Smouse, DeForrest, Ph.D. (Consulting Geologist), 7-15-1976, Letter to John S. Boyden, with appraisal of coal reserves in the Black Mesa Basin. John S. Boyden Collection, MS# 823, Box 43, folder 5. J. Willard Marriott Library Manuscripts Division.University of Utah, Salt Lake City.

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July 15, 1976

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Mr. John Boyden
Boyden, Kennedy, Romney & Howard Attorneys
Kennecott Bldg.
Salt Lake City, Utah 84111

Dear Mr. Boyden,

I am enclosing the figures from our evaluation of the coal reserves in the Black Mesa Basin Area of Arizona. Our data was derived from published reports on the occurrence of coal in the Dakota and Mesa Verde units in the Basin and excludes the area not in contention between the Hopi and Navajo Tribes. All data used was from published information which pre-dated 1937.

Our calculation of inplace reserves was accomplished by measuring the outcrop of the coal seams by use of a pantometer to determine linear distances. These instruments are used in engineering to determine areas in reserve calculations.

For the purpose of this preliminary report, a distance of one mile from outcrop was used as the maximum (1937) economic distance wherein coal could be mined from surface adits. A minimum of 30% recovery was used in calculating recoverable reserves and as the lower cut-off percentage on recoverable reserves.

Coal quality is similar to coal from the Gallup, New Mexico fields which were then being exploited.

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Our measurements indicate a total reserve of 200,000,000 tons of Dakota Coal within one mile of outcrop on the reservation dispute area. Mesa Verde coals were measured with a reserve of 523,000,000 tons of coal reserves located within one mile of outcrop within the dispute area. This makes a total of 723,000,000 tons of coal (in-place) reserves. Most mining by subsurface methods expects recoveries of over 50% of the coal in-place. We have used a figure of 30% for recovery factor, as a definite minimum of recoverability and 217,000,000 short tons as recoverable coal on the Hopi-Navajo dispute area.

Value for coal in-place is greater than $0.01 per ton. This would give a minimum value of $2,170,000 dollars for the recoverable coal on the property.

The topography is such that railroad grades into the area from the Santa Fe Railroad to the south would not be prohibitive for railroad construction into the mining area.

Sincerely,

DeForrest Smouse

DEFORREST SMOUSE, PhD.
Consulting Geologist

Enc.

DS:jo

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RESERVE CALCULATIONS - BLACK MESA

Dakota Formation K = 1,132,560 short tons/sq. mi./ft.
From Campbell (1909)

In SW part of Mesa
(16.5 mi. outcrop) 6.7' Coal Bed) (K) = 125,204,508 Tons of Coal

In NE part of Mesa
(11 mi. outcrop) (6' Coal Bed) (K) 74,748,960 Tons of Coal

Mesa Verde Formation

In Western part of the Mesa
(80 mi. of outcrop) (3.08' Coal Bed) (K)= 279,062,784 Tons of Coal

In NW part of the Mesa
(10 mi. of outcrop) (4.0' Coal Bed) (K) = 45,302,400 Tons of Coal

In NE part of the Mesa
(11 mi. of outcrop)(3.25' Coal Bed) (K) = 40,489,020 Tons of Coal

In Eastern part of the Mesa
(14 mi. of outcrop) (4.42' Coal Bed) (K)= 70,082,812 Tons of Coal

In SE part of Mesa
(26 mi. of outcrop) (3.0' Coal Bed) (K) = 88,339,680 Tons of Coal

GRAND TOTAL = 723,230,164 Short Tons of Coal

If only 30% of the estimated total reserves is recoverable by mining approximately 217,000,000 short tons of coal is within approximately 1 mile of the outcrop.

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