Editors Note: Petition for Reconsideration Denied in Part and Granted in Part for Clarification - - Order of January 12, 2006.

UNITED STATES v. MILAN MARTINEK

IBLA 2000-192 Decided September 13, 2005

Appeal from a decision of Administrative Law Judge Harvey C. Sweitzer declaring nine lode mining claims null and void. F-59019, F-59020, F-59021, F-59042, F-59043, F-59046, F-59047, F-58992, and F-58993; Mining Contest Nos. AA-79621, AA-80611, and AA-80923.

Affirmed in part; reversed in part.

1. Administrative Procedure: Burden of Proof--Evidence: Preponderance--Evidence: Prima Facie Case--Mining Claims: Contests

   In a mining contest, the Government establishes a prima facie case when a mineral examiner testifies that he has examined a claim and found the mineral values insufficient to support a finding of discovery.

2. Administrative Procedure: Burden of Proof--Evidence: Preponderance--Evidence: Prima Facie Case--Mining Claims: Contests--Mining Claims: Discovery: Marketability--Mining Claims: Marketability

   Uncontradicted evidence of absence of production from a mining claim over a period of years is sufficient, without more, to establish a prima facie case of invalidity of the claim.

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

   For a mining claim to be valid, it must contain an exposure of mineralization representing a mineable mineral deposit presently marketable at a profit. This means that the evidence must show, as a present fact,

considering historic price and cost factors and assuming they will continue, that there is a reasonable likelihood of success that a paying mine can be developed. Where an appellant presents no evidence that prices will return to high, historic "optimum" or "break-even" levels, he does not undermine the Government's prima facie case by arguing that the Government failed to utilize such higher prices in its market analysis.

4. Administrative Procedure: Burden of Proof--Evidence: Preponderance--Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally--Mining Claims: Discovery: Geologic Inference

If the Government meets its burden of proving a prima facie case that a mining claim does not contain a discovery of a valuable mineral deposit, the ultimate burden rests with the claimant to establish by a preponderance of the evidence that a discovery exists as to those matters placed in issue by the Government. A claimant does not meet this burden if its showing of the extent, continuity, and grade of mineralization is premised on reviewing aerial photographs. A discovery cannot be predicated upon (1) an exposure of isolated bits of mineral on the surface of the claim, not connected with ore leading to substantial values, (2) mere surface indications of mineral within the limits of the claim, or (3) inferences from geological facts relating to the claim. There must be actual evidence that high values persist for a sufficient distance along the vein that there may be said to be a continuous mineralization, the quantity of which can be reasonably determined by standard geologic means.

5. Administrative Procedure: Burden of Proof--Evidence: Preponderance--Evidence: Prima Facie Case--Mining Claims: Contests--Mining Claims: Determination of Validity

A claimant may overcome the presumption of non-marketability arising from the fact that no production took place on mining claims over a period of years by proving that he could have extracted and sold the mineral

at a profit during subsequent periods but for the unavailability of the claims by virtue of a withdrawal. Where the claimant presents only speculative and conjectural evidence suggesting that the claimant could have sold the mineral by postulating that mining costs are "infinitesimally small" or non-material, and hypothesizing a milling operation for which there is no market, the claimant has not overcome the presumption of nonmarketability or the Government's prima facie case.

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

The sine qua non of a discovery is an exposure of a valuable mineral deposit on a claim. The existence of a valuable mineral on a claim, based solely on geologic inference, cannot serve as a predicate for a finding of quantity and quality sufficient to support a discovery. Assay results from samples taken from a stockpile are not probative of the existence of a valuable mineral deposit in place within the boundaries of the claim. Random assays from a mining claim or selective showings of the best mineralization are not conclusive evidence of the continuity and quality of a mineral deposit. Geologic inference cannot be used as a substitute for evidence which sufficiently shows the existence of an ore body or bodies necessary to warrant a prudent man to develop a valuable mine. A mineable body of ore may not be inferred merely because mineralization has been found in an outcrop of a purported vein.

7. Mining Claims: Contests--Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally--Mining Claims: Withdrawn Land

The Government is precluded from declaring a mining claim void for lack of a discovery when it is shown that the Government prevented the claimant from entering his claim to gather information necessary to prove the existence of a discovery. Where the Government invited a claimant to examine and sample prior exposures, and to accompany the Government during its own investigation

and sampling program, the claimant was not denied access to his claims to rehabilitate prior discovery points. A claimant does not show that he was prevented from access to prove the existence of a prior discovery where he demanded to drill his mining claims to explore them for minerals. Following the withdrawal of land from mineral entry, a claimant may enter the claims to gather evidence that a discovery existed on the date of withdrawal, but may not engage in activity that constitutes further exploration to disclose a deposit not previously exposed.

8. Mining Claims: Contests--Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally--Mining Claims: Lode Claims

A claimant's assertion that he was prevented from using "heavy equipment" to expose a valuable mineral deposit does not insulate him from a finding of claim invalidity where the claimant was allowed access to his claims to rehabilitate prior discovery points by other means; where the Government had statutory and regulatory authority to manage the surface; and where the claimant rejected authorized means to examine prior discovery points.

9. Mining Claims: Contests--Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally--Mining Claims: Withdrawn Land

Where the Government discouraged a claimant from reopening an adit that may have caved during the time of a court-ordered injunction, thereby preventing the claimant from entering the claim to rehabilitate a prior discovery point, and where the evidence is susceptible of the interpretation that the claimant accepted the Government's advice in writing on the assumption that his claim would be found to be valid, the Government is foreclosed from declaring the mining claim in question invalid until such time as the claimant is offered the opportunity, by means authorized by law and regulation, to reopen the specific adit potentially affected by the injunction.

APPEARANCES: John B. Grow, III, Esq., Denver, Colorado, for appellant; Joseph D. Darnell, Esq., Office of the Regional Solicitor, U.S. Department of the Interior, Anchorage, Alaska, for the Bureau of Land Management.

OPINION BY ADMINISTRATIVE JUDGE HEMMER

Milan Martinek appeals from a February 14, 2000, decision of Administrative Law Judge Harvey C. Sweitzer declaring nine lode mining claims located within the Kantishna Mining District in Alaska null and void for lack of discovery of a valuable mineral deposit. All of the subject claims are situated within the Denali National Park and Preserve under management of the U.S. National Park Service (NPS). The nine lode mining claims are identified as follows: Eureka No. 2 (F-59019), Eureka No. 3 (F-59020), Eureka No. 4 (F-59021), Comstock No. 1 (F-59042), Comstock No. 2 (F-59043), Comstock No. 5 (F-59046), Comstock No. 6 (F-59047), Eldorado No. 2 (F-58992), and Eldorado No. 3 (F-58993).

I. Legal Background

The Mining Law of 1872, as amended, permits location of lode claims along veins or lodes of "rock in place bearing gold, silver, * * * or other valuable deposits." 30 U.S.C. § 23 (2000). The validity of a lode mining claim depends on the discovery of an exposure of a valuable mineral deposit in place within the boundaries of the claim. Best v. Humboldt Placer Mining Co., 371 U.S. 334, 335 (1963); Cameron v. United States, 252 U.S. 450, 459 (1920); see also 30 U.S.C. § 29 (2000) (patenting process for valid mining claims); United States v. Clouser, 144 IBLA 110, 113 (1998); United States v. Williamson, 45 IBLA 264, 277-78, 87 I.D. 34, 41-42 (1980).

The test of whether a mining claim is supported by a discovery is objective and is framed in terms of what a "prudent person" would do knowing all the facts. A discovery has been made when "minerals have been found and the evidence is of such a character that a person of ordinary prudence would be justified in the further expenditure of his labor and means, with a reasonable prospect of success, in developing a paying mine." Castle v. Womble, 19 L.D. 455, 457 (1894). This test was approved by the Supreme Court in Chrisman v. Miller, 197 U.S. 313, 322 (1905). The Board has noted that "the best evidence of what a prudent man would do in the same or very nearly the same circumstances is what miners have or have not done over a period of years." United States v. Martinez, 49 IBLA 360, 371, 87 I.D. 386, 392 (1980), citing United States v. Wichner, 35 IBLA 240 (1978); see also United States v. Willsie, 152 IBLA 241, 264 (2000).

The Supreme Court adopted a refinement of the test of discovery to include a "marketability" rule in United States v. Coleman, 390 U.S. 599, 600, 602-03 (1968). The "prudent-man test and the marketability test are not distinct standards, but are

complementary in that the latter is a refinement of the former." Id. at 603. The Board has reconciled the notion of profitability articulated in Coleman with the lesser standard of a "reasonable prospect of success" adopted by the Supreme Court in Chrisman v. Miller, 197 U.S. at 322. Discovery requires a showing of a reasonable prospect that the deposit can be mined, removed, and marketed at a profit. United States v. New York Mines, Inc., 105 IBLA 171, 182, 95 I.D. 223, 229-30 (1989). "[A] mineral deposit will be considered valuable where there is a reasonable likelihood that the value of the deposit exceeds the costs of extracting, transporting, processing, and marketing it." United States v. Clouser, 144 IBLA at 113 (citations omitted); see United States v. Winkley, 160 IBLA 126, 142 (2003). A claimant must show, as an objective matter and "as a present fact, considering historic price and cost factors and assuming that they will continue, there is a reasonable likelihood of success that a paying mine can be developed." American Colloid Co., 162 IBLA 158, 171 (2004), quoting In re Pacific Coast Molybdenum, 75 IBLA 16, 29, 90 I.D. 352, 360 (1983).

The burden is on the Department to determine the existence of valid rights in the land so withdrawn. "BLM may raise any applicable deficiency in the location, recordation, or maintenance of a mining claim so that the Department of the Interior may properly fulfill its duty to see that 'valid claims [are] recognized, invalid ones eliminated, and the rights of the public preserved'." Allen C. Kroeze, 153 IBLA 140, 144 (2000), citing Cameron v. United States, 252 U.S. at 460; United States v. Knoblock, 131 IBLA 48, 78, 101 I.D. 123, 139 (1994). "Until the United States surrenders the last vestiges of title by issuing patent to the ground, 'it does have the power, after proper notice and upon adequate hearing, to determine whether the claim is valid, and if it be found invalid, to declare it null and void'." Sigma M. Explorations, Inc., 145 IBLA 182, 191 (1998), quoting Best v. Humboldt Placer Mining Co., 371 U.S. at 337-38. When the Government contests the validity of a mining claim on lands later withdrawn from mineral entry, the evidence must show that a discovery existed within the boundaries of the claim both at the time of withdrawal and at the time of a hearing. United States v. Boucher, 147 IBLA 236, 242-43 (1999), citing Cameron v. United States, 252 U.S. at 456; Clear Gravel Enterprises v. Keil, 505 F.2d 180 (9th Cir. 1974); United States v. Feezor, 130 IBLA 146, 190 (1994); and United States v. Wirz, 89 IBLA 350, 352-53 (1985).

In general, the Government bears no burden of exploring mining claims for a claimant. We have held that the "Government has no obligation to do the discovery work for the mining claimant or to do more than simply examine the claim to verify whether there is a discovery of a valuable mineral deposit located within its limits. To drill or otherwise establish the existence and extent of a mineral deposit sufficient to meet the prudent man test of discovery is the obligation of the mining claimant." United States v. Bechthold, 25 ILBA 77, 84 (1976) (citations omitted); see United States v. Winkley, 160 IBLA 126, 144 (2003).

In a mining contest, the contestant bears the burden of making a prima facie case in support of its allegation that contested claims are invalid. United States v. Boucher, 147 IBLA at 248-49. The "Government establishes a prima facie case when a mineral examiner testifies that he has examined a claim and found the mineral values insufficient to support a finding of discovery." United States v. E.K. Lehmann & Associates, 161 IBLA 40, 44 (2004), citing United States v. Dresselhaus, 81 IBLA 252, 257 (1984); Hallenbeck v. Kleppe, 590 F.2d 852, 859 (10th Cir. 1979). Whether the Government has presented a prima facie case is determined solely on the evidence adduced during the Government's case-in-chief. United States v. Miller, 138 IBLA 246, 269 (1997); United States v. Knoblock, 131 IBLA 48, 101 I.D. 123. "Once a prima facie case is presented, the burden then shifts to the claimant and it is incumbent upon the claimant to present evidence which is sufficient to overcome the Government's case on the issues raised." United States v. Gillette, 104 IBLA 269, 274 (1988) (citations omitted).

II. Factual Background of the Contest Complaints

The subject mining claims are located in the Kantishna Hills Mining District in the northern foothills of the Alaska Range of the Pacific Mountain System. E.g., Exhibit (Ex.) A at 13; Ex. B at 7; Ex. C at 6-9. The town of Kantishna is 90 miles from a highway via a well-maintained gravel road. (Ex. B at 3.) The Government provides a general analysis of the Kantishna Hills mining history. As Martinek offered no facts disputing this information, we present the following synopsis as undisputed. [1/] Gold was discovered in the Kantishna Hills in 1903, leading to a brief gold rush which ended by 1906. (Ex. B at 9; Ex. C at 10.) In addition, miners discovered and mined varying amounts of silver, lead, and zinc in the region, mining from the Quigley and Alpha ridges. Gold operations had a resurgence in the 1930s as a result of President Franklin Roosevelt's 1934 policies regarding gold prices. The Red Top Mining Company operated the Banjo mine, producing gold, silver, lead and zinc during the late 1930s. By War Production Board Order L-208, gold mining was closed during World War II as non-essential to the war effort. To the extent gold mining production resumed, it was largely in small placer operations after the 1940s.

In addition, miners discovered stibnite, the primary ore from which antimony metal is derived, in the Kantishna Hills area. "Stibnite is antimony sulfide, and

[1/] The parties presented evidence regarding and testified as to the nature of the Birch Creek Schist and Spruce Creek Sequence portions of the Hills which underlie the subject claims. Because there appears to be no dispute regarding the underlying geology of the region, we do not repeat it here but point to the not dissimilar discussions in the six mining reports in the record developed before Judge Sweitzer, and in the testimony of Russell Kucinski, as identified below.

antimony is the * * * elemental metal that is contained in the mineral stibnite." (Transcript of Hearing at (Tr.) 488.) [2/] The Last Chance Mine along Caribou Creek and the Slate Creek mining area produced high-grade antimony between the Russo-Japanese War (1904-06) and 1916. The Stampede Mine began producing antimony in 1936, becoming the largest antimony producer in Alaska and producing a total of 3,700 tons of antimony concentrates, until its closure in 1970. As a result of the market created by the Vietnam War, the Kantishna Hills produced antimony from 1970-73, particularly at the Red Top Mine.

Thereafter until 1985, miners operated approximately 30 placer operations in the area and possibly small undocumented lode operations. (Ex. B at 4; Tr. 42.) The Kantishna Hills have the following known production history: 67,000 ounces of gold, 265,000 ounces of silver, 5 million pounds of antimony, and 1.5 million pounds of lead and zinc concentrates. This production history was reportedly worth approximately $17 million in 1978 prices. See generally Ex. A at 16-19.

Jim Fuksa located the Eureka lode mining claims in 1964. (Ex. C Attachment (Att.) I (notices of location).) The lands encompassing the Eureka claims were withdrawn from mineral entry on May 7, 1965. (F-034575; see Ex. C Att. I (65 FR 5067 (May 12, 1965)).) Fuksa located the Comstock and Eldorado lode mining claims in 1969. (Ex. A Att. 2.1 (notices of location for Comstock claims); Ex. B Att. 1 (notices of location for Eldorado claims).) Lands encompassing the Comstock and Eldorado mining claims were withdrawn from mineral entry on March 15, 1972, pursuant to Public Land Order No. 5179. 37 FR 5579-80 (Mar. 16, 1972). At the time of their location, the lands on which the mining claims were located were adjacent to but not within Mt. McKinley National Park.

In 1976, Congress enacted the Mining in the Parks Act, Pub. L. No. 94-429 (Sept. 28, 1976), 16 U.S.C. §§ 1901-1912 (2000). The statute was animated by the Congressional finding that technological advances in mining often caused the activity to conflict with the purposes for the establishment of the national parks in which mining claims were located. 43 U.S.C. § 1901(a) (2000). Congress declared the policy that

> all mining operations in areas of the National Park System should be conducted so as to prevent or minimize damage to the environment and other resource values, and, in certain areas of the National Park System, surface disturbance from mineral development should be

[2/] For purposes of clarity, in quoting the transcript, we hereafter delete reference to repetitive and inconsequential words from the testimony, such as "of, of."

> temporarily halted while Congress determines whether or not to acquire any valid mineral rights which may exist in such areas.

16 U.S.C. § 1901(b) (2000). The acquisition authorized by the statute envisioned the possibility of civil actions for compensation for valid rights and established that a claimant may "bring an action in a United States district court to recover just compensation." 16 U.S.C. § 1910 (2000).

That statute became relevant to the mining claims at issue here in 1980, when Congress enacted the Alaska National Interest Lands Conservation Act, Pub. L. No. 96-487, 94 Stat. 2371, inter alia, directing that the lands embraced by the mining claims be included as part of the Denali National Park and Preserve (Denali). In 1985, environmental organizations sued the Department for failure to implement the Mining in the Parks Act in units within the National Park System in Alaska. On July 24, 1985, the United States District Court for the District of Alaska agreed with the environmental groups and enjoined NPS from approving mining plans of operations for mining activities in Alaska's national parks, including Denali, until completion of full environmental review of mining activities required by the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4332(2) (2000). Northern Alaska Environmental Center v. Hodel, No. J85-009 (D. Alaska July 24, 1985).

It is undisputed that no mining was taking place on any of the subject mining claims in 1980, when the lands on which they are located were included in Denali, or in 1985, when the court issued the injunction. Nor is it disputed that miners engaged in mining on other claims in Denali during that period. Between 1980 and 1985, Martinek and Fuksa had entered into an oral contractual arrangement whereby Martinek conducted placer mining on Fuksa's placer claims within Denali, but no placer claims are at issue in this case. (Tr. 1000-01.) Martinek "had nothing to do with [Fuksa's] lode claims." (Tr. at 1001.) The record indicates that Fuksa filed evidence of assessment work on the subject lode claims with BLM from 1979-85, as he was required to do under section 314 the Federal Land Policy and Management Act of 1976 (FLPMA), 43 U.S.C. § 1744 (1976 and 1982). [3/] (Ex. A (Comstock claims); Ex. B Att. 1 (case abstract sheets for Eldorado claims); Case Abstract sheets for Eureka claims, May 18, 2005; Ex. C Att. I (Eureka Claims).) The record contains

[3/] Under the Mining Law of 1872, a mining claimant is obligated to perform $100 worth of labor each year on a mining claim. 30 U.S.C. § 28 (2000). Where the claimant "has or may run a tunnel for the purposes of developing a lode or lodes," however, the money spent is considered to be "expended on said lode or lodes" and the claimant is not obligated to perform work on the surface of the lode claim in order to hold the claim. Id. Section 314 of FLPMA required claimants to submit affidavits that they had performed such work. 43 U.S.C. § 1744 (2000).

no evidence that Fuksa operated a producing mine on any of the relevant lode mining claims between 1970 and 1985, that he expended time or money on tunnels on the lode claims, or that mining activities were prohibited during that time. The record also shows that on several claims Fuksa never conducted mining activities.

Fuksa died in 1986, devising approximately 75 mining claims in the Kantishna Hills region to Martinek. (Tr. 160, 1001.) Fuksa bequeathed to Martinek "large boxes of paperwork" that contained information related (and unrelated) to the mining claims, and it "took years" to go through the boxes. (Tr. 1002.) Twenty-one of the claims were invalid because they had been withdrawn from mineral entry prior to location. Martinek abandoned all but 30 of the claims by failing to pay rental fees required to be paid under the Rental Fee Act of 1993. (Ex. 16.C at 3; Tr. 160 (statement of Martinek's attorney, Art Neuman).)

According to Martinek, he "tried a few different approaches to [doing] assessment work" on the lode mining claims, "the most important being I retained an attorney * * *." (Tr. 1028.) [4/] Martinek alleges that his attorney made "inquiries" to the NPS about a walkover metal-detector search and a flyover magnetometer search, which were "denied." (Tr. at 1028.) Martinek concluded that any other assessment work "obviously was not going to fly" and did nothing further to assess the lode mining claims. Id. at 1029.

After 1985 and during the effective period of the court-ordered injunction on mining in the Alaska national parks, NPS prepared a NEPA environmental impact statement (EIS) to consider appropriate steps to be taken in Denali with respect to mining, as it was ordered to do by the District Court. NPS issued its decision on August 21, 1990. (Ex. 34, Record of Decision, Final EIS, Cumulative Impacts of Mining, Denali (Aug. 21, 1990).) NPS selected the alternative requiring it, inter alia, to acquire by purchase unpatented mining claims that are valid, consistent with the directive established by Congress in the Mining in the Parks Act, 16 U.S.C. § 1901(b) (2000). (Ex. 34 at 3.) The 1985 injunction was dissolved on December 28, 1990. (Tr. 154.) Accordingly, under the terms of both the EIS and the statute, NPS "initiated an effort to conduct mineral examinations on all unpatented mining claims in Alaska NPS units to determine validity." (Ex. A at 1.)

In 1990, NPS began its investigation into the subject mining claims. On

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[4/] In 1992, Martinek brought an inverse condemnation proceeding against the Government, presumably pursuant to 16 U.S.C. § 1910 (2000), which authorizes such actions to be brought in the Federal district courts. However, he brought his action in the United States Court of Federal Claims. Martinek v. United States, No. 92-1303L.

May 15, 1990, NPS sent a letter to Martinek advising him of the impending examination of all of his lode claims and asking that he be present. (Ex. A Att. 4.1.) Martinek did not respond to this letter. (Ex. A at 22, 24.)

Beginning in 1990, NPS conducted three separate mineral examinations of the three claim blocks. These examinations culminated in NPS examiners' preparation of three Mineral Reports which formed the basis for the conclusion that each of the mining claims was not valid. (Ex. A, "Mineral Report, Validity Examination of the Comstock #1 Lode, Comstock #2 Lode, Comstock #5 Lode, and Comstock #6 Lode Mining Claims," prepared by John E. Burghardt, Sept. 11, 1997; Ex. B, "Mineral Report, Validity Examination of the Eldorado #2 and Eldorado #3 Lode Mining Claims," prepared by Bruce A. Giffen, Aug. 29, 1997; Ex. C, "Mineral Report, Validity Examination of the Eureka #2, #3, and #4 Lode Mining Claims," prepared by Bruce A. Giffen, July 19, 1996.)

The Alaska State Office, Bureau of Land Management (BLM), on behalf of NPS, filed three contest complaints against the three groups of lode mining claims, charging that minerals had not been exposed within the limits of the pertinent lode mining claims in sufficient quantity or quality to constitute a discovery of a valuable mineral deposit. (Contest Complaint AA-80923 (Jan. 9, 1998) (Comstock claims); Contest Complaint AA-80611 (Dec. 1, 1997) (Eldorado claims); Contest Complaint AA-79621 (Mar. 24, 1997) (Eureka claims).) The three contests were consolidated. Judge Sweitzer conducted an evidentiary hearing in Denver, Colorado, between November 12 and 19, 1998. We describe the Government's case individually by claim group.

1. The Comstock Claims are located in sec. 27, T. 16 S., R. 18 W., Fairbanks Meridian. (Ex. A Atts. 1.1 and 1.2.) They overlie in part the Liberty Nos. 16 and 17 placer mining claims owned by non-parties. There is no formal access road to the claims; they can be accessed from the town of Kantishna 2.5 miles away by a rough jeep road which travels along the base of Eldorado Creek, requiring crossings of several streams including the Moose River. (Tr. 35, 174.) As a general matter, the Eldorado Creek runs between the Comstock Nos. 1 and 5 claims to the west and Nos. 2 and 6 to the east. (Ex. A Att. 3.2a.) [5/]

[5/] The precise location of the original eight Comstock claims was the subject of much debate and confusion. Ultimately, in 1993, Martinek settled on the location identified in the Mineral Report and abandoned the Comstock Nos. 3, 4, 7, and 8 claims. See Ex. A at 6-9. This had some impact on sample numbering. Problems with Fuksa's record-keeping and verification of claim location have generated other appeals by Martinek before this Board. Milan M. Martinek, 129 IBLA 38 (1997).

Government witnesses testified orally and in the Mineral Report regarding the history of the Comstock claims, their field examinations of the claims, and Martinek's response to them. See testimonies of witnesses Kucinski, Burghardt, and Buntdzen. The only evidence of past mining activity concerns the Comstock No. 2 lode claim. This claim is on a steep hill, on the east side of Eldorado Creek. (Ex. A Att. 3.7, Robert H. Saunders, Alaska State Mining Engineer, "Report on the Bonnell Silver-Lead Prospect, Mt. McKinley Quadrangle," April 1964, at 2; Ex. A Supp. at 1 (photograph, "Bunnell Mine, Comstock #2 Lode Mining Claim").)

The following briefly summarizes those activities. John Busia located the Neversweat mining claim in 1931 and drilled a 40-foot adit on what is now the Comstock No. 2 claim. Busia never encountered mineralization there and left it to cave by the close of the 1930s. (Ex. A Att. 3.7, 1964 Saunders Report, citing Moffitt, 1933, pps. 332-33, and Wells, 1933, p. 76.) Busia also made two open cuts upslope from the adit, also without encountering mineralization. (Ex. A at 21.) In the 1950s, Frank P. Bunnell (also Bonnell) acquired the Neversweat claim and drove four more adits significantly uphill. (Ex. A at 21.) The five adits are depicted on photographs of the hillside, which show adit 5, the caved "Busia adit," at the base of a hill near a cabin along the creek and adits 1-4 significantly upslope. (Ex. A Supp. at 1, 2.)

In 1964, Saunders conducted a report and examination of, inter alia, the "Bonnell silver-lead prospect" for the State. He confirmed that the lowest Busia adit had caved and was used only for food storage. (Ex. A Att. 3.7, 1964 Saunders Report at 7.) Saunders reported that Bunnell had driven three adits, totaling 120 feet in length intersecting mineralization, exclusively by hand tools and "single-jacking." (Ex. A Att. 3.7, 1964 Saunders Report at 4.) Saunders described the mineralization in the two adits which he examined in 1964. Id. at 8-9. Saunders took eight samples (numbered 57-64) from adits 1 (upper adit) and 4 (middle adit) and obtained gold and silver assays on the samples. Id. at 11-12 and Figs. 3-4. [6/]

In 1977, Jim Fuksa met Russell Kucinski, then employed by Union Carbide Mines and Metals, and together they toured the Comstock No. 2 lode claim. Kucinski was looking for tungsten deposits on behalf of his employer. (Tr. 19, 74.) He reported that he observed that only the uppermost adit 3 was open. All other adits had caved by 1977. (Ex. A at 21, 34; Tr. 76, 77.) Kucinski testified that when he entered adit 3, he saw a "pretty high-grade vein." (Tr. 76-77.)

In March 1978, C.C. Hawley and Associates, Inc., prepared a Mineral Appraisal of Lands Adjacent to Mt. McKinley National Park for the Department.

[6/] The numbering of the adits was different among the various historical reports.

(Ex. A Att. 3.6.) Among the lands appraised, Hawley examined the Bonnell or Neversweat property. He reported that it "is not known to have been productive, but is well mineralized * * *." Id. at 4-20. By 1978, Hawley reported that the "prospect is opened in a series of short adits which are mostly caved * * *." Id. Consistent with Kucinski's experience, Hawley reported that only the "uppermost adit is open." Id. In that adit, Hawley reported an 18-inch to 2-foot thick vein, from which a 2-foot sample contained about 30 percent lead and zinc, and about 13.5 ounces (oz.) of silver per ton. Id. Hawley prepared a map of the Bonnell prospect showing three caved adits and "Adit 3," and depicting three small veins (A-C) underground. Id. at 4-21, Fig. 4.1-A(1)-2. Hawley reported:

> The prospect has not been productive because of relatively low silver content, but it could produce mill-type ore. If it is assumed that all silver is bound in galena, a lead concentrate would contain about 80 oz silver per ton.
>
> The extent of mineralization is uncertain, but could be fairly extensive. The vertical extent shown at the adits is about 150 feet. More speculatively, relatively high amounts of silver, lead, and antimony shown in soil and stream sediment samples collected near the 5000-foot long quartz porphyry plug suggests the possibility of similar veins in about a one-half square mile area.

Id. at 4-22. Hawley presented the results of samples he took in the entire Kantishna area, including three samples (32, 33-A, and 33-B) from the Bonnell slope. Id. at Table 4.1-A.(1).

In 1981, Thomas K. Bundtzen developed his Master's thesis on the Geology and Mineral Deposits of the Kantishna Hills. [7/] He conducted an analysis which included sampling of adit 3, which had a "very good exposure." (Ex. A Att. 3.5; Tr. 99.) He testified that the stockpile outside the adit looked like mineralization placed there from inside the adit, as Bonnell drove the adit on the vein system. (Tr. 105.) In 1983, Salisbury and Dietz conducted a study of, inter alia, the Kantishna Hills for the Department. At that point, they reported that three adits were completely caved, one was partially caved, and only one adit was accessible. (Ex. A Att. 3.4, Occurrence Report Form, Bunnell Mine (Neversweat) at 1.) They reported that a "shipment of lead-silver ore was believed to have been made from this deposit

[7/] Buntzen had examined the property in 1975 and 1976, at which time adit 3 was open and adit 4 (also know as the "Blacksmith adit") was partially caved. (Ex. A at 34; Tr. 98-99.) He mapped adit 3 and "chip-channeled across the vein at * * * the working face at the end of the adit." (Tr. 98.)

in 1955." Id. They reported "complexly faulted veins * * * up to five feet thick, but not exposed on surface so horizontal and vertical extent can not be determined." Id. In the "remarks" column, they reported that, presumably, the vein is "unusual" for the Kantishna Hills "for its igneous association." Id. Relying on the work of Wells, Saunders, Morrison, Seraphim, Buntzen, Hawley and others, Salisbury and Dietz also conducted their own sampling. Id. at study results.

The NPS examination was initially conducted in 1990 by NPS Geologist and Certified Mineral Examiner John E. Burghardt, as assisted by U.S. Forest Service Geologist Jane Wurster. (Ex. A at 1.) By the time NPS conducted the mineral examination pursuant to the determination made in the EIS, all adits on the Comstock No. 2 claim had caved. (Ex. A at 2, 21.) Kucinski, formerly of Union Carbide, and then of the Alaska Mining and Minerals Branch, NPS, attended subsequent field visits in 1992-93 to investigate the Comstock No. 2 lode claim and contributed to the mineral examination and report. (Tr. 70.)

Burghardt and Wurster conducted field work on the claims on August 21-29, 1990. Martinek was invited but did not attend. (Ex. A at 22.) The geologists took a number of channel and chip-channel samples from the claims, as described in the Mineral Report. See Ex. A at 26-27. They identified piles of mineralized rock outside of adits 1, 2, and 4 on the Comstock No. 2 claim, but found no mineralization in rock in-place. Id. at 27. The geologists were concerned that any in-place mineralization could only be found, if at all, inside the collapsed adits. Id.

Accordingly, they contacted Martinek again in 1991. On May 7, 1991, NPS delivered by certified mail a letter to Martinek asking him to join NPS for further examination of the Comstock claims. (Ex. A Att. 4.2.) Martinek called in response and asked if it would be "worth his while" to do so. (Ex. A Att. 4.3, record of telephone conversation between Burghardt and Martinek.) Burghardt advised Martinek that he had found little to validate the claims and believed that any mineralization was sporadic and mined out. He told Martinek that, because the upper four adits lie on a slope at the angle of repose and loose material lies around them, a backhoe would not be usable for opening any of those adits, and suggested they could be opened with 1-2 days of hand shoveling.

> I stressed to Mr. Martinek that opening the adits would not guarantee the validity of the claim(s?), but that I did not think they would fly without opening the adits.
>
> Mr. Martinek stated that the only person he knows who might have an idea what is in the adits is Tom Bundtzen, who did his master's thesis on the area * * * and gave me a phone number to contact [Bundtzen].

> Mr. Martinek stated that Jim Fuksa, although not a particularly good miner (due to lack of mechanical ability), was an excellent prospector, and that he usually located good claims. For this reason, Mr. Martinek believes the Comstock Lodes are most likely valuable.

(Ex. A Att. 4.3 at 2.)

On May 12, 1992, Kucinski sent a letter to Martinek advising that he would be visiting the Comstock claim group in July in order to attempt to re-open one or more adits on the Comstock No. 2 claim. (Ex. A Att. 4.4.) Kucinski asked Martinek to provide any information he might have about the subject claims. Id. The record indicates that Martinek did not participate or respond at that time. See Tr. 80. Kucinski and NPS supervisor Lynn Griffiths went to the claims in 1992, to attempt to open adit 3, and concluded that he could not do this "in a day or two without timbers." (Tr. 79; Ex. A at 55.)

Between 1990 and 1993, Martinek and NPS discussed resolving the validity questions, as well as Martinek's lawsuit in the U.S. Court of Claims. By 1993 it became clear no agreement would be reached. (Ex. A Att. 4.5 (June 17, 1993, letter from Kucinski to Martinek); Tr. 136.) [8/] Thus, Kucinski returned to the claims and sampled the "dumps of vein material outside the Bunnell adits in 1993 to correlate their material to the veins sampled and described in literature." (Ex. A at 29-30; Tr. 84.) Martinek and his agent, Steve Hicks, joined Kucinski at the 1993 site visits. (Ex. A Att. 4.6.) [9/] At that time, Martinek raised the issue of bringing in a bulldozer to reopen the adits. (Tr. 81.) Kucinski advised him that it was dangerous and that he had "high-walled" himself trying to get into the adits, referring to "oversteep[ing] the high side" of an adit, such that, once inside, the steep wall would fall in on the examiners. (Tr. 79-80.) He also stated that bulldozing rock might not be possible. (Tr. 81-82.)

[8/] In discussing delays attendant on the Eldorado claim examinations, Kucinski testified that he was "very frustrated in that it was very difficult to locate [Martinek's] claims on the ground, and Mr. Martinek indicated to me that he was not sure where the location of the claims were." (Tr. 58.) As Kucinski was "frustrated by the situation as being very time-consuming and money-consuming for both" NPS and Martinek, he proposed a settlement whereby NPS would compensate the claimant by paying the "administrative costs of doing the actual validity exam." This solution apparently was not achieved by the Department for legal reasons. (Tr. 58, 162-63.)

[9/] Hicks was the recipient of some of Fuksa's claims that Martinek inherited and conveyed to Hicks. These claims were the subject of appeals in United States v. Hicks, 162 IBLA 73 (2004), and Steve Hicks, 136 IBLA 190 (1996).

NPS examiners analyzed the results of sampling from the Comstock claims. In the absence of sampling from inside the adits, NPS concluded that it would base its analysis of the Comstock No. 2 lode claim on sampling reported in the literature from previous decades. (Ex. A at 33.) In a meeting on July 14, 1993, Kucinski advised Martinek that he would proceed with a mineral report in that fashion and that Martinek need not re-open the Comstock No. 2 lode claim adits. (Ex. A Att. 4.6.)

After completion of the validity examination, Martinek, "on behalf of Martinek's 'Red Tape Mining Company'," submitted a document by which he sought rejection of allegedly planned stibnite mining operations on the Comstock claims. (Ex. A Att. 4.7.) Asserting that the letter enclosed "a mining plan and map" for the mining of the four remaining Comstock Lode claims, Martinek challenged NPS to approve mining operations for the Comstock and four additional plans for other mining claims in contravention of court order and the EIS. Reflecting misunderstanding of the Mining in the Parks Act and the court order, Martinek said:

> I am quite certain that the NPS sub rosa agreement with the environmental organizations to ban mining within Denali is still in force as it has been for more than ten years. All you have to do to prove me wrong is issue Mr. Martinek his mining permits for the five plans you now have in possession.
>
> To date your office has been in the traditional stalling mode in direct opposition of congressional intent concerning his mining plans because you have done nothing to acknowledge you have received them.

(Ex. A Att. 4.7.) Martinek's "mining plan" confused the Comstock claims, with its steep hillsides at angles of repose and the adits on the Comstock No. 2 claim accessing an underground mineralized vein of silver, lead, and zinc, with a plan to conduct surface mining of antimony along a central surface vein. His letter discussed using an "HD-11 dozer to strip the vegetation and top soil from the large discovery vein the length of the claims. The Mitsubishi excavator will dig up the vein where the rock is fractured enough for the bucket to be effective. * * * The massive antimony vein will be hand-sorted." Id. [10/]

[10/] On cross examination by Milanek's attorney, Bundtzen pointed out that the Bunnell area "was mainly a silver/lead/zinc/copper property" and that while "there's antimony in most of the material * * * it's not [of] high grade [like] the stibnite veins that were mined." (Tr. 113.)

Burghardt proceeded to prepare a Mineral Report. The report analyzes mineralization on the Comstock claims, finding evidence of it only on the Comstock No. 2 lode claim. See, generally, Tr. Day 2 (testimony of Burghardt). He asserts that the "examiners were unable to find *in situ* mineralization of economic significance on any of the Comstock Lode claims" in 1990 or 1993. "Since claims #1, #5, and #6 have no significant mineralization, workings, or documentation of mineralization in literature, the author concludes that these claims clearly fail to meet the test of discovery." (Ex. A at 33; Tr. 228-30.)

He concluded, however, that the Comstock No. 2 "may be a different case." (Ex. A at 33.) Based on sample work done in previous examinations revealed in the literature, and the samples collected in 1990 and 1993, Burghardt conducted an analysis which mapped veins A, B, and C on the Comstock No. 2 lode claim. (Tr. 240.) He depicts his conclusions in Attachments 3.9a-c. Based upon the information presented by Bundtzen, Salisbury and Dietz, Saunders, and Hawley, Burghardt presented the following analysis of vein A, referring to attachments to the Mineral Report for the Comstock claims as cited above:

> Bundtzen (and Salisbury & Dietz after Bundtzen) indicates in his Section A-A' that Vein A extends below the floor of Adit 3 (Attachment 3.5). As mentioned above, Saunders mentions a 1½-foot-wide Vein A exposure in the back of Adit 1. The author therefore assumes continuity of Vein A from the floor of Adit 3 to the back of Adit 1: a distance of approximately 23 feet. It is customary to infer mineralization half of the exposed distance in either direction (11.5 feet up-dip from the roof of Adit 1 and 11.5 feet down-dip from the floor of Adit 3), yielding a total vertical extent for the vein of 46 feet, as diagramed in Attachment 3.9a. [11/] This interpretation of Vein A is consistent with the published data for the following reasons:
>
> * Vein A falls just short of the surface. As stated earlier, Wells (1933) could find no outcrop of vein material despite two open cuts in the vicinity of the present-day adits. Salisbury and Dietz corroborate that the Bunnell veins fail to reach the surface.
>
> * Bundtzen's Section A-A' does not infer Vein A as low as Adit 4.

11/ Giffen testified regarding the "half-strike-length rule," or using half the observed strike length for the down-dip dimension for purposes of conducting validity examinations. (Tr. 409-410.)

> As for horizontal extent, Hawley's map shows Adit 3 at a width of about 3.5 feet where it intercepts Vein A, and infers that the vein extends further in either direction. Buntzen's map shows a broadening of the adit in this area to almost 10 feet wide, indicating that Bundtzen's inspection must have post-dated Hawley's. Vein A most likely extends horizontally beyond Bundtzen's recorded exposure in Adit 3. With no other information on the vein in this area, this author infers that it extends half the horizontal exposure distance shown by Bundtzen in either direction, for a total width of 20 feet (Attachment 3.9b).

(Ex. A at 37.)

Burghardt relied on samples collected and reported in the literature to determine average gold and silver values. (Ex. A at 38.) Confirming that the average values were consistent with those found in Kucinski's sample (CS2-93-02) from the high-grade dump outside adits 2 and 3, [12/] though slightly lower than his sampling (CS2-93-03) of the dump outside adit 1, Burghardt used the average figures of sampling inside the adits as reported in literature to determine a mineral resource in vein A of 230 tons, grading 14.79 oz. per ton (opt) silver, 11.1 percent lead, and 17.7 percent zinc. (Ex. A at 39; see also Table 1: Sample Assay Summary, Comstock Lode Mining Claims (reporting 1990 and 1993 samples).)

For vein B, Burghardt explained as follows:

> Bundtzen, as copied by Salisbury and Dietz, maps a massive sulfide vein striking approximately N45°W and dipping 65° northeast, exposed at the terminus of Adit 4, hereinafter referred to as "Vein B." (Attachments 3.9a and 3.9c). A similarly-trending fault dipping 48° to the northeast, which is approximately 6 feet to the northeast of Vein B's exposure in Adit 4 is hereinafter referred to as Fault 1.
>
> Bundtzen's section view shows Vein B and Fault 1 projecting continuously up from Adit 4 to Adit 3 (Attachment 3.5). In plan view, they appear as a vein curving from a strike of about N80°E beginning approximately 13 feet inside the portal of Adit 3 on the north rib, to a strike of about N70°W extending into the south rib approximately midway into the adit, dipping 45° to the north. Fault 1 is exposed in

[12/] Kucinski testified that he told Martinek that there was no reason to sample the stockpiles because "the assay grades themselves were not going to be used in any sort of reserve calculation, and that [it was] loose rock and was not allowable as such." (Tr. 83.)

> Adit 3 approximately 3 feet north-northeast from Vein B's eastern exposure in the adit. Assuming that Bundtzen's drawing is accurate, the dip of Vein A and Fault 1 between Adits 3 and 4 must be variable, as pictured in Attachment 3.9a.
>
> Bundtzen and Hawley's sketches differ significantly in their western placement of Vein B in Adit 3, perhaps because they may have mapped at different levels. Both maps, however, show the vein extending near to the portal of Adit 3. In deference to the claimant, this author assumes Bundtzen's more generous interpretation, as depicted in Attachments 3.9a and 3.9c.
>
> Bundtzen shows Vein B getting cut off by an intrusive porphyry approximately 15 feet inside Adit 3. From there, Bundtzen records exposure for about 26 feet before Vein B disappears into the south rib at the bend in the adit. Below, Adit 4 encounters Vein B at its terminus. Assuming that Bundtzen's map is accurate, 42 feet of horizontal exposure between the two levels is apparent, as shown in Attachment 3.9c. Since there is a definite cut-off (by the porphyry intrusive) at its western end, Vein B cannot be inferred farther upward or to the west in Adit 3. The author estimates a Vein B dip-distance of 34 feet from the back of Adit 3 to the floor of Adit 4. Since the showing is definite in Adit 4, half of that dip distance (17 feet) is inferred down-dip from the floor of Adit 4, yielding an overall slope distance for the potential resource of 51 feet, as shown in Attachment 3.9a. Since the horizontal exposures of Vein B are cut off to the east by the rib in both adits, the author infers half of the exposed strike distance to the east (21 feet), for an overall horizontal distance for the potential resource of 63 feet * * *.

(Ex. A at 40-41; see also Att. 3.9a-c.) [13/] Calculating the thickness of the vein at 1.23 feet, Burghardt calculated tonnage for vein B as 549 tons. Using the average sample values from the literature, acknowledged by Burghardt to be less than that found in the high-grade dump sample (CS2-93-01) outside adit 4, Burghardt calculated the theoretical 549-ton vein B as grading .03 opt gold, 1.78 opt silver, 2.85 percent lead, and 10.0 percent zinc. (Ex. A at 42.)

Burghardt explained that vein C is depicted by Hawley as beginning at a juncture with vein B "along the south rib of Adit 3." (Ex. A at 41.) Burghardt explained that it is .52 feet thick based upon Hawley's plot of the vein, and "pinches

[13/] Burghardt testified that the vein in adit 4 "clearly plays out or pitches out [sic] and is nonexistent a mere 20 feet away." (Tr. 244.)

to the west" and ends at vein B and thus "it cannot be inferred further in either direction along strike. The total strike distance mapped by Saunders scales to 13 feet. For lack of any other data on this vein, this author credits Vein C half that distance (6.5 feet) up- and down-dip, for a total volume" of 12 tons. (Ex. A at 43.) Based upon sample 33B collected by Hawley, he concluded that the 12 tons graded at 3.19 opt gold, 2.85 percent lead, and 10 percent zinc. Id. Burghardt considered other information in the literature and concluded that while various examiners indicated a possibility of other veins or mineralization in the area of adits 1-4, without samples or assay data or descriptions, such information was speculative and could not be used as contribution to a discovery. (Ex. A at 44-45.)

Burghardt proceeded to analyze the costs of mining on the Comstock No. 2 lode claim, based upon underground mining through adit 4, as depicted in attachment 3.10a-b. (Ex. A at 46-49.) [14/] Burghardt proposed jackleg drilling and use of explosives to reopen and then drill and stope through adit 5. "Hand mucking is selected to save the expense of mechanized mucking equipment, which would be justified for a larger mine." (Ex. A at 48.) Burghardt proposed a 300-foot rail line down the incline to a pad for feeding ore into a portable mill for crushing, concentrating, and drying. Id. Burghardt explained:

> Vein A would be accessed by drifting 5'w X 7'h approximately 20 feet at N70°E from where Adit 4 currently bends to the southeast, flaring out at the last round as shown to allow for unrestricted flow of rock from the stope to be mined above. The face of this new drift would lie directly down-dip below the center of Vein A * * *. From here, a raise would be driven upward along the projection of Vein A * * * beginning 8'l x 4'w at the roof of Adit 4 and broadening to a 20'l x 4'w stull stope by the time it reaches the base of Vein A some 10' above. The stope would continue upward at 20'l x 4'w for 46 feet along the vertical extent of Vein A to just below the ground surface.

[14/] Burghardt also noted Martinek's mining plan submitted in 1996, and pointed out that the surface mining proposed did not seem pertinent to the claim in question in light of the fact that no surface mineralization had been encountered, and the hillside slope along which surface mining techniques would "quickly reach a prohibitive stripping ratio and a safe highwall could not be established." (Ex. A at 47.) The basis for this conclusion is readily apparent in pictures of the mining claims in Ex. A Supp. Burghardt also pointed out that stripping techniques proposed by Martinek would dilute vein material with country rock and reduce economic viability. Id. "[T]o exploit those veins by open-pit mining, I think you'd have a prohibitive stripping ratio which would dilute * * * your vein material a great deal * * * and [create] a very dangerous situation." (Tr. 247.)

> At the Adit 4 level, Vein B would be mined by slabbing the current south rib and drifting as indicated on Attachment 3.10b. From there a 4-foot-wide stope would be driven up-dip along the lateral extent of Vein B. When Vein C is encountered at the level of Adit 3, it would be mined as a "coyote" branch off the Vein B stope. After all other mining is completed, the remaining 17 feet of Vein B below the Adit 4 level would be mined by underhand methods, ramping down steeply from the adit's portal to access the lowest portions of the vein.

(Ex. A at 47-48.)

Burghardt proposed that this operation would employ a crew of two employees working 10-hour shifts 6 days per week during the short 100-day mining season in the Kantishna Hills. (Ex. A at 49.) Such a proposal would reduce costs by completing mining in one season. Id. Based upon Mining Cost Service (Shumaker, 1997) wage information, he concluded that the labor cost of mining would be $360 per 10-hour shift in 1997. Costs then were indexed to 1972 based upon information in Western Mine Engineering, Inc. (1997) Mine Cost Service, pps CI3 to CI4. (Ex. A at 52-53, 56 Table 7 n.11.) He calculated the production rate for 20 feet of drifting on vein A and 45 feet of drifting on vein B at 162 cubic feet (cf) per two-person shift. He calculated that the production rate for stoping on veins A-C would be 160 cf for a two-person shift. Based upon these factors and waste/ore ratios for each operation per vein, he concluded that the total labor costs would be $41,040 in 1997 and, as adjusted, would have been $11,255 in 1972. (Ex. A at 59, Table 8.)

Based upon the total 791 short tons he found in veins A-C and the values reflected in historic samples, Burghardt concluded that the in-place mineral resources are 16.47 oz. gold, 4,417 oz. silver, 83,037 pounds lead, and 189,020 pounds zinc. (Ex. A Table 2.) For 1997, he chose metal prices based upon 10-year averages because the more recent prices for all components but zinc showed a drop in value. (Ex. A at 50-51.) This also allowed him to average in the highest silver and gold prices from the late-1980s. Id. He also chose a 5-year average for the 1972 price, the year of withdrawal of the Comstock claims. He applied the following price factors for the 2 years:

	Au ($/tr. oz)	Ag ($/tr. oz)	Pb ($/lb.)	Zn ($/lb.)
1997	378.36	4.97	.3983	.5894
1972	38.69	1.76	.1434	.1469

(Ex. A at 51, Table 3, Mining Cost Service (1997), p. CI-7.) Based upon these prices, he concluded that the in-place value of veins A-C on the Comstock No. 2 lode claim was $172,667 in 1997 and $48,087 in 1972. Id.

Burghardt calculated capital costs of mining at $89,032 for 1997 and $23,124 for 1972, based upon an extensive list of equipment needed for the proposed underground operation. (Ex. A at 54, Table 6.) He calculated mobilization and start-up costs at $29,590 for 1997 and $7,852 for 1972. (Ex. A at 56, Table 7.)

Having calculated costs of extraction, Burghardt attempted to figure out how to mill the ore. He found no source for custom milling, but concluded that the costs of transportation for the tons of raw material (826 tons with dilution for in-place country rock) would be prohibitive. (Ex. A at 61-62; Tr. 251.) Accordingly, he concluded that the only possibly cost-effective method of milling would be to use a portable mill. He found that Blue Range Engineering produced portable mills at one time but no longer did so because of the "depressed metals market and dominance of larger producers." (Ex. A at 62; Tr. 152 (no market in 10 years).) Blue Range Engineering believed that the Comstock No. 2 lode claim could not bear the cost of milling, nor could it find a "mill [to] make the necessary adjustments to accommodate as little as 826 tons at these grades." (Ex. A at 63.) Nonetheless, in seeming deference to the claimant, Burghardt continued to operate on the assumption that the miner could obtain a portable mill at the site such as the portable "Blue Range Mill." (Ex. A at 64.) That mill would process 100 tons of feed per 24-hour day at a minimum cost of $16 per hour. (Ex. A at 65 and n.16.) Burghardt thus calculated milling and packaging costs for packing concentrate in 55-gallon drums at $16,809 in 1997 and $4,643 in 1972. (Ex. A at 65, Table 11.) Notably, these calculations did not include any cost factors for purchase, rental or start-up of a mill, portable or otherwise. Id.; Tr. 252 (Burghardt did this "just to see how the numbers would run if we ran the material through a mill," but noted that the development of such a mill would have a "prohibitive cost"), 257.

Burghardt then considered costs of smelting at Cominco's lead and zinc smelter 1,840 miles away in British Columbia, reporting it to be the closest smelter in North America. See Tr. 255 (problems with adjusting smelters to accommodate particular ore sources). He included costs of trucking for 340 land miles to Anchorage, 1,100 shipping miles to Vancouver, and 400 miles by rail to the smelter. (Ex. A 66.) Total transportation costs were calculated at $16,951 in 1997 and $5,072 in 1972. (Ex. A at 67, second Table 11.)

Finally, Burghardt considered the costs of reclamation, distinguishing the more stringent reclamation that would be required in 1997 from minimal requirements in 1972. For 1997 costs, he looked into the then-current reclamation taking place at the nearby Slate Creek Mine four miles away and modeled his projections on that project. (Ex. A at 68-69.) He pointed out that the proposed mining would disturb 2.2 acres on the Comstock No. 2 lode claim, 1.5 acres of which is already covered in mine spoils from previous activity. (Ex. A at 69.) Considering equipment, labor and materials (seedlings, lime, seed, etc.), he concluded that the costs of reclamation in

1997 would be $40,187. (Ex. A at 71, Table 12.) Only $1,810 would be spent in 1972 because only demobilization would have been required at that time. Id.

Adding the total costs, exclusive of milling mobilization or cost, Burghardt calculated the costs of mining at $233,609 in 1997 and $53,756 in 1972. (Ex A at 72, Table 13.) These costs alone exceeded the in-place value of the minerals in veins A-C ($172,667 and $48,087) in either 1997 or 1972, and thus rendered the Comstock No. 2 lode claim unprofitable to mine. Burghardt nonetheless went on to the add the costs of smelting the concentrate delivered to the Cominco facility in British Columbia. He pointed out that Cominco would not even consider shipments of exotic ores, or ores in shipments less than 10,000-20,000 metric tons, because of the cost of adjusting the smelter. (Ex. A at 73.) Given the small amount of production, he calculated the net-smelter value of the minerals, less deductions for silver and gold, at $73,428 in 1997 and $21,753 in 1972. (Ex. A at 74-75, Table 15.)

Burghardt concluded that, under any scenario, a prudent miner would not mine the Comstock No. 2 lode claim. [15/] Noting that "[n]o mineralization of economic interest was found" during the field examination or in literature for the Comstock Nos. 1, 5, or 6, he concluded that the prudent man rule was not satisfied for any of the Comstock lode claims. (Ex. A at 77.) He testified on cross examination that the evidence was such that he "would evaluate the [evidence on the Comstock No. 2] as a good exploration target." (Tr. 287.)

2. The Eldorado Claims. The Eldorado claim group is located in portions of secs. 22, 23, and 26, T. 16 S., R. 18 W., Fairbanks Meridian. (Ex. B at 3, Att. 1 Figures 1-3.) The claims lie end-to-end, and the Eldorado No. 3 claim abuts the Eldorado Creek to the northwest and the Eldorado No. 2 lode claim to the southeast. Id. Access to the Eldorado claim group is approximately 2 miles up the Eldorado Creek on a "sort of a four-wheel-drive road" off the road from Kantishna. (Tr. 36.) "Antimony, a stategic mineral, is the primary mineralization found on the Eldorado claims." (Ex. B at 12.) No known ore has been shipped from the property, nor is there evidence of past production from the claims. (Ex. B at 10, 13.) There is no debate that mineralization is exposed in an outcrop on the common end line between the Eldorado No. 2 and 3 claims. (Ex. B at 13.) The mineralization consists of vein quartz, 32 by 37 feet. (Ex. B at 13; Att. 3 Figures 3-5 (depiction of ore vein with stibnite); see also Tr. 68-70.)

Government witnesses testified orally and explained the Mineral Report regarding the claims and their field examinations of the Eldorado claims. See

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[15/] He also pointed out that his cost estimates did not include permitting costs or venture capital costs. (Ex. A 76.)

Hearing Days 1-3 (testimony of Burghardt, Kucinski, and Giffen). NPS contacted Martinek regarding a field examination of the Eldorado claims by letter dated May 15, 1990. (Ex. B Att. 1.) Martinek did not attend the field examination conducted by Kucinski and Burghardt between August 19 and 22, 1990. (Ex. B at 13; Tr. 45.) The field examiners took four samples from the claims at that time. (Ex. B at 14-15 and Table 1.) Examiners returned during the 1993 field season, during which time Martinek was present and conducted a geophysical survey. Martinek discovered a geophysical anomaly. In 1994, Giffen and Kucinski returned to the claims and collected more samples. (Ex. B at 13-15 and Table 1.) They found stibnite mineralization and small amounts of silver, but assay values of other elements were inconsequential. (Ex. B at 17.) They found another vein approximately 300 feet downslope from the primary mineralized vein, but samples showed it to be barren. (Ex. B at 16, Att. 1 (EL-03).) [16/]

The samples showed an average value of antimony in the mineralized vein of 32.53 percent, and 2.8 oz. per ton of silver. (Ex. B at 16.) Giffen, who prepared the Mineral Report, calculated the tonnage factor at 9.82 cubic feet metal-bearing ore per ton. He attempted to determine the resource reflected in the exposed mineralization:

> In order to describe the general shape and volume of the mineral resource with as few data as are available in this instance, some assumptions must be made. For the purpose of estimating the potential mineral reserves on the subject claims, the shape of the mineralized body will be described as rectangular. The exposed strike length of the stibnite outcrop is fifteen feet, adding ½ the measured strike length to each end of the outcrop gives an inferred strike length of 30 feet. The depth of the mineralization along dip is estimated at ½ the measured strike length, or 7.5 feet. The width of the mineralization is the maximum width observed at the outcrop, 4 feet. Thus the volume of the mineralization is 30' X 7.5' X 4' or 900 cubic feet (Peters, William, 1978, p. 477). This figure is divided by the tonnage factor of 9.82. A theoretical mineral resource is assigned to the Eldorado #2 and #3 lode claims as follows:
>
> Eldorado #2 and #3 lode claims: Mineral Resource
>
> 92 Tons grading 32.53% [stibnite] and 2.8 [oz. per ton] silver

[16/] Kucinski testified regarding an error in the Mineral Report at Attachment III, which shows that the assay result for the EL-03 sample showed 3 percent antimony. He explains that the correct assay result was .03 percent antimony as shown on the assay sheet. (Tr. 52; see also Ex. B Att. III Bondar-Clegg Certificate of Analysis at 1.)

(Ex. B at 16, 18.)

Giffen proceeded to determine whether such stibnite mineralization could support the validity of the Eldorado claims. Giffen explained that antimony is used as an alloying element to increase strength and inhibit chemical corrosion. (Ex. B at 18.) It has varying uses in such things as corrosion resistant pipes, tank linings, pumps, roof sheeting, antifriction bearings, solder, ammunition ("bullet alloys and warheads"), cable sheaths, flame retardants, insulation, glass, plastics, battery hardening agents, and fireworks. Id.; see also Tr. 142, 451 (comments of Martinek's attorney); 798-800, 814 (testimony of John Lawrence). He noted that 30-70 percent of antimony demand was supplied in the United States by recycling. (Ex. B at 21.)

Giffen explained that the principal problem with antimony concentrate is finding a market for it in the United States. China (which has 75 percent of the world antimony mine production), Bolivia, South Africa, and Russia produce 90 percent of world production. (Ex. B at 21.) Giffen explained that the difficulty in finding a market for antimony from Alaska is that it would be difficult to find a purchaser of small production amounts, given the few major players in the world market. Id. Giffen stated that the Sunshine Mining Company of Idaho is the only company in the United States producing antimony concentrate, but only as a by-product of other processes, and that this company expressed no interest in purchasing stibnite for smelting. (Ex. B at 19; Tr. 361-62.) Giffen found two mines in Canada producing antimony, one of which had ceased production because of dropping prices. (Ex. B at 19.)

Giffen contacted six American smelters, but found that all domestic refiners avoid sulfide-containing materials because of environmental constraints. Id. at 20. The US Antimony Corporation was in the process of constructing a smelter in Mexico. This company advised NPS that it preferred not to take material with less than 40 percent antimony, but would consider lesser ores at a discount. NPS communicated with twelve international smelters to assess interest in purchasing high-grade stibnite. It received two responses. See letters at Ex. B Att. III (Anzon and Jean Goldschmidt International). Anzon stated that it would purchase 60 percent or greater antimony concentrate in minimum lot sizes at $16 per metric ton unit. (Ex. B Att. III (Anzon).) Goldschmidt stated that it would purchase concentrate of 47 percent antimony at $9 per metric ton unit, and 29 percent concentrate for $4 per metric ton unit. Id. Giffen stated that prices were usually quoted for 60 percent antimony content because China produces a concentrate of that content. (Ex. B at 21.) He also noted that price quotes for antimony are usually discounted for treatment charges and deleterious element penalties. (Ex. B at 22; see also Att. III (Anzon and Goldschmidt letters).) No payment is made for small amounts of silver because of smelting costs.

The only company which expressed an interest in purchasing antimony sulfide was US Antimony Corporation, for its smelter in Mexico, which offered to "purchase the stibnite at ½ the current metal price of the contained antimony, pound for pound." (Ex. B at 22; Tr. 363.) Based upon 5-year average prices, Giffen concluded that US Antimony Corporation would have paid $0.395 and $0.74 per pound for contained antimony in 1972 and 1997, respectively, which would incorporate all discounts and penalties for deleterious elements. Id. at 22. Based upon this, and considering the figure of 92 tons mineral resource at 32.53 percent stibnite, he calculated the value of the resource as $37,649 in 1997, and $20,096 in 1972. (Ex. B at 24.)

In determining the cost of mining the Eldorado claim group, Giffen considered the costs of small underground mines, using cost estimates from Western Mine Engineering Incorporated, the U.S. Bureau of Mines, and NPS. In all cases, the capital costs of mining far exceeded the value of the resource. (Ex. B at 24-33; Ex. B Supp.) [17/] Accordingly, he considered two surface mining scenarios. One scenario relied on a mining plan proposed by Hicks. [18/] Hicks' plan had proposed a "pioneer road" to be constructed with an HD-11 dozer to the outcrop, after which miners would use a Mitsubishi 180 excavator to mine the stibnite. Giffen concluded that the costs of such a scenario would be $78,605 in 1997, more than double the value of the resource in that year. He concluded that the costs in 1972 would be $19,301, just below the resource value ($20,096) in 1972. (Ex. B at 34-35 and Table V.)

In order to reduce costs, Giffen prepared his own mining plan based on hand mining without the use, cost, and rental of heavy equipment, concluding that this method would have been more cost effective ($14,876) in 1972. (Ex. B at 37-39 and Table VI.) Nonetheless, the cost of such mining ($60,731) still exceeded the resource value in 1997. Id.

Giffen considered whether, with the proximity of the Eldorado claim group to the Eureka claim group, a mining project involving all of those claims might be more cost effective. Using the figures from the Mineral Report for the Eureka claims (Ex. C), Giffen calculated the total value of the resource from the five mining claims as $21,788 in 1972 and $40,819 in 1997, respectively. Given the small amount of resource on the Eureka claims, combined costs rose for both the mechanized and hand method surface mining proposals Giffen considered. See Ex. B at 40-41, Tables VII and VIII. Costs for mechanized surface mining were calculated at $20,388

[17/] Giffen testified that Ex. B Supp. corrects errors in Ex. B. (Tr. 355.)

[18/] Giffen states that the mining plan can be found in Att. 1, but we find no such document there. Other record information suggests one was submitted by Hicks on Feb. 6 and 10, 1996.

in 1972 and $82,772 in 1997. For the hand surface mining scenario, Giffen calculated costs at $15,893 in 1972 and $64,917 in 1997. Id.

Finally, Giffen considered the factor of transportation costs of the resource from both the Eldorado and Eureka claims in 1997 from Kantishna to Torroen, Mexico, the location of the US Antimony Corporation smelter. (Ex. B at 45-56 and Table IX.) For this he considered costs of ore transportation to McKinley Station in Alaska,[19/] containerized freighter charges to Manzanillo, Mexico, and rail charges from there to Torreon. These charges totaled $21,072 in 1997, reinforcing the conclusion that there was no possible way to mine the claims in that year at a profit. On the other hand, for 1972, Giffen was able to consider transportation only to Thompson Falls, Montana, where a smelter operated at that time. Considering transportation to McKinley Station, freighter charges to Seattle, and rail charges to Thompson Falls for that year, Giffen concluded that transportation charges in 1972 would be $4,854. (Ex. B. at 46, Table IX.) Because profits exceeded other costs in that year by $5,895, id. at 41 Table VIII, the hand surface mining scenario in 1972 would have been marginally profitable, generating $1,041, in revenue.

On this basis, Giffen concluded:

> A person of ordinary prudence would be justified in his further expenditure of his labor and means with a reasonable prospect of success in developing a valuable mine in 1972, the date of withdrawal. Thus a mineral discovery did exist within the boundaries of the Eldorado #2 and #3 lode claims in 1972.
>
> * * * However, the Eldorado lode claims fail to meet the requirements of the "prudent person test" and the marketability test presently, 1997. Although a mineral discovery did potentially exist[] on the subject claims in 1972, due to changing economic and market conditions, this mineral discovery has been lost. Minerals have not been found within the limits of the Eldorado #2 and Eldorado #3 lode claims in sufficient quality and quantities to constitute a discovery of a valuable mineral deposit in 1997.
>
> * * * * * * * *
>
> The following two factors have changed the economics of the subject claims:

[19/] McKinley Station is located on the east end of Denali and accessed by the Alaska Railroad or the Denali Highway. (Ex. C at 5.)

- The price paid for antimony has not increased as dramatically as the costs of mining since 1972.

- All smelters in the USA currently avoid sulfide ore due to environmental and ecological concerns. This forces shipment of potential ore to overseas markets, which drives up transportation costs.

(Ex. B at 47-48.)

Giffen presented two analyses of the value of stibnite mineralization compared with surface mining costs by mechanical methods and also compared to hand surface mining. (Ex. B at 44, Charts I and II.) In the former case, the cost of mining exceeded value in 1980. In the latter case, the cost of mining exceeded value in 1982. From this, it appears that the marginally valuable resource on the Eldorado claims became unmarketable and that any discovery was lost due to economic conditions between 1980-82. (Tr. 378.)

3. The Eureka Claims. The Eureka lode claims were located in sec. 13, T. 16 S., R. 18 W., Fairbanks Meridian, along Eureka Creek, adjacent to and south of Quigley Ridge. (Ex. C at 4, 7, Att. 2 Figure 2, 4-3.) The Eureka claims are right off the main road to Kantishna. Each claim is 20 acres in size and approximately 600 feet wide and 1,500 feet long. Id. at 4. The Eureka claims lie end-to-end lengthwise and the primary mineralization found on them is antimony. (Ex. C at 13 and Figure 2.) They were overstaked on top of the Discovery #1, #2 and #3 placer claims, which were declared forfeited for failure of the claimant, who is not related to this proceeding, to submit mining claim fees required by law. (Ex. C at 5.) [20/]

According to the Mineral Report:

> Improvements, in the area of the lode claims, are associated with placer mining on the Discovery placer claims. Other than placer mining, one dozer trench is located on a left limit bench of Eureka Creek on the Eureka #2 lode claim. The only other development associated with the subject lode claims is a collapsed adit located on the common end line between Eureka #2 and Eureka #3 lode claims.

[20/] The claimant appealed that BLM determination, but the Board dismissed the case when the claimant failed to submit a statement of reasons for appeal. William Carlo, Jr., IBLA 2002-59 (Order dated Jan. 29, 2002).

> Improvements on the Eureka #4 lode claim are associated with past placer mining and road building. The main road through Kantishna, Alaska passes through the southeast portion of the claim. Stibnite mineralization has been exposed in the cut slope of the road * * *.

(Ex. C at 5.) Stibnite was produced from the Eureka claims in 1970. (Ex. C at 13.) According to Giffen, Salisbury and Dietz documented that 99 tons of total historical production were reported from the stibnite occurrence on the Eureka Nos. 2 and 3 claim line, with the latest production of 12 tons taking place in 1970. (Tr. 317.)

Government witnesses testified orally and explained the Mineral Report regarding the field examinations of the Eureka claims. See Hearing Days 1-3 (testimonies of Burghardt, Kucinski, and Giffen; Ex. C Att. III (daily field log).) Giffen contacted Martinek regarding a field examination of the Eureka claims by letters dated April 2 and May 13, 1993. (Ex. C Att. I.) Without a response, NPS contacted Martinek by telephone at which point he agreed to meet. (Tr. 320.) Hicks and Martinek attended the field examination which began on June 30, 1993, but were unable to identify the location of the subject claims. (Tr. 323.) They were unable to locate mineralization on the claims. (Tr. 325.) Though unable to supply information about mineralization on the claims, Martinek indicated that in 1972 a person named Dan Ashbrook had built a "cat trail" to an adit on the border of the Eureka lode claims No. 2 and 3. (Ex. C at 15; Tr. 334.) According to the Mineral Report, Ashbrook confirmed he had built a trail, not to an adit but to a surface pit from which "stibnite was removed via a high-line." (Ex. C at 15.)

> There is some confusion as to whether an adit ever existed at this site and the date of the cat trail was actually constructed [sic]. Since Milan Martinek refers to this stibnite occurrence on the Eureka #2 and #3 lode claims as a collapsed adit, it will be referred to as a collapsed adit in this report.

(Ex. C at 3; Tr. 334, 469.)

> Field work continued for portions of 15 days during that summer:
>
> The purpose of traversing the claims was to locate claim corners, areas of mineral development, and/or prospects, mineralized outcrops, identify improvements, and to verify previous geologic mapping by Bundtzen (1981) and Salisbury & Dietz, Inc. (1983). The claim corners have not been maintained, thus none were found. * * * A total of nineteen samples were recovered from the Eureka claims; ten samples from Eureka #2, * * * five samples from Eureka #3, * * * and four samples from Eureka #4.

(Ex. C at 15-16 (citations omitted) and 18; see Att. V (photographs).) NPS dug approximately 300 feet of trench, in some places up to several feet deep, in the area suggested by Martinek and conducted three helicopter reconnaissance flights. (Ex. C Att. III Figure 5d.) NPS found no evidence of mineralization in the trenches. (Tr. 336-37; 479-80 (Giffen "wasn't able to determine a strike and dip" and "didn't observe mineralization.") At Martinek's suggestion, NPS took samples from the park road cut through the Eureka No. 4 lode claim. (Tr. 338.)

On July 3, 1993, Hicks and Martinek appeared at the field examination with Martinek's attorney, Neuman. (Ex. C at 14.) Martinek and Neuman asked to use heavy equipment to re-expose mineralization at the collapsed adit/surface pit. Id. at 14, 16. NPS examiners explained that, in order to be valid, a physical exposure had to have been discovered prior to withdrawal and that further analysis could be undertaken to confirm a pre-existing discovery, but not to explore for one. Id. at 14. Because no road or trail accessed the adit/pit, NPS advised Martinek that an environmental assessment (EA) would be required under NEPA to consider a proposal to confirm a prior discovery.

On February 3, 1994, NPS sent a letter to Martinek advising him that it would be conducting further examination of the Eureka Nos. 2 and 3 lode claims in the summer and that, if he wanted them to consider a plan to reopen discovery points, he must submit a draft proposal by March 1, 1994, and a final by April 1, 1994. (Ex. C Att. I.) Martinek did not submit a draft or final. Rather, in a letter dated April 27, 1994, identified as a response to the February 3, 1994, NPS letter, Martinek stated: "I did not respond to the above referenced letter because of the inconsistent position and delay tactics being taken by NPS Denali * * * ." Id. Martinek proceeded to object to NPS actions with respect to all of his lode claims, asserting that NPS was violating the Mining Law of 1872, the Mining in the Parks Act, and ANILCA, and arguing that submitting a plan would be futile because "NPS has arbitrarily denied [plans of operations (POOs)] in the Kantishna Mining District." Id. His stated position was that it was up to NPS to re-expose any pre-existing discovery.

> Under the circumstances for the 1994 validation season, I would expect NPS to provide the heavy equipment and use it to re-expose the ADIT or original discovery points as found in the Eureka #2 and #3 [and other] Lode Claims.
>
> If I am able to obtain the funds to do the re-exposure work you request this summer, I would open the ADIT on the claims to 10 feet, stockpile the caved-in ore removed, shore up the walls to provide safe entry so that samples can be taken from the exposed veins. Equipment necessary to accomplish this work would include an HD-11 Bulldozer to rough in roads and do reclamation work, a 180 Mitsubishi track

> excavator to accomplish removal of material necessary to expose mineralization. In other words, whatever the BLM H-3890-1 Handbook for Mineral Examiners requires. This is nothing more than what I offered for 1993 and which NPS Berry promised would be done by NPS if needed. Again, given this is the same work for 1994, there appears to be no need whatsoever for another delay-tactic EA.

Id. [21/] According to the Mineral Report, NPS met with Martinek in May 1994 to discuss again any plan he might have. [22/] NPS "prepared a written statement of Mr. Martinek's proposal and he signed it on July 19, 1994." (Tr. 397.) NPS revisited the claims in 1994 and collected some samples. See Ex. C at 16, 18-19.

On March 21, 1995, by certified mail, NPS served Martinek with the EA and finding of no significant impact.

> Selected alternative 2 indicates Eureka #2 and Eureka #3 be accessed by helicopter and excavated by hand tools and small support equipment. [NPS] recognizes that helicopter support is expensive and will make a government contracted helicopter, complete with pilot and fuel, available for your crew for a 2 to 3 week period of time during the 1995 field season. You will be responsible for providing a crew, equipment, supplies, and housing needed to re-expose discovery.

(Ex. C Att. I (Mar. 21, 1995, NPS letter to Martinek).) Martinek never responded.

On June 15, 1995, NPS sent a letter by certified mail to Martinek: "The 1995 field season has arrived and I would like to complete any remaining field work addressing the validity of your Eureka * * * lode mining claims * * *." NPS pointed out that as a result of Martinek's failure to respond to the EA and FONSI, NPS could "only assume that [he was] not interested in re-exposing your discovery points." (Ex. C Att. I (June 15, 1995, letter from NPS to Martinek).) Giffen advised Martinek that he would be on the claims on specified dates in July and August and that he would be available in September, weather permitting, and invited Martinek to participate. Id.

[21/] Such comments reflect a misunderstanding of the BLM Handbook which, as a part of the BLM Manual, applies to employee conduct. Departmental regulations at 43 CFR Part 3809 govern an applicant's submission of plans of operation for exploration on public lands managed by BLM. Regulations at 36 CFR Part 9 similarly govern such submissions within the National Parks.

[22/] The Mineral Report indicates that the meeting took place in May 1995, but in context it is clear that the year cited was an error.

During the 1995 field season, NPS conducted more examination, as did Martinek and Hicks separately. (Ex. C at 17.) Martinek exposed and sampled stibnite mineralization directly above the adit/surface pit. Id. In September, NPS returned to recover

> samples from the area exposed by Martinek. It was evident that Martinek had spent a day or so exposing mineralization at this site. However, the slope was so steep and the ground saturated with melt water, material from above had flowed over what Martinek had exposed. A couple hours was spent removing slough material from the area of mineralization. Material continually sloughed and flowed into the area of mineral exposure from above, making it difficult to collect clean samples and collect data from the mineral exposure.
>
> The exposed mineralization is located directly above the collapsed adit. The exposure is limited to an area 6 feet by 5 feet. * * *
>
> Based on the 6 feet of mineralized exposure, there appears to be two, roughly sub-parallel quartz veins of unknown extent * * * 10 to 15 inches thick with an additional 2 to 12 inches of massive stibnite on the back of each quartz vein. [23/] The interface between the quartz and the massive stibnite was sharp and smooth, with the stibnite easily peeling off * * *. No mineralized outcrop, prospect pits, or other types of mineral exploration, which might further delineate the extent of the mineralization beyond this exposure, were observed.

(Ex. C at 17.) 24/ NPS found that each quartz vein was separated by 24 inches with a width of approximately 49 inches including the stibnite veins, quartz, and quartzite in between, with an average stibnite thickness of 13 inches. (Ex. C at 22.) NPS took a number of channel and grab samples across the mineralized exposure split by the end line between the Eureka lode claims Nos. 2 and 3. The process and samples are described in Ex. C at 18-19 and Table 1 (Sample and Assay Data); Att. III-1-5 (Sample Descriptions); Att. III Assay Reports; Att. III Figures 5a-d, 6a, 7a.

23/ Giffen testified that a "massive" stibnite deposit is one which is "largely antimony." (Tr. 477.)

24/ Photographs of all three Eureka claims show the mineralized area to exist on steep hillsides. E.g., Ex. C Att. V-12 (Eureka No. 4). The photographs of the adit/pit site on the Eureka Nos. 2 and 3 shows it to be located among dense vegetation on a steep hill. (Ex. C Att. V-2.) Pictures to the right of the collapsed adit pit show the outcrop along a steep hillside dropping down to the creek bed. Id. at V-4.

In 1996, Hicks, on behalf of Martinek's "Red Tape Mining Company," submitted a letter to NPS allegedly sending a "mining plan" for the Eureka claim group. (Jan. 31, 1996, letter from Hicks to NPS; Martinek's Ex. 19.) As with the similar plan for the Comstock lode claim group described above, the mining plan appeared to challenge NPS's decision in the 1990 EIS that it would purchase valid mining claims in Denali. Martinek repeated:

> To date your office has been in the traditional stalling mode concerning these other mining plans because you have done nothing to acknowledge you have received them. This stalling can certainly not be related to an excessive work load since you have no other pending mining plans to work on as you explained to me in your [Freedom of Information Act] answer dated January 19, 1996.

Hicks proposed to "rebuild the old road to the adit" between the Eureka lode claim Nos. 2 and 3; to use a Mitsubishi excavator to "dig up the vein," using a bucket, ripper shank, and "drill[ing] and blast[ing] with ANFO"; to stockpile topsoil "for reclamation work at a later date"; and to drill 20 drill holes to "help further define the ore on the claims" using a "truck mounted rotary drill rig using compressed air," which would require 4,000 feet of additional road building. Id. at 2.

Giffen prepared the Mineral Report based upon the NPS examination and sampling data. Considering the sampled exposure, Giffen calculated a straight average and a weighted average grade of the vein on the end line of the Eureka Nos. 2 and 3 lode claims. He used the higher weighted average of 47.60 percent antimony for purposes of the Mineral Report. (Ex. C at 22.) With regard to the extent of the mineralization, Giffen stated:

> The surface exposure is small and there isn't any apparent prospecting and/or exploration beyond the exposure. It would be highly speculative to extend the mineralization much beyond that which is physically exposed without additional information which accurately defines the size, shape, orientation, and grade of the potential mineralization in a factual manner.
>
> The slope length of the exposure is 6 feet. It is reasonable to infer mineralization beyond that which is physically exposed by half of the physical exposure. With this in mind, the combined measured and inferred slope length of the mineralization is 12 feet and the inferred depth is 3 feet. The combined average thickness of the two stibnite veins is 13 inches. This equates to 39 cubic feet of massive stibnite (12' X 3' X 13") with an average grade of 47.59% antimony. * * * The sample material * * * has a measured tonnage factor of 8.77 cubic feet

> per ton (see Tonnage Factor Calculations, Attachment III). This equates to 4.45 tons of mineralized material with a grade of 47.59% antimony. A marketable concentrate would be 60% antimony. Assuming 100% stibnite recovery and quartz as the gangue mineral, this equates to 3.53 tons of 60% antimony or 211 units of 60% antimony, on the Eureka #2 and #3 lode claims.

(Ex. C at 22 (footnote giving mathematical calculations omitted); see also at 23, Table II; Ex. K; Tr. 310 (Ex. K omitted from Ex. C).) [25/]

Giffen conducted a similar analysis of samples from the Eureka No. 4 claim. (Ex. C at 24-25.) He found the straight and weighted average grade in the samples, employing the higher overall straight average rate of 19.37 percent antimony. Finding similar problems with the extent of the exposure on this claim, he concluded it would be speculative to "extend the mineralization beyond that which is exposed." Id. at 24. He found that the length of exposure where two samples (EU4-8-30-93-1 and -2) were taken is 5 feet, inferred mineralization based on the half exposure rule as described above at 10 feet in length with a depth of 2.5 feet, and noted that the combined thickness of the stibnite mineralization on the Eureka No. 4 claim is 10 inches. "This equates to 20.83 cubic feet of massive stibnite." Based upon a marketable concentrate of 60 percent antimony and assuming 100 percent recovery and quartz as the gangue mineral, "this equates to .626 tons or 37.5 units of 60% antimony." Id. Without repeating the details, it is sufficient to say he used the same method to calculate an additional .41 tons or 24.6 units of 60 percent antimony based upon a third sample (EU4-8-30-93-3). The mineralization on this claim equaled a total of 62.1 units. Id. at 25.

Giffen's economic analysis attempted to consider Martinek's 1996 mining plan. Giffen found, however, that it "makes an attempt to describe the mining method, but with so little known about the mineralization on the claims, this is difficult to do in any detail. The plan does contain a very limited equipment list to conduct the mining, however the value of this equipment is well over $100,000." (Ex. C at 25.)

Giffen considered a small operation using the resuing mining method used to exploit narrow, high grade veins with little dilution; this method uses waste material to fill in the stope to provide a platform for the next level of operations. (Ex. C at 27-28; Tr. 130 (description); Tr. 344-46, 373 (small resuing mine due to steepness of hillsides).) Considering capital costs of $100,347 for the 1993 date of examination (Ex. C Supp. at 30), he concluded that operating costs would be $189 per ton of ore

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[25/] Giffen reported antimony prices in short ton units (2,000 pounds) of 60 percent antimony sulfide. (Ex. C at 21 and n.1.)

recovered with a work force of three people. Id. at 28. Capital, operating costs, milling and transportation costs are presented in Ex. C Supp. Table III as totalling $237,609. In order to "break even," the Eureka claims would have to produce 290.5 tons of stibnite with 60 percent antimony. Id.; see underlying analysis at Ex. C Supp. Att. IV at IV-1 to IV-14. [26/] The capital and operating costs, using Consumer Price Index adjustment factors, would have been approximately $66,283 in 1965.

Based on the price of antimony of $13.60 per short-ton-unit in 1993, he found that the value of antimony on the Eureka Nos. 2 and 3 lode claims for 211 short-ton units was $2,780, while the value on the Eureka No. 4 was $845 for 62.1 units. At 1965 prices of $7.25 per short-ton unit, the value of the Eureka claims would total $1,980. In either year, Giffen found that costs of mining on the three claims would "far exceed" the value of their mineralization and that the claims could not be validated. (Ex. C at 32.)

> Invalidity of the subject claims is also indicated by the apparent lack of mineral development on the subject claims. The claims were staked in 1964 and the only production came in 1970 producing 12 tons of stibnite. The lack of mineral development on the claims possibly indicates that a valuable mineral deposit has not been found. This is reinforced by the fact that only twelve tons of stibnite were produced in 1970. Why was production limited to twelve tons? Was the deposit mined out? Did the mine cave in? A presumption of invalidity (Maley, 1996, p. 567) can be concluded because of the lack of mineral development over the past 32 years.

(Ex. C at 32.) [27/] As described above, Giffen later "costed" a scenario to mine both the Eldorado and Eureka claims together. (Tr. 349.) He concluded that such an operation would have produced a small profit in 1972, but a loss in 1997. (Tr. 377.)

Martinek's Rebuttal Case. In response to the Government's case, Martinek presented the testimony of William H. Raymond, consulting geologist, John Lawrence, President of US Antimony Corporation, Steve Hicks, and himself. In support of Martinek's contention that his claims were valid, Raymond prepared competing Mineral Reports regarding the Eldorado claim group (Ex. 1), the Eureka

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[26/] Giffen testified that Ex. C Supp. was created to correct errors in equations in the spreadsheet in Ex. C. (Tr. 308.)

[27/] On cross examination, Giffen gave two hypothetical answers to the question of why production had stopped in 1970. Noting that the price of antimony continued to rise through 1973, he concluded that the miners either ran out of ore or were not making a profit with the ore they were mining. (Tr. 441-42.)

claim group (Ex. 2), and the Comstock claim group (Ex. 3). In addition, Martinek submitted various exhibits discussed below.

In contrast with the NPS evaluations reflected in the Government Mineral Reports, Raymond concluded that the value of the ore on the mining claims approached $300 million. Unlike the Government witnesses' discussions of individual claims, Raymond's projection of such value was based upon his general conclusion that mineralization in the Kantishna Hills was pervasive, running between the mines that were successful in the past in a manner necessarily higher in value than the resource mined in prior years.

> The areal distribution of these host rocks for massive sulfide deposits and veins derived from them, extend for a strike-length of more than twenty miles (including antimony mines from Slate Creek northeastward past Kakone Peak. From the antimony mine at Slate Creek to the Stampede Mine spans a length of nearly 50 miles.), and a width of outcrop of at least five miles, (NW-SE). This is very clearly a huge mineral system which contains many rich and favorable zones, largely antimony and gold/silver-bearing, and therefore of enormous significance to the Nation.

(Ex. 3, Contestees' "Mineral Report, Validity Examination of the Comstock #1, #2, #5, and #6 Lode Mining Claims," at 2; Ex. 2, "Mineral Report, Validity Examination of the Eureka #2, Eureka #3, Eureka #4 Lode Mining Claims," at 2; Ex. 1 "Mineral Report, Validity Examination of the Eldorado #2 and Eldorado #3 Lode Mining Claims," at 2.) In his testimony, Raymond described an even larger deposit than that discussed in writing. (Tr. 516 (system goes beyond Slate Creek Mine, and is 5-10 miles wide).)

Raymond's analysis presumed that the Kantishna Hills contain dozens of square miles of outcrop or mineralization which were ignored during prior mining in the region. His conclusion was based on air photographs. "Examination of very good quality color air photos shows the unmistakable extent of the vein system * * *." (Ex. 3 at 4; Ex. 2 at 4; Ex. 1 at 3.) Based upon his review of such photography, Raymond hypothesized that, even without verification on the ground with historical sampling, all of the subject mining claims nonetheless could be presumed to have huge antimony or stibnite deposits. [28/] He testified that he could determine a vein

[28/] By contrast, however, Raymond testified that Fuksa's mining on the Eureka Nos. 2 and 3 claims was "the only antimony-producing adit in that part of the country." (Tr. 619.)

from photographs based on vegetation, because "the chemistry of the vein doesn't really promote growth of [] particular species." (Tr. 772, 775.)

With respect to the Comstock claims, samples from which revealed gold and silver mineralization, Raymond projected antimony deposits:

> The color air photos indicate an increase in coloration by antimony secondary minerals higher up the ridge on both the Eldorado vein and the Comstock vein system. If this hypothesis is correct, the higher portions of the easterly claims are likely to be mainly antimony/gold. This offers the potential for an antimony deposit of incredible size and significance.

(Ex. 3 at 4; see also at 5.) Raymond reached the same conclusions based on the coloration in aerial photographs for the Eldorado and Eureka claims. (Ex. 1 at 4; Ex. 2 at 4.) Raymond determined that "this stratabound massive sulfide terrain is most likely of the Eskay Type, characterized by abundant gold and antimony, and known to be of very large size and of enormous significance as a source of antimony, gold, silver, and base metals." (Ex. 3 at 2; Tr. 515-16, 751 (Raymond testimony).)

In analyzing the Comstock claims, Raymond reported that he took samples from three piles of material outside the adits on the Comstock No. 2 claim, which he identified in the report as the "A, B and C Portals." (Ex. 3 at 5.) Based on his analysis of this "dump material" and his visualization from color photographs, Raymond projected extensive mineral veins of 5,000 feet on the Comstock No. 2 claim "visible on air photos." (Ex. 3 at 5-7.) [29/] He testified that he could "infer quite a lot from the dump and quite a lot from the area photographs, but actually couldn't find very much outcrop to examine." (Tr. 631.) He testified that there was "enough dump there to be approximately five miles of [linear feet of underground] workings." (Tr. 766.) He measured what he called the "Comstock dump" on that claim and concluded that it contained 56,000 tons, 30,000 tons of which constituted the "high-grade upper part." (Ex. 3 at 7; Tr. 632-33, 636-44; Ex. 44 (dump measurement worksheet).) [30/] He testified as to his belief that the dump material was stacked up deliberately for storage. (Tr. 642.) He testified that the discovery points on the Comstock No. 2 claim were "consumed in the development of the mine." (Tr. 630.) Raymond speculated in the Mineral Report that the dump material represents mineral resource in the ground, rather than material taken out of the ground, and

[29/] Attachments 4-6 appear to be pictures of the dump materials on the Comstock No. 2 mining claim.

[30/] Raymond testified regarding his measurements of the dumps at Tr. 637-38. See also Ex. 44.

concluded that the veins so hypothesized are variously 3 feet or 3 yards thick. Raymond asserts that, "[i]n the absence of up-to-date sampling and measurements, it is reasonable to assume an average width of 3 feet for the material being mined." Id. at 8. He postulates "three high-grade pay streaks each three feet in thickness," but states that "[a]t the discovery site, the ore is 3 yards thick." Id.

Raymond testified that he took a single "composite" sample from material in dumps outside of adits 2 and 4. (Tr. 645; 670.) [31/] Based upon his sampling he discussed three types of ore, "high-grade galena ore" found outside adits 2 and 4, "'zinc-rich' ore," and "high-grade copper ore" outside of adit 3. (Tr. 647-48.) Based upon a BLM Mineral Examiner's Handbook reference to the economics of materials in a dump changing as markets change (Ex. 45), Raymond testified that his analysis of the dump was based upon the assumption that a miner "can come along to an old dump and re-mine it." (Tr. 651-52.) Making assertions regarding the existence of "1,620,000 tons of rock," and "847,800 tons of rock" and elsewhere "120,060 tons of high-grade ore," Raymond concludes that the "average gross value of metals contained in the three main pay streaks is $510.16, making the value of the resource, using measured parameters, $61,249,809." (Ex. 3 at 8.) [32/] Raymond concludes that the value of the dump is $15,304,800. Id.; Tr. 664. But he conceded on cross examination that none of his figures took into account any production or smelting costs, asserting that he did not "feel elegantly qualified to do that." (Tr. 685-87 [sic].) He testified that, based upon his review of the photographs of the region, which "indicates that this is a very extensive deposit," the likelihood of the veins on the Comstock No. 2 being mined out is "almost impossible." (Tr. 662.)

Raymond thus concludes that the Comstock No. 2 mining claim contains a valuable mineral deposit. "My opinion is based on factual data from first-hand field examination and extensive study of color air photos." He concludes that the "available resource is shown to be very large." (Ex. 3 at 9.)

[31/] Raymond testified on cross examination that he took a single "in-place rock * * * sample of the intrusive porphyry on the northerly side of the vein," but did not include it "because it was trivial in its mineral composition." (Tr. 671.) This sample is recorded in Ex. 3 with the note "probably not recoverable at a profit." (Tr. 676.)

[32/] While we have quoted from this report, it is impossible to verify these figures in the report itself, or logically follow their derivation. It is unclear whether Raymond intended to value "rock" or the intended meaning in quantifying rock in the context of a Mineral Report. Raymond's testimony regarding what kind of material he placed value on is no more clear. He repeatedly testified to the value of "samples" and "tons." (Tr. 665.) As best we can determine, he analyzed "the contained metal value." (Tr. 624.) He testified that his tonnage figure for the Comstock No. 2 claim "calls on no inference." (Tr. 665.)

Raymond's Report acknowledges a lack of verifiable information regarding the Comstock No. 1 mining claim. Nonetheless, he contends that this claim should be found to be valid "by virtue of the visible extension of the orebody on Comstock #2 into Comstock #1, although no mineralized, (or other) samples were collected by me which can prove a valid mineral discovery on Comstock #1." (Ex. 3 at 9.) He testified that from a sample on the Comstock No. 2 claim and a 1973 sample (No. 407) identified in Fuksa's notes, he would "infer that that means that the grades are similar between the Eldorado Creek sample [No. 407] and the top of the Comstock 2 dump, which extends our knowledge, if this is acceptable, of the tenor of the vein as it moves into Comstock number 1, and should constitute a valid mineral discovery on Comstock 1." (Tr. 657-58.) [33/]

Likewise, Raymond's report asserts that the Comstock Nos. 5 and 6 should be found to be valid based on the fact that they

> are located in the southern half of the same vein complex as Comstock #1 and #2. Although I have not examined these two claims carefully on the ground, air photo investigation shows them to be genetically and spatially related to Comstock #1 and #2. I have no mineralized samples to prove a valid mineral discovery. However, if any knowledgeable geologist were to examine Comstock #2 and it were the only claim located here, he would ask the claimant "What is wrong with you? Why haven't you claimed the rest on the deposit?" * * * I have not seen or sampled such discoveries, however.

(Ex. 3 at 10.) Raymond testified that he did not visit the Comstock Nos. 5 and 6 lode claims. (Tr. 628.)

Raymond asserts in his Mineral Report that he calculated the size of the deposit on the Eureka Nos. 2 and 3 claims based upon the "tannish yellow" coloration found in aerial photographs. (Ex. 2 at 4; see also Tr. 591.) By examining these photographs (Tr. 604), Raymond concluded that the vein is

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[33/] The notes to which Raymond refers appear in the record at Ex. 39. In those notes, Fuksa describes samples 401-406, which he took from the adits on the Comstock No. 2 claim. "[S]pectrographic sample # 407 is a composite of samples 401-406." (Ex. 39 at 2, 3 (spectrographic sample).) On page 3, above the line for sample 407 is written "trench across creek." From this language, Raymond apparently infers that sample 407 is from Eldorado Creek, rather than a composite of samples from the Comstock No. 2 claim, despite the language on page 2 of the exhibit. (Tr. 656-57.)

> visible from the discovery adit [on the common line between the claims] to the northeast for 200 feet, (measured on the color air photo) and from that adit to the floor of the valley of Eureka Creek for 400 feet, (a total of 600 feet within the claim boundaries) (also measured on color air photos), and thence up the westerly valley wall for 1,000 feet, only about 100 feet of which is within Eureka #3 (visible only on air photos). The vertical extent of the vein is 295 feet, measured from the valley floor to the highest outcrop, to the northeast.
>
> Antimony secondary minerals facilitate recognition of the traces of the veins where they would otherwise be indistinct. The veins are marked on Attachments 1, 2, and 3.

(Ex. 2 at 4-5.) [34/] The referenced attachments 1-3 are large-scale photographs on which are drawn black marker lines, depicting Raymond's views of the extent of a deposit. Raymond testified that he used photos to measure veins and the "only inference that we would have to make would be that the grade would extend from the one sample we could get in place throughout that part of the vein." (Tr. 606; see 658-660.)

Based upon the photography of the Eureka No. 2 (Tr. 739-40), Raymond concluded that a vein with a strike length of 200 feet, a vertical interval of 295 feet, and a thickness of 20 feet "yields a volume of 15,060 cubic yards for the vein," equaling "42,168 tons" of material of an unspecified nature. (Ex. 2 at 7.) He testified that he took a chip channel sample along 20 feet of an outcrop, encompassing the 5-foot exposure on the boundary of the Eureka Nos. 2 and 3 claims, along with other chip samples. (Tr. 728-29, 735, 755.) [35/] Based on the sample, he concluded that the "gross value of that tonnage, at $509.75 equals

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[34/] Raymond testified that he "go[es] right to aerial photographs * * * because [he] had a very great amount of experience with aerial photographs and photo interpretation." (Tr. 525.) At the same time, he conceded that "as with most North American geologists, [he] didn't know enough about antimony" and was required to consult to "increase [his] learning curve" on the topic. (Tr. 524-25.) Despite this, he testified that he could see the vertical extent of the vein [on the Eureka claims] by the fact that it's in the sidewall of a canyon" and he could "measure the width of the vein * * * on the air photo * * *." (Tr. 606.)

[35/] From his testimony it is clear that Raymond equated the outcrop to an exposure, though he stated that the high-grade mineralization is 5 feet long. (Tr. 759-61.) He testified that material was falling all around, in a "heavy syrup with pieces of timber and other debris," through the muddy gully on which the outcrop was located while he sampled. (Tr. 762, 764.)

$21,495,413." Id. He testified that he could ascertain "the mineral exposure extend[ed] in the vein beyond the exposure in the outcrop" because his study of aerial photos revealed the "coloration of the oxidation products of stibnite," and "there's really nothing that beats being able to see the trace in the vein going across the landscape to provide evidence of real continuity." (Tr. 603-04.) "The only real inference required there is that the grade is, is consistent * * *." (Tr. 604.) Raymond concludes that the Eureka No. 3 claim has a strike-length of 400 feet, with a vertical interval of 160 feet, and a width of 20 feet. (Ex. 2 at 7.) In similar logic and language, Raymond concludes that "[t]his yields a volume of 47,603 cubic yards for the vein," or 133,288 tons, equaling $67,943,420. Id.; Tr. 624. Again, it is not possible to determine what his tonnage numbers refer to.

Raymond put forth his views of a deposit on the Eureka No. 4 lode claim based upon the roadcut. (Tr. 588.) Raymond took a chip sample "over about 3 feet above the vein" and examined photographs of the roadcut. See Attachment 6. He testified that the vein was over 25 feet long. (Tr. 737.) Raymond asserts that a vein on the roadcut on the Eureka No. 4 claim is 7 yards thick, with a strike length of at least
100 yards, and "can be inferred to have a depth of at least 50 yards which equals 35,000 cubic yards * * * which equals 98,000 tons" of mineralized rock. (Ex. 2 at 7.) [36/] The "vein portion of the interval * * * equals at least 30,769 tons" for a total gross value of $17,626,021. Id.; Tr. 624. Raymond contends that it "would certainly be legitimate to infer a similar tonnage of the mineralized gneiss, (massive sulfide) into which the vein is emplaced." (Ex. 2 at 7.) He testified, however, that much of the information on the Eureka No. 4 claim revealed "kermesite, which shows up as a tomato-colored or reddish oxide or hydroxide. * * * So, a lot of the antimony in the analysis could very well be in the antimony oxides and hydroxides that would not appear to be particularly high grade." (Tr. 600.)

Raymond contends nonetheless that the value of the Eureka claims is over $107 million. He also testified that he saw several additional veins on the Eureka claims "but that would constitute a new discovery, so I didn't sample those and I didn't get into them." (Tr. 593-94.) In seeming recognition that his position is at odds with the mining history on the claims, Raymond asserts: "Many very significant mineral deposits were not successful in their first attempt at development; sometimes many attempts are required." (Ex. 2 at 11.) He acknowledges that the Eureka claims had produced 99 tons of stibnite ore before 1970 (Tr. 517), but nonetheless contends that "the original discovery is still there." (Ex. 2 at 8.)

[36/] Raymond testified that the mineralization on the Eureka No. 4 mining claim "was very obvious" (Tr. 587-88), and that he could determine the thickness and extent of mineralization from the aerial photos. (Tr. 716-21.)

> Raymond's analysis of the Eldorado claims is similar. He asserts:
>
> Examination of the air photos of the area, yields a fairly clear delineation of the vein, which is visible from west of Eldorado Creek past the top of Eldorado #2, near the top of the mountain to the east. (Busia Mtn.). * * *
>
> The color air photos show increasing coloration of the trace of the vein toward higher elevations * * *. This diagnostic coloration is strong evidence that stibnite mineralization is present in the higher reaches of the vein, perhaps in even larger amounts than at the lower elevations. * * * It would require inference to estimate metal content; but the diagnostic coloration of antimony secondary minerals is very strong evidence of antimony mineralization in the upper reaches of the vein.

(Ex. 1 at 3-4.) Again, Raymond attaches photos with long, black marker lines drawn on them. Id. Atts. 1, 2. He testified that the "pale tomato" or "red streaks" on photos shows an evident strike-length of 3,000 feet. (Tr. 545-46.) Conversely, Raymond testified that "it's a real tribute to [Fuksa's] acuity that he was able to find [anything on the Eldorado claims]. It's * * * in a sea of tundra, and on the ground it's not at all easy to see until you are almost on it." (Tr. 518.) He testified extensively regarding how he chose the strike lengths based on observations of photographs and from a distance on the ground of 150 feet without sampling or inspection. (Tr. 698-708; 716-22.) [37/]

Based upon a chip channel sample, Raymond concluded that the gold, silver, and antimony ore on the Eldorado claims had a gross value of $489.13 per ton of indeterminate material. Based on an assertion that the vein is exposed for a strike-length of about 200 feet and has a width of at least 33 feet, Raymond made a "very conservative estimate" of the value of the "[r]ock containing this amount of stibnite and quartz" at $17,045,202. (Ex. 1 at 6; Tr. 561 (gross value of the contained metals).) He testified that he made these measurements on the basis of air photos and his "estimations" based on what he "saw on the ground" though he took no measurements. (Tr. 699.) Raymond also noted that Martinek had discovered a "geophysical" anomaly, using a Fischer Gemini-3 M-Scope, 405 feet in length. Raymond decided that the "gross value of the contained minerals" claims could be inferred to be an additional $70,311,459, from a magnetite mineral exposure. (Ex. 1

[37/] Raymond states that he attached these pictures "to give a sense of the really impressive vertical extent of visible mineralization." (Tr. 538.) The pictures' hand-drawn lines, however, span vegetation and lengths that are not verifiable as mineralization to a lay person. See Tr. 548 (correction of lines on Ex. 1 Att. 2).

at 6; Tr. 561, 572.) He testified that the magnetite would not constitute "big antimony-bearing veins" but "could very well carry gold in it." (Tr. 574.)

In sum, Raymond projects a value for all of the mining claims at issue in excess of a quarter of a billion dollars. He testified that he has "looked at thousands of claims, and very seldom seen anything to approach this amount of metal in the ground just exposed" on the Eldorado claims. (Tr. 565.) At the same time, he testified that in 1969 Fuksa "was trying hard to sell the whole mine system to a larger mining company," but was unsuccessful. (Tr. 518.)

Much of Raymond's testimony was devoted to supporting Martinek's contention that he could not verify a discovery without heavy equipment. Raymond asserted that the "appropriate procedure or appropriate sampling" for the Eldorado claims was to "bring in a backhoe * * * just to clear it out so you could see what is there." (Tr. 540.) He stated that a "hand tool just wasn't going to do it." (Tr. 541.) He contended that NPS should have done this. (Tr. 542.) He testified that to "open the adits [on the Comstock No. 2 claim] they needed to have some power equipment." (Tr. 653.)

John Lawrence, President/General Manager of US Antimony Corporation, testified that Raymond introduced Martinek to him in 1997 for the purpose of obtaining an economic evaluation of Martinek's mining claims, based upon Raymond's field work. (Tr. 783-85, 789.) He testified that the company had smelted and mined at Thompson Falls, Idaho, until 1983, but stopped "because our grade is in the order of three to four percent." (Tr. 868.) He testified that the company had 50 percent ownership in a smelter under construction in Mexico for which he anticipated "startup within about 60 days." (Tr. 889-90.) [38/] He testified that he inquired of NPS employees regarding requirements for exploration and mining in Denali. (Tr. 785-87.)

Lawrence testified at some length as to the difficulty in determining from visual inspection whether antimony might exist in a vein. He testified that stibnite (antimony sulfide) varies in color from white stibiconite to yellow kermesite, which sulfides are "very innocent-looking minerals and blend in very readily to what looks like country rock. So [it's] very hard to recognize these." (Tr. 795.) He stated that stibnite appears as "white-brown" (Tr. 815), "brown," "yellow," "silvery gray [with] a metallic luster." (Tr. 816.) He testified that the "identification of even high-grade, unless it has been freshened up, can be very difficult[, and] lower-grade rock it's even

[38/] Lawrence did not testify in, or present any, refutation of the Government's prima facie case evidence regarding the US Antimony Corporation's responses pertaining to the price of antimony concentrates, as described above.

more difficult." (Tr. 817.) He states that stibnite appears as "round, irregular fragments," or "pods." (Tr. 817-18.) He states that "underground in fresh rock, they're readily identifiable, but on the outcrop it's extremely difficult to distinguish that there is ever any antimony there." (Tr. 817.) He stated that lower-grade antimony is very difficult to recognize. (Tr. 830.) He testified that antimony typically appears on the hanging wall and presented diagrams of cross-sections of a typical antimony deposit. (Tr. 829; Exs. 51 and 52.) Lawrence testified that he never saw the alleged deposits on the mining claims in question. (Tr. 838.)

Lawrence testified that he believed the Kantishna Hills to have a significant antimony deposit because of its mining history and because Buntzen reported stibnite at 12-percent grade in the Kantishna "district." (Tr. 821-23.) Testifying with respect to the information before him about the mining claims at issue, he stated: "My main problem with regards to the antimony is the recognition of the low grade and the projection of the structure * * * ." (Tr. 839.)

With respect to the Comstock No. 2 claim, he noted that Kucinski's sample values from the dumps were higher than those of Raymond. (Tr. 841.) Based on Raymond's conclusion that the Comstock dump contained 50,000 tons of material, Lawrence testified that the dump qualifies as a discovery because the material had to have come from underground. (Tr. 843.) Given that the material appeared in the dumps, Lawrence speculated that whoever mined in the past was "shipping" higher grade ore than what appears in the dumps. (Tr. 842.) Based upon this, he speculated that the "rock underground was definitely higher grade than the theoretical numbers developed." (Tr. 845.) He stated:

> We have an underground reserve, which obviously represents the biggest upside potential for a bigger ore zone, but we have a, a nice little bird's nest on the ground, and that's the dump.
>
> So, at that point we felt that we had established a [valuable] mineral deposit, and I went ahead and modeled the mining, trucking, milling, and marketing of that ore.

(Tr. 845-46.)

His conclusion that the Comstock No. 1 mining claim is valuable comes from his review of a single trench sample on that claim. He stated:

> I'm not sure exactly where it was, other than it was in the drainage area at the base of Number 1.

> And it's a grade that I suspect was more on the order of magnitude that was underground in Comstock 2.
>
> * * * * * * * *
>
> And I would infer that [the] outcrops, the exposures underground on Comstock 2, that is exposure that I mentioned on 1 would be a strike continuation of those zones.

(Tr. 847-48.) Lawrence testified that he had no information regarding the Comstock Nos. 5 and 6 claims and his economic analysis did not address them. (Tr. 847, 895.)

Lawrence testified that he prepared an economic analysis of the claims, based on the information presented by Raymond about them. (Tr. 850; see Ex. 49, "(1997) Economic Feasibility for the Eureka, Eldorado and Comstock Mines," November 1998, at 1.) He testified that "it's a reconnaissance of feasibility that could be expanded, but I feel it's representative of the economic, leaving only, I think we could adjust it. There are certainly some refinements that could be made to it." (Tr. 880.)

In his analysis, Lawrence presumed three workers mining 60 hours per week, year-round at prices and costs in 1997 values, using "stope-type" to "shrinkage-type" underground methods. (Ex. 49 at 2-3; Tr. 855, 894.) [39/] He anticipated mining from the Comstock No. 2 claim at 20 tons per day until "ramping up" the production level, and at 30 tons per day from the Eureka and Eldorado claims. (Tr. 896-97.)

He considered capital costs less salvage value at $18,000. Id. at 3. It is not possible for us to interpret his charts for set-up and development costs or direct costs. He lists the costs per day, respectively for each, at $2,540 (development) and $670 (direct). Id. He then includes a cost for the Comstock claims of $5,280, and $5,420 for the Eldorado and Eureka claims for set-up and development, though it is unclear how this total relates to the $2,540 per day assessment. He concludes that the "costs per ton" of indeterminate material are $.01 for the Comstock, $.04 for the Eldorado and $.03 for the Eureka. With regard to direct costs, he lists costs per ton of crude ore as $33.50 for the Comstock claims, and $22.33 for the Eldorado and Eureka claims. Among the assumptions for these costs, he lists the base wage for his "operator/mechanic nipper" at $6 (Ex. 49 at 1), though he testified on cross examination that he agreed that a heavy-equipment mechanic would make more than

[39/] "I am not sure that rock bolting with either split sets rock bolts or epoxy, 'do-dads' we call them, would be necessary, but we would probably go with the studs in the open stopes for staging and ground support." (Tr. 856.)

that. (Tr. 900.) Adding the various costs together, he concludes that the costs per ton of mining are $33.53 (Comstock); $22.38 (Eldorado); and $22.37 (Eureka).

Considering milling costs, Lawrence presumed that a 150 ton per day mill would be constructed for the project at Healy, Alaska. (Ex. 49 at 2.) Following a similar analysis to that used for mining costs, Lawrence concluded that the costs per ton of milling would be $15.43. He testified that the mill "would be of a flotation type in which we could make a high-grade antimony concentrate * * * and then it could also be used with one additional circuit, including a conditioning tank and another group of cells as a differential flotation mill in which we could make a lead/silver/gold production as well as a zinc concentrate." (Tr. 852.) Unless it is in the "miscellaneous" category, Lawrence does not appear to have included any costs for construction of such a dual-purpose mill. See Ex. 49 at 4. He testified on cross examination that his proposed truck service to Healy would supply enough material for only 43 days per year leaving the mill idle for the remaining 322 days. (Tr. 907.) On redirect he testified that he had considered use of the mill by gathering custom work from other miners, but did not support the underlying notion that there was a market for any such mill facilities in Healy. (Tr. 926.)

Lawrence concluded that the Comstock lead and zinc concentrates would be smelted at the Cominco smelter at Trail, British Columbia. (Ex. 49 at 5.) For reasons not clear to us, he presumed for the Comstock claims that a 50 percent zinc concentrate would be made containing 5 ounces per ton of silver, and a 55 percent lead concentrate would be made with 50 ounces per ton of silver and .65 ounces per ton of gold. (Ex. 49 at 6.) Using "treatment charge[s]" of $185 and $180 for the two concentrates, he concluded that the total value per short ton of crude ore was $219.99. As with his other figures, Lawrence presented no sources for these numbers.

For the Eldorado and Eureka claims, Lawrence assumed that the concentrates, which were assumed to be 60 percent antimony grade, would be shipped to US Antimony Corporation's Torreon, Mexico, smelter. With respect to smelting, the report's entire unsupported commentary for the Eldorado and Eureka claims is as follows:

> Assuming that the concentration ratio at the Eldorado is 5.56 to 1 to allow for a 90% flotation recovery, the crude ore would have a value of $97.12 per ton.
>
> Assuming that the Eureka numbers 2 and 3 have a concentration ratio of 6.06 to 1 to allow for a 90% flotation recovery, the crude ore would have a value of $89.11.

> Assuming that the Eureka number 4 has a concentration ratio of 4.76 to 1 to allow for a 90% flotation recovery, the crude ore would have a value of $113.45.

(Ex. 49 at 6.)

Lawrence considered transportation costs but testified that "we are probably the weakest in terms of fully researching the transportation, although we do have some, some numbers * * *." (Tr. 856.) For the 105 miles from Kantishna to Healy, he proposed use of a "10 wheel end dump truck equipped [with a] pup-type trailer," costing $1.50 "per running mile." Without mention of how much material can fit in a "dump and pup trailer," Lawrence calculated that "this brings each load to $315.00 or $10.50 per ton of crude ore." (Ex. 49 at 6.) It does not appear that Lawrence included any cost for the return trip for the truck/trailer combination to reload. See Ex. 49 at 6. He testified on cross examination that he did not take into account the time it would take for such a vehicle to drive the distance from Denali to Kantishna, but agreed it would be "very time consuming" and "quite slow." (Tr. 901.) Not having visited the site, he did not take into account the roads, load restrictions on Park roads or bridges, or whether large dump trucks could manage the roads and bridges to the site. (Tr. 902-03.) On cross examination, he testified that he could only guess at the amount of time a trip to Healy would take, but he presumed it would be 8 hours, and that he speculated that the dump truck would make two trips per day with a load of 30 tons. (Tr. 903.) He acknowledged that he had only priced the cost of one truck, but that two or three might be necessary. (Tr. 908, 926.) [40/]

Lawrence calculated the cost per ton of shipping Comstock claim concentrates "on a gypo, back-haul" basis for the 2,565 miles from Healy, Alaska, to Trail, British Columbia at $145.74. (Ex. 49 at 6.) There is no basis or explanation for this figure. Based on this figure, he calculated the cost per ton of crude ore at $65.59.

Lawrence calculated the cost of trucking milled material from the Eldorado and Eureka claims, for the 2,400 miles from Healy to Seattle, at $1 per mile. (Ex. 49 at 6.) Based on a rail rate from Seattle to Mexico of $100 per ton, he concluded "[t]his would involve a total cost of $209.09," though it is not possible to tell what increment he is valuing. Inscrutably, from this figure he concludes that the total transportation costs for this leg of the trip would be $37.61 per ton (Eldorado); $34.50 per ton (Eureka Nos. 2 and 3); and $43.93 (Eureka No. 4). Id.

[40/] Lawrence then asserted that he had considered three trucks in his economic analysis. (Tr. 909.) This testimony is refuted in his report by the capital cost figure indicating a cost for one truck. (Ex. 49 at 3.)

Again without explanation, Lawrence calculated the entire cost of reclamation for each group of claims at $3,243. (Ex. 49 at 7.) Considering Raymond's tonnage figures, he concluded that the cost of reclamation ranges from $.01-.02 per ton. From all of this, Lawrence concludes that the net value of the claims before taxes and interest is approximately $93 million. Id.

Lawrence testified that the Comstock mining claims, based upon Raymond's resource quantity and quality calculations, would have been valuable from 1972 to the present. (Tr. 857.) He noted that he had "no historical account of any production since the '70s, but I really didn't research that intensely. I did assume that somewhere in the past, and I assumed it was the distant past, that, and using basically hand steel, that these were mined extensively, based on the dump tonnages." Id. [41/]

With respect to the Eureka Nos. 2 and 3 mining claims, Lawrence testified that he ascribed no value to gold or silver. (Tr. 860.) He testified that, based on the NPS and Raymond reports, he "made the assumption that this was the Alaska type of epithermal antimony deposit" and that the claims contained a low-grade deposit which had not been sampled by NPS for "lack of recognition." (Tr. 861-62.) With regard to the Eureka No. 4 claim, he testified that he could project strike length from the sampled location along the road bed by looking at the pictures and that "based on our experience with antimony we see continuity and therefore quantity." (Tr. 863.) Based upon the "scant" record production of 99 tons from the Eureka Nos. 2 and 3 claims, "there exists a possibility that the production may have been significantly more." (Tr. 864.) [42/] In addition to this, Lawrence cited Martinek's Ex. 4, the Affidavit of Daniel Ashbrook, who wrote that in 1974, during road construction, he encountered "lenses of 55%-60% stibnite." (Ex. 4 at ¶ 5.) Lawrence testified that he could not take the affidavit at face value; rather, he "believe[s] that [Ashbrook] meant contained 'antimony'," instead of stibnite, and on this basis concluded that the outcrop on the Eureka No. 4 claim is "very high grade, ranging from creek level to the top of the bluff." (Tr. 865 (emphasis added).) [43/]

[41/] Lawrence testified that the market was strong in the 1970s prior to regulation of lead storage batteries. (Tr. 867-68.)

[42/] cross examination, however, Lawrence was asked "to acknowledge one of the possibilities here is that there is not antimony in the adjoining rock." He answered: "That's certainly correct. You could assume that * * * as a possibility." (Tr. 924.)

[43/] Judge Sweitzer aptly noted at this juncture that he must "take the Affidavit for what it states and not what the Witness thinks perhaps Mr. Ashbrook intended." (Tr. 866.)

Lawrence testified that because the Slate Creek and Stampede Mines were "very close,"

> we're in the right geologic climate.
>
> We have no reason to believe that these zones are not continuous. And from our experience with antimony deposits of even relatively small thickness, we've seen strike lengths of one mile and greater.
>
> As a matter of fact, we've seen deposits, one in particular in Mexico, with a, a strike distance of up, over 25 miles. So, this fortifies our decision that we have a valuable mineral deposit.
>
> We looked at the attitude at the discovery. We looked at the claim orientation of the original Claimant that are consistent.
>
> We looked at air photos, and we looked at the previous discoveries.

(Tr. 866-67.) Based upon this, he concluded that there would have been a market for Eureka claim antimony in 1965 because of lead storage battery production. He testified that there would be a market in current times because the grade at the Eureka claims was "more significant * * * three times as good" as the grade at Thompson Falls, which was too low to be mined. (Tr. 868.)

For the Eldorado claims, Lawrence testified that he looked to the NPS samples showing grades of 35.1, 38.1 and 4.25 percent. Based upon the high grade samples, he explained that he presumed a larger deposit than that verified (32 by 37 feet) by NPS. He stated "immediately we would go for: Where is the low grade? * * * Is there any lower grade above that lens * * *? I've got to * * * suspect immediately that we've got some low grade in there. So this changes our opinion of the tonnage and the overall units of antimony." (Tr. 875-76.) Noting Raymond's sample with a grade of 12 percent, he stated:

> So, that confirmed our opinion that we've got better grade, and we have continuity of structure. It was unfortunate that neither Mr. Raymond was able to sample the entire outcrop, I guess because of physical limitations and the hardness of the outcrop, which was a[n] immediate clue that if we're talking about this type of hard quartz in the back, the upper part of the vein that we're not going to have any significant ground control problems. We've got a hard back.

> So, at that point we decided that, yes, we've got good grade, excellent grade, three to four times what's being mined in the rest of the world. We've got the verification that, yeah, we've got low-grade rock above the high-grade lens.
>
> * * * It fits into the mineral atmosphere of the District. It's in the same environment as other antimony claims.
>
> The original claim block included four claims, and we have to assume that, although the discovery is on the Eldorado 2 and 3, that, in fact, those other two claims were put in because there was some evidence to the original Claimant that there was continuity beyond that. And although it's my understanding that those other claims are not at this point valid, it does fortify our opinion that, this thing, that this zone, and possibly others undiscovered there had a[n] overall strike length on the order of 6,000 feet, which is, very significant.

(Tr. 877-78.) Lawrence concluded on this basis that the Eldorado claims presented a valuable mineral deposit in 1972 and presently. (Tr. 879.)

Lawrence testified that he objected to the NPS evaluation of the Eldorado (Ex. B) and Eureka claims (Ex. C) because it represented a tonnage of 92 tons and 7-8 tons, respectively. "[I]f that was the actual tonnage it would be of no or little economic interest to us, or most other people." (Tr. 881.) He responded favorably to the question whether "a family operator could go in there * * * and mine it out, and realize a profit?," but did not explain any economic or market basis for that response. (Tr. 882.) Then he stated that "the problem with this small reserve base, if we were to assume this is correct, the cost per ton of, for instance, even the permitting, the mobilization in/out, not to mention the capital costs, are so staggering when you use such a small denominator as 92 or eight tons that it is obviously uneconomic to begin with." (Tr. 885.) On cross examination, he testified twice that he could not remember the sample he looked at to verify Raymond's figures. (Tr. 916, 920.)

Lawrence testified that the price of antimony was cyclical with "drastic changes in price" and that miners would want to "have it developed and ready to go, and perhaps withhold production until you saw the peak." (Tr. 869.) He presented a chart (Ex. 43) showing the price of antimony during the 20th century. [44/] The chart showed prices at their highest from 1973-76 and dropping off dramatically after

[44/] Lawrence was unaware of the source for his price quotations: "I'm going to have to speculate that I believe we've pulled this from the United States Bureau of Mines' annual report on antimony." (Tr. 872.)

1984, with a single peak in 1995, followed by a drop near to 1970 prices, in real dollars. (Ex. 43.)

On cross examination, Lawrence agreed with Government counsel that using the assumptions in his economic evaluation, it would take 155 years to mine the Comstock claims. "That's correct. And that is why I pointed out that as the reserves were developed for mining, that we would have to ramp up." (Tr. 910-11.) His economic evaluation did not include any additional labor or mining costs for such "ramping up." See Ex. 49 (capital costs and labor). He could not explain how he expected 60 percent salvage of capital costs after 130 years of using capital equipment for mining. (Tr. 911.) The following colloquy took place:

> Q. The, but taking your report, I don't know the life of the mine. I can't tell over the life of the mine whether we're making a profit or we have a loss, from any of these, because we don't have realistic capital costs in here.
>
> We don't have realistic operating costs, do we, for the life of these, of these projected mines?
>
> A. We have capital costs and operating costs, based on the production levels that I gave you.
>
> Q. But you have equipment here that's got to last 130 years with respect to the Comstock mine. Drill hose will last 130 years. Filters will last 130 years. 1,000-gallon tank will last 130 years. My wood box will last 130 years.
>
> I mean, that's the scenario we have here, is 130-year mine. And we have $18,000 investment in equipment, and it has to last that long.
>
> It seems kind of preposterous, Mr. Lawrence. And I'm sorry.
>
> A. I'd agree with you, although in theory you can maintain a mucker for a long period of time, that we do have maintenance costs in there;[45/] that the impact of that capital costs is infinitesimally small in terms of the economic analysis. And I don't feel it's material.

(Tr. 912-13.)

45/ The economic analysis contains no reference to maintenance costs. See Ex. 49.

Hicks testified largely regarding his experience using "heavy equipment" in the form of a "dozer with a backhoe attachment" on mining claims within Kantishna, including with respect to lands on Glacier Creek in the late 1980s. (Tr. 933.) He testified that he worked for NPS from 1986 through 1988 and that he was mostly allowed to use dozers without restriction. (Tr. 934.) [46/] On cross examination, however, he was asked whether he was ever "assigned the examination of any lode mining claims" in Kantishna, and he answered: "No, I was not." (Tr. 998.)

Hicks testified that he requested to use heavy equipment in researching Martinek's claims in 1993. Hicks' testimony implied that he had no knowledge of the court injunction issued to NPS or the resulting EIS. He states that events in 1993 represented a "180-degree turn from what was going on in 1986 through 1988 * * *." See Tr. 936, 942. He testified as to his view that the issue was controlled by "pressure by [NPS] Management" and that mineral examiners "bowed to pressure." (Tr. 938-39.) He testified that NPS's letters regarding mining claim operations constituted "an intentional way to wear down mining claimants by asking for frivolous, unnecessary information." (Tr. 945.) He testified regarding experiences of non-parties in Denali generally for purposes, apparently, of supporting his view of NPS's "anti-mining" bias. (Tr. 967.) He spoke of a lawsuit filed against NPS in Federal district court by an unrelated party. [47/]

In a seeming about face, Hicks then admitted that it was the court injunction that "effectively shut down 100 percent of the mining" at Denali. (Tr. 946, 948.) He introduced the EIS and its Record of Decision and stated that the NPS decision on the EIS continued the mining "shut down" created by the injunction. (Tr. 949; see Exs. 34 and 35.) Hicks asserted that the consequence of the EIS was NPS's decision to purchase valid mining rights. (Tr. 953.) He stated that the "Park and mining are not compatible." (Tr. 958.)

Hicks testified regarding his visits and helicopter ride over the Eldorado claims with Martinek. (Tr. 975-76.) He testified that he visited the Eureka claims and

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[46/] Martinek's exhibits with respect to mining claims on Glacier Creek, not at issue in this appeal, however, show that by 1987, NPS had expressly advised Martinek of the limitations on operations in Denali imposed by the Federal court injunction, and that "under the Court orders, either the NPS or the operator can move the Court to have plans which are submitted under 36 CFR Part 9A excluded from the injunction." (Ex. 21, July 31, 1987, letter from NPS to Martinek re Glacier Creek claim(s), at 2.)

[47/] Judge Sweitzer commented at the hearing that: "I understand what you're saying, sir, but in your view a principle is applicable. I understand that. But, none of the specific mining claims that we[']re involved with here, the Eureka, et cetera, Comstock, Eldorado, were involved in that suit." (Tr. 968.)

experienced the "frustration of using hand tools when he owns a yard backhoe that could have done it, in literally minutes, not counting the * * * access to property * * *. Well, we could have spent more time. I imagine anything can be done by hand methods, but it might have taken us, you know, a couple of days or so to dig that adit out." (Tr. 977-78.) He testified that he visited the Comstock claims and observed the dumps on the Comstock No. 2 claim. (Tr. 979.) He testified that he would want to use heavy equipment to expose existing discoveries. (Tr. 996.)

Finally, Martinek testified to submit into the record (Tr. 1029-47), over objection on relevance grounds, a number of exhibits in which NPS identified information required for plans of operation for various mining claims, including claims not at issue here, in ways that Martinek characterized as "hoop jumping." (Tr. 1037.) Some of the exhibits related to his request to use heavy equipment to open up these and other mining claims. (Tr. 1051.) [48/]

Briefs, Decision, and Appeal. The parties submitted Post-Hearing Briefs in May and June 1999. In his Brief, Martinek's attorney conceded that he had not proven a discovery of a valuable mineral deposit on the Comstock No. 5 or No. 6 mining claim. (Martinek Post-Hearing Brief at 39, 64.)

Judge Sweitzer issued his decision declaring the mining claims invalid on February 14, 2000. Judge Sweitzer observed:

> From the Eureka claims the known production is 99 tons of antimony shipped (Tr. 517). The last known production was 12 tons of antimony containing 62% antimony, which was shipped in 1970 (id.). There are no workings or adits on the Eldorado claims and no known production has been derived from those claims (id.).
>
> There are presently five collapsed adits and several mine waste dumps or stockpiles on the Comstock #2 claim (Tr. 510-22, 524-25, 631). According to one source, hand-sorted ore may have been shipped from the Comstock claims area in 1955, but there is no documentation of any shipments (id.). Mr. Fuksa's records indicate that he had two or

[48/] An extensive portion of Martinek's testimony related to his discussion of a compilation of Fuksa's notes entitled "Silver Queen Kantishna." (Ex. 6.) Martinek asserted that the notes related to the Eureka mining claims. In an extensive voir dire by Judge Sweitzer and Government counsel, see Tr. 1004-28, Martinek conceded the existence of the "Silver Queen" mining claims and could not tie the notes to the Eureka claims. We find nothing to suggest a connection between those notes and the Eureka claims.

> three men working on and off to develop the Comstock claims in approximately 1969 (Tr. 518).

(Decision at 4.) Judge Sweitzer also stated:

> Contestant's experts examined the subject claims and estimated the amount of reserves on each of the subject claims to be very small or nonexistent. They noted that larger projections would be highly speculative without more evidence of the size, shape, orientation, and grade of the potential mineralization. They then concluded that none of the claims contained a valuable mineral deposit because the estimated costs of mining these small deposits would greatly exceed their estimated value.
>
> Messrs. Raymond and Lawrence combined efforts to analyze the size and potential profitability of mining the subject claims on behalf of Contestee. They concluded that most of the subject claims could be mined at a profit based upon reserve volume projections substantially greater than those estimated by Contestant's experts.
>
> * * * * * * *
>
> Nevertheless, Mr. Raymond estimated reserve volumes much greater than those estimated by NPS' experts. This difference is attributable, in part, to Mr. Raymond's identification of areas of low grade stibnite which NPS' experts identified as barren of mineralization.

(Decision at 6.)

With respect to the question of the respective burdens on the parties, Judge Sweitzer concluded:

> Using cost and price data for the date of withdrawal and dates reasonably close to the date of hearing, the Government mineral examiners determined that no discovery of a valuable mineral deposit existed on any of the claims at the date of hearing and that only the Eldorado claims, alone or in conjunction with the Eureka claims, were likely mineable at a profit on the date of withdrawal. This evidence from Government examiners, who have had sufficient training and experience to qualify as expert witnesses, establishes a prima facie case. See United States v. Gillette, 104 IBLA 269, 274-75 (1988).
>
> * * * * * * *

> Contestee has the burden of overcoming Contestant's prima facie case by showing that a discovery of a valuable mineral deposit existed on each claim on both the date of withdrawal and the date of hearing. * * * Contestee failed to do so, as the analyses of both Messrs. Raymond and Lawrence suffer from a paucity of supporting evidence.
>
> The most crucial defect in the analyses of Contestee's experts is the lack of a sufficient number of reliable and representative samples to legitimize Mr. Raymond's estimates of the quality and quantity of mineralization on the subject claims.

(Decision at 33-34.) He continued:

> [Lawrence's] entire analysis must be discounted. Left standing is the prima facie showing that the quality and quantity of mineralization is insufficient to establish a reasonable prospect of success in developing a paying mine on any of the subject claims on the date of hearing and Mr. Lawrence's acknowledgment the claims would not be economic to mine under the facts as presented in the prima facie showing.
>
> Contestee has merely established that there is mineralization on the claims sufficient to justify further exploration. He has not shown, for any of the subject claims, either individually or collectively, the existence of sufficient mineralization to justify a person of ordinary prudence in the further expenditure of his labor and means with a reasonable prospect of success in developing a paying mine. Unfortunately for Contestee, it is the latter showing which is required to prove the existence of a valuable mineral deposit. * * * Consequently, all of the subject claims must be declared invalid.

(Decision at 39.) With respect to Martinek's argument that he should have been allowed to sample the claims with heavy equipment, Judge Sweitzer concluded that Martinek had not been denied the opportunity to confirm the existence of a discovery on each claim.

Martinek timely appealed. In a statement of reasons and brief (SOR) in support of his appeal from Judge Sweitzer's determination that the subject mining claims are void and the attendant mineral entries are cancelled, Martinek's central thesis is that the Government did not present a prima facie case because it did not permit Martinek to bring heavy equipment onto the mining claims "to gather his evidence." Conceding that he was permitted to examine his claims, Martinek complains that he was permitted to do so only with "tools that predate the industrial revolution." He argues that "neither Judge Sweitzer nor the government should be

permitted to bootstrap a conclusion that a valid discovery does not exist on rules propounded and enforced by the government which unfairly prevented claimant from gathering the information necessary to establish his discovery." (SOR at 1.) Based upon his view that he must be permitted to examine his mining claims in the manner of his choosing before the Government may bring a mining contest, Martinek contends that his arguments "preempt and eliminate the need for the typical 'prima facie case and burden shifting' analysis that Judge Sweitzer applied." (SOR at 1.) Martinek summarizes his arguments as follows:

- The Government should not be heard to contest that a valid claim exists on the Comstock, Eureka, and Eldorado claims because [it[unfairly denied Martinek the right to gather his evidence contrary to United States v. Parker, 82 IBLA 344, 383 (1984).

- Despite having met all of the preconditions (including exposing valuable minerals in place) as set forth in United States v. Mavros, 122 IBLA 297 (1992), Martinek was unfairly denied the right to conduct a drilling program to determine the extent and quantity of mineralization on the Comstock, Eureka, and Eldorado claims.

- Martinek was limited to the use of hand tools and prevented from using mechanized equipment to rehabilitate discovery points and restore collapsed adits, and this limitation unfairly denied him a fair opportunity to establish the validity of his claims on the Comstock, Eureka, and Eldorado locations. United States v. Niece, 77 IBLA 205 (1983).

- The Government exercised [its] dominion and control over the Comstock, Eureka, and Eldorado claims during an injunction from 1985 to 1991 (and thereafter in the form of restrictions on the use of heavy equipment) to prevent Martinek from maintaining his claims. This imposed an affirmative duty upon the government to rehabilitate discovery points and collapsed adits, restoring them to the conditions that existed before 1985. United States v. Pool, 78 IBLA 215, 225 (1984). Failing that, "the Government [cannot] be heard to contest an assertion that [sic] of a claimant that a discovery existed at depth" on any of these claims. Id.

- The Government is estopped to contest that mineralization existed within the collapsed adits on the Comstock No. 2 claim because they "assured Martinek [on July 14, 1993] there was no reason to re-open the Comstock adits" in writing. Exh. A (attachment 4.6). This constituted an "affirmative representation" because the government never recanted this statement, but instead relied upon the failure to re-open the adits as a basis for declaring his claims invalid. RMOC Holdings, LLC, 152 IBLA 149 (2000).

(SOR at 1-2.) Based upon these arguments, Martinek asks the Board to reverse Judge Sweitzer's decision and dismiss the contests.

In the alternative, Martinek asserts that he rebutted the Government's prima facie case. He summarizes these arguments as follows:

- It was error for Judge Sweitzer to disregard the mineralization in the stockpile on the Comstock No. 2 Claim because (1) the government is estopped to deny the probative value of this stockpile pursuant to an agreement, * * * (2) where the origin of the stockpiled material is not in dispute, it is admissible evidence of mineralization in a lode claim, * * * and (3) and the stockpile does not have the characteristics of placer claims because it is the personal property of Martinek * * *.

- Mr. Lawrence had substantial justification for concluding that typical antimony deposits existed on the Comstock, Eureka, and Eldorado Claims, and based on the assay results from exposed mineral discovery points, he drew a permissible inference that substantial and extensive veins of antimony are present on these claims * * *.

- If a price of antimony is adjusted to reflect optimum rates as reasonably justified by historical prices and charts, then a valid discovery exists on the Eureka and Eldorado claims * * *.

(SOR at 2-3 (citations omitted).) Martinek finally argues that, consistent with United States v. Lauch, 9 IBLA 60, 66 (1973), further sampling should be ordered before declaring these claims invalid.

III. Analysis

At the outset, we deem it appropriate to respond to Martinek's assertions of improper motivations on the part of NPS to deprive him of his rights to mine. Based on the Mining in the Parks Act, passed in 1976, and the Federal court injunction in 1985, Martinek had every reason to know when he received the lode mining claims in 1986 that the United States was likely to purchase at least some valid mining claims within the boundaries of Denali. Reflecting his acumen, Martinek testified that his "most important" act of assessment work was to hire a lawyer. (Tr. 1028.) We reject any suggestion that NPS was doing in this case anything but what the legislative and judicial branches of Government have required it to do. NPS was authorized to purchase valid mining claims within Denali. To carry out its mandate, it was incumbent upon NPS to determine which mining claims are in fact valid, and not to pay taxpayer money for worthless ones. Our role is limited to determining

whether to affirm Judge Sweitzer's decision about the validity of the mining claims based on record evidence.

[1] Turning to the "typical 'prima facie case and burden shifting' analysis" which Martinek would eschew, we affirm Judge Sweitzer in this matter. Where the Government contests a mining claim because it is not supported by the discovery of a valuable mineral deposit, it bears the initial burden of making a prima facie case that no discovery exists. See United States v. Springer, 491 F.2d 239, 242 (9th Cir.), cert. denied, 419 U.S. 834 (1974). The Government presents such a case when a mineral examiner "testifies that he has examined a claim and found the mineral values insufficient to support a finding of discovery." United States v. Boucher, 147 IBLA at 248, citing United States v. Dresselhaus, 81 IBLA at 257. Even if the Government merely shows that one essential criterion of the discovery test was not met, it has established a prima facie case as to that criterion. Id. A finding that the Government has presented a prima facie case merely means that the evidence provided by the Government in its case-in-chief "is completely adequate to support the Government's contest of the claim and that no further proof is needed to nullify the claim." United States v. Bunkowski, 5 IBLA 102, 119, 79 I.D. 43, 51 (1972).

The Government's case met this standard. The Government's Mineral Reports and witnesses' testimony, both relying on logical and comprehensible analysis of verifiable facts, constituted sufficient evidence to show that the mineralization on the Comstock, Eureka, and Eldorado claims fails to satisfy the prudent person test. United States v. Multiple Use, Inc., 120 IBLA at 83. Judge Sweitzer properly considered this evidence in reaching his conclusion and we will not belabor the already lengthy description of that case set forth above. Our decision to avoid further discussion is reinforced by the fact that Martinek presented little identifiable rebuttal of the Government's contentions regarding costs, prices, or sample values, and, in fact, Lawrence agreed that if the Government's estimates of mineral resources were correct for the Eureka and Eldorado claims the costs would be "staggering" and make the claims "obviously uneconomic." (Tr. 885.)

[2] Moreover, this Board has held that "[u]ncontradicted evidence of absence of production from a mining claim over a period of years is sufficient, without more, to establish a prima facie case of invalidity of the claim." United States v. Alaska Limestone Corp., 66 IBLA 316, 320 (1982), aff'd, 614 F.Supp. 642 (D. Alaska 1985), citing United States v. Hess, 46 IBLA 1 (1980). In this case it is not disputed that Fuksa obtained no production from the Eldorado or Comstock claims from the time of their locations until the time of the injunction in 1985 and that the last production from the Eureka Nos. 2 and 3 claims was 12 tons in 1970. All of the claims lay dormant for at least 15 years in Fuksa's hands, establishing a presumption that he did not discover, or there was no longer, a valuable mineral deposit on any of them prior to withdrawal.

Martinek states that we cannot affirm Judge Sweitzer's findings that the Government presented a prima facie case, because he erred in lending the Government witnesses any credibility at all, as they had no prior experience with the mineral antimony. Martinek's objection to the testimony of the Government's witnesses in this case goes to the weight that should be given that testimony. As a matter of determining whether the Government presented a prima facie case, the

> question is whether the testimony of the Government's witnesses, if standing by itself, unchallenged and unrefuted, would warrant the conclusion that there had been no discovery of a valuable mineral deposit on any of the claims in question. How that testimony looks in the light of the testimony of expert witnesses for the opposing party relates solely to the question of whether the contestee has demonstrated a discovery by a preponderance of the evidence. Cf. Foster v. Seaton, 271 F.2d 836 (D.C. Cir. 1959).

United States v. Larsen, 9 IBLA at 256. There is no question that answering this question reveals that the Government presented a prima facie case. We explain below our views of Martinek's witness testimony in discussing his rebuttal case. [49/]

[3] Martinek also objects to the economic analysis of the Government's case because he contends that the Government's adoption of values for antimony in 1996-97 necessarily focused on a time period when the value of antimony was historically low. Acknowledging that value is to be assessed "as of the date of the contest" (SOR at 46, citing Best v. Humbolt Placer Mining Co., 371 U.S. at 334), Martinek contends nonetheless that "even assuming the government's economic models to be reasonable, they must be revised to account for the optimum prospective price of antimony as can be readily projected from the present knowledge of historical data and testimony of record." (SOR at 46.) He asserts that the Government should have taken into account "break-even" and "optimum" prices higher than those used for the contest. He concludes that it is "reasonable to forecast from the historical chart of antimony prices that the price will again hit $2.00/lb in the future," that the "break-even price" for the Eldorado and Eureka claims is $2.36, and that "applying a prospective value based on the optimum price [of $4.00] for antimony based on the historical market instead of a five year average, the Eureka and Eldorado claims are profitable by over $45,404." He asserts that "by merely adjusting the price of antimony to reflect the optimum prices that can be historically justified, the Eldorado and Eureka claims are clearly profitable and valid." (SOR at 47, citing United States v. Estate of Alvis F. Denision, 76 I.D. 233 (1969).

[49/] We find Martinek's argument particularly unpersuasive in light of the fact that Raymond made clear that he, too, had little to no experience with antimony.

In United States v. Garcia, 161 IBLA 235, 245 (2004), we held:

> The question of whether the mineral discovered on the claim is "presently marketable at a profit" means that a mining claimant "must show that, as a present fact, considering historic price and cost factors and assuming that they will continue that there is a reasonable likelihood of success that a paying mine can be developed." United States v. Knoblock, 131 IBLA 48, 80, 101 I.D. 123, 140 (1994); In re Pacific Coast Molybdenum Co., 75 IBLA 16, 29, 90 I.D. 352, 360 (1983).

There we noted that our case law had not established a specific period of time from which to derive price information, but we deferred to an administrative law judge's choice of price data which did not differ significantly from the appellants' figures. 161 IBLA at 245-46, citing United States v. Collord, 128 IBLA 266, 277, n.14 (1994), aff'd in relevant part, rev'd in part, No. 94-0432-S-EJL (D. Idaho, Sept. 28, 1994), aff'd, 154 F.3d 933 (9th Cir. 1998). We have held that, in determining whether ore can be extracted, removed, and marketed at a profit at a given time (i.e., at the time of the hearing), concern must not be focused exclusively on the price extant at that time, but rather on the price that is likely in the future given past experience with prices. Where there is no evidence that prices will return to higher levels in the reasonable future, such higher prices cannot be utilized in arriving at a price which can be justified "as a present matter." See United States v. Clouser, 144 IBLA at 128. In Clouser, we upheld Judge Sweitzer's conclusion that "prices more than 5 years prior to the time of the hearing cannot be considered to reflect the likely price in the future where they include abnormally high prices and there is no evidence that there is a reasonable expectation that the high prices will return, given the downward trend in prices in the years preceding the hearing." Id.

Martinek's assertion that "break-even" or "optimum prices" should have been employed by the Government's witnesses is without foundation. Nothing in Martinek's SOR and nothing in his presentation of his case suggests or suggested that a return to "optimum prices," whether or not adjusted for inflation, is imminent or even to be expected within any given time frame. Martinek presented his theory of a non-specified but inherent value of antimony produced in the United States based upon the fact that it is a metal on the list of strategic minerals. (Ex. 1 App. 3, Table 5, "Stockpile Goals and Inventory Status.") However, that document indicates that the stockpile goal for antimony is "0" because there is an "inventory excess." Id. Martinek was required to produce something more by way of evidence to suggest that the Government should have presumed that the price of antimony would rise to "historic optimum" prices in the near future.

In any event, we note that the Government employed prices for antimony based on US Antimony Corporation's offer to "purchase the stibnite at ½ the current

metal price of the contained antimony, pound for pound," depending on concentration. (Ex. B at 22; Tr. 363.) Despite Lawrence's status in the company, Lawrence did not refute this. It is unclear from Martinek's assertions how he would suggest we find, based on "optimum historic" antimony prices, that the Government erred in its assessment of values for stibnite concentrate. [50/]

[4] We turn to the rebuttal case. If the Government meets its burden, the burden shifts to the claimant to establish by a preponderance of the evidence that a discovery exists as to those matters placed at issue by the Government. United States v. Gillette, 104 IBLA at 274; United States v. Springer, 491 F.2d at 242. If the claimant overcomes the Government's prima facie case, the contest is dismissed. United States v. Collord, 128 IBLA at 269, citing United States v. Lewis, 58 IBLA 282, 289-90 (1981). The ultimate burden of proof on these matters rests with the claimant. United States v. Clouser, 144 IBLA at 113, citing United States v. Taylor, 19 IBLA 9, 22-23, 82 I.D. 68, 73 (1975). "[A]ny doubt on the issue of discovery raised by the evidence must be resolved against the mining claimant, who bears the risk of nonpersuasion. * * * Where the claimant has failed to meet his burden of proof on discovery, the Judge must find that there has not been a discovery." Id. at 24-25, 82 I.D. at 74.

As Judge Sweitzer found, Martinek's evidence regarding the extent of mineralization and the economics of producing and marketing mineral products was entirely insufficient to rebut the Government's case. See Decision at 33-39. Our

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[50/] The Government focused on the date of the public land withdrawals for the McKinley region in 1965 and 1972 in presenting its values. Martinek did so as well. This begs the question of whether an appropriate date of consideration was 1985, given that there was no prohibition against mining the relevant claims until the Federal court injunction prevented further mining in Denali where the claims by then were found. Even if we were to modify the withdrawal date to 1985, however, it is clear that the outcome of this case would not change given Martinek's submission of historic price information for antimony. Martinek's Ex. 43 entitled "Antimony Metal Pricing" shows that, with the exception of the anomalous year 1995, the price of antimony substantially dropped after 1984. (Notably, the Government's information shows the costs of mining antimony to have exceeded the value of the mined metal by 1980-82.) (Ex. B at 44.) But for the year 1995, the historic prices from 1973-84, were, on average, significantly higher in real dollars (non-adjusted for inflation) than in subsequent years. Yet, there is no evidence that after 1970, following a high antimony price in 1969, Fuksa ever attempted to mine the lode claims at issue here, or was able to sell them to prospective buyers. The Government's case showed that the Comstock claims did not contain a valuable discovery throughout the period from 1972 to the date of hearing.

review of Martinek's case confirms that Martinek's evidence on these topics lacks fundamental credibility.

We begin with the conclusions regarding the general extent of the resource. The history of mining in the Kantishna Hills mining district from 1903 to 1980 reveals production of minerals worth approximately $17 million in 1978 prices. Together the miners produced 67,000 ounces of gold, 265,000 ounces of silver, 5 million pounds of antimony, and 1.5 million pounds of lead and zinc concentrates, from the entire areal distribution of the Kantishna Hills. From 1936-70, the Stampede mine, the largest antimony producer in Alaska, processed 3,700 tons of stibnite concentrate. Martinek does not refute this historical account. The mining district has been examined frequently and extensively by private and Government mineral examiners looking for potential mineral production, and the mining claims at issue were examined, repeatedly in the case of the Comstock No. 2 claim, and, at a minimum, by Fuksa, in the case of the other claims. During this 75-year history of analysis, when markets rose and fell, miners created mines at Stampede and Slate Creek on either end of the Kantishna anticline, and other mines nearby. Miners mined on several of the relevant claims, but no historical evidence exists to suggest that such mining was profitable or justified further expenditure on the nine claims, even in better markets with lower mining costs and fewer environmental constraints.

According to Martinek's witnesses, these experienced miners repeatedly missed making a find in the Kantishna Hills located on 7 of the 9 mining claims at issue, on a fraction of the areal extent of the Hills themselves. This find exists, Martinek contends, during the period of the lowest market for antimony, adjusted for inflation, in the recorded history. The small, isolated claims would, according to Martinek, produce well over 1.2 millions tons of stibnite concentrate, and 33,944 ounces of gold. (Ex. 49 at 2 (mathematical application).) According to Lawrence, the claims would justify continuous mining lasting somewhere between 130 and 155 years, and are worth a before-tax profit of almost $100 million. According to Raymond, they are worth over a quarter of a billion dollars. The assumption behind this set of projections, which fails to account for the fact that during periods of higher market demand no miners who physically examined the claims undertook such efforts and Fuksa could not even sell the claims, is that the extent of the deposit could not be seen by field examination, sampling or even actual mining. But, despite such difficulty, Raymond found it obvious with photography taken from the air. The single explanation for this is Raymond's comment that "[m]any very significant mineral deposits were not successful in their first attempt at development; sometimes many attempts are required." (Ex. 2 at 11.)

Even beyond this conceptual problem, we do not find Raymond's projection of reserves to be supportable. First, we are aware of no case where reserve projections

have been made by photography. In United States v. Lehmann, 161 IBLA at 95, we specifically held:

> Mere indications or belief in the existence of a vein or lode within the boundaries of a [claim] is not sufficient. To constitute a valid discovery there must be actually and physically exposed within the limits of a claim a vein or lode of mineral-bearing rock in place, possessing in and of itself a present or prospective value for mining purposes. In referring to the discovery of "the vein or lode" the statute refers to the vein or lode which is expected to be developed. The particular deposit actually disclosed within the limits of the claim must be the one as to which there is a reasonable prospect of success in developing a paying mine. A discovery cannot be predicted upon (1) the exposure of * * * isolated bits of mineral on the surface of the claim, not connected with ore leading to substantial values, (2) the finding of mere surface indications of mineral within the limits of the claim, (3) the discovery of valuable mineral deposits outside [the] claim, or (4) inferences from established geological facts relating to the claim. The mere hope or expectation that values will increase at depth is not sufficient to constitute a discovery. Geological inferences drawn from the discovery of the vein outside the limits of the claim located cannot be used as a substitute for the actual discovery of the vein or lode within the boundaries of the claim.

Id., quoting 2 American Law of Mining § 35.11(3)(b) at 35-40 to 35-41 (footnotes and citations omitted).

In United States v. Winkley, we analyzed Board precedent on the "proof of quantity" necessary to establish the existence of a valuable mineral deposit.

> Isolated showings of high values of gold will not alone suffice to demonstrate the existence of a valuable mineral deposit. United States v. Parker, [82 IBLA 344, 368-69, 91 I.D. 271, 285-86 (1984)]. * * * Rather, there must be evidence that the high values persist for a sufficient distance along the vein that there may be said to be a continuous mineralization, the quantity of which can be reasonably determined by standard geologic means. United States v. Parker, 82 IBLA at 368-69, 91 I.D. at 285-86; United States v. Weekley, 86 IBLA 1, 6 (1985).

160 IBLA at 145, citing United States v. Bagwell, 143 IBLA 375, 391-92 (1998). We concluded that the "existence of valuable minerals on a claim, based solely on

geologic inference, cannot serve as a predicate for a finding of quantity and quality sufficient to support a discovery on that claim." 160 IBLA at 145 n.12, citing United States v. Feezor, 74 IBLA 56, 85, 90 I.D. 262, 278 (1983) (vacated in part); United States v. Dresselhaus, 81 IBLA at 265.

Martinek's rebuttal case relies on Raymond's inference of mineralization from aerial photography, projecting veins of "incredible size," "abundant," "massive," "of enormous significance." (Ex. 3 at 2, 4; see also id. at 5; Ex. 1 at 4; Ex. 2 at 4; Tr. 515-16, 751.) Martinek asked Judge Sweitzer to believe that, by the stroke of a marker on large scale photographs, Raymond could determine quantity and even quality (high and low) from pictures of terrain largely covered with vegetation. Judge Sweizer rejected this invitation. In United States v. Bechthold, 25 IBLA at 89, we refused to accept testimony regarding "airplane readings" as having "no probative value whatever, either as evidence of the existence of minerals, or as a basis for drawing geological inferences as to their existence." We will not depart from established precedent to find that such a methodology is sufficient to rebut the Government's prima facie case based on sampling and the most basic of mining analytical tools such as on-site measurement and mathematical calculations derived from verifiable sampling data. In fact, to accept Raymond's testimony would be to endorse speculation and guesswork or adopt his description of pictures that are meaningless to us. He states: "The only real inference required there is that the grade is consistent." (Tr. 604.) This entirely misses the point of avoiding findings of discovery by inference; to prove discovery of a valid mineral deposit requires sampling to verify consistency, particularly across "veins" of the fantastic size described by Martinek's witnesses.

Moreover, both Raymond and Lawrence testified regarding how difficult it was to see the veins at issue here. Lawrence testified that sulfides in which antimony may be located are "very innocent-looking minerals and blend in very readily to what looks like country rock. So [it's] very hard to recognize these." (Tr. 795.) He testified that the "identification of even high-grade, unless it has been freshened up, can be very difficult[, and] lower-grade rock it's even more difficult." (Tr. 817, 830.) He states that stibnite appears as "pods" (Tr. 818), and that "underground in fresh rock they're readily identifiable, but on the outcrop it's extremely difficult to distinguish that there is ever any antimony there." (Tr. 817.) Raymond testified that "it's a real tribute to [Fuksa's] acuity that he was able to find [anything on the Eldorado claims]. It's * * * in a sea of tundra, and on the ground it's not at all easy to see until you are almost on it." (Tr. 518.) This testimony renders Raymond's conclusions even more incredible.

Raymond and Lawrence testified that antimony deposits and valuable veins could be found in almost every imaginable color that rock can exhibit. Raymond said the low quality veins in the photographs were evident as "kermesite, which shows up

as a tomato-colored or reddish oxide or hydroxide." (Tr. 600.) Lawrence said antimony shows up as white stibiconite or yellow kermesite. (Tr. 795.) Raymond said he looked for materials that were red. Lawrence looked to material that was "white-brown" (Tr. 815), "brown," "yellow," "silvery gray [with] a metallic luster." (Tr. 816.) Raymond looked for "tannish yellow" coloration in aerial photos. (Ex. 2 at 4; see also Tr. 591.) While the mineralization described in these terms may justify mineral exploration, such testimony is not helpful in convincing the trier of fact to believe that the presence, extent, depth, or quality of mineral deposits can be ascertained based on the color of rock in photographs primarily covered by green vegetation.

More to the point, Martinek presented this testimony in order to defeat implications arising from the fact that Fuksa examined and even mined from these claims and then stopped and hired Martinek to mine his placer claims. Our presumption is that "the best evidence of what a prudent man would do in the same or very nearly the same circumstances is what miners have or have not done over a period of years." United States v. Martinez, 49 IBLA at 371. Raymond and Lawrence submitted their testimony to negate any inference to be drawn from the absence of past mining and to imply that it was too difficult, even for miners mining their claims or geologists such as those examining the Comstock No. 2 claim over decades, to figure out the extent of mineralization. Martinek cannot have it both ways. Once this testimony was presented, it entirely refuted the notion that Raymond, of all of the people who have examined the claims, knows better than anyone else the extent of that mineralization from reviewing photographs taken from the air. Raymond's concession that before this case, "[he] didn't know enough about antimony" and was required to consult to "increase [his] learning curve" on the topic debunks his suggestion that he, alone among the miners who looked at these claims on the ground, is the one who understood their mineralization. (Tr. 524-25.)

[5] Lawrence's testimony regarding mining economics is no more convincing. Our review of his Mineral Report gives no inkling of where he came up with most figures, costs, or expenses. While he testified to figures that had the effect of making the alleged deposits on the mining claims wildly profitable, he undermined his entire testimony with such admissions that his "main problem with regards to the antimony is the recognition of the low grade and the projection of the structure * * *." (Tr. 839.) Lawrence conceded that his economic projections "could be expanded," that "we could adjust it," and that "[t]here are certainly some refinements that could be made to it." (Tr. 880.)

Lawrence testified that he projected a mine with capital costs, after resale of equipment, of $18,000. He conceded that he probably did not take into account all costs, including the actual number of trucks needed, that he made no effort to analyze specific costs per mining claim or even mining claim group, that his

transportation analysis was "weak," and that his wage projections were unjustified. He projected a large milling operation at Healy which he conceded would be developed without a market or would have to remain idle most of the year, but presumed that neither the mill nor its idle capacity would have associated costs. [51/] His presentation regarding percentages of mineral within concentrate contains no explanation either in his report (Ex. 49) or testimony, nor does he explain the material to which he refers other than to call it "rock." Despite his inclusion of costs of a truck for haulage, his testimony demonstrates that he had not made the most basic effort to determine the actual trucking needs of the massive project he proposed. Rather, it looks as if he merely identified a truck and associated expenses in order to represent the topic of transportation in the report. Other figures appear to be drawn from thin air. His reclamation figures are the same (except adjusted for inflation) for the 1965-72 time frame and the current period, revealing no effort to determine what reclamation might be required under current law. Pressed during a cross examination in which he was unable to bolster his figures, he entirely dismissed costs as "infinitesimally small in terms of the economic analysis. And I don't feel it's material." (Tr. 913.)

Lawrence testified as an analyst who looked at information prepared by another person (Raymond) that he could not verify independently and did not particularly endorse, and one who prepared a topical economic analysis unrelated to particular facts at hand. Whether or not BLM objected to admission of such opinion testimony into evidence, we can nonetheless take into account the lack of foundation in Lawrence's presentation in determining to give it little weight. This was what Judge Sweitzer did.

Judge Sweitzer held that "Lawrence's entire analysis must be discounted" and that

> any attempt to draw conclusions from a comparison of his analysis to those of the NPS mineral examiners is foiled by the disparity in the reserve volume projections and the lack of expert testimony or other evidence addressing the differences in the analyses in light of the

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[51/] This fact alone defeats Lawrence's economic analysis. In United States v. Alaska Limestone Corp., 66 IBLA at 320, we rejected as speculative a rebuttal based on the presumption that the claimant could create "its own cement processing plant" when the record showed no market for such a plant. The claimant "places us in a strictly theoretical arena, where estimates and conjecture replace evidence of the circumstances that actually prevailed. The conclusions from this exercise are too uncertain and conjectural to overcome the plain implications of appellant's failure over 18 years to actually accomplish the profitable development of these claims." Id.

> reserve volume disparities. Neither Mr. Lawrence nor anyone else addressed the question of whether the details of his analysis would change if the sustainable reserve volume projections were found to be much lower than Mr. Raymond's projections and more akin to those projected by the NPS examiners.

(Decision at 39 (footnote omitted).) We agree.

On appeal, Martinek attempts to resurrect Lawrence's analysis, asserting that Lawrence testified based on literature, assay results, and the Government's figures. (SOR at 42-44.) But Lawrence looked to the Government's figures, which were based on sampling, extensive historical research, measuring and field examination, and concluded that he would vastly multiply the Government's evidentiary conclusions based on Raymond's review of photographs. He testified that he saw from the pictures "continuity and quantity." (Tr. 863.) Even the testimony on which Martinek relies demonstrates conclusively that Lawrence's testimony was at best speculative and non-specific. As Martinek quotes, Lawrence said:

> I'd like to use the term "elephant country." We're in an area where we've got one-quarter of the reserves in the United States. We have other mines that are very close, including the Stampede Mine, the Slate Creek Mine, and the Bird's Nest report. We've had antimony production, so we're in the right geologic climate. We have no reasons to believe these zones are not continuous.

(SOR at 43, citing Tr. 866-67.) Lawrence's zoological and meteorological metaphors, however, do not mask that he has not testified based on information which would constitute objective evidence of mineralization. Rather, his testimony amounts to a philosophy that a mining claim is valid if a miner could optimistically believe it contained a valuable deposit from facts which might equally support speculation that little is there. [52/]

[52/] Martinek's rebuttal is also undermined by his witnesses' seeming insistence on misstating the import of various documents to support unjustified constructions that would favor his position. We expressly refer to Martinek's efforts to construe Fuksa's Silver Queen notes as related to the Eureka claims (Ex. 6; Tr. 1004-1028); Lawrence's assertion that Ashbrook's affidavit meant to refer to "contained antimony" when it plainly refers to "stibnite" (Ex. 4; Tr. 865-66); Raymond's insistence that spectographic sample 407, which Fuksa lists as a composite of samples from the Comstock No. 2 claim, as deriving from Comstock No. 1 (Ex. 39; Tr. 656-57); and Raymond's construction of a "geophysical anomaly" found by Martinek using a

(continued...)

[6] We turn to consider whether Martinek sufficiently rebutted the evidence presented by the Government with respect to each individual claim. No basis exists in this record for considering the Comstock Nos. 5 and 6 claims further. Martinek's attorney conceded that there was no proof of discovery. (Martinek Post-Hearing Brief at 39, 64.) Raymond conceded that he had "not examined these two claims" and that his view that they had a valid discovery related to the fact that "any knowledgeable geologist * * * would ask * * * 'What is wrong with you? Why haven't you claimed the rest on the deposit?'" (Ex. 3 at 10.) Lawrence had no view regarding the Comstock Nos. 5 and 6 mining claims and his economic analysis did not address them. (Tr. 847, 895; Ex. 49.) We affirm Judge Sweitzer's conclusion that these mining claims are invalid, and address them no further here.

We reach the same conclusion with respect to the Comstock No. 1 claim. Raymond concludes it is valid "by virtue of the visible extension of the orebody on Comstock #2 into Comstock #1, although no mineralized, (or other) samples were collected by me which can prove a valid mineral discovery on Comstock #1." (Ex. 3 at 9.) Lawrence also testified that his view of the validity of the Comstock No. 1 claim derived from his inference that mineralization extended from the Comstock No. 2 claim across the Comstock No. 1. (Tr. 847-48.) Raymond projected his views of a 27-foot wide zone extending from the No. 2 to the No. 1 claims for 900 yards, with a vertical exposure of 200 yards, exclusively from looking at aerial photographs. (Ex. 3 at 8.) Raymond and Lawrence concede that this analysis is exclusively reached from geologic inference from the Comstock No. 2 claim, except for sample 407. As noted above, however, the record refutes Raymond's reliance on "spectrographic sample # 407" because Fuksa identified it as a "composite of samples 401-406" taken from the Comstock No. 2 claim. (Ex. 39 at 2, 3 (spectrographic sample).) Lawrence asserted the existence of a trench sample on the Comstock No. 1, but he could not identify it. (Tr. 847-48.)

We agree with Judge Sweitzer that such information was insufficient to overcome the Government's prima facie case. It is well-settled that a mining claim cannot be proven valid on the basis of geologic inference alone. In United States v. Lehmann, we recently explained:

> An "inference of the presence of valuable minerals, drawn from the proved existence of mineral deposits outside the limits of the claim or from the geology of the area, is not sufficient and cannot be substituted

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[52/] (...continued)
Fischer Gemini-3 M-Scope as a significant and valuable magnetite mineral exposure (Ex. 1 at 6; Tr. 561, 572), when he later conceded that there was "no reason to be excited about it" and that it was "simply * * * interesting." (Tr. 574.)

> for the actual exposure of the mineral deposit within these limits under the mining laws." United States v. Hines Gilbert Gold Mines Co., 1 IBLA [296,] 298 [(1971)], citing State of California v. E. O. Rodeffer, 75 I.D. 176 (1968).
>
> > Each claim must be supported by a discovery of a valuable mineral deposit within its own boundaries. United States v. Melluzzo, 32 IBLA 46, 59 (1976), aff'd sub nom. Melluzzo v. Watt, 674 F.2d 819 (9th Cir. 1982). The sine qua non of such discovery is an exposure of a valuable mineral deposit on a claim. United States v. Weber Oil Co., 68 IBLA 37, 43, 89 I.D. 538, 540-41 (1982). The existence of valuable minerals on a claim, based solely on geologic inference, cannot serve as a predicate for a finding of quantity and quality sufficient to support a discovery on that claim. United States v. Feezor, 74 IBLA [at 85], 90 I.D. [at 278].
>
> United States v. Dresselhaus, 81 IBLA at 265. Thus, if the Government can show that, despite the inferred existence of a valuable mineral deposit, there was never an exposure of it on the relevant mining claim, there would be no discovery.

161 IBLA at 92-93.

Martinek has not demonstrated the existence of a valuable mineral deposit on the Comstock No. 1 claim. As pointed out by Judge Sweitzer, making an inference with respect to mineralization on the Comstock No. 1, even considering sample 407, there remains a "dearth of information regarding the precise location, geology, size, nature, sampling method, handling, and processing for that sample, it cannot be determined to be reliable and representative and is thus entitled to little weight." (Decision at 38.) We agree with his conclusion.

Turning to Martinek's rebuttal case with respect to the Comstock No. 2 claim, Martinek relied on analysis of stockpile material. He argues extensively that it was error for Judge Sweitzer to disregard the stockpiled ore. Martinek argues that the origin of the material is not in dispute and should have been considered in analyzing the economic viability of a mining and milling operation.

To the contrary, Judge Sweitzer correctly explained that samples taken from the stockpile could not be used to establish a discovery: "The first principle is that a lode location must be supported by a discovery of a vein or lode or other rock-in-place bearing valuable mineral. * * * Second, samples must be representative of the

mineral-bearing material which remains in the ground in order to be meaningful." (Decision at 35). Judge Sweitzer is correct that, for a lode claim to be sustained, the discovery must be of a vein or lode of rock in place. The Mining Law makes clear that lode claims may be located along veins or lodes of "rock in place * * * bearing valuable mineral deposits." 30 U.S.C. § 23 (2000); Cole v. Ralph, 252 U.S. 286, 295 (1920); United States v. Lehmann, 161 IBLA at 40, and cases cited.

We agree with Judge Sweitzer's concern that the "stockpile/dump samples, like the few other samples taken by Mr. Raymond or other geologists from the subject claims, suffer from the additional infirmity of being inadequate in number or spacing to infer that they are representative of a sufficient quantity of similar quality mineralization beyond the actual areas sampled." (Decision at 35.) Kucinski testified that his samples were not representative of the dump as a whole. (Tr. 83.) Raymond's single sample is a composite of dump material. (Tr. 645; Ex. 3 at 9.) To be meaningful, the samples must be representative of the mineral deposit in place; samples taken from loose material in a dump would not be probative of the existence of a valuable mineral deposit. Unites States v. Clouser, 144 IBLA 117 n.7. "Any sample taken from the dumps at best represents a random accumulation of ore not indicative of mineral values to be found at depth." United States v. Crowley, 124 IBLA 374, 377 (1992). With respect to such material there is "no evidence that this vein contained and still contains ore of sufficient quality in sufficient quantity to constitute a valuable mineral deposit." Id. at 383; see also United States v. Mavros, 122 IBLA at 305 (sample picked from a dump may have come from a small pod or even outside the claims).

The material stockpiled near the mine adit on Comstock No. 2 cannot be identified with certainty. Nor has it been shown that the samples from the dumps are representative of the deposit now in place. As noted above, Raymond testified that the only sample he did take from rock in place on the Comstock No. 2 claim was "trivial in its mineral composition." (Tr. 671.) Therefore, samples from the dumps cannot be deemed probative of the dimensions or continuity of a underground vein. Martinek has not sufficiently rebutted the Government's prima facie case with evidence of stockpile samples from the Comstock No. 2 claim.

We also agree with Judge Sweitzer that the mineralization Martinek found on the Eureka claims was speculative. Judge Sweitzer noted that Raymond's projections on these claims derived from single samples from which he inferred massive mineralization.

> The sampling for the Eureka and Eldorado claims is also inadequate to support Mr. Raymond's projections as to the quality and quantity of mineralization. His reliance upon only one sample to project quality and quantity over substantial distances on the Eureka Nos. 2 and 3

> claims cannot be sustained. Cf. United States v. Winters, 78 I.D. 193, 199 (1971); United States v. Houston, 66 I.D. 161, 166 (1954). The same is true for his reliance upon one sample to estimate the quality and quantity of mineralization on the Eureka No. 4 claim * * *.

(Decision at 38.) Judge Sweitzer quoted Raymond's sampling from the Eureka Nos. 2 and 3 claims to be a "chip [channel] sample across approximately 20 feet of the breast of the vein at the level of the back of the portal, as nearly as I could identify it." (Ex. 2 at 4.) Raymond proceeded to extend the mineralization of the claims based upon his view of aerial photographs, and comparison to "world" deposits. Raymond stated: "The part of the vein exposed near and to the north of the portal was very high-grade stibnite, (about 5 feet wide); and the rest of the exposure varies in grade from rich stibnite ore to barely-visible mineralization marked by coloration of antimony secondaries." (Ex. 2 at 4.) "The nature of the stibnite veins of the world is persistent high-grade stibnite streaking back and forth (like taffy) within the vein * * *. This is the case at the Eureka #2 and #3 discovery." (Ex. 2 at 5). From aerial photographs he concluded that the vein exposed on the Eureka No. 2 claim is more than 20 feet wide, 600 feet in strike-length, and 295 feet in vertical extent, from which he calculated a deposit of "42,168 tons" of undisclosed material. (Ex. 2 at 7.) On the Eureka No. 3, Raymond projected a strike-length of 400 feet from a "trace of the vein * * * visible" with a vertical interval visible for 160 feet with a width of 20 feet, projecting to 133,288 tons of undisclosed material. (Ex. 2 at 7.) Raymond then inferred the alleged value of this extensive deposit from the "chip channel sample." Raymond followed the same methods with regard to the Eureka No. 4 claim. Based on aerial photographs Raymond projected an extensive deposit and established its value from a chip sample. (Ex. 2 at 5-7.)

We agree with Judge Sweitzer that Raymond's views, even if deemed competent to describe findings from aerial photographs, would constitute, at most, evidence sufficient to warrant further exploration to find a valuable mineral deposit, rather than evidence that suffices to prove a discovery of a valuable mineral deposit. "It is well settled that evidence of mineralization which may justify further exploration, but not development of a mine, does not establish the discovery of a valuable mineral deposit." United States v. Bagwell, 143 IBLA 393, citing Barton v. Morton, 498 F.2d 288, 291-92 (9th Cir.), cert. denied, 419 U.S. 1021 (1974), affirming United States v. Watkins, A-30659 (Oct. 19, 1967).

> [A] mineralized vein is not the equivalent of a deposit of mineable ore. Such a vein may not contain material of substantial value. In this case, as the Department pointed out, "[i]t is nowhere suggested that any quantity of material of the quality of the vein material thus far disclosed would constitute a mineable body of ore. The evidence does not, in

> fact, establish any mineral quality of any consistent extent. Although appellants have found ore samples with indicated values exceeding $70 per ton, the record does not support a finding that they have found a deposit yielding ore of that quality, or of any other quality, the exploitation of which may be contemplated. * * *

Barton v. Morton, 498 F.2d at 291. The court concluded that "[w]hat is called for in either case is further exploration to find the deposit supposed to exist." Id. Judge Sweitzer was correct in concluding that the single sample was inadequate to project quality and quantity over substantial distances. We are particularly perturbed that Martinek's case assumes that, because Raymond thought he could see the "trace of a vein" in pictures, that this would be sufficient basis on which a miner would start a costly mining operation. This assertion is simply not warranted.

Martinek objects to Judge Sweitzer's discussion of geologic inference arguing: "At no time did Lawrence or Raymond attempt to use geologic inference to infer mineralization of higher quality than was revealed in the assay results obtained in this contest. Rather, these results were used to infer low-grade mineralization that was confirmed by a review of samples in this contest." (SOR at 45.) This assertion misunderstands the law on geologic inference. The issue is not whether Martinek's witnesses inferred a higher grade mineralization than that found in a single sample, it was whether they inferred continuity across mining claims from one sample, assuming the single sample represents a mineable body of ore. The latter inference is especially incredible given the breadth of the ore body Raymond visualizes from photographs.

We note as well that Martinek's case was premised in part on the notion that discovery could be proved by the fact that production had once occurred on the Eureka claims. Raymond stated that "past production admitted by Giffen is, in my opinion, proof of a valid mineral discovery at the time of withdrawal and proof of validity under the mining laws as I understand them." (Ex. 2 at 8.) Raymond states that Fuksa's notes "indicate nothing of running out of ore" and concludes that "the original discovery is still there." Such contentions misperceive the elements of proof required by a claimant in overcoming the Government's prima facie case. There is no precedent or principle which establishes that when a claimant mines and stops, this is evidence that a discovery remains in the ground. Such a contention is illogical without proof that a valuable mineral deposit remains in place after the mining occurred. In United States v. Johnson, 16 IBLA 234, 237 (1974), we explained:

> The princip[al] thrust of the appeal appears to be that the locator, having once made a discovery, secures a valid and subsisting right to his claims, and that such discovery may not thereafter be "lost" or the locator's right divested. This statement is simply wrong. A discovery,

> once made, may be lost through the occurrence of any one of a number of events, including the physical loss of the discovery, the loss of essential transportation facilities, exhaustion of the deposit or a loss of the market of substantial duration (as distinguished from temporary market fluctuations).

It has long been settled that a discovery may be lost through a number of circumstances including when it is mined out.

> [E]ven though a claimant may have made a discovery and actually mined material from a claim, until a patent application has been perfected and the equitable title has vested, a claimant runs the risk of losing his discovery if the deposit is exhausted or if a material change in market conditions renders it unreasonable to expect that the mineral can be mined at a profit.

Estate of John M. Lighthill, 147 IBLA 25, 31 (1998), aff'd sub nom Dinning, Administrator of the Estate of Lighthill v. Babbitt, Civ. S-99-1276 (E.D. Cal. Sept. 25, 2000) (citations omitted).

Accordingly, Martinek errs in assuming that, if a discovery of 12 tons of stibnite was found by Fuksa on the Eureka claims and he mined it by 1970, this forecloses a finding that the discovery was lost by virtue of mining. In fact, Martinek bears the current obligation of showing a discovery of a valuable mineral deposit after the conclusion of such mining. He did not do so. We affirm Judge Sweitzer with respect to these claims.

Finally, we affirm Judge Sweitzer's conclusion that Martinek did not overcome the Government's prima facie case with respect to the Eldorado claims for the same reasons. As Judge Sweitzer pointed out, Raymond took a 17-foot chip channel sample across the vein exposed at the common boundary of the two claims, and based upon the vein's purported "visibility," extended the results of the sample by geologic inference for a strike length of 200 feet over an estimated vertical interval of 50 feet and a measured width of 33 feet. (Ex. 1 at 6.) Lawrence concluded that a typical antimony vein is not consistently high-grade but consists of low-grade material interspersed with irregular pods of higher-grade stibnite (Tr. 829-30), and that Raymond's visualization of the Eldorado claims "fits the classic model that we have presented for an antimony vein." (Tr. 876.) Then, he asserts, without explanation, that the Eldorado claims were vastly superior to the average stibnite deposit.

> [A]t that point we decided that, yes, we've got a good grade, excellent grade, three to four times as good as what's been mined in the rest of

> the world. We've got the verification that, yeah we've got low-grade rock above the high-grade lens. We have an apparent strike based on the orientation of the lens depicted in the sampling, the diagram presented by the National Park Service. So, we go for the inference. * * * It fits into the mineral atmosphere of the District. It's in the same environment as other antimony claims.

(Tr. 877-78 (emphasis added).)

As with the Eureka claims, Martinek thus presumed that a profitable grade of antimony would continue for the entire length of an inferred vein running through the Eldorado claims. A mineable body of ore may not be inferred merely because some mineralization has been found in an outcrop of a purported vein. See Barton v. Morton, 498 F.2d at 291. A sufficient delineation of the existence of an ore body must be made to establish the deposit. Id. Judge Sweitzer was correct in concluding that the single sample taken for the Eldorado claims was inadequate to show the discovery of a mineable body of ore.

[7] Having determined that Martinek did not sufficiently present a rebuttal case to overcome the Government's prima facie case, we turn to his assertions that Judge Sweitzer should not have considered the Government's prima facie case in the first instance. Martinek contends that no contest hearing should have been conducted because (1) he was allegedly denied a right to gather evidence about his mining claims, contrary to United States v. Parker, 82 IBLA 344, 383 (1984); (2) that having exposed valuable minerals in place, he was unfairly denied a right to conduct a drilling program to determine the extent and quantity of mineralization on the claims, as set forth in United States v. Mavros, 122 IBLA 297 (1992); (3) that he was limited to the use of hand tools and so prevented from using mechanized equipment to rehabilitate discovery points and restore collapsed adits, which denied him an opportunity to establish the validity of the claims, citing United States v. Niece, 77 IBLA 205 (1983); (4) that the existence of the injunction and EIS placed on the Government an affirmative duty to rehabilitate discovery points and collapsed adits, restoring the conditions that existed before 1985, under United States v. Pool, 78 IBLA 225; and, finally, (5) that the Government is estopped to contest the assertion that mineralization existed within the collapsed adits on the Comstock No. 2 claim because NPS "assured Martinek [in 1993] there was no reason to re-open the Comstock adits" in writing, citing RMOC Holdings, LLC, 152 IBLA 149 (2000).

> It is well-settled that an
>
> Administrative Law Judge is precluded from declaring a mining claim void for lack of a discovery when it is shown that the Government prevented the claimant from entering their claim to gather the

> information necessary to prove the existence of a discovery. See United States v. Parker, [82 IBLA 344, 383, 91 I.D. 271, 294 (1984)]; United States v. Pool, 78 IBLA 215, 225 (1984). The critical question here is whether claimants were kept from doing the work necessary to prepare and present their case.

United States v. Mavros, 122 IBLA at 310. There is a distinction between permitting a party to conduct sufficient exploration to prove its case that it had found a discovery within the meaning of the mining law prior to withdrawal and exploring to find a discovery in the first place.

> Following the withdrawal of land from mineral entry, a claimant may enter the claims to gather evidence that a discovery existed on the date of withdrawal * * *. On the other hand, the claimant may not drive an adit on what appears to be a promising structure in hopes of finding valuable mineral, as that activity would be considered further exploration to disclose a deposit not exposed prior to withdrawal.

Id. at 310-11 (citations omitted).

Judge Sweitzer addressed "whether [Martinek] was denied a fair opportunity to generate [] evidence from the mineral deposits exposed prior to withdrawal." (Decision at 41.) He observed that the evidence regarding Martinek's efforts to "sample, maintain, or develop the subject claims is limited." Id. "In many instances, Contestee refers to events which are not tied specifically to the subject claims in arguing that he was denied a fair opportunity to generate evidence * * *." Id. Citing four requests by Martinek to use heavy equipment on the claims, he concluded that the only evidence related to the subject claims of Martinek's interest in working on the claims related to Martinek's insistence on the use of heavy equipment.

> Contestee has not shown that he was denied the opportunity to generate with hand tools and dynamite evidence showing sufficient continuity and quantity of mineralization from the mineral deposits exposed prior to withdrawal. He has only shown that his proposed use of heavy equipment has been restricted. The question becomes whether the restrictions on his use of heavy equipment denied him a "fair" opportunity to generate such evidence.

Id. at 42.

We agree with Judge Sweitzer's conclusion that Martinek was not denied the opportunity to gather evidence. Rather, as described in the factual analysis, NPS repeatedly advised Martinek of its plans to visit and conduct a validity analysis of his

mining claims, frequently without response from Martinek. At some junctures, Martinek joined NPS examiners and, at some, he and Hicks undertook their own analysis. Martinek was invited to participate in the Government's attempts to reopen the adit on the Comstock No. 2, but he did not do so. (Tr. 80.) As in United States v. Parker, 82 IBLA at 384, we find that "there is no evidence that appellants were denied access to the claims after [1990] in order to collect evidence of a preexisting discovery." In fact, he ultimately visited all the claims and took some samples. [53/]

Next, we disagree with Martinek's claim that he was unfairly denied the right to conduct a drilling program to determine the extent and quantity of mineralization on the Comstock, Eureka, and Eldorado claims. In United States v. Parker, we held that a "discovery must be judged by what has been exposed on a mining claim at the time of a withdrawal, and a claimant is not entitled to go onto a claim thereafter for the purpose of exposing new veins or lodes. See United States v. Chappell, 72 IBLA 88 (1983); United States v. Montapert, 63 IBLA 35 (1982)." 82 IBLA at 384. More recently, in United States v. Lehmann, we rejected the argument that a claimant is entitled to undertake a drilling program to search for a mineral deposit, based on isolated exposures after the withdrawal at issue.

> [Appellants] challenge that the segregation deprived them of their rights to conduct exploration to identify whether the deposit extended into areas where a deposit was inferred. Their argument is based on the assumption that an exposure of a valuable mineral deposit could have been proven by further exploration on all the contested claims.
>
> Appellants misread what is necessary to prove validity. To be valid a claim must be more than an interest justifying further examination. In one of its earliest decisions, the Board examined this issue, stating that a "distinct difference exists between evidence of mineralization which will induce men to engage in further prospecting or exploration in search of valuable mineral deposits and that which will induce them to expend their means in attempting to develop a valuable mine. Only the latter constitutes a valid discovery." United States v. Jones, 2 IBLA 140, 149 (1971) (citations omitted). There, the Board found that
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> > all that the appellant's evidence amounts to is an unsubstantiated hope that pursuit of the exposed veins on the claims will disclose richer ore, and, viewed most

[53/] Judge Sweitzer notes, Martinek or his witnesses did successfully re-expose mineralization on the Eureka and Eldorado claims.

> optimistically, the evidence shows no more than a possibility that further exploration may disclose the existence of valuable mineral deposits somewhere on the claims. Such a showing does not constitute a discovery.
>
> Id. (citations omitted). Thus, appellants err in suggesting that their claims are valid because they anticipate that drilling might verify their desired outcome.

161 IBLA at 106. In this case, Martinek has not shown that NPS denied him a right to examine prior discovery points with drilling.

In fact, Martinek fails entirely to explain how his particular requests had any bearing on proving a prior discovery. Rather, the two requests on which he relies were among several blunt invitations to NPS to deny requests for non-specific "operations," so as to form the apparent basis for a legal challenge. It is impossible to fit the plain wording of his requests into any "effort to expose a pre-existing discovery" which he now claims was their purpose.

The first "drilling" that Martinek asserts was improperly denied him is evidenced only in an NPS response to a request. (Ex. 33.) That document is a January 6, 1997, letter from NPS to Martinek and Hicks stating, in response to proposed mining plans of operation dated February 6 and 10, 1996, "these proposals lack the level of detail required by [NPS] regulations to sufficiently prepare a thorough analysis." (Ex. 33 at 1.) Attached to this letter is an "initial plan adequacy review" addressing the terms of each Hicks letter. With respect to both the Comstock and Eldorado claims, NPS stated that the information presented in the February 6 and 10, 1996, letters was insufficient to "correspond to the known bedrock geology, nor is it conceptually adequate to base surface exposure efforts, or especially a drilling program, with any reasonable expectation of success." (Ex. 33 Att. at 2.) Martinek does not supply the February 6 or February 10, 1996, letters to which NPS was responding, nor does he supply information suggesting he ever attempted to clarify his plans.

Martinek confuses his demands that NPS let him "drill" on a mining claim, with evidence sufficient to support his claim to Judge Sweitzer, or to this Board, that he submitted a drilling program to NPS that was calculated to "gather evidence that a discovery existed on the date of withdrawal and, if necessary, the date of an impending hearing." United States v. Mavros, 122 IBLA at 310. In fact, the situation in Mavros, 122 IBLA at 312, is directly analogous to the one presented to us.

> Claimants argue that they wanted to use a large drill to obtain better proof of a pre-existing discovery. The evidence does not support

> this argument. Arthur Mavros indicated that he intended to drill along the entire length of the claim group in an effort to trace quartz veins running in a northerly direction. However, he displayed little, if any, specific knowledge of the location of veins, exposed outcroppings, or the mineral content of the veins at the outcroppings. His proposed drilling plan was little more than a plan to drill a random series of holes. No specific target was described and no specific result was anticipated. What he was proposing was grassroots exploration drilling. If the drilling was to confirm or demonstrate the existence of a discovery, claimants would have been able to describe what they intended to confirm and how the drill results would support the conclusion.

(Transcript cites omitted.) We have even less evidence on which to make a finding that Martinek was attempting to prove a pre-existing deposit on the Comstock or Eldorado claims with Hicks' 1996 letters. Without this evidence, and in the face of a pattern of demands the apparent purpose of which was to accuse NPS of "delay tactics" and "stalling," we do not find that Martinek's requests constituted a drilling program for the purposes of exposing a pre-existing discovery.

The other request which Martinek claims is evidence of an improper denial of a drilling program appears at Ex. 19. In this request, like the one in Mavros, Hicks sought to drill 20 drill holes to "further define the ore on the claims." The attached drawing depicts two "Xs" allegedly depicting "discoveries" on the Eureka claims, but the letter request provides no basis on which to conclude where the drilling would take place or how it relates to either point of discovery. To the contrary, Hicks asserts that because of the 1985 injunction, Martinek does not know where the drill holes will be, but agrees to limit the number to 20 such holes. (Ex. 19 at 2.) [54/] As with the alleged drilling plan for the other mining claims, we find no evidence to suggest that Martinek was proposing to do anything but explore the claims for ore.

This conclusion is reinforced by other facts with respect to the Eureka claims. As noted in the factual section of this opinion, on July 19, 1994, Martinek submitted to NPS a written proposal to reconstruct the access road to the Eureka claims, in order to reopen the collapsed adit on the border of the Eureka Nos. 2 and 3, and sample any mineralization within. NPS prepared an EA and approved accessing the collapsed adit by helicopter in order to excavate it. NPS offered to provide the helicopter, fuel, and pilot at Government expense for 2-3 weeks. Martinek was authorized, with the expenditure of Government funds, access by helicopter to use

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[54/] Notably, Hicks' comments in this letter can be construed as a concession that Fuksa made no discovery of a mineable mineral deposit prior to withdrawal.

small equipment to do the one thing he was entitled by law to do – re-expose prior exposures of mineralization. He ignored the offer. He chose instead to submit another plan in 1996 (Ex. 19) for non-specific drilling and for which he expressly invited rejection. That Martinek preferred to maintain a grievance over conducting authorized re-exposure work defeats any assertion that he was denied the option to drill for permitted purposes.

It is significant to note that, at least with respect to the Eureka and Eldorado claims, NPS witnesses testified that the claims did, in the 1965-72 time frame, have discoveries of valuable mineral deposits. NPS's case is based on the fact that the discoveries were lost due to changing economic conditions, as well as the fact that the Eureka Nos. 2 and 3 claims may have been mined out. Martinek has not explained how NPS denied him the right to prove these discoveries by drilling. With respect to the Comstock Nos. 1, 5, and 6 claims, Martinek can point to no prior discovery point he sought to examine.

[8] We next reject Martinek's claim that NPS's refusal to allow him to use "heavy equipment" on the mining claims somehow defeated the Government's authority to contest claim validity. There is no legal support for his asserted position that, once he has possession of a mining claim, he has a right to use heavy equipment on the claim or else the Government is estopped from denying the validity of the claim. Rather, in United States v. Hicks, 162 IBLA 73 (2004), we rejected the same argument, submitted by Hicks and Martinek with respect to other Fuksa mining claims, that refusal to allow a preferred choice of equipment to conduct their analysis of mining claims was tantamount to denying them a right to prove a pre-existing discovery. In that case, Hicks had been given opportunities to enter the mining claims within Denali to re-expose prior discoveries and had even been authorized to use other types of equipment. As with Martinek's refusal to respond to NPS's offer regarding use of a helicopter in this case, in that case NPS had offered use of a "portable 'Digger 50'" for use in examining prior exposures, but Martinek in particular testified that they ignored that offer because they preferred to use another type of excavating equipment. 162 IBLA at 78.

> [Hicks] contends that the mineral examination was fatally flawed by the failure of NPS to permit Giffen to investigate the existence of a valuable mineral deposit that predated the withdrawal on each of the claims by the use of heavy equipment. This failure, asserts Hicks, precluded Judge Sweitzer from concluding that the United States established its prima facie case and/or from concluding that Hicks had failed to overcome the Government's case by a preponderance of the evidence.

162 IBLA at 75. We rejected that argument in the absence of any evidence that Hicks and Martinek were denied the opportunity to look for exposures on the claim. Id. at 78. Noting Hicks' failure to examine exposures by other means, we held: "Hicks did not overcome the prima facie case with challenges to Giffen's alleged failure to validate the discovery for Martinek in the manner and at the time he would have chosen." Id. at 78-79.

In the absence of evidence that Martinek was denied the right to look for exposures on the claims, we reject his argument that the Government is estopped from asserting the invalidity of the mining claims on account of the Government's refusal to allow heavy equipment. As noted, with respect to the Eureka claims, NPS offered use of helicopter, fuel, and personnel, to examine the exposure site on the claims, but Martinek's response was silence. Further, both Raymond and Hicks conceded that hand tools could be used for re-exposing discovery points, but maintained that other equipment would be quicker or more convenient. Raymond acknowledged that he normally would use hand tools where he had no other equipment. (Tr. 541.) Hicks testified as to his "frustration" at using hand tools and agreed that using them "might have taken us, you know, a couple of days or so to dig that adit out." (Tr. 977-78.) There is no dispute that all of the discovery efforts expended by prior miners, including Fuksa, were made with hand tools. [55/] The record is replete with evidence, including in Raymond's pictures, that the mining claims are on steep hillsides and that NPS was concerned that heavy equipment could not practically or safely be used at the angle of repose. Martinek submits no evidence to support his presumption that the use of heavy equipment was even plausible on sheer hillsides and hanging walls, or in situations where, according to his own witnesses, mud was falling around them in a "heavy syrup" as they conducted their sampling efforts. (Tr. 762, 764; see also Ex. C at 17 (Giffen).)

Judge Sweitzer pointed out that Martinek's testimony was not that re-exposure could not be done, but rather that he did not have time or interest to conduct the exposure by hand methods. On these facts, we agree with Judge Sweitzer that "[u]nder the circumstances, NPS acted within its authority to discourage the use of heavy equipment * * *." (Decision at 44.)

We expressly reject Martinek's assumption that a request to use heavy equipment, with the expectation that it will be denied, is a ticket to a finding of claim validity. This syllogism simply does not exist. If it did, the claimant would always

[55/] Martinek's complaint that he was forced to examine his claims with "tools that predate the industrial revolution" (SOR at 1), is merely argumentative and not supported by the record, nor is there any suggestion that hand tools are not usable on these mining claims. Such tools were used by Fuksa.

have the ultimate tool for avoiding a mining contest. Martinek confuses the term "right to use heavy equipment" with the right of re-exposure established in Mavros. Martinek has no right to use a machine of his choosing, when alternative exposure methods are available but eschewed by the claimant. Our decision in United States v. Pool reinforces our conclusion. There, we held that:

> We have held that mining claims are not properly declared null and void for lack of discovery where the mineral claimants are effectively foreclosed from proving that a discovery exists. United States v. Foresyth, 15 IBLA 43 (1974). We have further recognized that while, in cases of withdrawal of the land, such withdrawal entitles the Government to restrict the development of a claim, restrictions must be reasonable "in order to permit a claimant a fair opportunity to make [its] case." United States v. Niece, 77 IBLA 205, 207-08 n.3 (1983).

82 IBLA at 383. Section 1(b) of the Mining in the Parks Act of 1976, 16 U.S.C. § 1901(b) (2000), stipulates that "all mining in the areas of the National Park System should be conducted so as to prevent or minimize damage to the environment and other resource values." Judge Sweitzer is thus correct that NPS did not, by not acceding to his terms, foreclose Martinek from a fair opportunity to make his case.

Next, we consider Martinek's argument that the existence of the court injunction, and later the EIS, imposed on the Government the affirmative duty to rehabilitate discovery points and collapsed adits. We need not consider the law on this topic because Martinek's argument seemingly fails to grasp the nature of the Government's actions in the early 1990s. In fact, NPS expended considerable efforts to examine, re-expose discovery points on, and sample Martinek's claims. The effort expended by Government geologists and field examiners on the three sets of claims was exhaustive despite being confronted with a claimant who had no clue even where his claims were located or their minerals or boundaries, and fundamentally had no information about them. Government geologists examined the claims over the course of years, sampled them, and found mineralization of which Martinek was unaware. With respect to the Comstock claims, NPS examined a half-century of literature to depict veins in the ground that might already have been mined out, in order to determine the best case for the geology of the claim. In light of the Government's efforts, it is difficult to determine what Martinek thinks NPS further owed him.

[9] We turn to Martinek's final assertion that NPS is estopped from declaring the Comstock No. 2 mining claim invalid because of Kucinski's actions with respect to re-opening an adit on the Comstock No. 2 claim. Kucinski explained his version of events in a May 31, 1995, memorandum:

> Mr. Martinek stated at that time he wanted the opportunity to re-open the adits and sample mineralization. I told him I would look into it.
>
> * * * * * * *
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> I again met with claimant Martinek and his agent Steve Hicks, in Kantishna on July 14, 1993. I told them that the National Park Service would sample the Comstock ore dumps in order to verify the published data and proceed with a mineral report based, in part, on that information. I assured Martinek at that time that there was no reason to re-open the Comstock adits.

(Ex. A Att. 4.6.) In his SOR, at 32, Martinek contends that Kucinski's statement was intended to induce him not to re-open the adits on the Comstock No. 2 mining claim in order to protect Park resources.

While we find that the facts of this case fall far short of affirmative misconduct sufficient to justify invocation of estoppel, RMOC Holdings, LLC, 152 IBLA 149, 152 (2000), we do agree with Martinek that Kucinski deliberately discouraged Martinek from attempting to re-open adits on the Comstock No. 2 claim, which action might have either convinced Martinek that the tunnel was mined out or convinced him that a discovery of a valuable mineral deposit existed on the claim. We do not discount Kucinski's good faith in moving forward to conduct a mineral examination, and the record reflects that the Government examiners believed that the validity examination was unlikely to lead to evidence of a discovery, and that the examination was unduly costly and time-consumptive. We agree with Judge Sweitzer that the evidence shows that Raymond's projections of mineralization on the Comstock No. 2 claims are hardly persuasive. (Decision at 44.)

Nonetheless, Martinek and Kucinski agree that the two of them understood, based upon Kucinski's assertions, that Martinek need not reopen the adit. Given the constancy of human misunderstanding in verbal communications, we cannot discount Martinek's testimony that he thought Kucinski was advising him that the Comstock No. 2 claim was valid and therefore chose not to proceed.

In this one point, we must set aside Judge Sweitzer's decision and remand the case to him. We make no finding that the Comstock No. 2 claim was valid. We make no finding that Martinek is entitled to use heavy equipment or the equipment of his choice in re-exposing a discovery on the claim. In fact, the record and photographs within it show that such equipment may be difficult, if not impossible, to use, given the topography. We merely find that Martinek was "effectively foreclosed from proving that a discovery exists," when he was told he need not pursue reopening

adits on the Comstock No. 2 mining claim. United States v. Foresyth, 15 IBLA 43 (1974).

In reaching this conclusion, we are mindful of the following facts. The record shows that all adits were caved by the late 1970s except the "uppermost adit," or adit 3. By 1964, 5 years prior to the time Fuksa located the claim, all but two adits (the upper and middle, which we believe to be adits 3 and 4) had caved and were never reopened. By 1977, 8 years before the injunction, only the uppermost adit 3 remained open. This adit caved sometime between 1983 and 1990. It is conceivable that the caving of this adit was a direct consequence of the injunction.

It is adit 3 alone which is relevant to our decision to set aside Judge Sweitzer's decision as to the Comstock No. 2 claim. By contrast, it is inconceivable that anything the Government did could have affected the caving of the other adits. The evidence shows that three and likely four adits were abandoned on the Neversweat claim before Fuksa entered the scene to locate the Comstock No. 2 claim. Fuksa did nothing to reopen those adits prior to withdrawal or prior to the injunction. Martinek concedes that to the extent the Government would be obligated to permit him to
open adits, it would be to "restore conditions that existed before 1985." (SOR at 2.)

We thus cannot affirm Judge Sweitzer's decision that Martinek did not sufficiently present a rebuttal case with respect to the Comstock No. 2 claim, because Martinek was effectively foreclosed from collecting, or convinced not to collect, evidence from adit 3 for purposes of that rebuttal case. To be clear, the Goverment's evidence was sufficient to present a prima facie case of invalidity of the Comstock No. 2 mining claim in the case before us. Judge Sweitzer so held, and we affirm his conclusion in that respect, as we affirm Judge Sweitzer's finding that NPS responsibly attempted to determine the validity of that claim based on decades of material facts regarding the claim and its adits.

On remand, Judge Sweitzer should direct the Department to permit Martinek to take the opportunity within the next available field season, should he so desire, to attempt to re-expose the alleged discovery point in the uppermost adit 3 on the Comstock No. 2 mining claim, using methods permitted by NPS consistent with its regulations implementing the Mining in the Parks Act at 36 CFR Part 9 and any statutory and regulatory authority governing restrictions on exploration activities. The purpose of such activity would be to assemble evidence from adit 3 to rebut the Government's prima facie case by proving the continued existence of a pre-existing discovery of gold, silver, and lead on the mining claim. The record contains no evidence of the existence of any pre-existing discovery of stibnite on the Comstock No. 2, or even any interest in stibnite on that claim until after the Government's validity examination was completed and Martinek's lawsuit was filed in the United States Claims Court. (Ex. A Att. 4.7.) Thus, any effort on Martinek's part to prove

such a discovery of stibnite on remand would be an effort to find a new discovery prohibited by the precedent cited above.

Therefore, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 CFR 4.1, the decision appealed from is affirmed to the extent that it declared the Comstock Nos. 1, 5, and 6 mining claims, the Eureka Nos. 2, 3, and 4 mining claims, and the Eldorado 2 and 3 mining claims null and void for lack of discovery. The Government has prevailed on its contest with respect to those claims and this decision is final for the Department. The decision is set aside to the extent that it declared the Comstock No. 2 mining claim null and void for lack of discovery and this portion of the case is remanded to Judge Sweitzer for action consistent with this decision.

_____
Lisa Hemmer
Administrative Judge

I concur:

_____
David L. Hughes
Administrative Judge