

UNITED STATES

v.

HARLAN H. FORESYTH ET AL.

IBLA 73-166

Decided December 8, 1987

Decision after review of a recommended decision by Administrative Law Judge John R. Rampton, Jr., dismissing a mineral contest with respect to the Avenger Nos. 7, 8, 9, 10, 11, and 13 lode mining claims and finding the Avenger No. 12 lode mining claim null and void for lack of a discovery.

Recommended decision adopted as modified.

1. Mining Claims: Discovery: Generally--Mining Claims: Determination of Validity--Mining Claims: Lode Claims--Mining Claims: Withdrawn Land

For a lode mining claim there must be an exposure of mineral in place within the boundaries of the claim. Without an exposure of mineral in place there can be no discovery on a lode mining claim even though all other elements of discovery have been satisfied. If the land is withdrawn from mineral entry, it must be shown that the mineral in place had been exposed prior to the date of withdrawal.

2. Mining Claims: Generally--Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally

In order to have a valid mining claim, a mining claimant must have found a mineral deposit of such quality

and quantity that a person of ordinary prudence would be justified in the further expenditure of his time and means with a reasonable prospect of success in the development of a valuable mine.

3. Mining Claims: Generally--Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally

The prudent man standard is an objective standard which requires a claimant to submit proof that a prudent man would develop a mine. It is not enough that a claimant desires to do so if the evidence leads to a conclusion that a prudent man would not. This proof can be made using the testimony of expert witnesses who examine the property and express their expert opinion that the evidence supports a determination that a prudent man would be justified in the expenditure of his time and means with the reasonable prospect of success in the development of a valuable mine.

4. Mining Claims: Generally--Mining Claims: Discovery: Generally--Mining Claims: Discovery: Marketability

The issues of quantity and quality of mineral present on a mining claim are issues of fact. Once the evidence of quantity and quality has been presented, it must also be shown there is a reasonable prospect that those minerals can be removed and rendered suitable for sale at a cost which is less than the sales price of the product.

5. Mining Claims: Generally--Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally

Final proof of actual mining costs can only be ascertained after the conduct of an actual mining operation. However, a claimant may demonstrate the reasonably anticipated cost of mining, by use of reliable cost-analysis systems or by use of a comparison to an operative mine. These anticipated costs are a reasonable basis for a determination by a person of ordinary prudence regarding whether the further expenditure of his time and means is justified.

6. Mining Claims: Generally--Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally

The law of discovery does not require a guaranteed success, but only requires a reasonable prospect of success in developing a valuable mine.

7. Mining Claims: Generally--Mining Claims: Determination of Validity--Mining Claims: Discovery: Marketability--Mining Claims: Marketability

The obvious intent of Congress when making public lands available to people for the purpose of mining valuable mineral deposits was to reward and encourage the discovery of minerals that are valuable in the economic sense. 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. There must, therefore, be a showing of the existence of potential buyers of the product and the price they would be willing to pay.

8. Mining Claims: Generally--Mining Claims: Determination of Validity--Mining Claims: Discovery: Marketability--Mining Claims: Marketability

A mining claimant has satisfied the marketability test if it is shown that a market for the product presently exists, that there is a ready and willing buyer, and that the claimant can mine and sell the locatable material from the claims in the marketplace at a competitive or lower price than the present suppliers. A claimant need not have a firm commitment for the purchase and sale of his mine product.

9. Mining Claims: Generally--Mining Claims: Common Varieties of Mineral: Specific Value--Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally

The common varieties legislation (30 U.S.C. § 611 (1982)), removed "common varieties" of sand, stone, gravel, and the like from the operation of the general mining laws. In determining whether there is a discovery of locatable mineral, the uncommon (locatable) mineral must support the mining operation on its own, and the sale of other minerals from the claim may not be considered when predicting profitability. Sales of an allegedly uncommon variety of limestone must reflect the limestone's special value. This special value can be demonstrated either by sales for uses which require particular characteristics or by an increase in the marketplace price. If the limestone is sold for "common variety" use and as a result does not command a premium price, the income and/or reduced cost resulting from such sales should be disregarded when projecting profitability.

10. Mining Claims: Generally--Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally

When an exposure of valuable locatable mineral in place has been shown to exist within the boundaries of each mining claim, a group of contiguous mining claims can be considered as a group when determining whether a person of ordinary prudence would be justified in the further expenditure of his time and means with a reasonable prospect of success in the development of a mine. The concept of developing a "mine" can reasonably contemplate operations on a series of contiguous claims.

11. Mining Claims: Generally--Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally

In the early stages of development of any mine it is rare for the miner to have an assured market for his product or an assurance that when the mine is developed the price paid for his product will be equal to or higher than the market price in existence on the date he commences development. This fact does not render the claim invalid for lack of a discovery. A claimant need only demonstrate by a preponderance of the evidence that there is a reasonable prospect that when developed he will possess a profitable mine.

12. Administrative Practice--Mining Claims: Contests--Mining Claims: Hearings

A Government contest complaint which asserts the invalidity of a claim because of insufficient quantity and quality of the located mineral within the limits of the claim does not put into issue the existence of excess reserves within the limits of the claim.

APPEARANCES: Charles B. Lennahan, Esq., Office of the General Counsel, U.S. Department of Agriculture, Denver, Colorado, for the Forest Service; Kenneth E. Barnhill, Jr., Esq., Ernest W. Lohf, Esq., and David G. Ebner, Esq., Denver, Colorado, for the claimants.

## OPINION BY ADMINISTRATIVE JUDGE MULLEN

Before addressing the issues, we deem it appropriate to comment regarding the manner and extent we are accepting and adopting the recommended decision submitted by Judge Rampton. Although 17 exceptions to the decision were filed, much of the 33-page recommended decision was found to be acceptable by both parties. To the extent possible, we have adopted the language of that decision. 1/ However, in those instances where we deem it necessary, we will expand upon or modify that decision in order to address the exceptions registered. 2/

History of the Case

The mining claims involved in this proceeding were located for limestone in 1966 on public lands open to mining location within the Pike National Forest, Colorado. This proceeding was instituted by the filing of a complaint dated August 2, 1967, alleging, inter alia, that no valuable mineral deposit had been discovered within the claims, and that the Avenger Nos. 1 through 25 mining claims were located for a common variety of mineral no longer locatable pursuant to the Act of July 23, 1955.

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1/ In most instances the citations to the text of Judge Rampton's recommended decision have been eliminated for clarity. In many places a word or phrase was altered, and to quote and bracket these changes would be distracting and, in some instances, confusing.

2/ We commend Judge Rampton for the manner in which he handled this case. It is very evident from the file and the transcript that he was faced with a difficult case and that the parties were represented by capable and competent counsel well versed in the intricacies of a trial, both with respect to presentation of evidence and examination of witnesses and the procedural aspects of trial practice.

At a prehearing conference held on May 7, 1968, the parties agreed that joint sampling and additional core drilling would be done on the claims prior to a hearing. Pursuant to an order issued as a result of that conference, the joint examination was commenced in May 1968, continued during September, October, and November of that year, and into 1969. Four holes were drilled and the cores jointly sampled. On July 17, 1968, the Forest Service, without the knowledge of their counsel, filed with the Bureau of Land Management (BLM) office in Denver, a request for withdrawal of the lands upon which the claims are situated from the effect of the mining laws. Such withdrawal was noted on the official BLM land status records.

In November 1969, in accordance with the prehearing agreement, claimants were prepared to remove 2,000 tons of limestone for testing by a sugar factory, but were prevented from doing so, and from performing any further activities on the claims by a temporary restraining order issued by the U.S. District Court for Colorado at the request of the Forest Service. That injunction presently continues in effect. Work subsequently performed by the claimants has been and can now only be performed after grant of a specific modification of the injunction upon joint request by the parties.

The initial hearing was held during November and December 1968, and January 1970. After a decision was issued by the U.S. District Court in the injunctive proceedings, the record was reopened and further evidence and testimony received. During the proceedings, a Forest Service motion to exclude all data obtained after the filing of the application for withdrawal was taken under advisement pending receipt of evidence and briefs on the

issue. The claimants were allowed to present all evidence obtained as a result of a stipulation made at the prehearing conference. The Forest Service was granted a continuing objection to the ruling but elected to introduce, as part of its case in chief, parallel evidence obtained by it after the request for withdrawal filing date.

By decision issued by Administrative Law Judge Rampton, dated September 18, 1972, it was held that the application for withdrawal was fatally defective because of a failure to comply with the mandatory regulations. All of the evidence in the record was considered in determining all issues concerning whether or not the contestees had perfected a discovery. Of the original 25 Avenger claims challenged in the complaint, 16 claims were held to be void for lack of discovery of a locatable deposit of limestone. The complaint was dismissed as to Claim Nos. 1, 2, and 7 through 12 based upon findings that surface outcroppings and the limited drilling completed had shown the existence of high-grade locatable limestone found in a continuous bed throughout the claims which could be marketed at a profit.

On appeal, by decision dated February 28, 1974, United States v. Foresyth, 15 IBLA 43 (1974), this Board set aside Judge Rampton's decision and remanded the case for further hearing and a recommended decision. As to the issue of the validity of the request for withdrawal, the Board held that although the mandatory requirements had not yet been satisfied, all such omissions could be corrected at any time prior to the final adjudication of the application. Thus, on the date the withdrawal was noted on the land office records, i.e., July 18, 1968, the application to withdraw effected a

segregation of the land from further mineral location. However, the Board also held that information obtained after the date of segregation was admissible, and could be considered to the extent that such evidence confirms and corroborates exposures of a valuable mineral deposit made prior to segregation.

The issue (raised at the first evidentiary hearing) of the locatability of the limestone deposit in question was decided pursuant to the Department's findings in United States v. Chas. Pfizer & Co., 76 I.D. 331, 342-43 (1969). The Pfizer decision held that limestone containing 95 percent or more calcium and magnesium carbonates is an uncommon variety of limestone which remains subject to location under the mining laws.

The Board's remand decision in this case directed the parties to present, in far greater detail than had thus far been presented, evidence sufficient to show a discovery on each claim and to show marketability as of July 18, 1968. The Board directed the Forest Service attorneys to move to have the restraining order dissolved to the extent it prevented claimants from entering upon the land and removing material for testing.

A prehearing conference was held on May 30, 1974, to determine the procedures to be followed when carrying out the directions contained in the Foresyth decision. The order subsequently entered by Judge Rampton provided that, for purposes of testing the material for its use and suitability in manufacturing sugar, the claimants would be allowed to remove 1,000 tons of representative material from an existing quarry with as little damage to the

environment as possible. However, when the claimants entered upon the claims for the purpose of removing the bulk sample, a Forest Service representative ordered them to cease operations. Therefore, a second prehearing was held on the claimants' proposed implementation procedures.

Concurrently and pursuant to the Board's decision, the claimants resurveyed the claims and prepared maps delineating with more certainty the claim boundaries and the location of the outcrops and drill holes. Testimony was received for the primary purpose of determining the type of further drilling that would be permitted. Both parties were able to agree that a single map (Exh. R-1) showed with accuracy the exposed outcroppings of locatable limestone and the proposed additional drilling sites. Claimants voluntarily conceded the invalidity of the Avenger Nos. 18 through 25 claims.

At the second prehearing, the Forest Service did not object per se to the removal of a large tonnage of ore for testing at a sugar factory, but did oppose any further drilling as being a type of sampling not contemplated by the Board. After several attempts to remove a bulk sample for testing were forestalled by representatives of the Forest Service, claimants were ultimately permitted, in the fall of 1974, to remove approximately 1,000 tons of material from the existing quarry on the Avenger No. 10 claim. This material was shipped to a sugar factory at Rocky Ford, Colorado. Representatives of the Forest Service were present at all times during the removal and testing.

By Prehearing Order dated March 10, 1975, the claimants' proposed drilling program was approved. An interlocutory appeal was taken by the Forest

Service. By Order dated October 30, 1975, the Board held, inter alia, that inasmuch as the contestant had conceded that post-segregation removal of limestone from the quarry would help to establish whether the Avenger limestone was commercial grade and marketable, there was no theoretical or practical justification for the position that additional samples taken by drilling to establish quantity and quality must be excluded. The Board held that to the extent core samples may aid in establishing the quantity and continuous quality of an exposed outcropping, they are clearly within the scope of the remand. The Board agreed, however, that a number of proposed drill sites were located on claims for which the evidence showed no prewithdrawal exposures of mineral to exist. Referring to the testimony of Maynard Ayler, contestees' consulting geologist, the Board held the Avenger claims Nos. 1 through 6 and 14 through 25 void for lack of a mineral discovery because they contained no outcroppings or exposures of locatable limestone. The Board noted Ayler's testimony concerning the existence of high-grade outcrops on claims Nos. 7, 8, 9, 10, and 13, and conflicting testimony concerning outcrops on claims Nos. 11 and 12. Specifically, proposed drill holes Nos. 5, 6, 7, and 8 were permitted. Vertical drill hole No. 17 was allowed to establish the quantity and quality on claims Nos. 13 and 12 if an exposure or outcropping had already been discovered on claim No. 12. Vertical drill hole No. 11 was permitted to establish quantity and quality on the Avenger No. 11 claim. The allowance of vertical drill holes Nos. 9 and 10 was reversed.

The Forest Service failed to move to dissolve the injunction as directed by the Board and the claimants were required to bring an action before the

U.S. District Court to compel compliance. That order was issued by the court on July 18, 1978.

Further delay was encountered when the Planning Commission for El Paso County denied claimants' request for a permit to perform the authorized drilling. Hearings were held before the Board of County Commissioners and the Colorado District Court for El Paso County. The decisions rendered by those bodies were adverse to claimants. An appeal was taken to the Supreme Court of Colorado, which held, on September 13, 1982, that the county was without authority to prohibit or prevent drilling by contestees on public lands of the United States. Brubaker v. Board of County Commissioners, 652 P.2d 1050 (1982).

Core drilling was finally performed in 1982-1983 pursuant to and in accordance with the provisions and procedures prescribed in a plan of operations filed with and approved by the Forest Service. Holes were drilled, core recovered and logged, core intervals analyzed and selected for assay, samples prepared for assay, and assays were obtained by each of the parties acting separately, but with the knowledge and participation of the other. Neither party has taken any exception to the procedures followed, the assays obtained, or the integrity and correctness (within reasonable industry limits) of assay results obtained.

Additional delay was encountered before the parties were able to agree to a resumption of the administrative hearings. During the drilling of hole No. 7 (as designated on map R-1), the claimants lost circulation and were

unable to complete the hole. The Forest Service refused to allow a substitute hole (7A on claim No. 11) to be drilled on the grounds that this drilling would constitute post-withdrawal exploration. The contestees brought an action before the U.S. District Court for a modification of the temporary injunction to allow the substitute hole. A hearing was held on March 21, 1983 (Exh. 86-34). However, when no decision was forthcoming from the court, the claimants elected not to pursue the possibility of further drilling. On June 17, 1985, they filed a petition to reopen the administrative proceeding and requested a prehearing conference. In that request, claimants admitted that no discovery of an outcrop had been made on claim No. 12 prior to the application for withdrawal.

Discovery proceedings in the form of comprehensive interrogatories were instituted by the Forest Service and objected to by claimants. In a prehearing conference held on January 7, 1986, responses satisfactory to the Forest Service were provided. The parties also agreed to a schedule for complete exchange of proposed exhibits prior to hearing. Finally, some 16 years after the record was completed in the first hearing, the hearing on remand commenced on March 20. Briefs were submitted by both parties, with the final brief filed on August 18, 1986.

On February 25, 1987, Judge Rampton issued his recommended decision that the "Avenger Nos. 7, 8, 9, 10, 11, and 13 are valid claims" and that, with respect to these claims, the complaint should be dismissed. The case record and recommended decision were then forwarded to this Board.

By order dated March 13, 1987, the recommended decision was served on the parties. The order also provided that if no exceptions to the recommended decision were filed within 30 days from the date of receipt of the order, the recommended decision would be adopted by the Board. On April 20, 1987, the Forest Service filed 17 exceptions to the decision. An answer was filed on behalf of the claim owners on May 16, 1987, and a reply was filed on behalf of the Forest Service on June 2, 1987.

### The Issues

In order to frame the issues presented in this case, one must review the holdings in previous decisions and orders. The issues originally presented were:

(A) The existence of a valuable mineral deposit within the limits of each claim.

(B) If there is a valuable mineral deposit within the limits of the claim, is that mineral deposit a common variety mineral, and thus not subject to location.

These were the issues framed by the original complaint filed on August 2, 1967. Normally, if the land remains subject to location, the chronological time for determination as to the existence of a valuable mineral deposit is the time of the hearing. However, subsequent to filing the complaint, the Forest Service undertook steps to withdraw the lands from mineral entry. <sup>3/</sup>

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<sup>3/</sup> See United States v. Foresyth, *supra* at 45, 47-48, and 51-55 for a discussion of the withdrawal and its effect upon the issues of this case.

The issues framed in the complaint were addressed in United States v. Foresyth, *supra*. That decision further refined the issues and made a finding regarding certain elements of the issues. An appeal was not taken from that decision. Therefore, to the extent that decision was final, it is binding upon the parties. In Foresyth the Board made the following findings applicable to the issues in this case. In the determination of whether a discovery existed prior to the withdrawal of the land from mineral entry, the issue is whether a valuable deposit of minerals had been physically disclosed within the boundaries of each claim prior to the date of withdrawal. Evidence obtained after withdrawal may be used to support a claimant's allegation of discovery if it can be shown that the date of exposure of the valuable mineral predated the withdrawal.

At page 59 of the Foresyth decision the Board noted:

The claims were located for limestone. The applicable regulation, 43 CFR 3711.1(b) provides, *inter alia*, that: "[l]imestone suitable for use in the production of cement, metallurgical or chemical grade limestone, gypsum, and the like are not 'common varieties'." Thus, in order for a claim located for limestone after July 23, 1955, to be valid, the limestone must be either chemical grade, metallurgical grade or of a grade suitable for the production of cement. The obvious question is what qualities are necessary within a limestone deposit to make it of a grade sufficiently high to remove it from the proscriptions of the Act.

As regards chemical grade, this Department wrestled with this problem on a number of occasions and in United States v. Chas. Pfizer & Co., Inc., *supra*, at 342-43, held that "limestone containing 95 percent or more calcium and magnesium carbonates is an uncommon variety of limestone which remains subject to location under the mining laws."

Based upon this determination, the Board found limestone having 95-percent or richer carbonate content on the Avenger Nos. 9 and 10 claims and limestone containing carbonate material of sufficient grade on the Avenger Nos. 7, 8, 11, 12, and 13 claims, but noted that, because of the conflicting evidence regarding the location of the claims on the ground, there was some question as to the exact location of the high-grade mineralization with respect to the latter group of claims.

The Board recognized that a question regarding the marketability of the product still existed, noting that the "mere fact that the deposit is an uncommon variety of stone does not make it per-se marketable." The Board then charged the mineral claimants with the responsibility to show "that the deposit within each claim is marketable at a profit." Id. at 60. In doing so, the Board noted that in making a determination regarding marketability, profits from common and uncommon varieties of minerals cannot be aggregated. The common variety mineral must be treated as waste material with no value, even if it is essential that it be mined in order to reach the uncommon variety minerals.

The Board concluded that claimants had failed to show marketability, but that in light of actions taken by the Forest Service to restrain them from doing those things necessary to prove marketability, sufficient justification existed to cause the Board to not rule finally on the case. The judgment was then vacated as to all claims to allow claimants to present further evidence as to marketability and discovery after being permitted to

remove rock for sampling. The Board set aside the administrative law judge decision and the case was remanded for a further hearing.

Following the Board decision, one of the remaining issues, the location of the claims in relation to the surface geology, was resolved by stipulation of the parties that a map submitted as Exhibit K-1 was

a true and correct representation of the boundaries of the Avenger claims 1 through 25 inclusive as such claims appear on the ground; of the location of the points of sampling and of prior drilling designated thereon \* \* \*; of the surface contours and surface geology as determined by visual observation and surface mapping; and that such map may be received in evidence as a true and correct reflection of the data and material appearing thereon.

(Stipulation - Exhibit R-1).

Following a prehearing conference held on November 14, 1974, Judge Rampton issued an order, dated March 10, 1975, designed to implement the sampling program called for in the Board's decision. This order called for the removal of 1,000 tons of material for testing, the map submitted with the stipulation was accepted, and a core-drilling program proposed by claimants was deemed to be within the scope of permissible testing, as outlined by this Board.

The Forest Service then filed a motion for certification of the record to this Board, alleging that the March 10, 1975, order was controversial, that it involved controlling questions of law, and that an immediate appeal

to the Board would advance the final decision. On May 16, 1975, Judge Rampton denied the Forest Service motion, and the Forest Service sought relief from this Board. Following briefing by both parties, on October 30, 1975, the Board issued an order granting the Forest Service petition for review and ruled upon the petition.

In its October 30, 1975, order the Board found Judge Rampton's order could not be considered a ruling on the merits of the case and was thus not a basis for appeal. However, the Board also found that the real issue presented was the proper interpretation of the Board's decision. The petition was treated as a petition for clarification of the Board's Foresyth decision.

As clarification of its prior decision, the Board held that evidence obtained after the date of withdrawal was admissible to the extent that it confirmed and corroborated pre-existing exposures of a valuable mineral deposit, and that core samples taken after withdrawal could be used to the extent that they aid in establishing the quantity and continuous quality of mineral shown to be present in an exposed outcropping.

When rendering the Foresyth decision, the Board noted that it was uncertain where, as a physical matter, various outcroppings of chemical grade, metallurgical grade, or limestone suitable for making cement were located in relation to the claims. After examining testimony regarding the proposed drilling program, the map designated as Exhibit K-1, and statements made by claimants in their brief, the Board determined that 18 of the Avenger claims

must be declared null and void for lack of a discovery of a mineral deposit. 4/ Following that determination, the Board held that there was an exposure of a valuable mineral in place on the Avenger Nos. 7 through 10 and 13 prior to withdrawal, but that a question remained as to the existence of a pre-withdrawal exposure of a valuable mineral in place on the Avenger Nos. 11 and 12. The case was remanded for a hearing.

On June 17, 1985, following drilling and testing, counsel for claimants advised Judge Rampton that it had been determined that no exposure of a valuable mineral existed on the Avenger No. 12 lode mining claim prior to withdrawal, and the parties stipulated during a prehearing conference, held on January 7, 1986, that the Avenger No. 12 was null and void and no longer the subject of the contest.

In summary, the issues to be considered by Judge Rampton at the time of the hearing were:

1. The existence of an exposure of mineral in place on the Avenger No. 11 lode mining claim containing 95 percent or more calcium and magnesium carbonate on July 18, 1968. 5/

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4/ The claims deemed null and void were the Avenger Nos. 1 through 6 and Avenger Nos. 14 through 25.

5/ The claimants have been restrained from conducting any mining operations on the claims other than the testing described above. This being the case, if an exposure of a valuable mineral in place existed in 1968, it still existed at the time of the hearing.

2. Whether the deposit of locatable limestone found to exist on the Avenger Nos. 7 through 11 and 13 lode mining claims existed in such quantity and quality that a man of ordinary prudence would be justified in the further expenditure of his time and means with a reasonable prospect of success in developing a valuable mine. 6/

3. The existence of a market for the locatable minerals at a price higher than the cost of extracting the minerals and transporting them to the market. 7/

As previously noted, the first issue applies only to July 18, 1968. The other two issues are framed as to both that date and the time of the hearing.

Exposure of Locatable Mineral on the  
Avenger No. 11 Claim on or before July 18, 1968

[1] For a lode mining claim there must be a disclosure of mineral in place within the boundaries of the claim. Cameron v. United States, 252 U.S. 450 (1920); Chrisman v. Miller, 197 U.S. 313 (1905). In its Order dated October 30, 1975, the Board invalidated certain claims for which the evidence adduced at the prehearing conferences disclosed no exposures or outcrops of a valuable mineral deposit prior to withdrawal of the land from mineral entry. The Board specifically referred to conflicting testimony related to the

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6/ This is commonly referred to as the "prudent man" test.

7/ We recognize this is a simplified statement of the marketability test. However, this issue is discussed in greater detail later in this decision.

existence of an outcrop on Avenger No. 11 and permitted drill hole No. 11 to establish quantity and quality within that claim if the evidence indicated that an exposed and examined outcrop did in fact exist on that claim prior to segregation.

On this issue, Maynard Ayler, a consulting mining engineer and geologist who testified at the earlier hearings and whose expert qualifications have never been questioned, testified that he found outcrops of locatable limestone on claim No. 11 both during his visits to the claim group in 1967 and during the joint sampling done (May 1968) by himself and the Government's mining engineer and mineral examiner, Warren Roberts (Tr. 116).

In response to a direct question regarding whether or not he had found an outcrop on each claim, Ayler stated:

Q: (By Barnhill) \* \* \* Did you find an outcrop on each one of the claims which are still a matter of this proceeding?

A: \* \* \* Down on Claim #11, approximately the middle of the claim, there's two dip strike symbols and one of them, incidentally, shows a 42 degrees to the east dip which would be quite unusual. That was confirmed later by Hole #7, much to my surprise. Then, a little further on down the line on Claim #11, I have four more dip strike symbols along the south end. Two of them both a 85 and 88%, is a quite prominent outcrop of limestone right above the road \* \* \*.

Q: So, you found an outcrop on each one of the claims?

A: Yes.

Q: Now, with respect to Claim 11, particularly with respect to Claim 11, I think you testified earlier that your visits to the claims were in 1967 and you gave the exact date[,] and early in 1968?

A: That's correct.

Q: Did you find the outcrops indicated on that map at that time?

A: I did find -- I know I found this major outcrop or strong outcrop right above the road on the south end of Claim 11 and, also, another one that was up by the collar of Hole #17 which is not shown on this map, as such \* \* \*.

(Tr. 122-23).

Ayler was referring to various locations marked with a "T" on Exhibit 86-3 which he circled in red. These "T" markings are universally used by geologists as dip-strike symbols and indicate the vertical and horizontal trends of the rock layers at their point of exposure. The long line of the "T" represents the strike of the bed and the short line the direction in which the beds are dipping. Each "T" was accompanied by a notation indicating the degree of measurement of the dip. Ayler stated that no geologist can determine such a dip measurement without observing the exposure of the bed and therefore, all of the dip-strike symbols appearing on Exhibit 86-3 were based on visual observations of surface exposures. Such observations, according to Ayler, took place prior to and including May 1968.

Ayler also testified that the existence of the outcrops, as first observed by him in 1967 and examined by Roberts in 1968, was confirmed by subsequent drilling (Tr. 125-29), and that although the bed of limestone is overturned on a portion of claim No. 11, the bed is continuous from north to south through the claims (Tr. 129-30). The evidence of the overturn on claim No. 11 was confirmed by John S. Dersch, the Forest Service's expert witness, who participated in the joint sampling and drilling program conducted after the remand (Tr. 1006).

The "T" markings on Exhibit 86-3 were either inserted by Dersch or were already on that map when Dersch modified it on August 31, 1983. The legend indicates that the map was initially prepared by Ayler in October 1978, and modified by Dersch on August 31, 1983. The location and placement of the dip-strike symbols, based upon Ayler's observations of these outcrops in 1967 or 1968, was shown to Roberts and Dersch by Ayler. Dersch stated that the limestone outcrops on claim No. 11 (Tr. 1021) and the outcrops shown on Exhibit 86-3 are fair representations of the outcrops observed by him on the claims (Tr. 1035). The existence of the beds of high-grade limestone and the location of the surface expression of the beds on claim No. 11 are shown on cross sections B-B and C-C (part of Contestant's Exh. 86-GG).

Ayler's testimony concerning what he found on claim No. 11 in 1967, and while in the company of Warren Roberts, an employee of the Forest Service, in May 1968, stands unchallenged even though Roberts was present during the entire hearing and did testify.

Irrespective of Ayler's testimony, it is the Forest Service's position that no exposure of locatable mineral was found on claim No. 11 prior to segregation from mineral entry because no assays were obtained from these outcrops. 8/

Ayler's latest testimony has clarified his previous testimony concerning the exact location of the limestone outcrops and has identified the

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8/ These outcrops have been exposed for 20 years. If, during that period the Forest Service had sampled and assayed them and the assays indicated less than 95-percent total carbonate, we might be more inclined to listen to this line of argument.

position of those exposures on new maps which show the claim boundary with specificity. The evidence is clear that the outcroppings depicted on Exhibit 86-3 were found and examined by Ayler in his initial examination. Locatable high grade limestone was exposed in drill hole No. 11, drilled through the same limestone bed as the outcrops on claim No. 11. Whether or not Ayler specifically sampled the outcrops is not the issue. The existence of the exposure of mineral prior to the segregation was established and the quality and quantity of the bed outcropping on claim No. 11 was confirmed by subsequently approved drilling.

If we were to accept the Forest Service arguments, a mining claimant could not have a discovery until the minerals on the claim had been sampled and assayed and the assay results had been returned. Rather, the acts of sampling and assaying are acts which either confirm or disprove the existence of a discovery. Thus, if there was a disclosure of mineral at the date of withdrawal from mineral entry, that disclosure is a discovery of valuable mineral if subsequent sampling, assaying, and testing confirm the fact that the disclosed mineral is valuable. Thus, assay results from diamond-drill intercepts of the mineralized zone will support a conclusion that there was an exposure of valuable mineral if reasonable geologic projection leads to a conclusion that the intercept and the exposure are from the same mineralized structure. 9/

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9/ The Forest Service argues that no locatable mineral was found within the Avenger No. 11 claim because appellant did not show that the outcrop contained high carbonate or total carbonate mineralization of sufficient quality to qualify as a discovery. However, the surface exposure of limestone on that claim was not contested. See Exceptions to Recommended Decision (Exceptions) at 29 where the Forest Service states: "These surface outcroppings do

As noted previously in the 1974 Foresyth decision, the Board was unable to determine whether the mineral in place would support a discovery, and, whether there was an exposure of mineral in place. In its subsequent 1975 order, the Board noted that there was an exposure of mineral on the Avenger Nos. 7 through 10 and 13 prior to withdrawal, but that there was a question as to the existence of a disclosure of mineral in place on the Avenger Nos. 11 and 12. Appellants admitted the lack of an exposure of mineral in place on the Avenger No. 12 and it is clear from the pleadings and transcript that the Forest Service recognizes the existence of a surface exposure of mineral in place on the Avenger No. 11 on the date of withdrawal. This being the case, we will now address the issue of whether these exposures of mineral in place support a discovery on the various claims subject to the contest.

#### The Existence of a Discovery

[2] In order to have a valid mining claim, a mining claimant must have found a mineral deposit of such quality and quantity that a person of ordinary prudence would be justified in the further expenditure of his time and means with a reasonable prospect of success in developing a valuable mine. This is the prudent man rule, first expressed in Castle v. Womble, 19 L.D. 455 (1894), and approved by the Supreme Court in Chrisman v. Miller, *supra*.

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fn. 9 (continued)

not provide any evidence of [high carbonate] or [total carbonate] being present on claim 11 either in 1968 or 1986." Having thus admitted that there was an outcropping on Avenger No. 11 in 1968, the issue of exposure of mineral on the claim is not in question. Whether this exposure would constitute a discovery is a separate but related question, which will be discussed at length later in this opinion.

There is no question that the claimants have any motive in the location of the claims in issue other than to develop a profitable mining operation. Earl J. Brubaker, the Chairman of the Board, CEO, and major shareholder of VALCO, Inc., the present owner of the claims, is an established businessman and mine operator who has the necessary capitalization, equipment, and resources to develop these claims. He has relied upon the advice and expertise of a competent, experienced, and respected mining engineer who testified in detail about the methods he used to arrive at his calculations of the extent of the deposits and the feasibility of mining. The initial studies based upon limited data have been confirmed, insofar as possible, by additional data. In addition, Brubaker has owned and operated a number of businesses, including a ready-mix sand and gravel company, a construction company, and a concrete ditch line company. He also was in charge of Valley Paving Company, which performed heavy highway construction and utility work such as underground pipelines. At one time, he operated a hard-rock silica sand operation which used a drill and shoot mining method. The machinery and equipment used in his businesses are similar to the equipment used in a typical open pit mining operation. As the executive manager of these companies, he kept current with the cost factors in his various operations and analyzed the general economic and business growth conditions in the areas where his businesses operated.

[3] In its exceptions to the proposed decisions the Forest Service has noted that the prudent man standard is an objective standard. This observation is correct. The prudent man rule requires the claimant to submit proof that a prudent man would develop a mine. It is not enough

that a claimant himself desires to do so if the evidence leads to the conclusion that a prudent man would not. See Fresh v. Udall, 228 F. Supp. 738 (D. Colo. 1964); United States v. White, 72 I.D. 522 (1965).

One of the most common means of demonstrating what a "prudent man" would do is through the testimony of expert witnesses who have examined the property and express their opinions, as experts, that the evidence supports a determination that further development is warranted. To have an expert in the field examine the property and render a decision is, itself, an exercise of prudence. 10/

In order to ascertain whether there is a discovery on the various claims, the evidence regarding the claims and the mineral contained therein must be examined and a conclusion reached by application of the prudent man rule. We will first examine the mineral deposit to determine whether there is sufficient quantity and quality to justify further expenditure of time and means with a reasonable prospect of success.

#### Quantity and Quality of the Deposit

[4] Extensive testimony concerning the quality and quantity of the Avenger limestone was given by Ayler, an expert retained by claimants, and

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10/ The Forest Service alleges in its exceptions that, under Judge Rampton's interpretation, "a person receiving bad advice could be a prudent man" (Exceptions at 11). This is a correct statement. Any prudent investor could receive bad advice, whether the investment is mining properties, stocks, Government securities, or hog bellies. By placing the expert on the stand and allowing cross-examination, the Forest Service is afforded an opportunity to convince an administrative law judge that, considering the facts known at the time, the advice given was recognizably bad, and therefore a prudent

Dersch, a geologist employed by the Forest Service. Their testimony was derived from data obtained from the property including the additional cores drilled in February through June 1983, in accordance with Section 8 of the operating plan signed by Brubaker on November 12, 1982. In that plan, it was agreed that as the drill holes were completed or at times mutually agreeable to the parties, core intervals would be jointly selected for sampling and assaying by the representatives of both parties. Ayler and Dersch individually logged the cores from each hole, prepared their own records, and jointly split those sections of the limestone cores deemed by them to warrant assaying. Each sample was assayed for calcium carbonate, magnesium carbonate, silicon dioxide, and iron. The samples were delivered to Skylines Lab Inc., Wheatridge, Colorado, for sample preparation and splitting. The claimants' splits were assayed by Skylines Lab Inc., and the contestant's splits were assayed by the Colorado Assaying Company, Denver, Colorado.

Each expert then prepared maps and cross-sections reflecting his interpretation of the existence, thickness, continuity, approximate dip and strike, and course and extent of the mineral deposit. Exhibits 86-3, 86-6, and 86-W reflect the experts' projections of the deposits between the drill holes. The dip and strike, as well as the extent of the deposits, are shown in Exhibits 86-12 and 86-GG. The total quantities of the plus 95-percent carbonate

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fn. 10 (continued)

investor would have rejected it. To hold otherwise would place the Forest Service in the untenable position of requiring the Secretary of Agriculture to make the determination regarding whether to challenge a mining claim based solely upon his own observation, rather than relying upon the advice of his experts in the field. Even the Forest Service experts sometimes give bad advice.

material (locatable limestone) as calculated by Dersch are reflected in Exhibit 7 of his mineral report (86-BB), and as calculated by Ayler are in Exhibit 86-13.

Limestone is deposited in beds in a marine environment over a period of ages. Its chemical composition is governed by the physical, chemical, and climatic conditions existing at the time of deposition. Although limestone is generally found in widespread deposits, variations and gradations of its physical and chemical properties may exist within a specific deposit. Generally speaking, however, a degree of predictable continuity of chemical composition will be found within and through the course and extent of such beds, subject to the factors of erosion and interruption by faulting (Tr. 131-35).

Neither expert was aware of any significant erosion. They agreed on the existence of a fault near drill hole No. 11 (Exhibits 86-3 and 86-W), but were not in agreement regarding the existence of a minor fault Dersch had placed near drill hole No. 6 in the course of his geologic projection (Exhibit 86-Y).

For the purpose of calculating volumes and grades of the samples taken, the Forest Service's expert witness, Dersch, prepared the following table in which volumes are calculated in unit numbers. The table is a compilation of those intervals (given in feet) in each drill hole assaying 95-percent or greater total carbonates except for three zones ranging in thickness from 2 to 5 feet, and which because of their thinness could not, in his opinion, be economically mined.

<u>Unit</u>	<u>Drill Hole</u>	<u>Thick-ness</u>	<u>Wgt. Avg.% Carbonates</u>	<u>Wgt. Avg.% CaCO[3]</u>	<u>Wgt. Avg.% MgCO[3]</u>
1	4	16.0	95.85	95.05	0.80
2	3	7.0	97.30	59.50	37.80
	2	33.0	95.30	61.70	33.60
	4	36.0	99.56	67.55	31.92
3	3	9.5	98.10	89.15	8.95
	2	36.0	98.78	95.04	3.74
	6	13.0	94.53	93.14	1.39
	5	32.0	95.67	91.05	4.62
4	6	4.0	95.18	77.86	17.32
	5	28.0	90.31	65.23	24.68
5	6	4.5	92.32	62.69	29.63
	5	17.0	97.56	66.99	30.56
6	6	24.25	98.00	84.90	13.10
7	8	37.5	96.78	57.61	39.07
	11	4.5	95.46	77.81	17.65
8	8	10.0	97.58	96.56	1.02
	11	18.5	90.18	89.26	0.92

Using a conversion factor of 150 pounds per cubic foot, Dersch compiled the following table of tonnage calculations for each unit.

<u>Unit</u>	<u>Tonnage</u>
1	42,405

2	609,754
3	1,540,899
4	652,942
5	463,318
6	506,879
7	567,084
8	<u>166,501</u>
Total	4,583,223 or, about 4.5 million tons
	===== averaging 95-percent or more
	total carbonate rock

Ayler, claimant's expert witness, used the same data but a somewhat different approach when making his correlation. He first utilized all assays, rather than limiting his analysis to assays of plus 95-percent limestone, in an effort to determine the existence of a chemical stratification of the carbonates in the limestone deposit. As a result of this examination, he determined the contact point between depositional beds based upon changes in the magnesium content of the limestone.

After determining that sufficient stratification existed to warrant a conclusion regarding reasonable predictability of the existence of locatable limestone containing plus 95-percent carbonate, he prepared Exhibit 86-4, which shows total content of the locatable limestone which can be mined by open pit methods on each claim, as follows:

<u>Claim No.</u>	+95% CaCO <sub>3</sub> <u>"HC"</u>	+95% CaMgCO <sub>3</sub> <u>"TC"</u>
7	41,500	244,200
8	112,500	234,800
9	91,600	391,300
10	300,600	329,000
11	94,100	551,500
13	37,750	157,750
14	<u>3,250</u>	<u>22,850</u>
Total	<u>676,300</u>	<u>1,931,300</u>

The evidence submitted by either witness allows a reasonable conclusion that a continuous deposit of locatable limestone exists, but is not necessarily of uniform thickness throughout the claims.

11/ The Dersch estimate (significantly higher than Ayler's) took into consideration only the limestone between the surface and the total depth of the drill holes. Although he did not attempt any calculation of the tonnage or grade of the limestone below the level of the drill holes, he admitted the limestone did not end at those points and might well extend to a depth of 776 feet throughout the claims (Tr. 1027).

The claimants' calculations reflect a total deposit of locatable limestone of 2.6 million tons minable by open pit methods plus an unknown quantity which may be minable by underground methods. While the difference in the estimates may be due in part to the approach taken by each expert, in the last analysis, each stated that the differences were minor, and they were generally in agreement as to both the extent of the deposits and the quality

11/ The disagreement between the experts regarding continuity of the deposit resulted from a disagreement regarding the ability to project between exposure and existence of offsetting faults, but there was no apparent disagreement as to the general continuity of deposition.

(Tr. 1498-1503). For purposes of this decision, it is immaterial whether there are 2.6 million, 4.5 million, or more tons of chemical-grade limestone on the claims in issue, for it is undisputed that the lowest estimated amount would supply the presently projected market need for a number of years. 12/

The determination that a valuable mineral exists on a property is only the first step in the "prudent man" determination. One analysis of the earth's crust noted that the gold contained in seawater represents the largest known "reserve" of gold in the world. However, the cost of extracting gold from seawater is far greater than the value of the gold that would be recovered. A prudent man, therefore, would not expend his time and means to evaporate seawater and process the solids to recover the gold. A mineral deposit becomes an ore deposit only if the cost of removal and rendering the minerals contained in the deposit suitable for sale is less than the sales price. Cost of extraction must, therefore, be examined.

#### Feasibility and Costs of Mining

The claimants presented a detailed but relatively simple open pit mine plan consisting of a rip and strip operation by which the plus 95-percent limestone would be removed in segments from a series of benches constructed along the strike of the limestone beds extending north and south from the existing quarry on claim No. 10. The materials removed would be crushed and

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12/ A more detailed discussion of market projections is found later in this decision.

screened to specification and stockpiled for removal by the buyer. The covering of light density brush, and if necessary, the overburden, would be removed, stockpiled, or used to construct the benches and a bench road. A road would be constructed for access to the first operating bench, from the existing county road that crosses the claims. All waste material (less than 95-percent total carbonates) would also be pushed off the benches and used to construct work areas and roads.

Under the mining plan presented by the claimants, the open pit mine operation would be in full operation only a few months of the year and the need for equipment is limited. There is no foreseeable need for permanent installations such as electric power or natural gas lines. In the plan, a single bulldozer with ripper attachments would clean the overburden from the outcrops and push that material downhill to construct the original crushing plant site and access roads to the upper quarry benches. The bulldozer would then operate along the strike of the limestone outcrop with the ripper depressed to selectively break and loosen the limestone beds to a depth of about 3 feet. Plus 95-percent material would be pushed to the north end of the bench and stockpiled for later removal to the crusher level. The waste zones, loosened by the same process, would be pushed to the south end of the quarry and stockpiled for future use or removal. All quarry development could be accomplished by repetition of this same sequence.

Ayler admitted that high calcium limestone cannot be distinguished from the high total carbonate limestone or the waste solely on a visual basis. Assay control would be needed (Tr. 324). Quality control would be maintained

by channel sampling across the benches during the mining process and, to a limited extent, by blending the material (Tr. 324-27, 554-55).

The other mobile unit at the quarry site would be a tire mounted front end loader which would transport the high-grade material from the stockpile to the crusher. The same loader would be used to feed the crusher and load the trucks carrying the crushed products to market.

The mine plan envisions a portable crushing and stacking plant unit with conveyers. This plant would initially be located on the developed 8,550-foot-elevation work area. If the plant is diesel powered, a diesel storage tank would be required onsite for fuel. This tank would also be used for ripper and loader fuel. All needed electricity would be generated onsite by a small diesel-electric portable generator.

An onsite office, if needed, would consist of a portable office-house trailer. No need was seen in the foreseeable future for an onsite repair shop (Exh. 86-11).

The costs of such an operation were calculated by Reed Jones, Vice President - Finance for VALCO, Inc. Jones used his past experience as an accountant for limestone open pit mining and crushed stone operations and a document published by the U.S. Bureau of Mines entitled "Capital and Operating Cost Estimating System Manual for Mining and Beneficiation of Metallic and Nonmetallic Minerals Except Fossil Fuels in the United States and Canada"

(Exh. 86-19) as the basis for his calculations. This publication is customarily consulted by the mining industry when determining costs prior to commencement of mining and in the preparation of mining plans (Tr. 244-45).

Jones is a CPA with extensive experience in mine cost accounting and management information computer systems. He used the data from Exhibit 86-19 together with the cross-sections, production figures, and strip ratios (of locatable limestone to waste) prepared by Ayler to determine the costs for each category of the open pit operation even though, based on his own experience, he believed that some of the cost data selected by him was too high (Tr. 585-90). For example, he used the rental cost figure for a D-9 caterpillar, which is \$7,000 a month higher than the rental of a D-8 caterpillar, even though he and Ayler believed the D-8 was fully capable of doing the work. He also used the monthly rental figures stated in Exhibit 19 even though based upon his cost accounting experience for equipment at similar projects operated by the company and others, he was of the opinion that the company would find it cheaper to use equipment it already owned.

The mining costs calculated by claimants were \$3.92 per ton for an open pit operation extracting and processing 60,000 tons of end product of saleable locatable limestone per year and \$3.56 per ton for a total operation extracting and processing 100,000 tons per year (Tr. 590-91).

As an alternative to an open pit quarry, or for use when the stripping ratio or other physical constraints rendered an open pit mining operation less economic, claimants presented a plan whereby the locatable ore could be

mined underground by a vertical crater retreat (VCR) system. The method and costs of mining the Avenger claims by the VCR system were set forth in a detailed report prepared by Ayler (Exh. 86-21). Simply stated, a 15-foot adit would be excavated within the plus 95-percent limestone. Holes would be drilled from the old quarry floor above the adit tunnel and a blasting pattern would be used to break the ore which would then drop onto the floor of the adit, where it would be removed by a front-end loader and placed into trucks. According to this mining plan, claimant believed that all of this material would be considered saleable and production could begin as the face of the tunnel is advanced and truck turnouts are developed (Tr. 261-66).

Ayler concluded that the plus 95-percent carbonate limestone could be mined by the VCR method for a cost of approximately \$1.57 per ton, which is comparable to the cost of surface mining (Tr. 272). Additional crushing, transportation, and overhead costs would be approximately \$2 a ton, for a total of \$3.60 per ton (Tr. 272).

The Forest Service challenges the feasibility of both of the proposed operations. The primary basis for the challenge was the fact that its experts disagree with Ayler's conclusions about the continuity and thickness of the locatable grade limestone. Dersch testified that, in his opinion, the 95-percent carbonate material may not be consistent from drill hole to drill hole, that it pinches and swells from point to point, and in some cases may pinch out entirely (Tr. 917). From the same data base used by Ayler, he prepared plan views and cross-sections of the chemical grade limestone which take a much more conservative view of possible projections of the thickness

of the locatable beds (Exhs. 86-Z, 86-Y, 86-AA). As an example, Ayler projects the bed of high calcium carbonate exposed in drill hole No. 5 (on claim 8) into claim No. 7, pinching out at a point just north of drill hole No. 1 which encountered no high calcium carbonate, only high total carbonate. In contrast, Dersch was unwilling to project the high calcium carbonate encountered in drill hole No. 5 more than 100 feet beyond and south of that drill hole.

Further, in Dersch's opinion, mining would be difficult because of the need to maintain a very good assay program to prevent dilution of the locatable limestone with material of lesser quality (Tr. 920). Dersch initially stated that channel assays would need to be taken across the exposed ore at 100-foot intervals until the situation is better understood. Although the exhibits prepared both by Dersch and Ayler necessarily show the projections as straight lines, Dersch stated that in actuality the mineable zones on each bench could vary as much as 10 feet and therefore additional drilling might be necessary to establish sufficient grade control (Tr. 921).

Although Dersch testified in extensive detail concerning points of agreement and disagreement with Ayler's projections, Dersch's conclusions as to the viability of the proposed mining operation are necessarily general and made from the viewpoint of a geologist, because he made no cost estimates. His conclusions as to the cost of mining and processing the mineral product are best summarized from his Mineral Report, Exh. 86-BB at 14, as follows:

Production of chemical grade or high calcium limestone does not appear to be economically viable for the following reasons:

The limestone units are highly variable in thickness, grade, continuity, and uniformity.

Underground mining does not appear to be economically feasible.

Because of the local topography, steeply dipping limestone beds, and variable thicknesses and grades, surface mining would be difficult at best.

The experts are in agreement as to the quality and thickness of the limestone beds at the drill holes. The disagreement occurs as a result of differences in each expert's projection of continuity, thickness, and homogeneity of beds between the drill holes, which projections are, of course, the heart of the estimation process. If Dersch's projections are more accurate, the mining costs which would be incurred under each of the proposed mining plans would be greater because the waste-to-ore ratio would be higher than that estimated by Ayler. Short of a more extensive drilling program, which is not permitted, or short of an actual test operation, to which the Forest Service will not agree, there can be no proof positive as to which of the projections is more correct. The data on which the projections are based is limited to that which has been permitted throughout these proceedings.

The Forest Service was provided a copy of claimant's production cross-sections and mine plan, and submitted its own analysis for a rip and strip operation in a prehearing exchange of documents (Exh. 86-36). In that analysis, it was estimated that for an ideal operation where no overburden or waste was involved, the total cost for mining the chemical-grade limestone, including

reclamation, administration, and overhead, would be \$4.19 per ton. The estimated cost of removing the waste rock was \$1.72 per ton. The analysis calculated a waste-to-ore ratio on a claim-by-claim basis and arrived at the total cost per ton to mine each claim: No. 7, \$6.59; No. 8, \$6.65; No. 9, \$7.11; No. 10, \$6.92; and No. 11, \$9.92. No estimate was made for No. 13.

The Forest Service elected not to submit the above-described prepared analysis as one of its exhibits. Instead, it was offered by the claimants, because, under cross-examination, Frederick B. Mullin, the mining engineer who prepared the analysis, admitted that it contained many errors. Specifically, he stated that if he were advising a mine operator, he would not advise commencement of operations in an area where the stripping ratio was the highest, but that he used those figures in calculating his stripping ratio (Tr. 1303). He admitted he would not expect an operator to use the largest possible piece of equipment rented at the highest hourly rate (instead of a monthly rate), but that in each instance he used precisely those figures to make his calculations (Tr. 1289). He admitted that he used two crushers in his cost calculations, even though he knew that contestees would only use one (Tr. 1342). He admitted that he had erroneously used the wrong tonnage of rip per bulldozer pass and per shift (Tr. 1333-36). And finally, he admitted that after utilizing the wrong stripping ratio, he reduced the amount of product by 20 percent twice instead of only once as he should have done (Tr. 1336). As a result of these errors, Mullin's original cost estimate of mining was almost three times the contestee's. After adjustment to correct these errors, Mullin's estimate reflected an average mining cost of \$2.49 per ton (Exh. 86-37).

[5, 6] Although final proof of actual mining costs can only be ascertained after the conduct of an actual mine operation, a comparison can be made between the estimated costs of mining the Avenger limestone and the proven costs of mining the Monarch Mine limestone, an open pit limestone mine located in Colorado and operating at the time of the hearing. Dennis Sheehan testified that Calco, the prospective purchaser of products from the Avenger claims, pays the contractor operating the Monarch Mine \$5 per ton for drilling, shooting, screening, and loading the material into Calco's trucks. Sheehan testified that the Monarch Mine limestone is more expensive to mine than the softer Avenger limestone because it requires drilling and blasting. In addition, Sheehan was of the opinion that the proposed mining operations at the Avenger claims would be more efficient and would be less costly than the mining operations at Monarch. Thus, although Sheehan admitted that the Monarch limestone and the Avenger limestone are intrinsically "totally different animals" (Tr. 711), the methods of mining the two deposits are comparable and confer legitimacy upon claimants' cost calculations.

From the earliest days of location of the claims in issue, the Forest Service has actively opposed any activity on the claims which would result in a disturbance of the surface resources. <sup>13/</sup> This opposition definitely made it more difficult for claimants to develop the information necessary to incontrovertibly establish the feasibility of developing the mining claims. At the first hearing, Ayler necessarily based his projections solely on data obtained from sampling the outcrops and from the cores of the four drill holes drilled

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<sup>13/</sup> We do not deem it to be necessary for this Board to make a finding whether the opposition was warranted or excessive.

prior to the date the claimants were enjoined from further activities on the claims. At the first hearing he admitted that, had the claimant's not been prohibited from further work, additional holes would have been drilled to obtain data which would either verify or disprove his projections. Since the first hearing, six additional drill holes have been allowed. A bulk sample consisting of 1,000 tons of ore was extracted from the old quarry site and sold at a profit. It is significant to note that the additional drilling, sampling, and testing program, which was undertaken pursuant to a court order directing Forest Service to allow the work, has generally confirmed rather than disproved Ayler's earlier projections as to the quantity, quality, and continuity of the mineralized structure located in the Avenger claims group.

Ayler's proposed operation would logically begin on the Avenger No. 10, at the old quarry site and proceed in either a north or south direction, or both. However, Ayler also testified that an operation could just as easily be initiated on any claim with a cost per ton of locatable limestone being at or near that estimated by Jones.

We agree with Judge Rampton's finding that the preponderance of the evidence supported a determination that the claimants have established, by use of a reliable cost analysis system, by use of the Forest Service cost analysis (as corrected), and by use of a comparison to an operative mine, that the cost of mining and producing saleable plus 95 percent limestone from the Avenger claims is reasonably anticipated to be in the range of \$2.49 to \$3.92 per ton. After a review of the transcript and evidence, we find Judge Rampton's findings to be reasonable and supported by the record. Judge Rampton stated:

In view of the honest and carefully considered differences of opinion expressed by the experts as to the feasibility of mining the limestone deposit, based upon the data available, no finding can be made that the contestees are assured of a successful operation. But the law does not require a guaranteed success to validate a mining claim. Rather, the law only requires \* \* \* a reasonable prospect of success in developing a valuable mine.

(Recommended Decision at 24).

Much of the argument advanced by the Forest Service in its statement of exceptions and briefs submitted to this Board following issuance of Judge Rampton's recommended decision is directed to the determination that there is a reasonable prospect that the mineral could be mined at a cost at or near that projected by claimants. For example, the Forest Service argues that extensive sampling and chemical analysis would be necessary to maintain grade control, as there is no means by which a visual determination could be made. However, they did not advance any evidence that grade control could not be achieved with experience. Grade control will be critical. However, this problem is not unique to claimants. <sup>14/</sup> It is common to the industry and many methods of initiating grade control have been developed. There is a reasonable prospect that grade control can be developed by claimants. We also recognize that the claimants' ability to blend the mined product to maintain grade is limited. Because of the high purity standard for the final product, a limited blending tolerance exists.

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<sup>14/</sup> For example, the disseminated gold mining industry has a similar grade control problem, as in most cases the grade cannot be determined visually and must be controlled by sampling and chemical analysis. The Forest Service states that "in metal mining you can separate the 'good stuff' from the 'bad stuff.'" This is true only if there is enough "good stuff" in the rock to justify extracting it.

We agree that the method of underground mining proposed by claimants poses problems which render the application of this method much more speculative. If this were the only method proposed we would have a much more difficult case. <sup>15/</sup> However, if claimants' projections are reasonable, as we believe them to be, the property will support an open pit operation at a cost at or near those presented at the hearing. Thus, the success of claimants' operations is not dependent upon the success of this underground mining method. In fact, as noted previously, the reserves, as calculated by claimants, did not take into consideration any of the materials that would be mined underground.

Having made a determination regarding the quality and quantity of the mineralized material at the property, and a determination as to mining costs that may be incurred, it is now appropriate to turn to what a reasonable person might be able to expect to be a selling price for the product. Again, applying the prudent man test, if the cost of producing a product is greater than the price one would receive, a prudent man would not invest his time and means to produce the product. This test must be tempered, however, by the actual language of the "prudent man" rule. That is, it is not necessary for a prudent man to know exactly the cost of producing the product or the exact price he might receive. Rather, based upon a reasonable and rational estimate of the cost of production and a reasonable and rational estimate of the market price for the product, there is a reasonable probability of success in the development of a valuable mine.

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<sup>15/</sup> There is, for example, a much more serious question regarding the ability to maintain grade using the mining method proposed by claimants.

Marketability of the Mined Product

[7] Much of the testimony submitted by the claimants was tendered to prove that there was a reasonable probability that the product could be marketed. The landmark case for marketability is United States v. Coleman, 390 U.S. 599 (1968). In this case the Supreme Court expressed a logical refinement of the prudent man rule. In that case the Supreme Court stated:

Under this "prudent-man test" in order to qualify as "valuable mineral deposits," the discovered deposits must be 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 . . . ." Castle v. Womble, 19 L.D. 455, 457 (1894). This Court has approved the prudent-man formulation and interpretation on numerous occasions. See, for example, Chrisman v. Miller, 197 U.S. 313, 322; Cameron v. United States, 252 U.S. 450, 459; Best v. Humboldt Placer Mining Co., 371 U.S. 334, 335-336. 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. The obvious intent was to reward and encourage the discovery of minerals that are valuable in an economic sense. 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. (Emphasis added; cite omitted).

Id. at 602.

The primary impact of the Coleman case upon this and similar cases is to place a burden upon a claimant to submit additional proof regarding the ability to mine at a profit. To illustrate that burden, we set forth the following example:

If a claimant were to possess a mining claim containing an uncommon variety of building stone, and the claimant submits proof that the particular stone sold at a price greater than the cost he would incur when quarrying the stone, he must demonstrate that there is a reasonable prospect that if quarried, someone would buy his stone. If he was only able to show that in the past 10 years one ton of the stone had been sold as ornamental building stone at the price he would propose to sell his product and was unable to demonstrate that an additional market for his product could be developed, it could reasonably be stated that the claimant had not demonstrated that there was a demand for his product at a price higher than the cost of extraction.

With this in mind, we will examine the evidence regarding the existence of potential buyers of the product and the price they would be willing to pay. As previously noted, we must examine the potential market existing in 1968 and at the time of the hearing.

#### 1968 Markets

Brubaker first became interested in the Avenger claims in 1966. After determining that locatable high calcium limestone was used by the American Crystal Sugar Company in Rocky Ford, Colorado, he contacted the people in charge and was informed that the company had always had difficulties acquiring good grade limestone which would work in their sugar manufacturing process. American Crystal stated they were buying limestone from various sources located in a broad geographic area because of the difficulty in guaranteeing a dependable supply of good quality rock (Tr. 35).

Because Brubaker knew little about limestone, he went to a commercial testing laboratory to have the deposit evaluated. He also employed Ayler, who had previously worked for him in evaluating a silica sand deposit. On

Ayler's recommendation, Brubaker entered into a contract with the Boyles Brothers Drilling Company to drill core holes to further determine the quantity and quality of the material exposed upon the claim and the feasibility of mining. Although he was particularly interested in the sugar market, he was, at the time, also purchasing considerable quantities of hydrated lime from a Rapid City, South Dakota, seller for use in highway construction and needed a closer source of supply for these needs. In addition to the sugar and construction market, he made preliminary inquiries about supplying limestone to the Adolph Coors Company (Coors) for a future glass-manufacturing plant to be built near Denver, and to Colorado Fuel and Iron (CF&I) in Pueblo, Colorado, which was also a large user of limestone (Tr. 42). From the investigative work done, and based upon the recommendations of Ayler, he determined that it would be prudent to invest further money in developing the claims.

Core drill samples were delivered to American Crystal Sugar in 1968, but since the sugar company needed a large (bulk) sample run through its kiln to determine if the material worked properly within its particular operation, no contract for the purchase of limestone from the Avenger claims could be given. Because of the opposition of the Forest Service, Brubaker was unable to ship the required bulk sample until 1974. In the interim, he was contacted at least once or twice a year by representatives of the sugar company. Through conversations with the representative, he determined that they were paying within 4 or 5 cents of \$8 a ton for their material. Based upon his experience and an analysis of the mining and shipping costs, he determined he could have sold the material from the claims at a substantial profit. As a

successful businessman, he was ready in 1968 to invest the necessary funds to develop and mine the deposit.

Earnest Visconti, a superintendent of the American Crystal Sugar Company's Rocky Ford plant from 1972 to 1980 who is intimately familiar with the sugar manufacturing process, testified that he purchased approximately 1,000 tons of high calcium limestone from the Avenger claims in 1974. At the time, his company used approximately 60 tons of limestone per day of operation, or 7,200 tons per year. 16/ All of the limestone purchased from the Avenger claims was tested in American Crystal's sugar-manufacturing process, and was found to be satisfactory in all respects (Tr. 284-90). The Avenger limestone was superior to the limestone the company was purchasing from the Fort Collins source because it was a more uniform size and contained less waste or unusable small particles (Tr. 292, 310). Further, the Avenger limestone could be delivered by truck as needed, resulting in a lower total cost. The Fort Collins source of supply was delivered by rail and required additional handling. There was also loss by reason of breakage and frequent additional demurrage charges when the rail cars sat idle on the siding (Tr. 291-92).

Visconti testified that the company was anxious to enter into a contract to purchase a continuing supply of limestone from the Avenger claims. He paid \$9 per ton for the Avenger limestone in 1974, and that price reflected a

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16/ The American Crystal Sugar Company specifications called for plus 95-percent limestone. Visconti was not sure whether this represented high calcium or total carbonate limestone. Either way the company required locatable limestone for their process.

savings over the price paid by the company to other suppliers (Tr. 293, 297). Visconti stated the company's usage of limestone did not vary from year to year, that the problems with an adequate source of supply of quality limestone had been the same in 1968 as in 1974, and that he had wanted to buy from Brubaker at \$9 per ton in 1968, for they were then paying \$9.70 per ton for a less satisfactory source of supply (Tr. 293).

The material sold to American Crystal was drilled, shot, and loaded for \$2 a ton. Castle Concrete transported the material to its crushing plant about 4 miles away, and sized and screened the material for \$1 a ton. The transportation to the sugar plant at Rocky Ford cost \$3.50 a ton and 25 cents a ton was added for incidentals (Tr. 48). The total cost of mining, crushing, screening, and transportation for the 1974 operation was \$7.25 a ton. That material was sold for \$9 a ton, the price that had been negotiated in 1968 (Tr. 48).

The Forest Service offered no countervailing evidence at the 1986 hearing and could only rely on the testimony concerning the 1968 market given in the 1970 hearings by Sydney F. Adams, a mining engineer. Adams testified that the price of crushed and sized limestone suitable for sugar beet plants ranged from as low as \$1.25 per ton in Texas to \$4.25 per ton in Fort Collins, and was around \$3 per ton in Glenwood Springs. Adams was of the opinion that \$3 per ton was a reasonable price f.o.b. Woodland Park for the sugar beet limestone, and that transportation costs would be about 5 cents per ton mile for a delivery cost of \$7 or \$8 to Rocky Ford.

Brubaker's cost figures for transportation were 3.5 cents per ton mile based upon his company's actual cost figures for transportation of bulk material. The best evidence as to the costs of mining, processing, and transportation of the limestone suitable for manufacture of sugar in 1968 is that derived from the actual cost of mining shipment and sale in 1974. Obviously, Adam's cost estimates were high and his market prices were low. 17/

The evidence is conclusive that there was a market in 1968 for the high calcium material from the claims. If he had been allowed to mine, Brubaker could have made a profit by selling locatable limestone to the sugar company at a price lower than that the sugar company was paying other suppliers. In addition to the lower delivery price, the sugar company would have preferred to purchase the limestone from Brubaker because the material would be delivered by trucks, thus eliminating the demurrage charges and extra handling costs incurred by purchasing the material from suppliers who delivered by rail. Visconti estimated the sugar company would save \$2.50 to \$3 a ton by purchasing the Avenger limestone at \$9 per ton.

The Forest Service's position is that the costs of mining the representative sample does not include the costs of waste removal or handling and are, therefore, incomplete. This argument ignores the fact that Brubaker's cost figures were based on the actual expenses incurred. Admittedly, no expenses were incurred in waste removal because the material was removed from the old quarry on claim No. 10, which was already exposed. However, if overburden

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17/ Fuel costs increased markedly in the interim, and thus, transportation costs would be higher in 1974.

removal had been necessary, the operation would probably still have been profitable because in 1974 the sugar plant was purchasing limestone from other suppliers for \$11.50 per ton (Tr. 290-91). This represents an allowance of more than \$2 per ton of ore for overburden removal.

We find the claimants have established by a clear preponderance of the evidence that a market for the high calcium limestone existed in 1968 and at least through 1974. The American Crystal sugar plant is now closed and there is no longer a market for locatable limestone for the sugar industry (Tr. 1109). There were, however, in 1968, and through 1974, other markets for chemical grade limestone, and these markets still exist today. The Coors bottling plant had not been built in 1968, so at that point that market was not available. However, Herbert Hendricks, the vice president and general manager of Calco, Inc., in 1970, and former general manager for Colorado Lime Company, testified at the first hearing concerning the 1968-71 limestone market. He stated that in 1970, Calco made high calcium quicklime, hydrated lime, and high calcium carbonates. Calco sold plus 95-percent high calcium limestone to the Columbine Glass Company in Denver, to Climax Molybdenum for road work, and to others for rock dust in coal mines and mineral supplement in cattle feed (1st Hearing Tr. 1467, 1416). Even though Calco's needs were fully supplied in 1968, the market for plus 95-percent limestone described above was not a captive market, and there was a reasonable prospect that sales could be made in that market by anyone who could supply the demand at a lower price than was currently being paid to others.

1986 Market

The claimants presented evidence of a present market for chemical grade limestone through several witnesses. John Warren LaFollet, the chief executive of Tusco, the parent company of Calco, Inc., testified that his company sells all types of limestone products, such as filler material, rock dust, scrubbing dust, and scrubbing lime. Calco now sells about 300,000 to 400,000 tons per year, of which 100,000 tons is high-grade or chemical limestone. Calco has sold approximately the same amount for the past several years and expects that quantity to increase (Tr. 678, 689). LaFollet was previously involved in the planning stages for a glass-manufacturing plant which was built and is presently operated by Coors Glass Division.

Until 1985, Calco's source of limestone was from the CF&I quarry at Monarch Pass. 18/ CF&I has ceased operations and its quarry operation has been shut down. Calco is presently working from a stockpile at Salida, Colorado, where its crushing facility is located, and it has been searching for a new source of supply of such material in the Salida area. If none is to be found, the plant will have to be moved. Calco operates the only calcining kiln in Colorado, and sells about 30,000 tons of quicklime (calcium oxide) each year. This requires the burning of 60,000 tons of high calcium limestone in its kiln (Tr. 674-84). Quicklime is sold to CF&I, to Climax Molybdenum for water purification, and to the highway department and real estate developers for soil stabilization. It sells the remainder of the limestone used annually to Owens Corning Fiberglass and Georgia Pacific for

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18/ This mine was previously discussed in the analysis of mining costs.

filler in the manufacture of shingles, and to various coal mines where it is used as rock dust (Tr. 699-701).

Calco shares the limestone market in Colorado with Colorado Lien of Fort Collins (which presently supplies the Coors glass plant) on approximately a 50-50 basis. Since Colorado Lien has no calcining kiln in Colorado, all quicklime sold by it comes from Rapid City, South Dakota, or from Utah (Tr. 740).

John Remigio, the critical materials administrator for the glass division of Coors who is in charge of purchasing raw materials for the glass plant, testified that the plant uses roughly 86 tons per day of limestone or 30,000 plus tons per year. He identified Exh. 86-15 as Coors' limestone specifications, which require limestone of a calcium carbonate content of approximately 95 percent or better. Presently, his plant is paying in excess of \$20 a ton f.o.b. from its supplier at Fort Collins, and absorbs the cost of trucking the limestone to its plant in Wheatridge. The plant is presently testing limestone from other suppliers located as far away as Iowa, Illinois, and Texas, but is primarily interested in finding another supplier along the Front Range. Provided limestone from the Avenger claims can meet Coors' specifications, he would purchase it.

Dennis Sheehan, vice president of Calco, Inc., was previously the plant engineer for the Columbine Glass Company plant now operated by Coors. He designed and is presently responsible for the operation of the Calco plant at Salida. Sheehan has visited the Avenger claim site and has examined the

outcrops and the core assay data. He has no doubts that the Avenger limestone could meet Coors' specifications. He verified Remigio's statement that Coors presently pays over \$20 plus a ton for limestone f.o.b. the minesite and that shipping costs are approximately \$8.50 a ton from the minesite in Fort Collins to the Coors plant. If the Avenger limestone is available, he was certain that his company could process and sell 60,000 to 100,000 tons per year of high calcium carbonate to Coors for less than Coors is now paying (Tr. 652-62). Sheehan testified that if ore from the Avenger claims were available, Calco's operating plant would be moved to a site nearer the Avenger claims to reduce freight cost from the mine to the plant and from the plant to Calco's market.

Sheehan testified that Calco's present source of supply at Monarch is less desirable than limestone from the Avenger claims for several reasons. The Monarch pit is located in a snow channel at a 10,000-foot elevation and can be operated only from mid-June through October. All the rock must be taken to Salida and stored. He also noted additional problems between Calco and CF&I, the present owners of the Monarch mine, which cause Calco to seek another source for its material. Further, he noted that the silica content of the ore from Monarch is on the high side for use as rock dust. Limestone having a total carbonate content of 95-percent or better qualifies for the rock dust market, but rock dust can contain no more than 4-percent silica, free and/or combined (Tr. 687, Exh. 86-29).

Sheehan was cross-examined extensively on whether or not the various grades of limestone found in the drill holes would meet certain specifications for either rock dust or glass manufacture. He admitted that the

material would have to be selectively mined and a good quality control program be maintained because all locatable limestone cannot be used in the manufacture of glass, and limestone containing greater than 4-percent silica cannot be used for mine rock dust. He also noted that limestone having clay content cannot be used in Calco's processing plant. He stated, however, that very little of the material would have to be separated out or blended during the mining process because his company is primarily interested in the bands of plus 95-percent material (Tr. 703).

In sum, Sheehan testified that Calco would purchase 60,000 to 100,000 tons of limestone crushed to a 2-inch size per year from the Avenger claims at a price of \$7 to \$7.50 per ton f.o.b. minesite and bear the expenses of trucking the crushed ore to its mill (Tr. 692). Based upon Calco's survey of the Front Range, Sheehan believes the Avenger deposit to be the only alternative to the present supplier. Based upon his experience at Salida, he was confident the company could obtain the necessary permits to move its mill to a site close to the Avenger claims.

The Forest Service offered no rebuttal testimony to the evidence as adduced by the contestees. In its brief, however, it argues that the prospective market to Calco is highly speculative in that there are no firm commitments and negotiations are in the very early stages. The Forest Service also argues that sales to Calco are solely dependent on the move of Calco's plant from its present location at Salida to a site near the Avenger claims and that much of the limestone on the claims is unacceptable to Calco's customers.

[8] This argument goes beyond the scope of the question, i.e., what evidence of a present market is required? Certainly the negotiations are preliminary, for until a final determination of the validity of the claims is made, no contracts or final commitments can be executed. What the claimants' evidence demonstrates is that a market for the limestone presently exists, that there is a ready and willing buyer, and that they can mine and sell the material from the claims in the market place at a competitive or lower price than the present suppliers of that market. This situation can hardly be classified as conjectural guesswork subject to chance, and thus speculative.

The testimony of Messrs. LaFollet, Sheehan, and Remigio with respect to the existing market for the material from the Avenger claims must be accepted at face value. Calco has been actively looking for a new source of supply and has found none other than the Avenger limestone. It annually sells 60,000 tons of high calcium carbonate and 30,000 tons of locatable limestone. The witnesses expressed an opinion that Calco can obtain all the necessary permits and will move the plant at its own expense from its present location at Salida to a site close to the Avenger claims. It will pay \$7 to \$7.50 per ton f.o.b. the mine for all the material, not just the high-grade material 19/ (Tr. 742-44). It will truck the material from the minesite to the plant at its own expense.

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19/ It is significant to note that the Bureau of Mines yearbooks state the average value of crushed limestone sold or used in Colorado for all purposes, including aggregate, rip-rap, and other common variety uses was \$3.38 per ton in 1981 (Exh. 86-BB, at 10) and \$3.41 per ton in 1982 (Exh. 86-RR, at 17).

It is also found that there is a reasonable prospect that the present market demand would increase. Because of a favorable location on the Front Range, Calco has reason to believe that it could secure the Coors' 60,000- to 100,000-ton market for high calcium limestone. Coors has indicated a strong interest and Sheehan is certain that he could beat the price Coors is presently paying for that product.

#### Market Price of the Locatable Product

[9] Claimants' proposed mining plan and profitability figures are based upon initial sales of 60,000 to 100,000 tons per year (at \$7-\$7.50 per ton) to Calco, Inc. Calco sells 300,000 to 400,000 tons of limestone products per year, of which approximately 100,000 tons is chemical grade limestone. Calco sells to various parties, who use the limestone in various ways, including quicklime uses, water purification, soil stabilization, shingle filler, and rock dust.

The Forest Service alleges that all sales for so-called "common variety uses" may not be considered when determining the estimated profitability of the proposed mine. The Forest Service contends that: "In satisfying the 'prudent man' and 'marketability rules,' proposed sales from the contested claims may not be used to show projected profitability, unless the contemplated use requires 95% or more of carbonate content." (Trial Brief at 1; emphasis deleted.) The Forest Service contends that the actual use of the material is the key, and that only sales to parties whose actual use of

limestone demands 95-percent or greater carbonate content may be considered when calculating estimated profitability.

The common varieties legislation (30 U.S.C. § 611 (1982)) removed "common varieties" of sand, stone, gravel, and the like from the operation of the general mining laws. Common varieties of sand and stone are no longer locatable, but must be leased pursuant to the Materials Disposal Act, 30 U.S.C. § 601 (1982). However, the term "common varieties" "does not include deposits of such materials which are valuable because the deposit has some property giving it distinct and special value" 30 U.S.C. § 611 (1982). Therefore, as the Forest Service correctly states, the mineral must be "valuable" because of this special property or quality. Nonetheless, it does not follow, as contestant states, that such a special property can be "valued" only by virtue of particular uses. Under certain circumstances, it may be that the value of the rock's special property may result in the rock commanding a premium price, over and above the price which would be paid for a "common variety" of the same stone.

The concern we must face, and which the Forest Service specifically recognizes, is that the mining claimants will bootstrap themselves into a profitable operation by considering the value of sales of nonlocatable substances in the proposed operation thereby rendering the overall operation profitable, even though the price paid for the "uncommon variety" alone would not be profitable. The three cases cited by the Government, United States v. Chas. Pfizer & Co., *supra* at 331; United States v. Lease, 6 IBLA 11, 79 I.D. 379 (1972); and United States v. Husman, 81 IBLA 271 (1984),

aff'd, 616 F. Supp. 344 (D. Wyo. 1985), all stand for the proposition that bootstrapping is impermissible. That is, the uncommon (locatable) variety cannot "ride piggyback, as it were, on the shoulders of a common variety," but must support a mining operation on its own merits. Pfizer, supra at 348. This rationale is similar to the concept that a locatable mineral must support a mining operation on its own, and that the sale of other materials on the claim, such as timber or sand and gravel, may not be considered when predicting profitability. 20/ Lease, 6 IBLA at 25, 79 I.D. at 385.

The relevant legal standards applicable to this case are relatively easy to state. This particular type of limestone (95 percent or greater in calcium and magnesium carbonates) is an uncommon variety of limestone and is therefore locatable. Pfizer, supra at 342-43. However, as any mining claim must, in order to be declared valid, contain a valuable mineral deposit, the contained limestone must meet the requirement of the "prudent man" and "marketability" tests. These tests require testimony which demonstrates that the deposit can be extracted, removed, and marketed at a profit, which implies that a prudent person would invest his or her money and time with the reasonable expectation of developing a profitable mine. Such estimates of profitability must be based upon anticipated sales of the locatable mineral. Sales of "common variety" minerals and/or other materials found on the claims may not be considered. The questions are, what types of sales may be considered and to whom may the claimants sell?

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20/ The most common instance of this "bootstrapping" application is a placer gold operation. It may well be that by recovering the gold and selling the sand and gravel processed during a gold recovery operation, the operation as a whole would be profitable. However, in order to support a discovery, the operation must be shown to have a reasonable prospect of success as a gold mining operation, with the sand and gravel treated as a waste product.

In United States v. U.S. Minerals Development Corp., 75 I.D. 127, 134 (1968), it was stated:

[A]n uncommon variety of sand, stone, etc. [must] meet two criteria: (1) that the deposit have a unique property, and (2) that the unique property \* \* \* give the deposit a distinct and special value. Possession of a unique property alone is not sufficient. It must give the deposit a distinct and special value. The value may be for some use to which ordinary varieties of the mineral cannot be put, or it may be for uses to which ordinary varieties of the mineral can be or are put; however, in the latter case, the deposit must have some distinct and special value for such use. \* \* \*

The question is presented as to what is meant by special and distinct value. If a deposit of gravel is claimed to be an uncommon variety but it is used only for the same purposes as ordinary gravel, how is it to be determined whether the deposit in question has a distinct and special value? The only reasonably practical criterion would appear to be whether the material from the deposit commands a higher price in the market place. If the gravel has a unique characteristic but is used only in making concrete and no one is willing to pay more for it than for ordinary gravel, it would be difficult to say that the material has a special and distinct value. [Emphasis added].

The above statement of the test to determine an uncommon variety was expressly upheld in McClarty v. Secretary of Interior, 408 F.2d 907 (9th Cir. 1969), with the modification that a premium retail price cannot by itself be the exclusive criterion of "distinct value," but that a special value may also be shown through other economic factors such as reduced costs or overhead.

The concepts developed in the Minerals Development case were used to support the following statement from United States v. Pierce, 75 I.D. 255, 260 (1968):

Even though we assume that the deposit of limestone may be classified as an uncommon variety, the mining claim based upon it must satisfy the requirements of the mining law. One of these as we have seen, is that there must be a present profitable market for the deposit. It must be a market based either upon the use making the limestone an uncommon variety \* \* \* or upon the use of the limestone for the same purpose that a common variety of limestone would be used for, but in the latter event the limestone would have to possess a unique value for such use which would be reflected in a higher price for the limestone than a common variety would command \* \* \*. [Emphasis added].

The above quote from Pierce was used to support the following statement from United States v. Lease, 6

IBLA at 26, 79 I.D. at 386:

[I]f a deposit of an uncommon variety of material may not be profitably sold for the uses for which it allegedly has a special value, we conclude that it may not be deemed to be a valuable mineral deposit under the mining laws although it may be sold for common variety uses \* \* \*.

However, the Lease case also states:

Ordinarily if a mineral product can only be used for the same purposes for which widely available common varieties of sand, stone, gravel, etc. may be used, it must also be considered a common variety unless it can be shown to have a unique property giving it a special and distinct value as reflected by a substantially higher commercial value for the product. United States v. Norman Rogers, A-31049 (March 3, 1970); United States v. Paul M. Thomas, et al., 78 I.D. 5, 1 IBLA 209 (1971). There is no evidence in this case that the dolomite has any unique property giving it a special and distinct value for use as aggregate in road construction, ground cover, leach lines, and the other purposes for which common varieties of sand, stone, etc. may be used. It does not meet the test of being an uncommon variety for those uses.

A deposit of stone may also be considered an uncommon variety within the meaning of the Act of July 23, 1955, if it has physical properties giving it a special and distinct value for

uses for which common varieties of sand, stone, etc. may not be used.  
(Emphasis added).

(6 IBLA at 17-18, 79 I.D. at 381-82).

Combining the above concepts, sales of an allegedly uncommon variety of limestone must reflect the limestone's special value in order that the limestone may be considered in a determination regarding the existence of a valuable mineral deposit of locatable mineral. This special value can be demonstrated either by sales for uses which require particular characteristics or by an increase in marketplace price if sold for "common variety" uses. If the stone is sold for a "common variety" use and as a result does not command a premium price, the income and/or reduced cost resulting from such sales should be disregarded when projecting profitability. 21/

The facts of the Lease, Pfizer, and Husman cases cited by the Government do not contradict the above concepts. In each of those cases, the mining claimants failed to prove by a preponderance of the evidence that there was either a sufficient market for the peculiar characteristics of the deposit in question, or a premium price for sales when those prices were compared to prices received for "common" uses.

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21/ An example of cost reduction would be if, rather than moving and reclaiming sand and gravel, a placer gold operator were to deliver the product with no charge to a party who transports it from the property and uses it for land fill. The operation would properly be examined in a value determination by calculating the transportation and reclamation costs of the common variety product as a proper cost of operation.

It is true that the issue in the Lease case was described as

whether in applying the [marketability/prudent person] test \* \* \* we must consider those profits which have been or may be attained from selling the material for the purposes for which common varieties of materials concededly may be used in order to determine the value of the deposit as a locatable uncommon variety material.

Lease, 6 IBLA at 19, 79 I.D. at 382-83. However, in view of the dual standard for determining special value expressed in Minerals Development, McClarty, and Lease itself, and the lack of testimony in Lease concerning premium price or other factors, the above statement from Lease is inapplicable to the current case. The Lease case was a true "piggyback" or "bootstrap" case, *i.e.*, the mining claimants attempted to make use of sales of uncommon variety materials for common variety uses at common variety prices in their profitability calculations, which is not allowed. See also United States v. Smith, 66 IBLA 182 (1982), which makes use of the McClarty/Minerals Development standards.

Further precedent for the idea that the proposed final product is not the key to a determination of the profitability of a proposed mining operation is found in the Ninth Circuit's holding in the McClarty case that: "It should be noted that the common varieties statute (30 U.S.C. § 611 [1982]) refers to a 'deposit' which has 'some property giving it distinct and special value' and not to the fabricated or marketed product of the deposit." McClarty v. Secretary of Interior, *supra* at 909.

After a review of the record and transcript, we do not find the mining plan proposed by the claimants in the current case is a piggyback situation. Claimants do not make use of any sales of common variety materials or sales of locatable minerals at common variety prices in their profitability estimates. All estimates are based upon sales of plus 95-percent limestone. It is true that some of this limestone may be used by the ultimate purchaser of the product for what is customarily deemed to be a common variety use. However, all of the plus 95-percent limestone will be sold at a premium price which reflects its special value. Calco proposes to buy the Avenger plus 95-percent total carbonate limestone at a price of \$7.50 per ton. The average value of crushed limestone sold or used in Colorado, taken from the Bureau of Mines yearbooks, for all purposes, including aggregate, rip-rap, and other common variety uses was \$3.38 per ton in 1981 (Exh. 86-BB, at 10) and \$3.41 per ton in 1982 (Exh. 86-RR, at 17). 22/ It is therefore found that claimants would receive a premium price for their limestone, which price reflects sales which make use of the special value of the Avenger limestone, i.e., purity.

It is also found, independently of the above finding, that Calco makes sufficient sales of limestone for uncommon "uses" (under the other definition of the correct type of sales) to make use of the entire proposed high carbonate output of the Avenger claims. Sheehan testified that of the 30,000 tons of total carbonate limestone sold by Calco each year approximately 45-percent was used for rock dust (Tr. 741). The miners to whom Calco supplies rock dust prefer limestone (Tr. 700). It has been established that

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22/ See also the testimony given by Forest Service witness Mullin at Tr. 1365 through 1375.

rock dust may not contain more than 4-percent silica and 1-percent combustibles. By definition then, limestone used for rock dust must contain plus 95-percent carbonate or greater. Although rock dust can be made from materials other than limestone, that fact alone does not convert an otherwise locatable mineral into a nonlocatable waste product. Calco has used total carbonate for rock dust for many years and also supplies the needs of several different high total carbonate users. A present market for both total carbonate limestone and high calcium limestone has been established. 23/

#### Independent Mine Requirement

[10] In its posthearing brief and in its exceptions the Forest Service states its position that "each claim must independently support a discovery" (Exceptions at 35). However, the issue in this case has been clouded by the dual meaning of the term "discover," as used in mining. The first use is synonymous with the term "find," and the second is the term which describes the "discovery rule" legal requirement for a valid mining claim. As noted in Schlosser v. Pierce, 92 IBLA 109, 93 I.D. 211 (1986), the issue of common discovery among group claims was addressed by the Board in United States v. Foresyth, supra, when it stated:

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23/ We find the argument advanced by the Forest Service to be interesting but question whether it is truly in point. The locatable total carbonate limestone would be purchased by Calco without reference to the differentiation between high calcium limestone and high magnesium limestone. As noted the price paid for plus 95-percent total carbonate limestone is a premium price, a fact established by the testimony of the Forest Service witness. To make a distinction based upon calcium carbonates versus magnesium carbonate clouds the issue. By way of illustration, if a metal miner were able to show that, based upon projected net smelter returns, the property would be operated at a profit because he is producing and shipping silica flux concentrates, it matters not that the smelter might sell the silica-rich slag produced at the smelter as a road sanding product (a common variety use) in order to cut smelting costs.

Both contestant and contestees contend that if any of the claims are valid, all of the claims are valid. We expressly reject such a theory of bulk validation. In order for any claim to be valid, it must be shown that not only a mineral deposit has been found on a claim, but that the deposit on that [emphasis in original] claim is reasonably perceived as marketable at a profit. To put it more plainly, each claim must independently support a discovery.

Id. at 58. In Schlosser, the Board recognized that, unless carefully examined, this statement could logically lead to the conclusion reached by the Forest Service, and stated that "review of the Department's practice illustrates development of the law of discovery has been contrary to [the] independent mine requirement." Schlosser v. Pierce, 92 IBLA at 129; 93 I.D. at 222. After discussing the development of the mining law as it applies to analysis of a group of claims, the Board stated in Schlosser: "A logical inference to be drawn from these precedents is that \* \* \* mining claims may be considered together as a group for the purpose of ascertaining the validity of individual claims, so long as valuable mineral is shown to exist on each claim." 92 IBLA at 130; 93 I.D. at 223. The Board concluded that:

[I]t is apparent the practice of the Department has been to allow the consideration of a group of claims as a mining unit where the issue of profitability is at stake. Moreover, decisions where the Department restricted the rules of discovery to a showing of the profitability of each claim in a group as a potentially viable independent mine do not appear to exist. In most instances, decisions deal with the concept of developing a "mining operation" or "mine" from a series of contiguous or nearby claims, although specific information is not directly elaborated upon that point. (Citations omitted).

92 IBLA at 132; 93 I.D. at 224. With the principles set forth in Schlosser in mind, we turn to the concurrence in Cactus Mines, Ltd., 79 IBLA 20 (1984), to apply the term "discovery" to individual claims and a group:

While the proof of quantity and quality are often interrelated, a claimant must prove that a valuable mineral is actually present on each of the claims. Once mineral is demonstrated to be present, the proof of sufficient quality and quantity of mineral to warrant development can take into consideration the overall mining operation. There is little question that circumstances exist in which a group of mining claims containing low grade ore can support a mining operation, and thus demonstrate a discovery [as applied in the "discovery rule"] on each claim, even though taken individually the claims might not contain sufficient quantity of ore of sufficient quality to support discovery.

Id. at 32-33 n.2.

Applying the law of discovery to the present case, we agree with Judge Rampton's finding that claimants have proven by a preponderance of the evidence that they have "found" locatable mineral on each of the claims; i.e., locatable mineral was known to be present on each of the claims on the date of withdrawal and at the time of the hearing. We also agree with Judge Rampton that claimants have established by a preponderance of the evidence that the quality and quantity of the mineral present on the claims is sufficient to warrant development.

#### Reasonable Prospect of Success

[11] The Forest Service argues that the claimants' evidence of a market was "speculative." To a degree, this is true in the present case. The

same can be said with respect to all mining operations, whether they be for precious metals, or, as in this case, high-grade limestone. It is rare that in the early stages of development of any mine a miner has an assured buyer for his product, unless the mine is captive. Even in the case of a captive mine, there is no assurance that when the mine has been brought on stream the market price for the end product will be the same.

In the present case, the claimants have demonstrated by a preponderance of the evidence that a market could be developed if they are capable of demonstrating to a prospective purchaser that sufficient quantity of quality material is present to justify a long-term commitment to claimants as the supplier of the product. This need for sufficient reserves to justify moving Calco's plant to a site near the mine places the mine in a similar position to a low grade large tonnage mine. Claimants' witness Visconti testified that a market existed in 1968 which was still in existence in 1974. It is entirely conceivable that, had claimants been able to deliver the product from the mine during that period, a long-term contract may have been available.

For the market at the time of the hearing, claimants established that Calco would be willing to move their plant from Salida, Colorado, to a site closer to the mine if claimants were capable of delivering the product. This move would necessitate a considerable cost, which could be justified only if there were sufficient tonnage to operate the Calco plant for a number of years. The facts in this case are not the same as those in United States v. Husman, *supra*. In that case appellant presented a mining plan showing the

operation to be viable if operated at a projected mining rate of 100,000 tons per year, but could demonstrate a reasonably foreseeable market of only 4,000 to 10,000 tons per year. Thus, the limited market for his product rendered Husman's mining plan infeasible. In the present case appellants have demonstrated by a preponderance of the evidence that a mining plan exists for the production of 60,000 tons per year and a reasonable prospect that there will be a market for that quantity of the product. <sup>24/</sup> They have also demonstrated that the market has expanded since 1963 and that there is a reasonable expectation of an additional market.

#### Excess Reserves

[12] The Forest Service argues at length that there is insufficient quantity of locatable limestone of a quality that can be mined and sold at a profit. There can be no doubt from the record and the documents filed by the Forest Service on appeal that this is their contention. However, on appeal the Forest Service states, as one of its exceptions to the proposed decision that Judge Rampton erred when he failed to find that the total volume of locatable limestone on the contested claims is far in excess of any market and cannot support a mine. We reject this argument. A Government contest complaint which asserts the invalidity of a claim because of insufficient quantity and quality of the located mineral within the limits of the claim does not put into issue the existence of excess reserves within the limits of the claim. United States v. McElwaine, 26 IBLA 20 (1976).

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<sup>24/</sup> They also demonstrated a similar, scaled-down operation would have been viable in 1963 and 1974.

Preponderance of the Evidence

Many of the arguments made by the Forest Service in its statement of exceptions to the recommended decision and brief are directed to the weight Judge Rampton gave to the evidence when making a determination as to whether the preponderance of the evidence presented by the parties supported a finding that there had been a discovery on the various claims. We note that had there been no dispute regarding the interpretation of data, the meaning of geologic evidence, and the existence of a market for the mined product, there would have been no need for a hearing before an administrative law judge. There is also no question that the parties continue to disagree regarding these issues. There are a few things that both parties will agree upon, however. Each side had ample time to prepare for the hearing. Each was well represented by competent counsel. Each had an opportunity to present evidence and vigorously cross-examine the opponent's witnesses. Each was afforded an opportunity to convince Administrative Law Judge Rampton that their respective arguments were correct and supported by the facts and that the opponents' were not. Neither party has alleged that the presiding Judge was predisposed or otherwise biased. Judge Rampton made his determination regarding the evidence as it applied to each element of a discovery. Our review of the exhibits and the transcript of the hearing leaves little doubt that the determinations of fact made by him are amply supported by the evidence and that his determinations were neither arbitrary nor capricious. Without taking into consideration the elements of a hearing which are not reflected in the written record, such as demeanor of the witnesses, the overall benefit of having been personally present at the time of the hearing,

and the general "flow" of the hearing, we have no difficulty understanding how Judge Rampton reached his conclusions regarding the weight and preponderance of the evidence. Thus, even though the Forest Service continues to object to Judge Rampton's findings regarding which of the factual contentions were supported by the preponderance of the evidence presented to him, we do not find that these arguments overcome his findings.

Judge Rampton's recommended decision was 33 pages in length. The statement of exceptions filed by the Forest Service was four pages longer than the recommended decision. As can be seen from the length of this decision, the final decision of this Board was expanded as a result of the Forest Service's statement of exceptions. Without further belaboring this decision with additional references to contentions regarding errors and omissions in the preparation of the recommended decision, and other errors of fact and law, except to the extent they have been expressly or impliedly addressed in this decision, they are rejected on the ground they are, in whole or in part, contrary to the facts and law or are immaterial. National Labor Relations Board v. Sharples Chemicals, Inc., 209 F.2d 645 (6th Cir. 1954).

#### Summary

1. Claimants have established by a preponderance of the evidence that there was a limestone outcropping on the Avenger Nos. 7, 8, 9, 10, 11, and 13 lode mining claims known to them to exist on or before July 13, 1968, the date the lands were withdrawn from mineral entry.

2. Based upon samples taken both before and after the date of withdrawal either from the surface or by means of diamond drilling conducted for the purpose of obtaining samples of the materials shown to exist in the surface outcroppings, claimants have demonstrated the existence of locatable grade limestone within the vertical boundaries of the Avenger Nos. 7, 8, 9, 10, 11, and 13 lode mining claims by a preponderance of the evidence.

3. Through actual exposure and reasonable projection, claimants have demonstrated by a preponderance of the evidence that the locatable limestone exists in sufficient quantity 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.

4. Claimants have established by a preponderance of the evidence that there is sufficient demand for the locatable limestone present on the claims that it could be sold at a price sufficient in an economic sense to cause a person of ordinary prudence to be justified in the further expenditure of his labor and means with a reasonable prospect of success in developing a valuable mine, considering the anticipated cost of extraction and transportation of locatable limestone to the existing and reasonably anticipated markets.

5. The above conclusion is based upon the existence of high-calcium limestone as well as total carbonate limestone. There is sufficient evidence that, if claimant were only able to establish a market for high-calcium limestone, the existence of that mineral on each of the claims is of sufficient

quantity that the ore body lying within the claims as a group is sufficient to support a discovery on each of the claims.

6. Claimants have not shown a discovery to exist on the Avenger No. 12 lode mining claim and that claim is deemed to be null and void.

Therefore, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 CFR 4.1, the complaint is dismissed as to the Avenger Nos. 7, 8, 9, 10, 11, and 13 lode mining claims and the Avenger No. 12 lode mining claim is deemed to be null and void.

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R. W. Mullen  
Administrative Judge

We concur:

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C. Randall Grant, Jr.  
Administrative Judge

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Kathryn A. Lynn  
Administrative Judge  
Alternate Member

