

BEFORE THE INDIAN CLAIMS COMMISSION

CITIZEN BAND OF POTAWATOMI INDIANS)	
OF OKLAHOMA,)	
AND)	
POTAWATOMI NATION REPRESENTED BY)	
CITIZEN BAND OF POTAWATOMI INDIANS)	
OF OKLAHOMA, ET AL.,)	Docket No. 217
)	
THE PRAIRIE BAND OF THE POTAWATOMIE)	
TRIBE OF INDIANS, ET AL.,)	Docket No. 15-K
)	
HANNAHVILLE INDIAN COMMUNITY, ET AL.,)	Docket No. 29-J
)	
Plaintiffs,)	
)	
v.)	
)	
THE UNITED STATES OF AMERICA,)	
)	
Defendant.)	

Decided: April 25, 1973

SUPPLEMENTAL FINDINGS OF FACT

The Commission makes the following findings of fact, which are supplemental to the findings numbered 1 through 86, previously entered herein, 11 Ind. Cl. Comm. 641 (1962), and 15 Ind. Cl. Comm. 234 (1965).

87. Lands to be Valued

The lands involved in this supplemental valuation were ceded to the United States under the Treaty of July 29, 1829, ratified on December 30, 1829, 7 Stat. 320. The cession included two tracts, which have been identified by Charles C. Royce in his Indian Land Cessions, published in the 18th Annual Report of the Bureau of American Ethnology, 1895-97, as Area 147 on maps Wisconsin 1 and Illinois 2, and as Area 148 on Illinois 2.

88. Area 147

Area 147 lies on the east side of the Mississippi River and extends from the mouth of the Wisconsin River down to Rock Island, near the mouth of the Rock River. It is located in southwestern Wisconsin and northwestern Illinois and contains 1,525,746 acres. Approximately 890,000 acres of the tract are within the Upper Mississippi Valley Lead District. These lead bearing lands are chiefly in the Wisconsin part of Area 147 but extend a few miles into northern Illinois. The actual lead bearing lands in Area 147 were dispersed in groupings or clusters and totaled about 18,000 acres.

89. Area 148

Area 148 extends across northern Illinois from Lake Michigan to the boundary of Area 147 on the Rock River. It contains 2,162,523 acres, all of which are outside the Upper Mississippi Valley Lead District.

90. Early Reports of Lead Mining in the Upper Mississippi Valley Lead District

The Upper Mississippi Valley Lead District consists of about 3,000 square miles, or about 1,920,000 acres. It lies on both sides of the Mississippi River in Wisconsin, Illinois, and Iowa. About two-thirds of all the lead produced in the district in 1829 came from the 890,000 acres within Area 147.

In 1680 Father Louis Hennepin and his party visited the area, traveling down the Illinois River and up the Mississippi River. The

natives showed him lead mines at that time, and his map of 1687 shows a lead mine at the present site of Galena, Illinois, in Area 147.

Other travellers at about the same time reported lead mines in this area. French traders on the Illinois River at Peoria are reported to have purchased lead in 1690 from Indian mines near Galena.

In 1766 lead was shipped twice a year from the west side of the Mississippi River in 20 ton boats. The same year Jonathan Carver reported abundant lead near present Blue Mounds, Wisconsin, which is east of Area 147.

In 1805 Lt. Zebulon M. Pike visited with Julien DuBuque. Although not permitted to see the mines, he was told they produced annually from 20,000 to 40,000 pounds of lead ore. In 1810, following DuBuque's death, the Indians destroyed his home and trading post, but they continued to mine and trade ore until about 1820. About 400,000 pounds of lead ore was reported to have been sent by the Indians to Prairie du Chien in 1810.

The first known steamboat to visit this area arrived at Prairie du Chien from St. Louis in 1823. This marked the beginning of an influx of miners, many of whom remained only during the summer and returned south for the winter. In 1824 about 88 tons of lead were produced in the Upper Mississippi Valley Lead District. In 1829 this had grown to about 6,700 tons, which represented about three-fourths of the entire domestic production of lead in the United States. About 1100 miners were in Area 147 in 1827, and an additional 1,700 or 1,800 miners had arrived by the end of 1829.

91. Nature of Lead Deposits in Area 147

The nature of the lead deposits in Area 147 was quite well understood in 1829. They were geologically, minerologically and chemically similar to those of certain mining districts long known in Europe. The principal ore mineral in 1829 was galena, or sulfide of lead, which was found scattered throughout the area in fissures and as residual material in the soil above the galena dolomite rock formation. The distribution of lead ores within the region was not uniform. Since the surface indications of ore were many and rather obvious, a prospector for lead in 1829 could quite easily have determined where to dig. However, it was impossible in most cases to determine before actual mining just how far the ore fissures would extend or how productive they might be. Many veins were found to be rich and yielded large quantities of lead ore, but there were also diggings from which little ore was raised.

92. Lead Mining in 1829

By 1829 most of the important lead deposits in the area had been discovered. When an ore body was found, pits were dug, and, as the digging progressed, a shallow shaft would be developed. Much of the mining in those early days was from open pits, rarely as much as 30 feet deep. It was accomplished with relatively simple methods using spades, picks, shovels, and a common windlass and tub to remove the earth, stones and water from the pits.

The Government required that all ore be sold to licensed smelters.

The lead ore was smelted in log furnaces, and the ash was further treated in ash furnaces. The lead was then shipped by flatboat to the Mississippi River, and from there by small steamboats to such markets as St. Louis and New Orleans. The principal use for lead at that time was in the manufacture of bullets.

93. Production of Lead Prior to 1830

The production of lead from the Upper Mississippi Valley Lead District prior to the evaluation date was as follows:

<u>Year</u>	<u>Tons of Lead</u>
1823	167.56
1824	87.61
1825	332.26
1826	479.42
1827	2,591.09
1828	5,552.90
1829	6,671.97

(Behre-Parks Appraisal, Plaintiffs' Exhibit B-29, p. 25.)

Of these amounts between 65 and 70 percent was produced from Area 147.

94. The Price of Lead Prior to 1830

In 1823 the price of lead FOB New York was 5.36 cents per pound. In 1824 the United States doubled the tariff on importation of lead in pig bars and lead shot. In 1825 the New York price rose to 7.59 cents per pound. Production in the Upper Mississippi Valley Lead District mounted rapidly to 2,591 tons in 1827, and by 1829 it was up to 6,672 tons. The comparatively limited uses for lead within the United States could not absorb this increasing production, and the domestic lead market became glutted. The price of lead in 1829 dropped to its lowest point at 3.75 cents per pound in New York, and the price remained at that

figure during 1830. Production of lead from the Upper Mississippi Valley Lead District dropped substantially in 1830, and it was not until 1833 that production surpassed the 1829 level.

The New York prices for lead for the years 1823 through 1829 were reported by the United States Geological Survey as follows:

<u>Year</u>	<u>Price Per Pound</u>
1823	5.360¢
1824	6.390
1825	7.590
1826	6.750
1827	6.140
1828	5.390
1829	3.750

(Behre-Parks Appraisal, Plaintiff's Ex. B-29, p. 28A)

95. Owen's Geological Study

The earliest thorough survey of the Upper Mississippi Valley Lead District was conducted in 1839 by Dr. David Dale Owen. He was very optimistic in his report as to the prospects for lead mining in the area. His maps and findings provided much detailed information concerning the early location of ore deposits and diggings within the subject area and his report has been relied on by the expert witnesses in this case.

96. The Behre-Parks Valuation

The principal mineral appraisal for the plaintiffs in Dockets 217 and 15-K was prepared by Charles H. Behre, Jr., and Roland D. Parks, recognized authorities in mining engineering and mineral property valuation. Concluding that in 1829 a conservative estimate of active production in the District would have been 20 years, the Behre-Parks

appraisal was based on a projection of lead production for a twenty-year period commencing in 1830.

Based on the known production figures in the Upper Mississippi Valley District for the years from 1823 through 1829, Messrs. Behre and Parks graphically estimated the twenty-year production which a prospective purchaser would have envisioned for the District on the December 30, 1829, valuation date. That projected figure of 326,150 tons of lead was slightly in excess of the actual production of 305,122.89 tons during the 1830 through 1849 period.

To compute net return they used the average New York price for the seven years before the valuation date. That was 4.916 cents per pound. During that same seven year period freight costs fluctuated from \$11.60 to \$71.80 per ton. Messrs. Behre and Parks used a figure of \$25.00 per ton, or 1.25 cents per pound, as the transportation cost from the smelter to New York. The production costs for labor, smelting, transportation from mine to smelter, and miscellaneous other items, were estimated at \$29.24 per ton or 1.46 cents per pound. The resulting profit was thus \$44.08 per ton or 2.2 cents per pound.

Applying these price and cost figures to the projected production, Messrs. Behre and Parks computed a net profit for each of the 20 years from 1830 through 1849. In considering a proper discount to relate these future earnings to a December 30, 1829, value they took into account the risks of the investment and the necessity of recovering the capital investment by the time the deposit would be exhausted. Messrs. Behre

and Parks considered that future income from mineral property such as that in the Upper Mississippi Valley District might be converted to its present value either by a compound interest discount, or by a two-rate premise, such as Hoskold's, which specifically returns the original investment through a sinking fund accumulation, besides the usual direct interest on the investment. Since Messrs. Behre and Parks had not computed their 20-year projection on a basis of uniform yearly earning, it was necessary to select a compound interest rate for their calculations. A Hoskold rate of 10 per cent on investment and 4 percent on sinking fund is approximately equal to a compound interest rate of 12 percent. Finding this rate an appropriate one to utilize in their computations in this case, they calculated an estimated present worth of \$3,890,446.00 for the lead in the entire Upper Mississippi Valley District. Since they estimated that the mineral lands within Area 147 yielded about 70 percent of the entire production for the Upper Mississippi Valley District, the resulting fair market value of the Area 147 mineral resources was \$2,623,312.00.

97. The Barlowe Valuations

Dr. Raleigh Barlowe, Chairman of the Department of Resource Development at Michigan State University, was also an expert witness for the plaintiffs in Dockets 15-K and 217. He relied on three different methods of valuation to determine the enhancement in total value attributable to the lead deposits.

A. Projection Approach

Dr. Barlowe first considered the projection approach of the Behre-Parks appraisal. He adopted their projections and appraisal as outlined in our finding 96 and considered the resulting \$2,623,312.00 to be a fair appraisal of the lead ore value by the projected income method.

B. Sinking Fund Approach

Dr. Barlowe also used a sinking fund valuation approach, similar in most respects to the projection approach. This method involved an application of the income capitalization technique, which required estimated figures on (1) the expected annual productivity of the mining area, (2) the value of this expected product, (3) the costs associated with the production of the mineral product, and (4) the expected working life of the mining area.

In his computations Dr. Barlowe used a figure of 16,385,000 pounds (8,193 tons) as the average annual production from Area 147 during the 1825 to 1849 period. ^{1/} To determine the value of this production, he used the average 1823 to 1829 New York price of lead of 5.9 cents per pound ^{2/} and then deducted the estimated shipping cost of 1.25 cents per pound adopted by Behre and Parks. This yielded an average price of 4.66

^{1/} Dr. Barlowe considered that 62.8 percent of the entire production of the Upper Mississippi Valley District came from Area 147.

^{2/} The figure of 5.9 cents represents the arithmetic mean average of the yearly prices at New York for the period from 1823 to 1829. Messrs. Behre and Parks computed an average New York price for the same period at 3.75 cents per pound. Their average, however, was a weighted average which gave effect to those years when there was higher production and a resulting lower price.

cents per pound for lead at Galena. He then assumed that the various production costs would account for two-thirds of this price (3.11 cents per pound), and the remaining one-third (1.55 cents per pound) would be the profit, which he calculated to be \$254,513.00 per annum. Dr. Barlowe cited Herbert Hoover as authority for the proposition that a mining investment should assume a capitalization rate of 7%, and a 4% reinvestment or sinking fund interest rate. The factor for this combination, assuming a 25-year working life, is 10.64. Application of the Hoskold formula with these factors resulted in a valuation figure of \$2,708,019.00.

Dr. Barlowe also presented calculations assuming other net profit estimates and other Hoskold capitalization rates (namely 8% and 10%). The resulting values ranged from \$2,802,395.00 (for a higher net profit and at the Hoskold 7% - 4% rates) to a low of \$2,051,375.00 (for the actual 1825-49 production at the Hoskold rates of 10% and 4%).

C. Royalty Value Approach

Dr. Barlowe also valued the lead deposits by computing the royalties that could have been secured by leasing the lead lands to private operators. In the 1830's miners working private land paid the landowners up to one-third of the value of all lead removed. Dr. Barlowe calculated that the total value of lead produced from Area 147 between 1830 and 1849 was \$13,319,025, and that for the 25-year period from 1830 to 1854 it was \$17,603,841. Applying royalty rates of from 20% to 33 1/3% to these values, Dr. Barlowe calculated lead values ranging from \$2,663,805.00 to \$5,867,947.00.

D. Indirect Value Enhancement of Lead

Dr. Barlowe considered that the development and working of the mines in Area 147 and the development and use of transportation facilities in both Areas 147 and 148 prior to the cession date gave the lands values for commercial agricultural and other related commercial non-mining uses which exceeded their value for subsistence agriculture. These added values resulted from the presence of a ready made agricultural produce market and the development of river and overland transportation facilities.

E. Dr. Barlowe's Valuation Conclusions

Dr. Barlowe concluded that the value of that part of Area 147 which was ceded to the United States in 1829 was enhanced because of the lead in an amount between \$2,418,126.50 and \$2,763,572.00. He further concluded that there was an enhancement in value beyond the 70 cents per acre value for subsistence agriculture. This additional value, attributable to commercial agricultural and other non-mineral development values, he estimated at between \$1,796,321.80 and \$2,072,679.00.

Dr. Barlowe also concluded that the commercial agricultural and other non-mineral development factors enhanced the value of that part of Area 148 ceded to the United States in 1829 above the 70 cents per acre subsistence agriculture value in an amount between \$1,073,581.50 and \$1,288,297.80.

98. The Palmer-Gronbeck Valuation

The plaintiffs in Docket 29-J have relied primarily on an evaluation of the subject lands by Harris A. Palmer and Marius P. Gronbeck, Associate Professors of Geology and Mining Engineering, respectively, at Wisconsin State University. They based their appraisal on a projection of the profits which would have been anticipated by a hypothetical buyer of the minerals in Area 147. In their calculations Messrs. Palmer and Gronbeck used the average price of lead at St. Louis, which was \$73.60 per ton. From this they deducted transportation costs of \$7.00 per ton and estimated production costs of \$26.08 per ton. This resulted in an estimated net profit of \$40.52 per ton, or 2.02 cents per pound. Messrs. Palmer and Gronbeck projected a 30 year working life for the mining operation. Commencing with the known 1828 production of 3,876 tons, they projected a 5 percent production increase for each of the next 30 years, through 1858. While they considered that a 10 percent annual growth rate would have been reasonable, they concluded that it was necessary to introduce a "hazard factor" to reflect those unfavorable factors depending on "whims of nature, unpredictable economic conditions and the like." They therefore discounted the growth rate by 50 percent to allow for the hazards of the mining operations.

Having established the required factors, Messrs. Palmer and Gronbeck computed the estimated annual profits for each of the 30 years from 1829 through 1858. The 1829 value of those anticipated profits was computed by applying a 12 percent discount rate. This rate is approximately equal to the Hoskold two rate equation using 11 percent on invested capital and

5 percent on the sinking fund accumulations. The resulting value of \$2,016,878.00 represented Messrs. Palmer and Gronbeck's opinion of the 1829 value for the lead content of Area 147.

Messrs. Palmer and Gronbeck further concluded that in addition to the mineral value, the land in Area 147 had a value of \$3,050,292.00. These two items together yielded a total value for Area 147 of \$5,067,170.00.

As to Area 148, the plaintiffs in Docket 29-J accepted the valuation of Professor Raleigh Barlowe, the expert witness who prepared the valuation report for plaintiffs in Dockets 217 and 15-K. He estimated that the value of Area 148 was enhanced above the subsistence agricultural level by non-mineral development values in an amount between \$1,073,581.50 and \$1,288,297.80.

99. The Wright Valuation

Professor Fred D. Wright, a consulting mining engineer, and professor of mining engineering and geology at the University of Kentucky, appraised the minerals in Area 147 for the defendant. He presented his appraisal in a written report and in oral testimony at the hearing on March 4, 1970. He concluded that the December 30, 1829, fair market value of the lead ore deposits in Area 147 was \$649,861.00.

Professor Wright based his appraisal on a December 30, 1829, projection of the estimated profits to be realized from a 20 year mining operation in Area 147. Using the production figures prior to 1829, he concluded that a prospective purchaser would have estimated the average annual production for the next 20 years at 12,000,000 pounds.

In considering the proper figure to use for the price of lead, he noted that before 1824 lead was selling for 4 cents per pound in Missouri. The United States then doubled the tariff, and the price rose to 6.25 cents per pound in 1826. However, by the end of 1829 increased production had forced the price to as low as one cent per pound at Galena. Professor Wright estimated that in 1829 a prospective purchaser would have assumed an average future price of 3 cents per pound for lead at Galena. From this he deducted production costs which totaled 1.032 cents per pound leaving a net profit of 1.968 cents per pound.

However, Professor Wright concluded that these figures would only apply to approximately 30 per cent of the production which would come from areas where lead deposits had already been discovered on December 30, 1829. The remaining production would have come from deposits to be discovered. For those "future discoveries" he applied an additional cost-of-discovery expense which reduced the net profit from those areas to 0.551 cents per pound. Applying the 1.968 cents profit to 30 per cent of the estimated annual production and 0.551 cents profit to the remaining 70 percent of the production he computed an average net annual income of \$117,130.00 for Area 147. This future income figure for 20 years was capitalized by the Hoskold formula using a 15 per cent return on investment with a redemption of capital rate of 5 per cent. This resulted in a figure of \$649,861.00 as the December 30, 1829, value of the lead deposits in Area 147.

100. The Kuehnle Valuation

Walter R. Kuehnle, a real estate appraiser and consultant, prepared a supplemental appraisal report for the defendant. Mr. Kuehnle adopted Professor Wright's mineral evaluation of \$649,861.00 for Area 147. He concluded that the Commission's previous determination of value gave full cognizance to the effect of mining activity and excluded only the enhancement to value due to the actual lead deposits in the ground. He therefore added the 70 cents per acre figure which was found by the Commission to have been the December 29, 1829, fair market value of both Areas 147 and 148.

101. Prospects For Lead Mining as of the Valuation Date

The Commission finds that a prospective purchaser of Area 147 would have viewed the prospects for future lead mining with cautious optimism. He would have been optimistic because on December 30, 1829, the future was bright for continuing and increasing lead production from the tract. Area 147 was known to possess many lead deposits. It represented a substantial part of the Upper Mississippi Valley Lead District, which by the end of 1829 had produced close to 16,000 tons of lead. A prospective purchaser would have anticipated a continuing profitable operation.

A purchaser on December 30, 1829, would also have been cautious in his expectations. Such a mining operation was known to have risks and unforeseen hazards. The price of lead was continually fluctuating, and at the end of 1829 it was at a low point. Transportation costs were likewise subject to wide variations. Labor and other production costs were

not stable. And the nature of the ore deposits could not be safely predicted. Some discoveries would develop into rich deposits while others would be less promising.

102. Conclusion on Mineral Value

After considering the evidence and the opinions and data presented by the many experts in this case, the Commission concludes that a prospective purchaser on December 30, 1829, would have envisioned a 20-year working life for lead production in Area 147. He would have anticipated an overall yearly net profit of between \$300,000.00 and \$400,000.00. This would represent an estimated annual production of 10,000 tons per year at a net profit of between \$30.00 per ton (1.5 cents per pound) and \$40.00 per ton (2.0 cents per pound).

In applying the Hoskold formula to compute the present value of such anticipated profits, we believe that the appropriate interest rate on the investment including the hazards of the enterprise would be 12 to 15 percent, with a 4 percent rate on the redemption of capital funds. If the more conservative yearly net profit figure of \$300,000.00 were used, a prospective purchaser would be justified in using the lower Hoskold rate of 12 percent. Use of the more liberal profit estimate of \$400,000.00 would indicate a higher percentage rate of 15 percent to reflect the hazards of the undertaking. Applying these factors we compute indicated values of \$1,953,360.00^{3/} and \$2,178,880.00.^{4/}

^{3/} \$300,000.00/year for 20 years computed at 12% interest to purchaser,
^{4/} on redemption of Capital: 6.5112 x \$300,000.00 = \$1,953,360.00

^{4/} \$400,000.00/year for 20 years computed at 15% interest to purchaser,
^{4/} on redemption of capital: 5.4472 x \$400,000.00 = \$2,178,880.00

The Commission concludes that the December 30, 1829, fair market value of the mineral deposits in Area 147 was \$2,000,000.00.

103. Enhancement to Surface Value

Contrary to the previous determination in this case, the Commission now finds that the United States did not reserve all lead-bearing land within Area 147. The only valid selections of land which had mineral deposits were the 26 mining leases embracing 8,320 acres.^{5/} The remaining areas which were known to contain lead deposits have been valued for the enhancement which the minerals themselves gave to those areas. However, the presence of lead deposits added other factors to be considered in determining the fair market value of the lands to be valued in this case.

Those lands which were located in the immediate vicinity of lead mines had an additional value for special uses above those considered by the Commission in arriving at its fair market value determination in 1962. Those portions of Area 147 which were in the mineralized areas were especially valuable as locations for settlements for the miners. Such areas provided markets for agricultural products from the neighboring lands. The mining operations also required mine timbers and firewood for the smelters. The demands of the miners for other goods and services also enhanced the value of the mining areas and the surrounding lands. The development of mining towns and construction of roads increased the surface value of Area 147.

^{5/} See finding 108, infra.

While the Commission in its 1962 decision did consider most of the factors resulting from mining activity in Area 147, we find that the exclusion of all lead bearing land from the evaluation resulted in a failure to adequately account for the full impact of mining upon the fair market value of both Areas 147 and 148. We conclude that the many mineralized locations in Area 147 enhanced the surface value of that tract by an average of 10 cents per acre above the average value of 70 cents per acre previously found for the total area ceded in both Areas 147 and 148, 11 Ind. Cl. Comm. 641, 690 (1962).

The fair market value of Area 148 was also enhanced by the lead bearing lands in the adjoining Area 147, although to a lesser degree. The location of mining settlements in Area 147 and the attendant development of roads and markets increased the value of Area 148. We conclude that such enhancement was an average of 5 cents per acre above the average value of 70 cents per acre previously found for the ceded lands.

104. Field and Kuehnle Computations of Acreage of Lead-bearing Lands

Dr. Thomas P. Field, Professor of Geography at the University of Kentucky, prepared a report for defendant on the location of lead mines and the areal extent of lead deposits in Area 147. His study was based primarily on historical maps.

Dr. Field's studies, which were adopted by Mr. Kuehnle in his appraisal, established the proportion of reported mining activity attributable to Area 147. From this Mr. Kuehnle made calculations of the acres of lead deposits which would have been found in each lead bearing section and each lead bearing quarter section. In Area 147

it was determined that there were lead deposits in 510 separate sections (640 acres each). However, the actual number of "lead acres" in any one section would have been but a small percentage of the entire 640 acre section. The study revealed that as the size of the areal unit is decreased the expected proportion of "lead acres" increased. Mr. Kuehnle computed the proportion of lead acres for the lead-bearing sections and quarter sections as follows:

<u>Unit Area</u>	<u>Acres</u>	<u>Percent of</u>	<u>Lead Acres</u>
Section	640	5.94	38.02
Quarter section	160	12.79	20.46

105. The Wright Estimate of Lands Selected by Defendant

Professor Fred D. Wright, in addition to appraising the lead deposits in Area 147, calculated the acreage of the lands which had been selected by the United States and the values of those selections. He concluded that by December 30, 1829, some 46,000 acres had been selected by the United States pursuant to Article 2 of the Treaty of August 24, 1816, 7 Stat. 146. Those selections, in Professor Wright's opinion, were accomplished by the issuance of mining leases and permits; smelters' licenses; permits for cabins and gardens; and by a townsite reservation.

A. Mining leases

By December 30, 1829, there were 26 known mining leases in Area 147, for 320 acres each. These totaled 8,320 acres. To this Professor Wright added 320 acres for a "probable" 27th lease to reach his mining lease figure of 8,640 acres.

B. Mining permits

Mining permits were first issued in 1825 for 18.6 acre lots. The size was reduced in 1827 to 8.26 acres. For each permit lot there were two miners, and each lot was staked to protect the two miners from claim jumpers. In 1827 about 1100 miners occupied lots which Professor Wright calculated at over 10,000 acres. By the end of 1829, 1700 to 1800 additional miners in Area 147 occupied an additional 5,000 acres. Accordingly, Professor Wright concluded that there were 15,000 acres of lead lands which had been selected by permit miners.

C. Smelter licenses

In 1829 there were 29 known smelters operative in Area 147. In addition there were twelve smelters in the Upper Mississippi Valley District whose location could not be determined. Of these, Professor Wright assumed that seven were within Area 147. He also asserted that 3 other smelters operated in the area prior to June 1828. This produced a total of 39 smelters, which he multiplied by 480 acres ^{6/} to reach an acreage figure of 18,720, which he concluded was the total number of acres selected for smelters.

D. Cabins and Gardens

Permits for two and sometimes three acre lots were issued to miners for cabins and gardens. Professor Wright estimated that as of December 30, 1829, approximately 3000 acres in Area 147 were selected by permits for miners' cabins and gardens.

^{6/} This is an estimated figure which represents the mid point between the minimum of 320 acres and the probable maximum of 640 acres allowed for smelters.

E. Galena Townsite

The 640 acre townsite of Galena was one of the tracts selected by the United States as part of the 144,000 acres reserved by the 1816 Treaty, supra.

F. Summary

Professor Wright's tabulation of tracts selected by the United States was:

Mining leases	8,640 acres	
Mining permits	<u>15,000 acres</u>	
Total lead lands		23,640 acres
Smelter licenses	18,720 acres	
Cabins & gardens	3,000 acres	
Galena townsite	<u>640 acres</u>	
Total		<u>22,360 acres</u>
Total selected tracts		46,000 acres

106. Wright Allocation of Mineral Value

Professor Wright concluded from his studies that in 1829 and for some years thereafter practically all of the lead produced in Area 147 came from the lead bearing lands covered by the mining leases and permits, which totaled 23,640 acres. He estimated that 70 percent of the future production would come from the 23,640 acres which the United States had selected by the issuance of the mining leases and permits. The remaining 30 percent would therefore come from lead bearing lands in Area 147 which were unselected on December 30, 1829. He then apportioned

the capitalized future income between that produced from "selected lands" and that produced from the remaining lands. In these calculations Professor Wright further assumed that of the 70 percent production from the "selected lands," 30 percent would come from already discovered deposits, from which the profit per pound would be 1.968 cents (Finding 99, supra). The remaining 40 percent would be produced from undiscovered deposits, for which there would be a 0.551 cents per pound profit (see Finding 99, supra). And Professor Wright considered that all of the production from the "remaining lands" (30 percent of the total production) would have come from undiscovered deposits and thus have produced a net profit of only 0.551 cents per pound.

These assumptions and calculations produced the following breakdown of Professor Wright's mineral valuation:

	<u>Number of Acres</u>	<u>Present Value</u>
Area 147	1,525,786	\$649,861.00
Mining leases & permits	23,640	539,809.00
	<hr/>	<hr/>
Remaining land	1,502,146	\$110,052.00

107. Kuehnle's Value Conclusions and Apportionment of Award

Defendant's appraiser, Mr. Walter R. Kuehnle, adopted Professor Wright's mineral appraisal. He then applied the Commission's previous determination of the fair market value of surface areas of Areas 147 and 148 to arrive at a valuation figure for this case. The components of the overall valuation were computed as follows:

A. Acreages

Total Area 147	1,525,786 acres
Acreage selected by U. S.	<u>46,000 "</u>
Remainder	1,479,786 acres
Total Area 147	1,525,786 acres
Acreagereserved by the U.S. in the Treaty of Aug. 24, 1816	<u>144,000</u>
Acreage ceded by Indians	1,381,786 acres

B. Mineral values

Area 147 (entire)	\$649,861.00
Less: 46,000 acres selected by the United States by Dec. 30, 1829	<u>539,809.00</u>
Lands not selected by U.S. by December 30, 1829	\$110,052.00

C. Fair market value - Area 147 as a whole (1,525,786 acres)

Surface value (as previously determined by Commission at \$0.70 per acre, 11 Ind. Cl. Comm. 641, 690)	\$1,068,050.00
Mineral value	<u>649,861.00</u>
Total	\$1,717,911.00

D. Fair Market Value of the 46,000 acres selected by the United States

Surface value at \$0.70 per acre	\$ 32,200.00
Mineral value	<u>539,809.00</u>
Total	\$ 572,009.00

E. Fair Market Value of Remainder

Fair market value of Area 147 as a whole (B above)	\$1,717,911.00
Less: Fair market value of 46,000 acres selected by U. S. (D above)	<u>572,009.00</u>
Total	\$1,145,902.00

Mr. Kuehnle then proceeded to calculate the amount which defendant contends should be awarded the plaintiffs. The Court of Claims has prescribed the following method for this calculation:

A. Fair Market value of Area 147

B. Subtract the fair market value of the acreage within

Area 147 which had actually been selected by the United States.

C. Allocate this remainder to the plaintiffs in the ratio which the acreage ceded to the United States bears to the total acreage of Area 147 less the acreage actually selected by the United States.

The calculations by this formula are as follows:

A.	\$1,717,911.00
B. Less:	<u>572,009.00</u>
	\$1,145,902.00

C. Ratio of 1,381,786 (acres) to 1,479,786 (acres) equals
.93377 to 1.

$$\$1,145,902.00 \times .93377 = \$1,070,000.00$$

108. Lands Selected by the Defendant and their ValueA. Townsite of Galena

The Galena townsite of 640 acres was selected by the United States ^{7/} as part of the 144,000 acres of lands reserved by the 1816 Treaty. There is no evidence that this land was lead bearing, and there is no evidence in the record that its value was greater than the value of other non-lead lands in Area 147.

We find that this 640 acre tract was worth 80 cents per acre, or \$512.00.

B. Mining Leases

The United States issued mining leases to individuals which gave the holder the right to mine and smelt his own lead ore for a three year period on 320 acres of land. In return, the lessee was required to give a \$5,000.00 bond, pay the government one-tenth of any lead smelted, and abide by certain regulations.

Thirty-nine mining leases were issued in the Upper Mississippi Valley Lead District through 1829. Eleven of these leases were located outside Area 147, and the locations of two leases are unknown.

We find that 26 mining leases were issued in Area 147 for 320 acres each, or a total of 8,320 acres. By the granting of these mining leases the United States selected 8,320 acres.

^{7/} Act of February 5, 1829, 4 Stat. 334.

There is no evidence upon which to base any valuation of the particular lands covered by the 26 mining leases. However, the Commission can determine the average value of the "lead land" acres within the tract and apply the average value to the presumed "lead land" within each 320 acre lease.

We have previously found that in 1829 the total area of lead deposits, mines, and "diggings" within Area 147 was about 18,000 acres (Finding 88, supra). Since we have determined that the 1829 fair market value of the lead deposits in Area 147 was \$2,000,000.00, we can consider that the average "lead land" acre had a mineral value of \$111.11.

Using the results of the analysis and computations by Dr. Field and Mr. Kuehnle with respect to the normal expectancy of lead in a given area, we can calculate the acreage of lead deposits which would have been present in the average 320 acre tract covered by each mining lease. Mr. Kuehnle calculated that each section (640 acres) of land known to contain lead would have had 38.02 acres of actual lead land. He also calculated that for each quarter section (160 acres) there would have been 20.46 acres of lead land. From these computations we estimate, by interpolation, that for each 320 acre mining lease an average of 26.31 acres were actually lead lands. Applying the \$111.11 average value per acre for lead land, we arrive at a figure of \$2923.30 as the fair market value of lead deposits within each 320 acre mining lease. To

this figure we add the \$0.80 per acre valuation for the surface value of the 320 acre leases or a total of \$256.00. This results in a total fair market value of \$3,179.30 for each mining lease. Therefore the 26 mining leases were worth \$82,661.80.

C. Smelter Licenses

A smelter license was issued for a one year term upon the posting of a \$10,000.00 bond conditioned upon the faithful performance by the licensee of the conditions contained in the license. These conditions included payment to the U. S. Government of one-tenth of all lead smelted by the licensee. No specific acreage was allotted, but the license did provide that a smelter "is to have as much fuel as will suffice for the purpose of this indenture, and to cultivate as much land as will suffice to furnish his teams & c. with provender." (Def. Ex. 333 at 15.)

In 1825 Lt. Thomas, Superintendent of Lead Mines, suggested that the smelter license cover a total of 320 acres in such scattered locations as would be deemed proper. There is no evidence that this proposal was implemented, but it indicates that at that time 320 acres was considered sufficient to supply fuel and other necessary items for the smelter.

There were 29 smelters in Area 147 in 1829. Three of the licenses granted 640 acres of timberland for smelting and one granted 350 acres. We find no evidence that any of the other 25 smelter licenses was for more than 320 acres each. The defendant asserts that another 10 smelters

were known to be in the Upper Mississippi Valley Lead District, that they should be assumed to have been in Area 147, and that all smelters should be assumed to have occupied an average of 480 acres. We find no evidence, however, to support these suppositions.

We find that the defendant did select 10,270 acres by the issuance of 29 smelter licenses, as follows:

3 smelters at 640 acres	=	1,920 acres
1 smelter at 350 acres	=	350 acres
<u>25 smelters at 320 acres</u>	=	<u>8,000 acres</u>
29 smelters Total	=	10,270 acres

These smelters were located near timber for fuel and near water for transportation. There is no evidence that they were on lead-bearing lands. We find that these lands had a value of 80 cents per acre, or a total value of \$8,216.00 for the entire 10,270 acres.

D. Miners' Permits and Permits for Cabins and Gardens

A system of permits was inaugurated in 1825 allowing two miners to stake a claim on 18.6 acres of land. All ore mined was required to be sold to a licensed smelter, and a miner could not build a cabin or cultivate land without a permit.

On August 1, 1827, new regulations went into effect providing that two miners could stake a claim on 8.26 acres of land. Special permission was still required to build a cabin or cultivate a garden. No bond was required of the miner, and there was no time limit to his right to mine on his lot. Furthermore, the miners were at liberty to pull stakes and occupy another lot at any time they desired.

These permits were issued to individual miners, and they did not describe any land. The permit holder might use the permit in any number of locations successively. There is no evidence that the Government ever attempted to keep any record of the lands selected by these miners. These permits were merely personal, non-transferable licenses to prospect for ore.

We find that the issuance of miners' permits or permits for cabins and gardens did not constitute an actual selection of land as part of the 144,000 acres reserved by the 1816 Treaty, supra.

E. Summary of Lands Selected and their Value

	<u>Acres</u>	<u>Value</u>
1. Townsite of Galena	640	\$ 512.00
2. 26 Mining Leases	8,320	82,661.80
3. 29 Smelters	<u>10,270</u>	<u>8,216.00</u>
Total	19,230	\$91,389.80

109. Summary of valuation of Area 147

The Commission finds that the December 30, 1829, fair market value of Area 147 was:

Surface value 1,525,786 acres at \$0.80 per acre	\$1,220,628.80
Mineral value	<u>2,000,000.00</u>
Total	\$3,220,628.80

The fair market value of the 19,230 acres actually selected by the United States pursuant to the provisions of the 1816 Treaty, supra, was \$91,389.80. When this value is subtracted from the fair market value of the entire tract the resulting value is \$3,129,239.00.

The sum of \$3,129,239.00 is allocated to the plaintiffs in the ratio which the acreage ceded to the United States (1,381,786 acres) bears to the total acreage of Area 147 (1,525,786 acres) less the acreage actually selected by the United States (19,230 acres). This ratio is calculated as follows:

$$1,381,786 : 1,506,556 \frac{8/}{::} .9172 : 1$$

Therefore the plaintiffs' share of the Area 147 valuation is \$2,870,138.01 (.9172 x \$3,129,239.00).

110. Fair Market Value of Area 148

The December 30, 1829, fair market value of the 2,147,163 acres ^{9/} in Area 148 was \$1,610,372.25.

111. Summary of Award

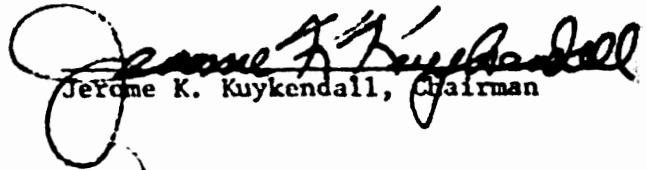
Area 147	\$2,870,138.01
Area 148	<u>1,610,372.25</u>
Total	\$ 4,480,510.26
Less offsets	<u>375,691.28</u>
Net Award	\$ 4,104,818.98

In accordance with the Commission's decision in Citizen Band of Potawatomi Indians v. United States, Dockets 71, et al., 27 Ind. Cl.

8/ 1,525,786 acres minus 19,230 acres = 1,506,556 acres.

9/ This figure represents the entire area of Area 148 (2,162,523 acres) less the 15,360 acres reserved under Articles 3 and 4 of the Treaty of 1829.

Comm. 187 (1972), the award in this case shall be to the plaintiffs herein in a representative capacity for and on behalf of the Potawatomi Tribe or Nation, as it existed between 1795 and 1833.


Jerome K. Kuykendall, Chairman

John T. Vance, Commissioner


Richard W. Yarborough, Commissioner


Margaret H. Pierce, Commissioner


Brantley Blue, Commissioner