history of the development of both foreign and domestic oil shale were very ably set forth in the opinion rendered by Judge Dalby. Accordingly, we adopt those portions of his decision which are set forth below, changing the numbers of the footnotes therein to follow ours sequentially.

"BACKGROUND"Geographic Distribution of Oil Shale

"The contested claims were located for oil shale. Oil shale is a fine-grained, laminated, sedimentary rock containing solid organic material called kerogen which, upon destructive distillation, will produce a substantial amount of oil. The kerogen is derived from deposition of aquatic plants and smaller amounts of animal life in lakes during various geological periods. Oil shale does not contain appreciable amounts of oil.

"Oil shale was deposited in a wide span of the earth's geological history from the Cambrian to recent periods. Shale deposits that yield at least 10 gallons of oil per ton occur in all of the continents. There are both high and low grade oil shale deposits in Africa of late Paleozoic and early Mesozoic age. In the Stanley Basin of the Congo, extensive deposits of oil shale of Triassic age exist in beds that aggregate about 30 feet in thickness and yield more than 25 gallons of oil per ton. There are extensive deposits in China, Israel, Jordan, Syria, Siberia, Thailand, Burma and Turkey. The oil shale resources of Asia have been estimated at 70 billion barrels in deposits that yield more than 25 gallons per ton. Deposits occur in Australia and New Zealand. The known higher grade deposits are estimated to contain 280 million barrels oil equivalent.

"In Europe there are substantial oil shale deposits in the Balkan Peninsula and adjacent area, France, Germany, Great Britain, Italy, Austria, Switzerland, Luxembourg, Russia, Spain, Portugal and Sweden. The recoverable oil shale resources of Europe are estimated to contain a total of more than 30 billion barrels, mostly in shales that yield more than 25 gallons per ton. In South America, oil shale deposits are known to exist in Argentina, Brazil, Chile and Uruguay. These oil shale resources are estimated to contain 50 billion barrels of recoverable shale oil.

"In the United States, deposits of oil shale of varying nature and extent have been reported in the States of Alabama, Alaska, Arkansas, California, Colorado, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Missouri, Michigan, Montana, Nevada, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin and Wyoming. A large fraction of shale deposits of the United States contain small amounts of organic matter which will yield from one to five gallons of oil per ton on destructive distillation. These rocks have not been considered as oil shale. In addition, some sandstones, silstones and limestones contain solid organic matter which yield very small amounts of oil. Possibly half or more of the sedimentary rock areas of the country will yield a small amount

of oil. Oil shale can, therefore, be subject to several definitions. One authority defines oil shale as organic-rich shale that yields at least 10 gallons (3.8) percent of oil per ton. 7/

"The oil shales of highest concentration of organic matter are in the Green River Formation of Colorado, Utah and Wyoming and the Tiglukpuk Formation in Alaska. These are the only North American oil shales in the United States in the 25 to 100 gallons per ton range. The Green River Formation shales of this grade have been estimated to contain 600 billion barrels. The Tiglukpuk Alaskan shales of similar grade have been estimated to yield 250 billion barrels. 8/

"The Green River Formation is considered by geologists to have been formed in an inland lake which, at one time, covered an area of some 16,000 square miles in the States of Colorado, Utah and Wyoming. The formation resulted from lake and stream depositions extending over a period of some eight to ten million years. During the course of the evolution of the Green River Formation, tuff beds were formed in localized areas from airborne

---

7/ G-97, pp. 3, 10-16; Tr. 3448, 3450, 3455.

The Contestant's exhibits are designated by the prefix "G" and the Contestee's by the prefix "C." "CFF" refers to the Contestee's Proposed Findings of Fact.

8/ G-97, p. 9.

volcanic ash. In some instances, fairly great thicknesses of tuff were deposited. 9/

\* \* \* \* \*

"Foreign Oil Shale Activity

"Oil shale development in foreign countries stimulated interest in the possible development of Western United States shales and has relevance in determining what expenditures might prudently be made in the United States. Several of the foreign deposits have been commercially exploited.

"Production of fuels from oil shale preceded the production from petroleum. Shale oil was first produced in France in 1838. Subsequent oil shale operations were started in Scotland in 1850; Australia in 1865; Brazil in 1891; Germany in 1916; Sweden and Estonia in 1921; Spain in 1922; Manchuria in 1929; and South Africa in 1935. A number of these continued until recent years when they succumbed to economic pressures from the petroleum industry. Today, only the Estonian and Manchurian operations survive. 10/

---

9/ Tr. 83, 86, CFF-1; CFF-10.

10/G-290, pp. 29, 39; G-479, pp. 109, 110, 111; C-1025; CFF-45.

"In France, the shale oil industry grew until about 1864 when competition of imported petroleum caused a decline. The French Government, at least intermittently, provided support of one kind or another, such as imports duties on foreign petroleum or direct subsidies. In 1893, oil shale production was about 190,000 tons. By 1900, production reached 220,000 tons, increased to 500,000 tons during World War II, and then declined. The industry ceased in the early 1960's. 11/

"The Scottish industry used oil shale, recovered by underground mining, which assayed generally in the range of 25 to 35 gallons per ton. After 1850, more than 140 companies and individuals engaged in oil shale ventures. By 1870, these were reduced to 51, and by 1910 only six companies remained. By 1920, the operations were consolidated under one parent company, Scottish Oil Ltd. The Scottish oil shale production in the early 1870's was approximately 500,000 long tons per year and reached 3,000,000 tons annually by 1910. Production thereafter gradually declined to essentially nothing in 1964. 12/

#### "Oil Shale Activity in the United States

"The oil shale industry in the United States started about 1850.

---

11/ G-281, p. 15; G-290, pp. 25, 26; G-419, p. 50; C-1025, pp. 1, 2.

12/ G-290, pp. 29, 30, 32, G-419, p. 56, 57.

By 1860 there were 53 companies producing oil by distillation of various bituminous substances, including oil shale. Natural petroleum was discovered at Titusville, Pennsylvania, in 1859 and the American petroleum industry came into being. This reduced the price of kerosene so much that oil shale operations became unprofitable. The plants were abandoned or adapted to petroleum refineries. 13/

"Interest in oil shale revived in the 1910 to 1920 period and has continued to the present time. 14/

"An examination of how prudent persons expended their means with respect to oil shale during this period will provide the guide in determining whether oil shale was, as of February 25, 1920, a valuable mineral. Because the evidence in this respect is massive, the examination is limited to some corporations and the Government, whose activities are directed by the composite judgment of experienced officers.

"Robert M. Catlin, a businessman and a member of the American Institute of Mining and Metallurgical Engineers, between 1890 and 1915 purchased approximately 140 acres of oil shale land, leased approximately 480, and obtained an interest in 140 acres of unpatented

---

13/ G-290, pp. 60, 61; G-419, p. 99; C-721, pp. 38-39; C-853, p. 151; CFF-288.

14/ C-721, pp. 39-45.

mining claims. He visited Broxburn, Scotland, in 1901 to study the Scottish shale oil operation, and in 1914 began research and development with the Elko deposits. In 1915, a 100-foot shaft was sunk in his mining property. The following year he erected a 20-ton per day retort which proved unsatisfactory and was later dismantled. In 1917, he incorporated the 'Catlin Shale Products Company' and transferred his oil shale land to the company for stock. 15/

"In 1918, the company began the construction of eight 100-ton per day retorts which differed in design from the 1915 models. The retorts were in operation in May of 1919 and by July the new plant had produced 15,000 gallons of shale oil. A refrigerator plant, wax press, stills and agitator were added to the plant the latter part of 1919 and early 1920. Sometime later, probably 1920, the Catlin Company's retorts were shut down. A third retort, 40 feet high and 12-1/2 feet in diameter, was constructed and put in operation in December of 1921. This retort was operated intermittently until October 18, 1924. 16/

---

15/ G-23, p. 101; G-722, Part 1, pp. 9, 10, 12, 17, 18; G-722, Part II, p. 30, G-724E, G-724G, Lease No. 4349; G-724I, pencil notes of R. M. Catlin, Sr.; G-724N, Deeds 276-F, 278-F and 384-F; CFF-57; CFF-58, CFF-105.

16/ G-722, Part I, pp. 19, 20, 43; G-724H, Catlin letter, May 19, 1919; G-724J, letters of October 13, 1919 and December 2, 1919; CFF-78.

"In 1924, the shale oil products were offered for sale for the purpose of testing the market. The products apparently could not be marketed in competition with petroleum products. On December 23, 1930, the Company was dissolved. Its operation was admittedly experimental. 17/

"The Oil Shale Mining Company was incorporated in Colorado on October 2, 1916, as a public stock company with a capitalization of \$100,000. It acquired six mining claims about 15 miles west of DeBeque, Colorado. In 1916, the company built a bunkhouse and a cookhouse near the claims. In 1917, the buildings were moved to a new location and an externally heated, six to eight-ton per day batch-type Henderson retort, 18 feet high and 12 to 15 inches in diameter, and a tramway were constructed. By the end of 1918 or the early part of 1919 the company had six of these retorts, only one of which was assembled and operated on an experimental basis. By 1920, the company experimented with a continuous type of retort, invented by its superintendent, A. V. Young, which was subsequently abandoned.18/

"The company produced a few barrels of oil in 1920 and 30 barrels in 1921. Oil shale for the retorts was obtained from

---

17/ G-722, Part I, pp. 13, 40, 41; G-722B; G-724B; G-724J, letter by R. M. Catlin dated August 8, 1919.

18/ G-115, pp. 4, 6, 7, 14, 15, 20, 27, 40, 47, 114, 115, 130-133, 139, G-241, p. 30.

small pits on the claims during the period from 1917 to 1921. By 1926, the company lost its properties through attachments.

19/

"The Monarch Shale Oil Company was incorporated in October 1919. The corporation acquired 240 acres of oil shale land, located about 13 miles northeast of DeBeque, Colorado. By April 1921, the company had erected a Ginnet retort (named after its inventor and president, Joseph H. Ginnet), 18 to 25 feet long and 3-1/2 feet in diameter, with a capacity of about 50 tons of shale per day. During 1921, the plant was operated on 11 or 12 occasions for short periods and produced a total of 71 barrels of shale oil. The retort was 'not run to any extent' during 1922 and was not operated at all during 1923. Some test runs were made in 1924. The shale for charging the retort was taken from a tunnel driven 75 feet into the side of the cliff above the plant. 20/

"The Mount Logan Shale Mining and Refining Company was incorporated in Colorado in July 1917. It obtained seven unpatented mining claims located about five miles from DeBeque, Colorado, on Mount Logan. The company erected a plant in Western Colorado in 1918, using three Galloupe retorts of a 20-ton capacity per day.

---

19/ G-115, pp. 28, 40, 113-118, 130; G-241, p. 30; CFF-57.

20/ G-116, pp. 4-8, 14, 20, 48, 67, 70, 71, 80, 86, 93, 101, 106, 119, 120; C-212.

After test runs in 1919 and 1920 proved this retort to be unsatisfactory, the company erected a Simplex retort similar to the Galloupe. The Simplex was 21 to 30 feet long and about 3 feet wide with a capacity of about seven tons, producing 12 to 15 barrels a day. The company obtained its shale from a 100-foot tunnel into the cliff. The total cost of the plant was estimated at approximately \$70,000. The corporation made some experimental runs of oil shale in 1920 and 1921. The company became defunct in October 1926. 21/

"The Index Shale Oil Company was incorporated in Colorado in October 1920. It obtained possessory title to eight oil shale claims and equitable ownership in an additional 15 others. Index began constructing an experimental plant in 1920 about 15 miles northwest of DeBeque, Colorado, using the Brown retort invented by its largest stockholder, Harry L. Brown. The retort was 75 feet long, two and one-half feet in diameter. Experimental runs of oil shale indicated that changes in design and equipment were necessary. Additional equipment was added in 1926. In 1928 the company was in receivership. The corporation mined its shale from a tunnel driven 60 feet into the face of the cliff. 22/

---

21/ G-61, No. 8; G-117, pp. 1, 7, 9, 10, 12, 15, 19, 20, 24, 31, 32, 34, 59, 61, 75, 89, 99-102, 118, 143, 145; G-168, p. 21; C-213, p. 326; C-455; C-457; C-959, pp. 31, 32; CFF-80, CFF-106.

22/ G-118, pp. 1, 2, 31, 47, 49, 51, 52, 53-130, 154, 155, 163, 165, 166, 167; G-624E, pp. 172-207.

"The March Oil Company was incorporated in August 20, 1917, in the State of Colorado by a group of businessmen, including K. C. Schuyler. The company's mining property, consisting of about 2,400 acres of oil shale was located three to four miles north of Grand Valley on Parachute Creek. In 1917 the company leased its mining claims to K. C. Schuyler who agreed to work the claims and to refine and dispose of oil shale and its products. In 1920 and 1921 Schuyler and George Taff, working for or in partnership with Schuyler, constructed a plant at a cost of \$100,000. The plant consisted of some buildings and sheds, a one-and-one-half-mile tramway, crushers and engine. A retort was designed by Taff, ordered from a Wisconsin manufacturer, but never delivered. In mid-1921 a cable on the tram broke killing nine men. The plant was never completed. 23/

"The Continental Oil Shale Mining Company was incorporated in Arizona in November 1920. The company obtained mining claims by merger with the Oil Development Company. In 1919, it constructed a plant, 20 miles north of Rifle, Colorado, on Piceance Creek, consisting of a bunkhouse, a residence for a superintendent, a blacksmith shop, a crusher, and a Colorado continuous retort, invented by two Denver engineers. The vertical retort was about 22 feet high

---

23/ G-61, No. 18; G-125, pp. 10, 15, 19, 21, 22, 30, 43; C-972, Exs. No. 1, pp. 1, 2, No. 3, p. 1, No. 4 p. 7, and Nos. 10 and 12; C-973, p. 54; CFF-81; CFF-353; CFF-358; CFF-362.

and two feet in diameter, having a capacity of 50 tons of shale per day. 24/

"Shell Oil Company became interested in oil shale by 1945. By August 1954, Shell had acquired 3,624 acres of oil shale property at a cost of \$123,014.35. Shell continued to acquire oil shale lands. In 1965, it entered into an option to purchase the Cathedral Bluff claims in the Piceance Creek Basin. The options on these 21,000 acres specified a purchase price of \$2,000 an acre. The total cost to Shell would be in excess of \$43,000,000, including \$1,000,000 as the cost of maintaining the option. In the span of 10 to 15 years, the price of oil shale lands to Shell had risen from 500 to 700 percent and in the two years prior to 1964 had risen as much as 250 percent. As of 1964, Shell's holdings consisted of 5,300 acres of fee property, options to purchase 3,300 acres of fee lands and options to purchase 24,400 acres of unpatented mining claims. During the period of acquisition of the oil shale claims, Shell made economic studies of the feasibility of extracting and refining oil from oil shale, but has no current plans for mining and processing oil shale. 25/

---

24/ G-61, No. 13; G-126, pp. 35, 44, 70, 71; G-168, p. 15; G-580, LL-4, p. 1-16; C-454, p. 4.

25/ G-509, p. 31; G-514, pp. 31, 80, 81; C-741; Tr. 4815, 4816, 4844, 4848, 4916; CFF-318.

"Cities Service Company, through its subsidiary Empire Gas & Fuel Company, began locating oil shale claims in Sweetwater County, Wyoming, in 1918. By August 1923, the company asserted ownership in 48 claims, totaling 7,680 acres of oil shale land. The evidence does not indicate whether Cities Service Company presently asserts title to these early locations. 26/

"In early 1951, Cities Service Oil Company, a subsidiary of Empire Gas & Fuel Company, acquired an option to purchase 8,300 acres of oil shale land at \$50 per acre, which it exercised in 1953. Since 1952, Cities Service Oil Company has acquired about 10,000 acres of oil shale land in Garfield County, Colorado, at a cost of about \$500,000. Other than the acquisition of oil shale properties, Cities Service Oil Company's activities have been limited to core drilling and testing of oil shale samples. The company has no program for the commercial development of oil shale. 27/

"Standard Oil Company of California began investigating the possibilities of producing shale oil and refined products from oil shale in 1918. The investigation included geological examination of the oil shale in California, Nevada, Utah and Colorado, the

---

26/ G-636E, pp. 60, 111, 116, 129; G-636F, pp. 11, 16; CFF-110.

27/ G-636, pp. 7, 8, 9, 10, 12, 30; G-636F, pp. 18, 23, 24; CFF-314.

'devices for utilization' of them, and an economic analysis of the possible profitability of doing so. Laboratory retorting experiments were conducted in 1920 and from 1925 to 1928. In 1921, the company obtained a patent for its process of 'hydroxination of oil shale' developed by its research. In 1925, the company made intensive studies on the extraction of oil from solids. 28/

"Standard began the purchase of Colorado oil shale land in 1943. By 1954, it had acquired 39,736 acres of patented land, 8,057 acres of unpatented mining claims, and an option or a partial interest to 17,628 acres, for a total of 65,421 acres. The total cost of this acquisition was approximately \$5,000,000. By 1967, the company's patented land totaled approximately 44,000 acres in blocks of sufficient size to support a commercial oil shale operation. The company is now one of the largest holders of patented oil shale land. 29/

"Standard Oil Company of Ohio (Sohio) first became interested in oil shale in 1962. From 1964 through 1967 the company spent or obligated itself to spend \$28,800,000 for acquisition of 43,631 acres of patented oil shale lands in the Green River Formation. In addition, the company holds interests in options which, if exercised, would entail additional investments.

30/

---

28/ G-629C, pp. 4, 12, 13, 27-47, 68, 69, 75, 78, 97, 98; C-723, Part I, p. 57; C-567, p. 1; CFF-110.

29/ G-629, p. 28; G-629B; G-629D, p. 149; G-629E; CFF-311.

30/ G-604, pp. 8, 19-20; G-604A.

"The Oil Shale Corporation (Tosco) interested Sohio in its retorting process. In September 1964, the two companies joined with Cleveland Cliffs Iron Company in a joint venture agreement and formed the Colony Development Corporation for the purposes, among others, of building and operating a prototype plant to determine the economic feasibility of the Tosco II process, developing an experimental mine and making engineering and cost studies directed to the establishment of a commercial oil shale operation. Facilities, including a 1,000-ton per day prototype retort, were constructed and placed in operation in 1965. During its subsequent operations the plant produced over 50,000 barrels of crude shale oil. By June of 1966 sufficient prototype data had been obtained to enable a qualified engineer to make an order of magnitude estimate of the capital cost of a commercial plant. The estimate came out substantially higher than the studies made prior to the construction of the plant. A difference of opinion relative to the causes and solution of this problem developed between the joint venturers. Sohio and Cleveland Cliffs felt that the problems of reducing capital costs should first be solved, then the prototype redesigned and operated. Tosco wanted to operate the plant and solve the high capital cost problem simultaneously. The differences were solved in September 1966 by placing the agency company, Colony, on an inactive status, having Cleveland Cliffs continue the mining experiment for the joint accounts of the joint venturers, and permitting Tosco to

continue operating the retort for its own account. If the project were successful, the joint venturers contemplated entering into a commercial operation. In accordance with the agreement, Sohio studied alternative processes for extracting oil from shale. In 1966 it agreed to an exchange of information with Union Oil Company after joint studies of Union's retorting process. 31/

"Tosco holds an interest in over 30,000 acres of oil shale lands in Colorado and Utah acquired at a cost of about \$10,000,000. 32/

"Tosco's president testified that the company intends to have a commercial plant of approximately 53,000 barrels per calendar day 'on stream' during 1970. 33/

"Texas Oil Company (Texaco) began exploring the possibilities of oil shale in 1918, and began acquiring interests in the oil shale lands of the Green River Formation in 1927 through the acquisition of the California Petroleum Company and its subsidiary, the Colorado-Ventura Company. Since 1927, the company has acquired 29,000 acres of patented oil shale lands in Colorado and Utah at a cost of \$1,500,000. From 1945 to 1947, Texaco made a refining study of oil shale for the Navy at its own expense. Beginning in 1957,

---

31/ G-604, pp. 24, 25, 26, 29, 37; G-604C; Tr. 5063; CFF-298

32/ C-1065; CFF-316.

33/ Tr. 5069; CFF-328; CFF-332.

after experimentation with other methods of extracting oil from shale, Texaco constructed and operated a pilot plant and developed its own

'hydrotorting process for extraction of shale oil.' The company has spent over \$1,000,000 in oil research in the past 20 years. 34/

"Mobil Oil Corporation's interest in oil shale began in 1940. A research program to evaluate the potential of shale as a source of oil was begun in 1943. A pilot plant was constructed at Paulsboro, New Jersey, and an experimental program was carried out between 1943 and 1945. Further research and study of oil shale was continued. Since 1965, the company has been conducting a research program at Anvil Points in cooperation with five other major oil companies which includes additional refining, economic and mining studies. Mobil has, since 1955, purchased oil shale lands of the Green River Formation. At the present time, it holds an undivided half interest in 24,591 acres of patented oil shale land, the entire interest in 10,131 acres of patented oil shale land, for which it paid approximately \$3,000,000. It also holds an option to purchase 17,440 acres of unpatented oil shale claims and 330 acres of patented land which, if exercised, will cost an additional amount of approximately \$1,800,000. 35/

---

34/ G-642, pp. 20, 25, 26, 43-45, 51, G-642C, p. 41; G-642F, G-642G; CFF-313.

35/ G-633, pp. 8-10, 39, 40; G-633A; G-633B, p. 1; CFF-312.

"Union Oil Company of California became interested in oil shale in 1920. Since 1920, the company has acquired an interest in 57,319 acres of oil shale land, of which 37,166 are patented, and a 'surface only' interest in an additional 2,617 acres, at a cost of over \$2,500,000. Beginning in 1924, Union conducted studies of existing oil shale processes, made analyses of oil shale samples and undertook an oil shale research program. Starting in 1944, it constructed and operated an experimental retort with a two-ton per day capacity. In 1948 it completed a scale-up model with a 50-ton per day capacity which was dismantled in 1956. Union spent a total of \$438,000 on oil shale research from 1947 to 1954. On January 31, 1955, Union's Board of Directors approved a \$5,000,000 expenditure for a two-year oil shale research project, which would include the erection of a demonstration plant in Colorado of one thousand tons per day capacity. The demonstration plant was started in 1955 and completed by May 1957. The plant was run intermittently into July 1958. 36/

#### "Major Oil Shale Holdings

"Oil companies and other business interests have become interested in the commercial prospects for oil shale development. In addition to

---

36/ G-625, pp. 14, 15, letter dated June 20, 1920; G-626, pp. 61, 92, 112-117, 222, 232, G-895, G-927, pp. 2-4; C-905; C-907, pp. 5, 6, Fig. 5; C-910; CFF-310; CFF-317.

expenditures for developing technology, many companies have acquired interests in land containing oil shale deposits in the Green River Formation. In the Piceance Basin, the major owners of either patented or unpatented oil shale claims, were, as of 1964:

A. Large Oil Companies

Cities Service Company  
 Continental Oil Company  
 Getty Oil Company  
 Gulf Oil Company  
 Humble Oil & Refining Company  
 Marathon Oil Company  
 Pan American  
 Pure Oil Company  
 Shell Oil Company  
 Sinclair Oil Corporation  
 Socony Mobil Oil Company, Inc.  
 Standard Oil Company of California  
 Texaco, Inc.  
 Union Oil Company of California

B. Major Group Holdings

Dow Chemical Company  
 Doyle, et al.  
 Dutton  
 Eaton Shale Company  
 Energy Resources Technology Land Company  
 Gabbs Exploration Company  
 Kerogen  
 Massive Group  
 Oil Shale Corporation  
 Parachute Oil Shale Company  
 Ruth Group (Ertl et al.)  
 Savage Oil Shale Development Company  
 Sunset Group (Gabbs Exploration Company)  
 Texas National Petroleum Company  
 Wasatch Development Company 37/

---

37/ C-333, p. 5; CFF-309.

"Oil Shale Research by the  
United States Government

"The United States Government conducted extensive oil shale research. A 1901 Government publication noted the occurrence of oil shales in Colorado and Utah. In 1913, efforts were started by the Government to determine the extent of the deposits and their oil potential. In about 1916, the Bureau of Mines began laboratory work on oil shale in Washington, D.C., and by 1919 laboratory facilities were operated in Utah. 38/ The work in Utah included standardizing methods of testing, studying methods of assaying oil shale for commercially recoverable oil and ammonium sulfate, conducting retorting experiments on different oil shales and analyzing shale oils and other products manufactured by different retorting processes and refining the retorted oils to determine the commercial value of the refined products. 39/

"In January 1920, the Bureau of Mines established, under an agreement with the State of Colorado, a laboratory at Boulder, Colorado. The following month small scale experimental studies, concerned primarily with fundamentals of oil shale retorting and yields and characteristics of shale oil products, were begun. 40/

---

38/ G-419, p. 99, C-850, CFF-64.

39/ G-419, p. 99; C-8, p. 70; C-276; C-717; C-850; CFF-64; CFF-93.

40/ C-330.

"In 1924, a Presidential Naval Fuel Oil Committee, appointed to study the problem of obtaining adequate supplies of fuel oils for the Navy, recommended that the Bureau of Mines determine the feasibility of oil shale as a source of shale oil. Congress authorized the construction of a pilot oil shale plant and during the four-year program appropriated more than \$229,000 for the study. The Bureau erected two large-scale experimental retorts at Rulison, Colorado, the Pumpherston and the NTU, and opened a quarry at Anvil Points to provide oil shale for the program. The oil shale mine and the retort were operated periodically from 1926 through 1929. The refining studies showed that the shale oil could be refined to acceptable products, although less readily than conventional crude petroleum. <sup>41/</sup>

"In 1944, Congress passed the Synthetic Liquid Fuels Act (P.L. 290, 78th Cong., App. April 5, 1944; 58 Stat. 190, 30 U.S.C. 321 et seq.). The Act authorized the Secretary of the Interior to construct and operate demonstration and pilot plants to produce synthetic liquid fuels from oil shales, coal, agricultural and forestry products and other substances and to conduct laboratory research. The Bureau of Mines constructed a demonstration plant

---

<sup>41/</sup> G-246, pp. 1525, 1533-1534; G-302, pp. 299, 307; G-438, pp. 1, 5, 6, 25, 27, 150; C-277, p. 60; C-284; C-286-289; C-383, letter dated June 5, 1924, from Secretary Work to Director, Bureau of the Budget, pp. 1, 2; CFF-256; CFF-257; CFF-258.

at Rifle, Colorado, which included two NTU retorts and opened an oil shale mine at Anvil Points. The retorts were first operated in May 1947. 42/

"Other pilot plant operations were conducted. One was at Pueblo, Colorado, using a Hayes low temperature coal carbonization retort under a cooperative agreement with the Colorado Fuel and Iron Corporation and another at Wilson Dam, Alabama, using a Royster retort owned by the Tennessee Valley Authority. As a result of the experience gained in the operation of the retorts and study of other processes, a Gas Flow retort was designed by the employees of the Bureau of Mines in 1946 and 1947. A retort embodying the principles considered to have the best prospects of success and a pilot plant incorporating these features was built at Rifle, Colorado. Later, another retort, the Dual-Flow, was designed, constructed and operated. Originally, the authority of the Synthetic Liquids Fuel Act was limited to five years, but two amendments extended the period covered by the Act to a total of 11 years, ending in April 1959. During those 11 years about \$82,000,000 was expended. Of this amount, nearly \$22,000,000 was directly applicable to work on oil shale. 43/

---

42/ G-139, p. 32; G-159.

43/ G-139, pp. 37, 41-44, 47, 90, 91; G-159; G-467, p. i; C-545; CFF-308.

"Since the end of the Synthetic Liquid Fuels Program, research work by the Federal Government has continued at the Bureau of Mines Research Center at Laramie, Wyoming. The annual budget for this work for the past 20 years has been about \$1,500,000. 44/

"The foregoing is illustrative of the expenditures made by corporations and the Government in the promotion and development of oil shale.

"Cost Studies

"An objective of the Bureau of Mines programs at Rulison and Rifle, the Union Oil Company's demonstration plant and the Tosco-Sohio-Cleveland Cliffs operations, was to obtain data upon which an informed judgment could be made as to whether expenditures in an oil shale mine would be justified. Not until a commercially feasible mining and retorting process competitive with petroleum was developed could a prudent man expect to develop a profitable oil shale mine.

"All of the cost studies indicated that oil shale was not competitive with petroleum. At the request of the Secretary of the

---

44/ Tr. 3472, CFF-308.

Interior, the National Petroleum Council made a study in 1950 and 1951 of synthetic fuel costs, including synthetic fuels derived from oil shale and prepared a final report dated February 25, 1953. The Economic Subcommittee made estimates of the cost of producing gasoline from oil shale under various assumed conditions. These costs varied between 13.9 cents [per gallon], where the hypothetical plant included no housing or community development, to 15.2 cents where the assumed operation included complete housing and community development, including housing for employees, housing for tradespeople, teachers, general community facilities comprising streets, utilities, schools, and commercial buildings. The Committee's reports stated that neither of these cases [the minimum and maximum expenditures], however, is believed to represent the probable situation. In order to obtain an adequate stable labor supply at the minimum investment, it is the opinion of the Subcommittee that the housing program would approach that of [housing for employees and general community facilities].<sup>45/</sup>

"Where only general community facilities were provided, the Economic Subcommittee determined the cost of producing gasoline from oil shale would be 14.7 cents per gallon. The cost included taxes and an assumed six percent return on invested capital. The

---

<sup>45/</sup> G-300; G-451, Appendix A1, Appendix I40-41; CFF-334.

average refinery price for gasoline in Los Angeles at the time of the study was 11.7 cents per gallon. In the final report of the National Petroleum Council's Committee on Synthetic Liquid Fuels Production Costs, February 26, 1953, the committee stated that for each increase of one percent return on investment after taxes the gasoline costs from the single plant cases would be 1.3 cents per gallon. This ratio indicates the shale oil plant could, in 1951, have been operated at a slight profit. However, the committee concluded that a return of between 12 and 15 percent on total invested capital would be required in order to attract investment capital. <sup>46/</sup>

"The Bureau of Mines made a cost study in 1951. While the Bureau and the National Petroleum Council were 'in good agreement on many points,' there was wide diversion on some items. The Bureau estimated that 'with a capitalization of 50 percent equity and 50 percent borrowed funds, and with all products selling at market values, the rate of return on equity capital would be 11.2 percent after interest charges and income taxes,' and stated: 'Although this return is less than the average return of the petroleum industry, as indicated by published figures, it is high enough to warrant serious attention.' <sup>47/</sup>

---

<sup>46/</sup> G-300, p. 9; G-451, p. 29, Appendix I40.

<sup>47/</sup> G-459, pp. ii, iii; CFF-335.

"In 1965 and 1966 employees of the Bureau of Mines, augmented by outside consultants with backgrounds in mining, retorting and refining technology, cost engineering, marketing, economics and finance, prepared for use in this contest a cost analysis for commercial scale oil shale plants on the contested claims for the years 1915, 1918, 1919, 1920, and 1966. The primary purpose of the studies was to determine the prospective cost and profitability of a commercial oil shale installation at the selected points in time, based on the information available at that time, or on whatever assumptions would have been necessary and reasonable to one making such a study. 48/

"The design for the period 1915-1920 included the production of 1,000 tons of oil shale per day in an underground mine, crushing the shale, a battery of Pumpherson retorts as used in the Scottish oil shale industry, and a refinery producing shale oil gasoline, burning oil, gas oil, residual fuel oil, coke and ammonium sulfate, as well as a railroad, housing for employees and supporting facilities. 49/

"The design for the 1966 period required mining of 60,300 tons of oil shale per day in an underground mine, crushing the mined

---

48/ G-139, p. 182; G-290, pp. 143, 146, 172; G-665; G-666; G-667; Tr. 3126, 3263-3272.

49/ G-665, pp. 1-18.

shale, retorting the crushed shale in retorts of the gas combustion type, and treating and refining the shale oil at preliminary facilities in Colorado and a refinery in St. Louis. The products of the operation would be petroleum gasoline, diesel fuel, coke, ammonia, LPG, gas and sulphur. The plant and related facilities were estimated to require a capital investment of approximately \$185,000,000. The study showed the following yields after taxes. 50/

<u>Project</u>	Book Yield on <u>Equity</u>	Book Yield on <u>Net Plant</u>	True Yield
1915	7.1%	8.8%	6.5%
1918	6.6	8.3	7.0
1919	3.0	3.7	3.5
1920	Neg.	Neg.	0.0
1966	11.3	15.1	9.84

"The study indicated the following maximum payback periods:

<u>Project</u>	<u>Years</u>
1915	11.5
1918	10.7
1919	14.0
1920	18.8
1966	5.3

50/ G-667, 1966 Study, pp. 1-17, 51, Table 19; G-673; G-674; G-683, G-683A; Tr. 2348, 2353-2356; CFF-337.

"The various studies disclose that since about 1951 marketable products from oil shale of the Green River Formation could be produced in a commercial-scale installation at a profit. However, that profit would be too small to be competitive with petroleum or to attract prudent investment capital. In 1966 a minimum book yield of at least 14 percent after taxes, a true yield of at least 11 percent after taxes and a payback period of not less than 4.2 years would be required on typical new investment. For nontypical investment such as an oil shale plant, a higher rate of return would be required. Required book and equity yields during the 1915 to 1920 period would probably have been higher than in 1966. 51/

"Profitability of an Oil Shale Mine

"As previously stated, the test of validity is whether an investor in an oil shale mine as of February 25, 1920, and since, had a reasonable prospect of developing a profitable mining operation.

"Many millions have been spent on oil shale since the revival of interest in this mineral in the early 1900's. But substantially all of the expenditures that could be considered prudent were for (1) research and development of a technically and economically feasible mining and retorting process, or (2) purchase of mining claims.

---

51/ G-683; G-683A; Tr. 2322, 2330, 2331, 2373, 2376, 2377; CFF-287; CFF-293 -CFF-297; CFF-321 - CFF-328.

Until a research program had demonstrated that shale oil could be produced at a cost competitive with petroleum, no prudent person would attempt to develop an oil shale mine. He would have no market for his product. The very fact that, in the more than half a century of interest in oil shale claims for the Green River Formation, not one profitable mine has been developed is a compelling reason for concluding that expenditure of money to that end would be imprudent. As the Department said in United States v. E. A. Barrows and Esther Barrows, 76 I.D. 299 (1969) (at p. 306):

\* \* \* the fact that nothing is done toward the development of a claim after its location may raise a presumption that the market value of the minerals found therein was not sufficient to justify the expenditure required to extract and market them. See United States v. Everett Foster et al., 65 I.D. 1 (1958), affirmed in Foster v. Seaton, 271 F.2d 836 (D.C. Cir. 1959); United States v. Alfred N. Verue, [75 I.D. 300 (1968)].

[Barrows was subsequently affirmed. Barrows v. Hickel, 447 F.2d 80 (9th Cir. 1971). Verue was subsequently reversed, the Court holding in effect that the presumption of invalidity raised by lack of sales had been overcome. Verue v. United States, 457 F.2d 1202 (9th Cir. 1972).]

"The Contestees argue that the money spent or obligated in the acquisition of oil shale claims, amounting to as much as \$2,000 per acre, proves that oil shale was a valuable mineral deposit and, therefore, 'open to exploration and purchase' under the mining laws. Oil shale claims derive their market value from the expectation that at some time in the future shale oil will become competitive with petroleum. Market value of a mining claim is not the test for discovery of a 'valuable mineral deposit.' The mineralization must be such, not to justify the purchase of the mining claim for possible future development, but to justify present expenditures with a reasonable prospect of developing a profitable mine. 'To allow such land to be removed from the public domain because unforeseeable developments might some day make the deposit commercially feasible can hardly implement the congressional purpose in encouraging mineral development.' Foster v. Seaton, 271 F.2d 836 (at p. 838) (C.A. D.C. 1959)."

\* \* \* \* \*

The evidence may be summarized as follows. The history of both actual and attempted oil shale operations at home and abroad has been intimately connected with the development of the liquid petroleum industry. Generally, the rise of the modern petroleum industry paralleled the decline of commercial oil shale operations.

In Scotland and France once flourishing oil shale operations have declined to essentially nothing. In both cases the demise of oil shale operations was due to increasing availability of liquid petroleum at a price which made oil shale products unattractive. In Scotland this change was apparently due to natural market forces. In France oil shale was supported far beyond the time when it could compete on its own by a government program of subsidy and import controls. In the United States the demise of oil shale operations began with the discovery of liquid petroleum at Titusville, Pennsylvania, in 1859. Within a few years the domestic industry had succumbed.

Early in this century interest in the commercial exploitation of oil shale was revived. Again, the reason for this revival of interest was tied closely to the then-perceived vicissitudes of the liquid petroleum industry. With the advent of the automobile consumption of petroleum increased dramatically; it then seemed to some that the world's reserves of liquid petroleum would be exhausted within a few years. As a result, many claims, including the claims in these proceedings, were located in the few years prior to 1920 in what the Supreme Court has characterized as a period of speculative fever. Hickel v. Oil Shale Corp., 400 U.S. 48, 54 (1971). Innumerable attempts at achieving profitable operations were made, some on an experimental basis and some on a full-scale production basis. The result in every single case was failure to achieve a

profitable operation. The reason is clear: the ultimate reduction of oil shale to oil was simply too costly to permit successful competition with liquid petroleum.

Since 1920 those principally interested in oil shale have been large oil companies and the Government. As appellees have pointed out, the large oil companies have spent several millions of dollars acquiring patented and unpatented mining claims; several millions have also been spent on research, mostly on establishing prototype operations. However, virtually no money has been expended on initiating actual commercial mining operations on these claims. One company that has attempted commercial operations on other claims (TOSCO) has failed to show either substantial production or profits. (Tr. 5063-5069).

For its part, the Government has spent several millions over the years on prototype plants and on research aimed at finding new methods of processing oil shale at a cost more favorable with the costs of the liquid petroleum industry. The Government has never developed a plant capable of commercial production.

Both the oil industry and the Government prepared studies attempting to show with some precision the probable costs and rates of return of a hypothetical operation. The National Petroleum

Council prepared a study in 1951 at the request of the Secretary of the Interior. (Ex. G-451). The conclusion of that study was that a small rate of return could have been realized, but that such return was so much less than the rate of return the oil companies could achieve on other investments at that time that an oil shale operation could not attract investment capital.

The Bureau of Mines also made a study in 1951 with some differences in the data and basic assumptions used by the National Petroleum Council. Though on some points the studies were in agreement, the Bureau of Mines study showed a substantially higher rate of return, 11.2 percent; but again, that return was less than the average rate of return in the oil industry and was therefore considered unlikely to attract investment capital. (Ex. G-459).

Another study was prepared by the Bureau of Mines specifically for these contest proceedings. The study was made for the years 1915, 1918, 1919, 1920 and 1966. (Exs. G-666, 667). Many experts in mining, engineering, and finance were consulted to determine the possible profitability of a hypothetical mining operation based on the best available methods of mining for each time period. For the 1915-1920 period the projected returns ranged from 0 percent to 7 percent. For 1966 the return was estimated at 9.84 percent on a net investment of \$185,000,000. In each case the projected rate

of return was found to be too low to attract investment capital since the alternative investment opportunities available to the oil companies were far more attractive, especially considering the risks involved in initiating operations which had never succeeded before.

In the proceedings below appellant and appellees seriously questioned some of the assumptions utilized in the studies. Appellant asserts that certain by-products which increase the revenues in the 1915-1920 period could not have been sold, and consequently no profit whatever could have been realized in that period. Appellees argue that the costs for community facilities necessary to attract sufficient labor were overstated. In addition, appellant has pointed to the disparity in the results of the 1951 studies as evidence of the inherent difficulties with these hypothetical studies.

We conclude as follows. First, as a historical fact, the commercial production of oil from oil shale has never been competitive with the liquid petroleum industry. Second, the hypothetical studies at best confirm that the commercial exploitation of oil shale would not be competitive with the liquid petroleum industry. Third, without exception, every oil shale operation that has been attempted in this country has failed to show profitable production. Fourth, appellees have held these claims for half a century without attempting to exploit them.

It is unlikely that any oil shale operation could have operated at a profit at the time these claims were located or at any time up to and including the time of these contest proceedings. In so concluding, we have obviously discounted the studies which show that a profit, however meager, could have resulted from actual operations. We do so for three principal reasons. First, the history of innumerable attempted operations admits of no other conclusion. In spite of what the hypothetical studies show, it remains an incontrovertible fact that there has never been a single oil shale operation in this country which could show profitable production.

Second, the studies themselves were not buttressed by the experience of successful commercial operations. While that in itself would not disqualify their use as evidence, it does make them heir to an infirmity which was expressed by Alfred North Whitehead in a lecture on historical foresight:

The main difficulty \* \* \* is the power of collecting and selecting the facts relevant to the particular type of forecast which we wish to make. Discussions on the method of science wander off onto the topic of experiment. But experiment is nothing else than a mode of cooking the facts for the sake of exemplifying the law. 52/

---

52/ A. WHITEHEAD, ADVENTURES OF IDEAS 88 (Free Press ed. 1967).

Third, a half century of failure to develop a single commercial operation, on these claims or any others, lends emphasis to the conclusions of the studies that whatever the rate of return, it would have been insufficient to attract investment capital in actual operations. 53/

While oil shale can be found on these claims in great quantity, no attempt has ever been made to develop those deposits. Therefore, the oil shale deposits found on these claims never have been a valuable mineral deposit within the meaning of the general mining law.

In order for a commercially profitable operation to come into being there must be either a dramatic improvement in the technology or an alteration of the economic forces which have always operated in this country to prevent the commercial production of oil shale. The significant increases in national and world population, the increasing American per capita demand for energy, the diminution of available supplies and reserves of other energy sources, the complexities of international politics and economics, and the new awareness of environmental considerations, all acting in combination, may indeed soon compel consumers to accept shale oil and to pay what

---

53/ If there were an actual mining operation on these claims which was earning the 9.84% return projected in the 1966 study we would be loath to declare the claims invalid. However, for reasons already stated, we do not believe that the studies are reliable.

always theretofore would have been an exorbitant and noncompetitive price.

However, speculation that oil shale may someday be valuable in an economic sense is not evidence of its present value as of 1920 or 1966. The right to receive title to federal public land cannot be supported by such speculation. To do so would be to reject scores of case authorities which define "valuable mineral deposits" as that term is employed in the statute. 30 U.S.C. § 22 (1970). 54/

### III. The Nature and Effect of Departmental Precedent

Between 1920 and 1960 the Department consistently recognized oil shale as a valuable mineral deposit. During that period 523 patents for 2,326 oil shale claims embracing 349,088 acres were issued. The theory upon which these claims were patented is set

---

54/ On November 30, 1973, the Department of the Interior announced a prototype leasing program, 38 F.R. 33186. Sealed bids were submitted and subsequently opened on January 8, 1974, and February 12, 1974. The high bid on January 8, for Colorado Tract C-A encompassing 5,089.70 acres was \$210,305,600. The high bid on February 12 for Colorado Tract C-B encompassing 5,093.90 acres was \$117,788,000.36. Subsequently, two tracts of comparable acreage in Utah were offered and received high bids of \$75,596,800 and \$45,103,200. Notwithstanding this vote of confidence in the future of oil shale as a source of oil, it must be noted that oil has not yet been produced from oil shale in paying quantities.

out in Freeman v. Summers, 52 L.D. 201 (1927).<sup>55/</sup> The parties in Freeman were in a position similar to that of the parties in Castle v. Womble, 19 L.D. 455 (1894). Summers had applied for patents to his homestead and stock-raising entries. Freeman and the Standard Shales Products Corporation protested on the basis that they had discovered a valuable mineral deposit, oil shale, on the same lands. That assertion was eventually sustained by the Department of the Interior. The issue in dispute in Freeman, from the beginning to

---

<sup>55/</sup> Freeman was preceded by the Instructions of May 10, 1920, 47 L.D. 458 (1920), which stated that oil shale was a mineral of economic importance and that it was subject to location and appropriation under the mining laws, if valuable. The instructions were based in part on a letter dated May 23, 1916, from the Director, Geological Survey, to the Commissioner of the General Land Office, advising the Commissioner of the classification of certain lands. The Director stated in the letter:

"In view of the high prospective mineral value of lands underlain by oil-shale deposits it is, of course, apparent that they should not be permitted to be acquired under the nonmineral land laws. The lands have not been recommended for withdrawal because the oil-shale industry is not yet developed in the United States, and as it is desired to give opportunity for the establishment of experimental plants, it is believed the lands should remain open for the present to acquisition under the mineral-land laws, even though they are ambiguous and but poorly adapted to deposits of this type."

We would construe the 1920 Instructions as simply directing that oil shale patent applications be adjudicated on the same basis as applications based on the alleged discovery of other minerals. However, since approximately 200 patents were awarded before Freeman issued, such instructions were obviously construed as implicitly recognizing the future value concept expressly enunciated seven years later in Freeman.

Subsequent to Freeman the Department and the Bureau of Land Management issued various pronouncements relating to oil shale, some implicitly and others explicitly recognizing Freeman v. Summers. See, e.g., Departmental directive of May 1931 (Ex. G-149); BLM Monograph of April 1954 (Ex. C-317); BLM Director's Memorandum of September 9, 1957 (Ex. C-356).

the end of the proceedings, was not value. Rather, it was the extent to which geologic inference could be relied on to establish discovery of richer oil shale beds once thinner beds had been found. 56/

The basic substantive error in Freeman is its underlying assumption that possible future value for mining meets the requirement of present value:

While at the present time there has been no considerable production of oil from shales, due to the fact that abundant quantities of oil have been produced more cheaply from wells, there is no possible doubt of its value and the fact that it constitutes an enormously valuable resource for future use by the American people.

52 L.D. at 206.

In the 102 years since enactment of the general mining law, value has always been determined upon present facts, not upon possibilities of the future. Ostensibly, the reasoning in Freeman with respect to future value was based on Castle v. Womble, supra. But it was stated in that case that

\* \* \* the requirement relating to discovery refers to present facts, and not to the probabilities of

---

56/ Basically, the mineral claimants asserted that a discovery of any part of the Green River formation was a discovery of a valuable mineral deposit, since eventually one would be lead from some thinner beds of shale to the richer ones.

the future. In this case the presence of minerals is not based upon probabilities, belief and speculation alone, but upon facts, which, in the judgment of the register and receiver of your office, show that with further work, a paying and valuable mine, so far as human foresight can determine, will be developed.

19 L.D. at 457.

The only precedent cited in Freeman in support of the proposition of possible future value is Narver v. Eastman, 34 L.D. 123 (1905). But Narver arose under the Timber and Stone Act of June 3, 1878, 20 Stat. 89 (repealed Aug. 1, 1955, 69 Stat. 434). It was not governed by the general mining law. In that case the granting of a patent to an agricultural entryman was protested by a claimant who had located the same area for building stone. The evidence clearly showed that the costs of extracting and marketing the stone far exceeded any possible revenues which might be realized from the sale of the stone. Nevertheless, based on reasoning which may only be described as obtuse, the land was found to be valuable for building stone:

\* \* \* It does not follow that because there is no clear profit arising from the sale of an article that has been manufactured or produced that it has no commercial value. Take for example the farmer. In the course of husbandry it frequently happens that different crops raised by the farmer when put in market do not sell for enough to pay the costs of their production and transportation, but can it be truly said that crops have no commercial value simply because after the same have been sold and all expenses incident to their production and shipment deducted, there is no clear gain to the farmer, and

therefore, as a corollary, that the lands are not valuable for agricultural purposes?

34 L.D. at 125.

This was the reasoning relied on by Freeman for the proposition that possible future value constitutes discovery of a valuable mineral deposit. We would agree that it is prudent for a farmer to sell his crops, even if there is no clear profit, assuming, however, that the costs of planting have already been incurred and that any additional costs such as harvesting and transportation will be less than the income to be realized from the sale of the crop. But if the farmer could foresee before planting the crop that he could not realize a profit, we do not believe that he or any other prudent man would undertake investment on those terms. Yet that was the case with the building stone claimants in Narver and with the oil shale claimants in Freeman. Since Freeman is clearly contrary to the mining law, we hold that it must be and is overruled.

Appellees argue, in effect, 57/ that if Freeman and the policy enunciated therein are overruled, such action may only be given prospective application. They cite several lines of authority which

---

57/ Appellees argue that since Freeman is so firmly entrenched in the mining law it may not now be overruled. Most of the case authority cited by appellees, however, supports the proposition that precedent may be overruled, but not applied retroactively. Since appellees have also argued at length that the Freeman proposition of prospective value is a "rule" which may only be changed prospectively, we assume that appellees do not mean to argue that Freeman may not be overruled at all, only that it may not be overruled in a retroactive manner.

hold that, in certain circumstances, long standing administrative interpretations of various statutes may not be overruled in a manner which would have a retroactive effect on those who have relied on the previous interpretation to their detriment. Those lines of authority may be roughly classified as follows: 1) public utility and postal rate cases, 2) decisions of this Department suggesting that new rules may be given only prospective application, and 3) administrative rulings of other agencies that changed statutory interpretations which had been followed since the enactment of the statute.

In public utility cases, after a hearing is held and a rate determined, the regulator may not later, upon the same or additional facts existing when its previous order was promulgated, require reparations of the carrier by holding that the original rate was too high and should be lowered. Arizona Grocery Co. v. Atchison, T. & S.F. Ry., 284 U.S. 370 (1932). The postal rate cases involve situations tantamount to a contract. The carriers had transported mail at the request of the Postmaster General with the fair implication that payment would be made on the accustomed basis. After the mail had been transported, changes in the interpretation of the statutes were made which lowered the rates. The Court held that to apply the lowered rates would improperly deny the carriers the higher rates that they had received for like services in the past and which they

had relied on in the instant cases in undertaking to transport the mail. United States v. Alabama Great Southern R.R. Co., 142 U.S. 615 (1892); Luckenbach Steamship Co. v. United States, 280 U.S. 173 (1930).

Both the postal rate cases and public utility decisions are inapposite, since the carriers and utilities had been actively induced by the Government to rely on certain rates. Neither appellees herein nor their predecessors in interest were similarly induced by the Government to locate these claims or to invest in their purchase or development.

The decisions of this Department advanced by appellees are equally inapposite, since they all have two characteristics in common which are not present in this case: 1) they all involved changes from one rule to another, either of which could be considered "correct" within the meaning of the statute, and 2) the original rules were in effect at the time the entries were made. Most of the cases cited concern timber culture entries, where the rule in effect at the time the entries were made was subsequently changed, requiring a longer time period before patent would be allowed. Mary R. Leonard, 9 L.D. 189 (1889). In that case it was clear that either the old or the new rule would be a permissible reading of the statute. Further, the entry was made when the old rule was still in effect. For similar holdings, see Rough Rider and Other Lode Claims, 42 L.D.

584

(1913), which dealt with a local rule regarding discovery, and Instructions, 52 L.D. 631 (1929), which concerned monumenting requirements for oil shale placer claims. In this case, however, the only rule in effect at the time these claims were located and on February 25, 1920, was the prudent man test of Castle v. Womble, *supra*, requiring present marketability.

The other line of cases cited by appellees involves administrative changes in the interpretation of a statute from an interpretation that had been followed since enactment of the statute. For example, in Robertson v. Downing, 127 U.S. 607 (1888), customs officials attempted to reinterpret a statute contrary to the interpretation instituted shortly after its enactment. The Court stated that where a statute has been interpreted in a particular way, that interpretation should not be disturbed except for "the most cogent and persuasive reasons." *Id.* at 613. Freeman, however, arose more than half a century after enactment of the mining law and more than 30 years after the promulgation of the prudent man test in Castle v. Womble, *supra*. Moreover, Freeman was and is a departure from the consistent interpretation of the law by the Department and the courts.

In Linkletter v. Walker, 381 U.S. 618 (1965), the Supreme Court dealt at some length with the considerations to be weighed in determining whether to limit the effect of overruling prior decisions to

prospective application only. The precise question in Linkletter was whether the overruling of Wolf v. Colorado, 338 U.S. 25 (1949), by Mapp v. Ohio, 367 U.S. 643 (1961), should be given retroactive effect or confined to prospective effect only. Mapp overruled Wolf to the extent that Wolf had held the "exclusionary rule" relating to illegal searches and seizures did not apply to proceedings in state courts. <sup>58/</sup> The basic considerations to be weighed are found in Linkletter and other cases, e.g., Chicot County Drainage Dist. v. Baxter State Bank, 308 U.S. 371, 374 (1940); Great Northern Ry. Co. v. Sunburst Oil & Refining Co., 287 U.S. 358 (1932). Those considerations include (1) the nature of the reliance placed on the precedent by the parties, (2) the purpose of the statute or rule in light of public policy, (3) the harm to the parties who have relied on the precedent to their detriment, and, conversely, (4) the harm to either the government or to the public purpose.

Neither appellees nor their predecessors in interest could have relied on the Department's policy in 1920-1960 in locating the claims herein. The Instructions of May 10, 1920, were issued after oil shale was removed from location on February 25, 1920. <sup>59/</sup> Freeman

---

<sup>58/</sup> The Supreme Court was careful to observe that there is no difference between civil and criminal cases in applying the doctrine of prospective application.

<sup>59/</sup> Appellees would contend that the claimants could well have relied on previous departmental actions and pronouncements in locating these claims. They argue at great length that classification by the United States Geological Survey of the lands upon which the claims herein are located as valuable for oil shale in

was not issued until September 30, 1927. Moreover, locating a claim requires only a minimal expenditure. Reliance or no, location by itself involves no change of position. Nor did appellees rely on

---

fn. 59 (cont.)

1916 imputed value requisite to support a discovery thereon. However, the meaning of "value" in the 1916 classification order is quite different from value requisite for discovery under the general mining law. The Act of July 17, 1914, 30 U.S.C. § 121 et seq. (1970), upon which the 1916 classification was based, and its predecessors, the Acts of 1909 (35 Stat. 844) and 1910 (36 Stat. 583), reserved to the United States certain minerals (later interpreted to include oil shale) that are classified as valuable by the U.S.G.S., when the surface is conveyed under the nonmineral land laws. Included in the reservation in each Act is "the right to prospect for, mine and remove." Since, as the Department and the courts have consistently held, a demonstration of value for prospecting or further exploration is not a demonstration of value under the general mining law, "valuable" in the Act clearly did not mean that the deposits in the lands so classified would necessarily meet the test of discovery.

Similarly, the classification of lands as valuable for oil shale by the U.S.G.S. in 1916 was based on prospective value, the prospect that at some indefinite time in the future oil shale would become marketable. The standards by which the U.S.G.S. classified lands as valuable for minerals are found in its Bulletin No. 537, published in 1913, wherein it stated as to phosphate:

"The purely economic considerations of accessibility, means of transportation, and nearness to market are highly important in the problem of establishing a commercial mine but are not involved in the classification of the land as phosphate or nonphosphate land." (G-101, p. 128.)

Another mineral included in the 1914 Act was potash. On page 137 of Bulletin 537, under the heading "Classification of Potash-Bearing Lands," it was stated:

"\* \* \* as investigation by the scientists of the Government bureaus reveals promising localities, these localities, if they involve public lands, will be withdrawn from entry until their value as sources of potash can be demonstrated or disproved."

The oil shale classification orders, covering lands in Colorado, Utah and Wyoming, all stated:

"The oil shales \* \* \* constitute an undeveloped source of petroleum \* \* \* and it is now recognized as possible that these shales will prove equally important as a source of nitrogen.

the Freeman policy in developing their claims, since they have not in fact developed them. This leaves the question of purchase.

The Shoup claims were quitclaimed to Karl Schuyler, Sr., in 1923. D. A. Shale, Inc., received title to such claims from Schuyler's widow, who inherited them in 1933 from her husband, and who, on July 6, 1960, incorporated D. A. Shale, Inc. Therefore, there is no evidence that D. A. Shale, Inc., or its predecessors invested more than a minimal amount in the purchase of the Shoup claims in reliance upon Freeman or otherwise. Although Shell Oil Company expended some \$18,780 in perfecting title to and preparing patent application for the Mountain Boy claims before 1964, it did not purchase the Mountain Boy Nos. 1, 6 and 7 from Frank Winegar for \$30,000 until after initiation of the contest proceedings. Moreover, the Department had not patented an oil shale claim since 1960. Accordingly, Shell could not have reasonably relied on the Department's continued adherence to Freeman when it purchased the claims.

---

fn. 59 (cont.)

\* \* \* \* \*

In view of the high prospective mineral value of lands underlain by oil-shale deposits it is, of course, apparent that they should not be acquired under the nonmineral land laws." (Ex. G-99, pp. 3, 4, 6, 7, 10, 11.)

Clearly, the 1916 classification could not be relied upon as declaring that minerals in the lands reserved, if found in sufficient quantity, were sufficiently valuable to support a discovery. The value necessary to support discovery during 1916-1920 was present economic value.

That appellees will suffer financial harm should the claims be invalidated does not justify the perpetuation of error in interpretation of the mining law and the consequent disposition of the public lands to those not otherwise entitled to receive them. Perpetuation of such error would serve neither the mineral law nor the public interest.

Even if appellees had relied on the Department's continued adherence to Freeman to their detriment, the purchase of mining claims without a reasonable prospect of present, profitable development is simply a speculative venture. Preventing the disposition and dissipation of the public lands on the basis of speculation on their possible future value is a most cogent and persuasive reason for refusing to follow the policy enunciated in Freeman. The Secretary of the Interior has plenary authority over the disposition of the public lands. Cameron v. United States,

252 U.S. 450, 460 (1920). The Secretary's duties as trustee of the public lands for the people of the United States

\* \* \* oblige him to see that the law is carried out, and that none of the public domain is wasted or disposed of to a party not entitled to it.

Knight v. United States Land Ass'n., 142 U.S. 161, 181 (1891). \* \* \*

To allow such land to be removed from the public domain because unforeseeable developments might someday make the deposit commercially feasible can hardly implement the congressional purpose in encouraging mineral development. Foster v. Seaton, 271 F.2d 836, 838 (D.C. Cir. 1959). The obligation of the Secretary requires that claims such as those herein, which are being held for speculative purposes in the hope that at some future date the necessary technology will develop to make extraction of oil from oil shale a profitable venture, should not be patented.

In a recent District Court case, McDade v. Morton, 353 F. Supp. 1006 (D.D.C. 1973), aff'd per curiam, (D.C. Cir., No. 73-1520, March 12, 1974), it was held that the Department of the Interior is not estopped by a former interpretation of a statute, however longstanding, from correcting what it feels to be clearly erroneous. The District Court quoted with approval N.L.R.B. v. Baltimore Transit Co., 140 F.2d 51, 55 (4th Cir. 1944), cert. denied, 321 U.S. 795 (1944), which held:

\* \* \* An administrative agency, charged with the protection of the public interest, is certainly not precluded from taking appropriate action to that end because of mistaken action on its part in the past.

See also Automobile Club of Michigan v. Commissioner of Internal Revenue, 353 U.S. 180, 183 (1957); United States v. California, 332 U.S. 19, 39-40 (1947).

Appellees allude to Ickes v. Virginia-Colorado Development Corp., 295 U.S. 639 (1935), and Wilbur v. United States ex. rel. Krushnic, 280 U.S. 306 (1930). The validity of certain oil shale claims was challenged by the Secretary of the Interior for failure to perform certain assessment work. The Supreme Court held in both cases that the claims were "maintained" within the meaning of the savings clause, section 37, of the Mineral Leasing Act of 1920, 30 U.S.C. § 193 (1972). Both decisions suggested that failure to do assessment work gave the Government no ground for forfeiture, but inured only to the benefit of relocators. In Hickel v. Oil Shale Corp., 400 U.S. 48 (1970), the Supreme Court concluded that Krushnic and Virginia-Colorado must be confined to situations which existed in those cases, *i.e.*, where there had been substantial compliance with the assessment work requirements of the mining laws, 30 U.S.C. § 28 (1970), so that "possessory title" of a claimant would not be disturbed on insubstantial grounds.

The issue of discovery was not joined in Krushnic or Virginia-Colorado. Thus, neither decision is pertinent to the disposition

of the case before us. The mining claims herein were not challenged for failure to perform assessment work, but for lack of discovery of a valuable mineral deposit. Accordingly, we are not concerned with the assessment work requirements of 30 U.S.C. § 28 (1970), but with the question of discovery within the meaning of the mining laws. We hold that no discovery of a valuable mineral deposit has been established on the claims at issue herein.

Appellees' other arguments have been fully considered and are not persuasive. Since its inception the general mining law has been interpreted by this Department and the courts to require as a condition of discovery that a mineral be presently marketable. Between 1920 and 1960 a different standard – possible future marketability – was applied to oil shale. Appellees contend the application of such standard was correct, but, if not, must continue to bind the Department. We reject both contentions. Application of such standard to oil shale was contrary to the mining law. Its continued application to oil shale is contrary to law and in derogation of the Secretary's responsibility as trustee of the public lands for the people of the United States.

Accordingly, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 CFR 4.1, the

decision of Administrative Law Judge Dent D. Dalby is reversed, and Mountain Boy Nos. 6 and 7 placer mining claims, and Harold Shoup Nos. 1, 2, 3 and 4 placer mining claims are declared null and void.

---

Newton Frishberg  
Chief Administrative Judge

We concur:

---

Martin Ritvo  
Administrative Judge

---

Douglas E. Henriques  
Administrative Judge

