MACARTHUR MINING COMPANY, INC.
BOX 356
BAXTER SPRINGS, KANSAS

April 13, 1951

Mr. Perry Hurlbut
918 1st Nw.
Miami, Oklahoma

Dear Mr. Hurlbut:

Referring to our conversation regarding Drill Holes 1 to 18 drilled by John Green, I find that Mr. Green lives in Commerce, Oklahoma on the East-West New State Road about 1 mile East of the North-South Main Highway.

Mr. Green remembers drilling these holes as well as the ones drilled by the Commerce Company.

I thought perhaps you would like to talk to him and am, therefore, giving you his address.

Warren Garrett also remembers the drilling of these holes.

With best Regards,

J. W. Hoffman

APR 6

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

1951 10.1

[illegible] 3, 1951

[illegible]
[illegible]
[illegible]

DMA 408
GARRETT LEASE APPLICATION

[illegible] 30 [illegible] ADDITIONAL [illegible] [illegible]
[illegible] DMA 408 [illegible]
[illegible]

Tom Lyon

[illegible]
[illegible]

Audits
Mr. Mayo
Files
✓ 2 copies to Field Team Region VI Mr. David Gallagher
U. S. Geological Survey, Joplin, Missouri
McKnight
Mets
Herres
Dir. Supply Div.
Mr. Hoen
Mr. Stsobel

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

[illegible] 1952 10.1

[illegible] 3, 1952

[illegible]
[illegible], INC.
[illegible], KANSAS

DMA 408
GARRETT LEASE APPLICATION

[illegible] COPY OF [illegible] HAVE BEEN [illegible] ADDITIONAL INFORMATION [illegible]
[illegible] OF THE [illegible] DMA 408 [illegible] SUBMIT [illegible]
TO FIELD TEAM [illegible]. [illegible] TO [illegible] THIS [illegible].

Tom Lyon

TOM LYON
DIR. GEN., [illegible]

Audits
Mr. Mayo
Files
2 copies to Field Team Region VI Mr. David Gallagher
U. S. Geological Survey, Joplin, Missouri
McKnight
Nets
Herrse
Dir. Supply Div.
Mr. Foem
Mr. Stuebel

M[illegible] 29 1951

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

[illegible] 1, 195[illegible]

[illegible]

To: [illegible]

From: [illegible]

Subject: [illegible] of [illegible]

[illegible] Box 356
[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Approved
[illegible]

Copies to: Chief, [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

[illegible] 1, 1951

[illegible]

To: Executive Secretary, [illegible]
[illegible] Midnight [illegible]
[illegible] Treasurer, [illegible]

From: [illegible] Lead-Zinc Branch, [illegible] [illegible]

Subject: Prospection of [illegible] [illegible] Quality Ore, Inc.
P. O. Box 350
Center Springs, Kansas

The subject claims have been reviewed by the Office of Metals Administration's [illegible] and, [illegible] the [illegible] the [illegible] claims with the recommendation prescribed in [illegible] of the [illegible] report, that the application be denied.

It is further recommended that the enclosed letter be sent to the applicant informing him of this action.

[illegible], Chief
Lead-Zinc Branch

Concurred:
[illegible] 1/1/51

Approved:
[illegible] Coordinating Committee

[illegible]
[illegible]

Copies to: Chief, Lead-Zinc Br.
[illegible] Midnight
L. D. Moon
H. H. Hove
2 copies to Exec. Officer
Regional Field Team Region VI
Strobel
Lichtenberg
Files

[illegible] L. D. Moon

[illegible] H. Hove

Db

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS ADMINISTRATION

WASHINGTON 25, D. C.

[illegible]

[illegible]

[illegible]

/s [signature]

[illegible]

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

1. [illegible]

2. [illegible]

[illegible]

[illegible]

[illegible]

/s/ [signature]

[illegible]

[illegible]

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

March 8, 1951

DMA 11, 116 and 408

Mr. J. W. Hoffman, President
MacArthur Mining Company, Inc.
Box 356
Baxter Springs, Kansas

Dear Mr. Hoffman:

I have your letter of March 1 and also a letter of the same date addressed to Mr. Williston which has been referred to me for reply. Mr. Williston has left Washington and returned to his home in California.

I believe that we went over the matters mentioned in your letters thoroughly during your visits to my office yesterday and the day before. The Garrett lease application, DMA 408, as you know, has been referred to the field for further information. The Faxson Mines application, DMA 11, also is receiving field consideration and it is our understanding that either you or your engineers were to confer with the Government engineers concerning the project upon your return home.

It is our understanding from your conference with the Lead-Zinc Branch this week that you now desire 3 year procurement contracts for the zinc production of Faxson Mines and MacArthur Mining Company at mill settlements for concentrates based on the present market price of 17½ cents.

As we informed you, your applications will receive prompt consideration as soon as the field reports are received provided the information will support the action we discussed.

With kindest regards.

Yours very truly,

OTTO HERRES

O HERRES:ks

OTTO HERRES Chief
Lead-Zinc Branch

Ac: Administrator
Deputy Administrator
Mr. Strobel
Mr. Mote
Mr. McKnight
Mr. Herres
2 copies to Executive Officer Field Team Region VI
Mr. David Gallagher, P.O.Box 431, Joplin, Mo.
Files

Joplin, Mo.

March 9, 1951

Mr. David Gallagher,
c/o Mr. Olaf N. Rove,
U. S. Geological Survey,
Room 4212,
G. S. Building,
Washington 25, D. C.

Dear Mr. Gallagher:

We are enclosing herewith four copies of field team report on Docket DMA-408, Garrett Mining Company, together with all copies of the application. One copy of the report is being sent to Mr. McElvenny at Rolla for his files.

Sincerely yours,

William H. Munds

cc: Mr. L. T. McElvenny

FIELD TEAM REPORT ON GARRETT MINING COMPANY APPLICATION

DOCKET DMA-408

By

DEFENSE MINERALS ADMINISTRATION

Report and Recommendation to Commodity Committee
on Application for Government Assistance
(Field Team)
James J. Naughton (U.S.B.M.) and Perry K. Hurlbut (U.S.G.S)

Commodity: Zinc and Lead.

A. Name and address of Applicant: (JJN)
Garrett Mining Company,
P. O. Box 356,
Baxter Springs, Kansas.

B. Location of deposit: (JJN)

Property is five miles west of Baxter Springs, Kansas, and one mile north of Four Corners, which is the junction of U. S. Highways 69 and 166. The property is leased and of legal description as follows:

N½ NE¼, Sec. 36, T.34S, R23E
N½ NW¼, Sec. 36, T.34S, R23E
N½ SE¼, Sec. 26, T.34S, R23E
S½ NW¼, Sec. 35, T.34S, R23E
S½ NE¼, Sec. 35, T.34S, R23E
NE¼ NE¼, Sec. 35, T.34S, R23E
N½ NW¼ NE¼, Sec. 35, T.34S, R23E
S½ SE¼, Sec. 26, T.34S, R23E

consisting of about 340 acres, all in Cherokee County, Kansas.

C. Conclusions: (JJN & PKH)

1. The proposal is not applicable to commodity program; first, it is doubtful that project can be rehabilitated to stage of production (ref. Dewatering); second, existence of commodities in workable quantity has not been proven by underground operations, i.e. there is no exposure of indicated ore in underground workings.

2. As the ground water has not been lowered by the previous attempt at pumping beyond the level of 383 feet, or 48 feet above the floor or mining level, the technical feasibility is questionable. The problem falls into one of two categories: (1) can the indicated ore body be mined

at a reasonable cost with a static water table of nearly 50 feet over mining area, and (2) if the water table can be lowered to mining floor level, will the initial cost for this pumping be so excessive as to preclude possibility of profitable mining?

3. Availability of requirements. Due to recent expansion of mining operations (nationally), mining machinery is daily becoming more scarce. Likewise, local supplies show the same trend. For example, 12-inch pipe that is necessary for proposed pumping program was quoted at $4.00 per foot with the remark, "We do not have it, and we do not know when it will become available". (Keystone Drilling Co., Joplin, Mo.). In any event, we can be assured that there will be a substantial increase in costs over proposed costs. There has already been a substantial increase in the cost of equipment in the Tri-State District in the last few months.

4. Financing. The field team estimates indicate that size of loan applied for is inadequate for proposed project. This is based entirely on the assumption that successful mining can be carried on with static head of ground water table above mining floor. If mining cannot be carried on under above condition, then initial increased pumping costs will be required to lower water table. (See Exhibits "B" and "D".)

5. Competence of Applicant (See J.) It is implied by applicant that he is fully competent to carry out proposal, due to his extensive experience in the Tri-State District. We are of the opinion that he should be required to furnish details in this regard.

D. Recommendations: (JJN & PEH)

It is recommended that the proposed loan not be granted. This recommendation is based upon the data contained in this report, namely:

1. There is insufficient indicated ore reserve to vindicate the proposed loan.

2. The size of loan is inadequate for proposed project.

3. We have no precedent and applicant has not furnished an example to indicate that successful mining can be accomplished under the working conditions indicated.

4. A former loan by R.F.C. for similar project on this property was a loss to the Government.

5. Some of the ore reserve calculated by the applicant is based on drill hole logs that have been rejected by us as of doubtful validity. (Ref. G-1.)

E. Description of Applicant's proposal (From preliminary and revised applications.) (SSM)

The applicant proposes to dewater shaft and lower water table of mining area. To do this he would use three 2,000 G.P.M. pumps in shaft, and two 1,000 G.P.M. pumps over mining area pumping through two 12-inch drill holes. During this dewatering period a second shaft would be sunk to mining floor. After dewatering, this shaft would be connected by drift underground to present shaft. The surface plant would be rehabilitated and underground equipment procured to start mining ore when dewatering was sufficient. The applicant estimated the time to accomplish above project as five months at a cost of $300,000. The proposal requests government assistance in the amount of $300,000 as loan.

F. Expansion of production of commodity. (JJM)

The proposal does not fit into the commodity program, but rather is detrimental to said program in using labor that could be utilized in productive work in the Tri-State mining district.

G. Technical Feasibility.

1. Reserves and Geologic opinion. (PEM) An ore body exists on the Garrett lease. On the basis of information derived from drilling records, accepted as authentic, there are 144,000 short tons of indicated ore present with a grade of 2.3 percent metallic zinc. This ore body is located stratigraphically in the lower portion of the Keokuk formation and the upper portion of the underlying Reeds Spring formation, and therefore is locally referred to as a "shoot ground" ore body. These formations are Mississippian in age. Where mineralized, they are composed of jasperoid, chert, dolomite, and the ore minerals sphalerite and galena. Where they are not mineralized, they consist of chert and limestone.

The first recorded drilling on the Garrett lease was done by John H. Crown and associates, who drilled 28 holes as follows:

Hole Number	Ore thickness in feet	Percent Zn metal	Percent Pb metal
1	40	0.00	4.70
2	25	0.79	0.93
2	10	0.28	0.26
3		no assay	no assay
4		"	"
5	35	"	4.95
6	25	0.00	3.59
7	32	0.54	3.51
8		no assay	no assay
9	10	"	3.05
10	27	"	4.69
11		"	no assay
12	35	0.00	2.59
13		no assay	no assay
14		"	"
15		"	"
16	3	6.70	"
16	3	no assay	9.05
17	12	6.35	0.93
18		no assay	no assay
19		"	"
20		"	"
21	22	"	4.38
22	4	"	2.10
23	19	"	2.84
24		"	no assay
25	9	"	2.48
26	24	0.44	1.73
27		no assay	no assay
28		"	"

Of the 28 Green holes, 13 apparently contained no ore, and no assays were made. Of the remaining 15 holes, 8 were assayed for lead but were apparently not assayed for zinc; 4 show lead in excess of zinc (generally greatly in excess); 2 show lead and zinc about equal; and in only one hole does the zinc exceed the lead in amount.

These logs and assays are therefore markedly different from general experience with "sheet ground" ore in two respects: (1) the reported lead content is extraordinarily high, and (2) the ratio between lead and zinc is predominately the reverse of the usual. Inspection of the map shows holes subsequently drilled by four separate organizations at locations close enough to some of the Green holes to afford some kind of check. The log of Childress #1 (GS-1) hole reports only a trace of lead, yet this hole is between two Green holes (#5 and #6) for which

high lead assays were reported. Hole 8-1, drilled by Lavrion Mining Company, disclosed six feet of 0.91 percent metallic lead and 0.20 percent metallic zinc, yet this hole is very close to Green #7 which reported 32 feet of 3.51 percent metallic lead and 0.54 percent metallic zinc. Hole 2GR, drilled by Commerce Mining and Royalty Company should afford some check of Green holes #5, #6, and #7, yet nothing was found that warranted assaying. Hole H87, drilled by the United States Bureau of Mines, should afford some check of Green hole #12, yet again nothing was found that warranted assaying.

Accordingly, the logs and assays of the Green holes are not believed to be acceptable and have not been included in the ore reserve calculations.

2. The proposed rate of production is 250 rock tons per day, equivalent to 75,000 tons per year of 300 working days. (JJW)

3. The mining method proposed is the common practice of breast-stope mining used in the Tri-State District. It is also proposed that this operation be mechanized. Under such operation the direct mining cost (underground and hoisting) will approach a figure of $1.35 per ton, and that sum was used in preparing field-team report as to estimated costs. Exhibit "B".

4 & 5. Custom milling is proposed by applicant, but his cost estimate is lower than that calculated by us. Exhibit "B".

6. Time Schedule. The revised application states: "Four months after starting of pumps the ground could be accessible, however, additional 30 days should be allowed for lowering of the area water table". We estimate 14 months to pump out. (Ref. Exhibit "C".)

The Lavrion Company pumped out the shaft to the mining floor level in five and one-half months. At this time the area water table level was 108 feet above the mining floor. Pumping at capacity (6,000 G.P.M.) for the following four months, the area ground water level was lowered 32 feet but at same time water rose over mining floor level four feet. A pump failure then occurred, and water rose in shaft 58 feet and was never lowered in shaft to mining floor level again during the Lavrion project program. A total of 3,584,268,000 gallons of water was pumped during the Lavrion project, which figure was arrived at by pumping log and checked against power bills.

In regard to the Lavrion pumping program, it should be borne in mind that the water level in the shaft was always below the area water table, therefore, at all times there was some drainage of area water to the shaft. During the last five months of pumping operations by Lavrion

Mining Company the area water table was only lowered three feet at a power cost of $20,963. Although it is not contemplated that lowering the area water table below 383-foot level will cost a sum suggested by above experience, it is presented to show what can happen when undertaking dewatering of an area.

It should also be borne in mind that mining cannot be carried on until second shaft is sunk to mining level and underground connection made, owing to district safety mining regulations.

From the data obtained (Exhibit "C"), and the proposed pumping capacity of the applicant, it will take 311 days at full capacity to pump the quantity of water removed by Lavrion Company. This quantity lowered the area water table to 381-foot level which was 48 feet above mining level.

It is estimated that to lower the area water table below the 383-foot level would take at least four months additional time pumping at capacity, but no precise estimate is possible because the exact size of area from which water will be drawn is not ascertainable.

From the foregoing data it can be seen that the time schedule will be greatly increased; hence field team estimates are calculated upon a 14-month period.

H. Availability of Project Requirements. (JJH)

1. The facilities installed or erected consist of four buildings, a derrick (headframe), installed compressor and hoist, and miscellaneous minor items of an estimated liquidation value of $8,753. Little, if any, reconditioning will be necessary for the above items.

There is also pumping equipment of a liquidation value of $7,500 which if used will cost in the neighborhood of $25,000 to recondition. It is implied by applicant's proposal that new pumps will be installed; this is included in our cost estimate. (Exhibit "B")

2. The new equipment as proposed in addition to above, consists of hoist, derrick, buildings, surface equipment, underground mining equipment, two additional pumping units, and miscellaneous minor items. The applicant's estimate of the above requirement approximates very closely the field team estimate in these items.

3. The access road is adequate and good for trucking or access means. However, railway transportation for product will be available only at applicant's expense, and our estimate of the cost agrees with his estimate.

4. Manpower can be procured, although one large operator claims there is a scarcity of experienced miners in the district.

5. Power is available in adequate quantity, but we estimate the cost of power at about three times his estimate. (Exhibit "D")

I. Financing. (JJN)

1. Proposed method of financing is only one presented.

2. The amount applied for is insufficient to accomplish the proposed program.

3 & 4. There is inadequate indicated or inferred value of ore reserve to secure this loan, and repayment of any substantial sum is doubtful. (See Exhibits "A" and "B".)

J. Statement of Applicant's Competence. (JJN)

From the original application Mr. J. W. Hoffman states he has had mining experiences within the Tri-State District since 1914, opening-up and operating the Blue-Mound Mining Company, the Blue Diamond Mining Company, and others. During World War II he operated the Mairthur mine. The Mairthur operation was carried on under an R.F.C. loan that was entirely repaid. However, upon a technicality of reasonable profit from Mairthur production, Mr. Hoffman has sued the government, and won the suit in the lower court.

Since the above information is all we have upon which to base an opinion as to the competence of the applicant, we do not feel qualified to give a statement upon competence of applicant, although it is implied he has had extensive experience in the Tri-State district. More detailed information concerning the applicant's operations should be made available to base an opinion.

K. Synopsis of Sources of Information. (JJN)

1 & 2. Mr. J. W. Hoffman, the applicant, as well as Mr. W. L. Kepner, his associate in this project, have visited the field office from time to time. No pertinent information was obtained from these friendly visits concerning the proposed project, except that Mr. Kepner stated they expect to pump the same quantity of water that Mr. Zuvekas did (Lavrion Mining Co.). (Ref. Exhibit "C")

The pertinent data that are the basis of the findings in this report were obtained from the files of the R.F.C. on the Lavrion Mining Co., Docket #6151, and the Bureau of Mines file on the logs of drill holes on the Garrett property.

The above files contained the drill logs of Clarence Zuvekas (2 holes), the Commerce Mining & Royalty Co. (CR holes), Mr. Green, Mr. Childress (CM1 hole), and the Bureau of Mines (BM holes).

The Empire District Electric Company, through Mr. Fred Ferris, Industrial Power Division, has furnished the source of information in regard to power.

EXHIBIT "A"
ORE RESERVES (PER)

Indicated Ore

Block	Hole No.	Height	Area	Shell	Sec.	Ht.x Sec	Area Inf.	Area	Cu. Ft.	Total Rock Tons	Rock tons-10% pillars	Total Tons Ring	Mill Reserv. Tons Ring	Tons 60% Ring Cons.
	27CR	10.0		3.09	2.07	20.07								
	BR5	12.5		2.55	1.71	21.38								
	BR4	10.0		8.28	5.48	54.80								
	22CR	10.0		5.27	3.53	35.31								
"A"	Z-2	9.5		3.71	2.49	23.66								
	20CR	9.0		5.81	3.89	35.01								
	Z-1	10.0		3.53	2.37	23.70								
	18CR	12.0		4.81	3.22	38.64								
	17CR	17.0		2.37	1.45	24.65								
	16CR	19.0		3.35	2.24	42.56								
	14CR	24.0		2.77	1.86	44.64								
	Z-3	30.0		7.67	5.14	154.20								
	13CR	9.0		2.60	1.74	15.66								
	12CR	10.0		0.52	.35	3.50								
Totals	14	192	33.71			537.78	2.80	166,487	2,008,336 1/	160,687	144,600	4,048.8	3,442.4	5,735.7
								Inferred Ore						
"B"								33,100	138,338	11,069	9,963			
"C"								41,200	172,236	13,777	12,400			
Totals							2.80	74,300	310,574	24,846	22,363	626.2	532.3	887.1

1/ Using 12.5 cu. ft. per rock ton in place.

EXHIBIT "D" (JJH)

ESTIMATED REVENUE

Net rock tons ore = 166,963 tons.

Net tons 68 percent zinc concentrates = 6,622.8 tons.

6,622.8 @ $115.00/ton = $761,620.

ESTIMATED COSTS - Mining and Milling 166,963 rock tons.

Item	Rate/ton	Tons	Amount
Royalty 1/	$0.365		
Breaking	0.500		
Loading	0.250		
Hauling	0.100		
Hoisting	0.250		
Pumping	0.250		
Milling 2/	1.400		
Interest 3/	0.194		
Operating cost	$3.309	166,963	$552,647
Pumping and preparation cost 4/	$2.42	166,963	$404,050
Total Cost	$5.729		$956,697
Total Revenue			$761,620
Loss on the venture			$195,077

1/ Rate which Lavrion Mining Co. was charged (8 percent of net mill returns).
2/ Rate charged by Eagle-Picher Mining and Smelting Company - 2/15/51.
3/ 42 months estimated time to prepare and mine ore body. 2 year loan at 4% interest.
4/ Estimated (Exhibit E) cost/ton for pumping and preparation.

EXHIBIT "C"

PUMPING DATA (JJN)
(From Lavrion Mining Co. Logs)

Water Level

Dates	Days	Shaft Lowered	Level in Shaft	Level in Drill Hole # 29CR	D.H. #29CR Lowered
1948					
Jan. 11 to Feb. 9	29	155	208-363	240-272	32
Feb.9 to Feb. 11 1/	—	2	363-365	272-275	3
Feb. 11 to Mar. 12	30	61	365-426	275-302	27
Mar.12 to Apr. 8 2/	—	0	426-426	302-320	18
Apr. 8 to Apr. 27	19	3	426-429	320-323	3
Apr. 27 to June 1	34	7	429-436	323-328	5
June 1 to Nov. 14	167	0	436-436	328-374.6	46½
Nov. 14 to Dec. 1	16	-11	436-425	374½-375	1/2
Dec. 1 to Jan. 18	49	0	425-425	375-380	5
1949					
Jan. 18 to June 5	138	0	425-425	380-383	3

Pumping Days	G.P.M.	G.P.M. x Days	Gallons
29 days	4,000	116,000	167,040,000
30 "	6,000	180,000	259,200,000
19 "	6,000	114,000	164,160,000
34 "	4,000	136,000	195,840,000
167 "	5,300	885,100	1,271,344,000
49 "	6,000	294,000	423,360,000
138 " 3/	5,200	717,600	1,033,344,000
466 days	5,242 G.P.M.	2,442,700	3,584,288,000

Proposed pumping of 8,000 G.P.M. = 11,520,000 gal. per day. Therefore, to obtain same result as Lavrion Co. it will take 311 days. (i.e. dewatering to 383-foot level)

Power cost - Lavrion operation - Total $72,407.71

1/ Feb. 9 - 11 - installing pumps.
2/ Mar. 12 - Apr. 8 - resetting pumps.
3/ Power cost, Jan. - June 1949 - $20,965.
Pumping - 1,033,344,000 gal.

EXHIBIT "D" (JJN)

POWER USED (Pumping Only)

3 - 300 H.P. - 2,000 G.P.M. pumps	-	900 H.P.
2 - 200 H.P. - 1,000 G.P.M. pumps	-	400 H.P.
Total horse power	-	1,300 H.P.

Total hours operated each month	-	720 hours.
Total horse-power-hours each month	=	936,000 H.P.-hours
Total kilowatt-hours " "	=	698,256 K.W.-hours

Power Costs

Connected Load

First 100 H. P.	(100-percent)	=	100 H.P.	
Next 200 H.P.	(75-percent)	=	150 H.P.	
Next 400 H.P.	(50-percent)	=	200 H.P.	
Next 600 H.P.	(65-percent)	=	390 H.P.	
1,300 H.P.	Total	=	840 H.P. connected load.	
840 H.P. equals			626.6 K.W. "	"

50 hours x 626.6 = 31,330 KW-hrs. @ $0.035/-KW-hr. = $1,096.55
150 hours x 626.6 = 93,990 " " @ $0.0135/-KW-hr. = $1,268.87
125,320

698,256 KW-hrs. minus 125,320 = 572,936 KW-hrs.

572,936 KW-hrs. @ $0.007/ KW-hr.	=	$4,010.55
Fuel Cost 1/ 698,256 x .002	=	1,396.51
Total bill		$7,772.43
Discount 6 percent -		466.34
Net cost each month -		$7,306.09

For the purpose of estimate - -	$7,500.00
14 months operation - - -	$105,000.00

1/ Fuel cost is that which is passed on to a customer due to the fact that Empire District Electric Co. is forced by circumstances beyond its control to use coal and fuel oil instead of gas to fire its boilers during part of each year. It averaged $0.0015 each KW-hr. during 1950.

EXHIBIT "D" (continued)

PUMPING DATA
(LAVRION MINING CO.)
POWER COSTS

Month	Connected Horsepower	G.P.M.	KWH	Fuel Charge	Amount
1948					
January	600	4,000	222,400		$ 2,137.49
February	900	6,000	427,200	$ 1,196.51	4,845.09
March	"	"	521,600	2,140.27	6,415.12
April	"	"	451,200	1,543.94	5,283.99
June	600	4,000	406,400		3,628.55
July	900	6,000	465,600	203.20	4,322.15
August	"	"	449,600	246.77	4,253.72
September	"	"	489,600	220.30	4,680.63
October	"	"	435,200	53.86	3,960.01
November	600	4,000	337,600	735.49	3,811.39
December	"	"	387,200	904.77	4,327.67
1949					
January	900	6,000	372,800	1,378.43	4,750.00
February	"	"	352,000	1,524.75	"
March	"	"	404,800	946.88	"
April	600	4,000	313,600	769.12	3,765.89
May	"	"	297,600	163.07	2,950.46
June	300	2,000	65,600	29.06	643.73
Total Seventeen Months			6,739,200	$12,101.54	$72,407.72

2,000-G.P.M., 450-foot, Byron Jackson 300-H.P.
" " " 300 "
" " " 300 "
900-H.P.

EXHIBIT "E" (JJN)

INITIAL COSTS

Item	Field Team By JJN Feb. 1951	
1. Drilling 2 - 12-inch pump holes	$8,900	
Casing 12-inch - @ $4.00/ft.	3,560	
Placement - $1.00/ft.	890	
Total - - - - - - - -		$13,350
2. 2 - 1,000 G.P.M. pumps installed	16,274	
2 motors	6,672	
Controls - switch gear	2,054	
Total - - - - - - - -		$25,000
3. 3 new pumps installed	45,000	
Total - - - - - - - -		$45,000
4. Electric power dewatering	105,000	
Total (see Exh. "D") -		$105,000
5. Pump men & miscellaneous labor	14,000	
Total - - - - - - - -		$ 14,000
6. Supervision	6,300	
Total - - - - - - - -		$ 6,300
7. Miscellaneous (contingencies)	16,195	
Total - - - - - - - -		$ 16,195
Sub-Total (Dewatering only) - - -		$224,845

EXHIBIT "E" (JJN)

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1. Drilling 2 - 12-inch pump holes	$8,900	
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Total - - - - - - - -		$ 6,300
7. Miscellaneous (contingencies)	16,195	
Total - - - - - - - -		$ 16,195
Sub-Total (Dewatering only) - - -		$224,845

EXHIBIT "E" (continued)

INITIAL COSTS

ESTIMATES OF EXPENDITURE TO PRODUCTION STATUS
(Development)

Item	Field Team By JJN Feb. 1951
Sub-Total (Ref. to dewatering only) - - -	$224,845
8. Sinking shaft	25,000
Connecting drift, 200 ft. @ $15.00	3,000
9. Hopper, derrick & railroad spur	17,500
10. Electric hoist installed	5,000
11. Ground equipment and contingencies	25,000
12. Meter deposit and others	15,000
13. Working capital	50,000
14. Purchase present equipment (pumps not incl.) 1/	8,753
15. Underground equipment Mechanization of operations	30,000
Total applicant's estimate - $300,000.	
Estimate adequate total - - - - - - - - - -	$404,098

Requirements to production status with working capital of $50,000 (13) and ample provision for surface contingencies, $25,000 (11).

1/ Item 14 estimate is based upon confidential R.F.C. liquidation value of equipment. This is the lowest expected value thought possible. However, before purchase can be made equipment will be put up for bid and it is contemplated that much higher sale value will result from the action.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

P. O. BOX 136
ROLLA, MISSOURI

MAR 7 1951

March 6, 1951

Mr. David Gallagher
U. S. Geological Survey
221 West Third
Independent Building
Joplin, Missouri

Dear Dave:

Enclosed is the copy of the report on the Garrett Mining Company application, Docket D.M.A. 408, which you sent me February 27.

I did not check the arithmetic involved, but did note, on page 12, line 1, that 3 x 300 = 900 instead of the recorded 1,050. No doubt the equation should read 3 - 350 HP.

As you say, a report written in this form doesn't present a clear picture of the mining property or the intended operation. But I had no trouble in following the authors' arguments; the points are stated clearly and the reasons for rejecting the application are quite logical. In my opinion, the report is very good and is entirely adequate for the purpose intended.

Will you submit the report to the Operating Committee under your signature only or do I sign with you?

Will see you in Washington.

Sincerely yours,

L. T. McElvenny

L. T. McElvenny

Enclosure

Joplin, Mo.

February 27, 1951

Mr. L. T. McIlvenny,
U. S. Bureau of Mines,
P. O. Box 136,
Rolla, Mo.

Dear Mr. McIlvenny:

Enclosed is the first carbon of our first report for your review and criticism. As we may find that you have recommended some changes when you return it to us, I am retaining the original and other carbons here with the thought that re-typing may be necessary.

You will probably be impressed, as I have been, with the seemingly awkward distortion of the general structure of the report that has resulted from the effort of the authors to follow the standard outline set up by Washington. On use this outline proves to be very poor; careful examination shows repetition and duplication and other disadvantages over and above the fundamental fault that no one outline can be devised for use with all reports. The boys tell me, and I agree, that the job could have been done better and in less time by following a logical outline devised to fit the particular report rather than attempting to follow this none-too-good standard outline.

This particular report offers an excellent example to evaluate (and emcerlate) the standard outline. One of the salient features of this case is the pumping problem. In a properly organized and written report this feature should receive emphasis. Following the standard outline prevents the author from giving the needed emphasis to any particular part because every part becomes buried among the other parts that have to be included regardless of their importance.

I have no doubt but that the boys in Washington will soon conclude that it is a needless chore to read irrelevant and unnecessary material that is included in the reports merely because of the necessity of following the standard outline.

Sincerely yours,

David Gallagher

Encl.

FEB 23 1951

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

February 19, 1951

Mr. David Gallagher
Executive Officer, Field Team Region VI
P. O. Box 431
Joplin, Missouri

Dear Mr. Gallagher:

Dick Mote upon his return from Joplin, informed me of your difficulty in locating the so-called original application for DMA Docket 408, Garrett Mining Company, part of which was forwarded to you on January 31.

I think the difficulty arises from the fact that the original application on the Garrett lease was filed by Hoffman along with his application on McArthur Mining Company and all were given a docket 11 and 11-A. Dick has located among the mass of material submitted by Hoffman the enclosed data which pertains to the Garrett property and which apparently represents the original application. As far as I can determine, there is no other information available in DMA files relative to this property.

Very truly yours,

Otto Herres

OTTO HERRES, Chief
Lead-Zinc Branch, DMA

Enclosure 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

February 19, 1951

Mr. David Gallagher
Executive Officer, Field Team Region VI
P. O. Box 431
Joplin, Missouri

Dear Mr. Gallagher:

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Very truly yours,

OTTO HERRES, Chief
Lead-Zinc Branch, DMA

Enclosure 1

copy to — Mr. L. J. McElvenny

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
REGION VI

OFFICE OF
REGIONAL DIRECTOR

ROOM 814 BARFIELD BUILDING
AMARILLO, TEXAS

February 8, 1951

Mr. R. G. Knickerbocker

Rolla Station

Dear Knick:

I am attaching a copy of a letter from S. H. Williston, Director, Supply Division, DMA, Washington, D. C., to J. W. Hoffman, President of the Garrett Mining Company at Baxter Springs, Kansas.

This office received two copies of the communication in question which may have been forwarded here in error. I am therefore, relaying the information by copies of the letter to you and to the Executive Officer of the Regional Field Team at Joplin, Missouri.

I assume that Docket DMA 408, which is the one in question, will probably have been forwarded to Joplin. If it turns up here, I will of course see that it is readdressed to Gallagher.

Very truly yours,

C. W. Seibel

Enclosure

Copy to: David Gallagher

C
O
P
Y

January 31, 1951

Mr. J. W. Hoffman, President
Garrett Mining Company
P. O. Box 356
Baxter Springs, Kansas

Dear Mr. Hoffman

Your application (Docket DMA 408) for a Government loan under the provisions of the Defense Production Act of 1950 has been reviewed by the Lead-Zinc Branch of the Defense Minerals Administration. Before final decision can be taken on your request it will be necessary to obtain additional information on your property. Your application, therefore, has been referred to the appropriate field office with the request that the needed information be supplied to us.

Yours very truly,

S. H. Williston, Director
Supply Division
Defense Minerals Administration

ALBrokaw:jeh
G-1/31/51

copy to: Chief, Lead-Zinc Branch
Geological Survey - McKnight
J. H. Hedges
R. H. Mote
2 copies to Executive Officer
Regional Field Team, Region VI
Strebel
Mittendorf
Files

January 31, 1951

Memorandum

To: Executive Officer of Field Team, Region VI

From: Lead-Zinc Branch, DMA

Subject: Docket DMA 408
Garrett Mining Company
Cherokee County, Kansas

The docket subject (DMA 408) has been reviewed by the Lead-Zinc Branch.

This loan request is a revised application on a property in Cherokee County, Kansas. The original application was referred to the field team for review. This revised application should be incorporated in the field review of the original application.

OTTO M[illegible], Chief
Lead-Zinc Branch

Approved:
DMA Operating Committee

ALBrokaw:jah 2-1/31/51
Chairman

J. R. Hedges

Olaf N. Rove

copy to: Chief, Lead-Zinc Branch
Geological Survey - McKnight
J. R. Hedges
R. H. Mote
2 copies to Executive Officer
Regional Field Team, Region VI
Strobel
Mittendorf
Files

January 31, 1951

Memorandum

To: Executive Officer of Field Team, Region VI

From: Lead-Zinc Branch, RFC

Subject: Docket [illegible] 405
Garrett Mining Company
Cherokee County, Kansas

The docket subject ([illegible] 405) has been reviewed by the Lead-Zinc Branch.

This loan requests a revised application on a property in Cherokee County, Kansas. The original application was referred to the field team for review. This revised application should be incorporated in the field review of the original application.

OTTO [illegible], Chief
Lead-Zinc Branch

Approved:
RFC Operating Committee

~~AlBrokaw:jah 1/31/51~~
Chairman

J. H. Hedges

Olaf W. Rove

copy to: Chief, Lead-Zinc Branch
Geological Survey - McNaught
J. H. Hedges
R. H. Hote
2 copies to Executive Officer
Regional Field Team, Region VI
Strobel
Mittendorf
Files

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMA- U.s Geological Survey
Joplin , Mo.

Jan. 26, 1951

Mr. L.T. McElvenny
U.S. Bureau of Mines
Rolla, Mo.

Dear Mr. McElvenny:

Enclosed are three applications by the American Smelting and Refining Co. for amortization deductions covering proposed installations at their zinc plants at Amarillo and Corpus Christi, Texas. The applications are designated thsu:

1. DMA-381, Ta-557
2. DMA-342, Ta-1055
3. DMA-191, Ta-556

There is aletter also from Otto Herres, who sent the applications to this office, which is self-explanatory.

I am forwarding these applications, pursant to your request this morning to Mr. Otto Ruhl, for your perusal of the data and pending the selection of an engineer qualified to make these examinations. Sorry we don't have one here on the job.

Mr. Gallagher who is now in Denver plans to call me with in the next few days, at which time I will notify him of the action taken so far on these applications, and suggest that he get in touch with you.

Very truly yours,

M. HOWARD BERLINER

M.Howard Berliner
DMA-USGS

cc-Otto Herres
files

(C-2 ADD)

Page 1

The problem falls into one of two categories. 1) Can the indicated ore body be mined at a reasonable cost with a static water table of nearly 50 ft over mining area, and 2) If the water table can be lowered to mining floor level, will the initial cost for this pumping be ~~[illegible]~~ so excessive as to preclude possibility of profitable mining

DEFENSE MINERALS ADMINISTRATION

Report and Recommendation of Commodity Committee
on Application for Government Assistance
(Field Team)

~~Docket No. 408~~

Commodity: Zinc and Lead.

A. Name and address of Applicant:
Garrett Mining Company,
P. O. Box 356,
Baxter Springs, Kansas.

B. Location of deposit:

Property is five miles west of Baxter Springs, Kansas, and one mile north of Four Corners, which is the junction of U. S. Highways 69 and 165. The property is leased and of legal description as follows:

166

N½ NE¼, Sec. 36, T.34S, R23E
N½ NW¼, Sec. 36, T.34S, R23E
N½ SE¼, Sec. 26, T.34S, R23E
S½ NW¼, Sec. 35, T.34S, R23E
S½ NE¼, Sec. 35, T.34S, R23E
NE¼ NE¼, Sec. 35, T.34S, R23E
E½ NW¼ NE¼, Sec. 35, T.34S, R23E
S½ SE¼, Sec. 26, T.34S, R23E

consisting of about 540 acres, all in Cherokee County, Kansas.

C. Conclusions:

1. The proposal is not applicable to commodity program; first, it is doubtful that project can be rehabilitated to stage of production (ref. Dewatering); second, existence of commodities in workable quantity has not been proven by underground operations, (e.i. there is no exposure of indicated ore in underground workings.

2. As the ground water has not been lowered beyond the level of 383 feet, or 48 feet above the floor or mining level, the technical feasibility is questionable. ~~Can successful mining be carried on with excessive water in working faces? At what cost can ground water table be lowered to mining level?~~

3. Availability of requirements. Due to recent expansion of mining operations (nationally), mining machinery is daily becoming more scarce. Likewise, local supplies show the same trend. For example, 12" pipe that is

C-5 Competence of Applicant (See J-)

It is implied by applicant that he is fully competent to carry out proposal, due to his extensive experience in the State district. We are of opinion that he should be required to furnish details in this regard.

necessary for proposed pumping program was quoted at $4.00 per foot with the remark, "We do not have it, and we do not know when it will become available". (Keystone Drilling Co., Joplin, Mo.). In any event, we can be assured that there will be a substantial increase in costs over proposal costs. There has already been a substantial increase in the cost of equipment in the Tri-State District in the last few months.

4. Financing. The FIELD-TEAM estimates indicate that size of loan is inadequate for project. This is based entirely on the assumption that successful mining can be carried on with static head of ground water table above mining floor. If mining cannot be carried on under above condition, then initial increased pumping costs will be required to lower water table. During the last operation on this project the water table was lowered three feet at a power cost of $20,965, to which must be added labor cost. Labor and power costs would approximate a sum of $25,000 at the present time. It is not contemplated additional lowering of water table will reach the above figure, but it is presented to show what can happen. (See ~~exhibits G-6, H-5, Ore Reserves and Costs~~.) SEE EXHIBITS "C" & D

5. Competence of Applicant. Applicant has not furnished any evidence of competency as mine operator, although mine operators can be obtained at a much higher cost than applicant's proposal in regard to supervision cost. The applicant operated the McArthur Mine during World War II. This operation was carried on under a R.F.C. loan which terminated in a suit against the government won by the applicant.

D. Recommendations:

It is recommended that the proposed loan not be granted, ~~or given further consideration~~. This recommendation is based upon the data contained in this report, namely:

1. There is insufficient indicated ore reserve to vindicate the proposed loan.

2. The size of loan is inadequate for proposed project.

3. We have no precedent and applicant has not furnished an example to indicate that successful mining can be accomplished under the working conditions.

4. A former loan by R.F.C. for similar project on this property was a loss to the Government.

5. The validity of assays on one group of drill hole logs ~~is~~ are extremely doubtful, and therefore were not used in compiling this report. (Ref Ex-G 1)

Some of the ore values calculated by the applicant in based on some drill hole logs that have been rejected by us as of questionable validity. (See Exhibit G)

D

EXHIBIT (CONT'T)

PUMPING DATA

(HAVRION MINING CO)

POWER COSTS

E. Description of Applicant's proposal: (From preliminary and revised applications.)

The applicant proposes to dewater shaft and lower water table of mining area. To do this they would use 3 - 2,000 G.P.M. pumps in shaft, and 2 - 1,000 G.P.M. pumps over mining area pumping through two 12" drill holes. During this dewatering period a second shaft would be sunk to mining floor. After dewatering, this shaft would be connected by drift underground to present shaft. The surface plant would be rehabilitated and underground equipment procured to start mining ore when dewatering justified the same. The applicant estimated the time to accomplish above project as five months at a cost of $300,000.00. The proposal requests government assistance in the amount of $300,000.00 as loan.

F. Expansion of production of commodity.

The proposal does not fit into the commodity program, but rather is detrimental to said program in using labor that could be utilized in productive work in the Tri-State mining district.

G-1 [illegible] in opinion (PKM) OK DG

An ore body exists on the Garrett lease. On the basis of information derived from drilling records, accepted as authentic, there are 144,600 rock tons of indicated ore present with a grade of 2.8 percent metallic zinc. This ore body is located stratigraphically in the lower portion of the Keokuk formation and the upper portion of the underlying Reeds Spring formation, and therefore is locally referred to as a "sheet ground" ore body. These formations are Mississippian in age. Where mineralized, they are composed of jasperoid, chert, dolomite, and the ore minerals sphalerite and galena. Where they are not mineralized, they consist of chert and limestone.

The first recorded drilling on the Garrett lease was done by John H. Green and associates, who drilled 28 holes as follows:

Hole Number	Ore thickness in feet	Percent Zn metal	Percent Pb metal
1	40	0.00	4.70
2	25	0.79	0.93
2	10	0.28	0.26
3		no assay	no assay
4		"	"
5	35	"	4.95
6	25	0.0	3.59
7	32	0.54	3.51
8		no assay	no assay
9	10	"	3.05
10	27	"	4.69
11		"	no assay
12	35	0.0	2.59
13		no assay	no assay
14		"	"
15		"	"
16	3	6.70	"
16	3	no assay	9.05
17	12	6.35	0.93
18		no assay	no assay
19		"	"
20		"	"
21	22	"	4.38
22	4	"	2.10
23	19	"	2.84
24		"	no assay
25	9	"	2.48
26	24	0.44	1.73
27		no assay	no assay
28		"	"

OK DC

Of the 28 Green holes, 13 apparently contained no ore, and no assays were made. Of the remaining 15 holes, 8 were assayed for lead but were apparently not assayed for zinc; 4 show lead in excess of zinc (generally greatly in excess); 2 show lead and zinc about equal; and in only one hole does the zinc exceed the lead in amount.

These logs and assays are therefore markedly different from general experience with "sheet ground" ore in two respects: (1) the reported lead content is extraordinarily high, and (2) the ratio between lead and zinc is predominately the reverse of the usual. Inspection of the map shows holes subsequently drilled by four separate organizations at locations close enough to some of the Green holes to afford some kind of check. The log of Childress #1 (CH-1) hole reports only a trace of lead, yet this hole is between two Green holes (#5 and #6) for which high lead assays were reported. Hole Z-1, drilled by Lavrion Mining Company, disclosed 6 feet of 0.91 percent metallic lead and 0.20 percent metallic zinc, yet this hole is very close to Green #7 which reported 32 feet of 3.51 percent metallic lead and 0.54 percent metallic zinc.

no Pay

Hole 2CR, drilled by Commerce Mining and Royalty Company should afford some check of Green holes #5, #6, and #7, yet nothing was found that warranted assaying. Hole BM7, drilled by the United States Bureau of Mines, should afford some check of Green hole #12, yet again nothing was found that warranted assaying.

Accordingly, the logs and assays of the Green holes are not believed to be acceptable and have not been included in the ore reserve calculations.

(1)

G-6 - 2nd P.P. (Page 4)

The Laurion Company pumped out the shaft to the mining floor level in five and one half months. At this time the area water table level was 108' above the mining floor. Pumping at capacity (6000 GPM) for the following four months the area ground water level was lowered 32' but at same time water rose over mining floor level 4'. A pump failure then occurred, and water rose in shaft 58' and was never lowered in shaft to mining floor level again during the Laurion project program. A total of 3,584,288,000 gallons of water was pumped during the Laurion project which figure was arrived at, by pumping log and checked against power bills.

J-6 add (somewhere)

During the last five months of pumping operations by Lawson Mining Co. the area water table was only lowered three feet at a power cost of $20,965. ~~By extending this same power cost the pumping unit would approximate a sum of $[illegible]~~ While it is not contemplated that lowering the area water table below 383 foot level will cost a sum suggested by above experience, it is presented to show what can happen ~~under like~~ when undertaking dewatering of an area.

(C)

It is estimated that to lower the area water table below the 383 foot level would take at least four months additional time pumping at capacity, but no precise estimate is possible because the exact size from which water will be drawn is not ascertainable.

(C)-2

G. Technical Feasibility.

1. RESERVES & GEOLOGIC OPINION (PKH)
BY BERRY HURLBUT

2. The proposed rate of production is 250 rock tons per day, equivalent to 75,000 tons per year of 300 working days. (JN)

3. The mining method proposed is the common practice of breast-stope mining used in the Tri-State District. It is also proposed that this operation be mechanized. Under such operation the direct mining cost (underground and hoisting) will approach a figure of $1.35 per ton, and that sum was used in preparing field-team report as to costs (~~Exhibit - Ore reserves and costs~~). EXHIBIT G 2

4 & 5. Custom milling is proposed by applicant, whereby the applicant would sell his production to said mill or mills. The present cost of milling (Feb. 1951) is $1.40 per ton. The mill then pays $115.00 per ton for all 60% zinc concentrate recovered from the ore. The recovery is usually about 85% of metallic content in ore. EXHIBIT G-2 "B"

6. Time Schedule. The revised application states: "Four months after starting of pumps the ground could be accessible, however, additional 30 days should be allowed for lowering of the area water table". (Ref. Exhibit G-6.)

(SEE NEW PREPARED P.P.)

~~The Lavrion Company dewatered the shaft and made the working level available in five and one-half months (167 days), pumping 1,371,344,000 gallons of water. No successful mining could be carried on at this time, and pumping was continued to end of project, 13½ months later. The additional water pumped was 2,213,944,000 gallons.~~

In regard to the Lavrion pumping program, it should be borne in mind that the water level in the shaft was always below the area water table, therefore, at all times there was some drainage of area water to the shaft. It should also be borne in mind that mining cannot be carried on until second shaft is sunk to mining level and underground connection made. owing to distinct safety mining regulations.

From the data obtained, and the proposed pumping capacity of the applicant, it will take 311 days at full capacity to pump the quantity of water removed by Lavrion Company. This quantity lowered the area water table to 383' level which was 48' above mining level.

It is estimated that to lower the area water table below the 383-foot level would take at least ~~five~~ four months additional capacity pumping ~~as proposed by applicant~~. ~~Inasmuch as there is no precedent upon which to base this estimate it must be considered in such category.~~

From the foregoing data it can be seen that the time schedule will be greatly increased; hence field team estimates are calculated upon a 14-month period.

H. Availability of Project Requirements.

1. The facilities installed or erected consist of four buildings, a derrick (headframe), installed compressor and hoist, and miscellaneous minor items of an estimated liquidation value of $8,753.00. Little, if any, reconditioning will be necessary for the above items.

There is also pumping equipment of a liquidation value of $7,500.00 which if used will cost in the neighborhood of $25,000.00 to recondition. It is ~~inferred~~ by applicant's proposal that new pumps will be installed; ~~which is estimated in costs data~~ (Exhibit ~~[illegible]~~ "E").

2. The new equipment as proposed in addition to above, consists of hoist, derrick, buildings, surface equipment, underground mining equipment, two additional pumping units and miscellaneous minor items. The applicant's estimate of the above requirement approximates the field team estimate in these items very closely.

3. The access road is adequate and good for trucking or access means. However, railway transportation for product will be available only at applicant's expense ~~which is covered by estimates~~.

4. Manpower can be procured, but one larger operator claims there is a scarcity of experienced miners in the district.

5. Power is available in adequate quantity, ~~and example of estimated cost~~ is herewith presented (Exhibit ~~H-5~~ "D").

I. Financing.

1. Proposed method of financing ~~seems to be the only way that applicant can procure funds for~~ project, i.e. a Government loan.

2. The amount applied for is insufficient to accomplish ~~status of production~~.

3 & 4. There is inadequate indicated or inferred value of ore reserve to secure this loan, and repayment of any substantial sum is doubtful. (See Exhibits ~~Ore Reserves & Geologic Data~~ "A" & "B"

~~5. No data available. (MEANS CRITERIA FOR LOANS)~~

1. Statement of applicants competence.

From the original application Mr. J. W. Hoffman states he has had mining experiences within the Tri-State district since 1914, opening up and operating the Blue-Mound Mining Company, the Blue Diamond Mining Company and others. During World War II he operated the McArthur Mine. The McArthur operation was financed under an R.F.C. loan that was entirely repaid. However upon a technicality of reasonable profit from McArthur production, Mr. Hoffman has sued the Government, and won the suit in lower court.

Since the above information is all we have upon which to have an opinion as to the competence of the applicant we do not feel qualified to give a statement upon competence of applicant, although it is implied he has had extensive experience in the Tri State district. More detail information concerning the applicants operations should be made available ~~upon which~~ to base an opinion.

J. [illegible]

The applicant ~~has~~ operated the McArthur mine during World War II. The McArthur operation was carried on under a R.F.C. loan ~~that~~ culminated in a law suit against the government, ~~and which the applicant won.~~ ~~As~~ we have no ~~basic data~~ upon which to base an opinion as to his competency ~~we can neither recommend or condemn the applicant as an operator to carry out proposal.~~

K. Synopsis of Sources of Information.

1 & 2. Mr. J. W. Hoffman, the applicant, as well as Mr. W. L. Kepner, his associate in this project, have visited the regional office from time to time. No pertinent information was obtained from these friendly visits concerning the proposed project, except that Mr. Kepner stated they expect to pump the same quantity of water that Mr. Zuvekas did (Lavrion Mining Co.). (REF EXHIBIT "C")

The pertinent data that ~~is~~ are the basis of the findings in this report ~~was~~ WERE obtained from the files of the R.F.C. on the Lavrion Mining Co., Docket #6151, and the Bureau of Mines file on the logs of drill holes on the Garrett Property.

The above files contained the drill logs of ~~the~~ Clarence Zuvekas (Z holes), Commerce Mining & Royalty Co. (CR holes), Green ~~Holes~~, Childress ~~Hole~~ (CH1 hole), and Bureau of Mines (BM holes).

The Empire District Electric Company through Mr. Fred Ferris, Industrial Power Division has furnish the source of information in regard to Power.

$$\begin{array}{r} 97335 \\ 77931 \\ \hline 10526 \end{array}$$

EXHIBIT "A"

ORE RESERVE (PKH)

INDICATED ORE

Block	Hole No.	Height	Ave.	%ZnS	% Zn	Ht.x%Zn	Ave. Zn%
	27CR	10.0		3.09	2.07	20.07	
	BM5	12.5		2.55	1.71	21.38	
	BM4	10.0		8.18	5.48	54.80	
	22CR	10.0		5.27	3.53	35.53	
"A"	Z-2	9.5		3.71	2.49	23.66	
	20CR	9.0		5.81	3.89	35.01	
	Z-8	10.0		3.53	2.37	23.70	
	18CR	12.0		4.81	3.22	38.64	
	17CR	17.0		2.17	1.45	24.65	
	16CR	19.0		3.35	2.24	42.56	
	14CR	24.0		2.77	1.86	44.64	
	Z-3	30.0		7.67	5.14	154.20	
	13CR	9.0		2.60	1.54	13.86	
	12CR	10.0		0.52	.35	5.20	
Totals	14	192	13.71			537.90	2.80

Block	Area	Cu. Ft.	Total Rock Tons	Rock tons 10% pillars	Total Tons Zinc	Mill Recvy. Tons Zinc	Tons 60% Zinc Conc.
"A"	146,487	2,008,336	160,667	144,600	4,048.8	3,441.~~478~~	5,735.8
INFERRED ORE							
"B"	33,100	138,358	11,069	9,963			
"C"	41,200	172,216	13,777	12,400			
Totals	74,300	310,574	24,846	22,363	626.2	532.3	887.1

EXHIBIT "B"

POSSIBLE OPERATING REVENUE

(PK February 1951)

From indicated ore ---------- $659,~~517~~.00
From inferred ore ---------- 102,016.00
From all reserves ------- $761,~~533~~.00

ESTIMATED COSTS

	Item	Rate	Indicated	Inferred	Total
#4	Royalty	8%	$52,761.00	$8,161.00	
	Breaking	@ 50¢-1 ton	72,300.00	12,423.00	
	Loading	@ 25¢ "	36,150.00	6,211.00	
	Tramming	@ 10¢ "	14,460.00	2,485.00	
	Hoisting	@ 25¢ "	72,300.00	6,211.00	
	Pumping	@ 25¢ "	72,300.00	6,211.00	
#1	Milling	@ $1.40	202,440.00	31,308.00	
#2	Development	~~@ $2.55~~	~~369,090.00~~ 425,098		
#3	Loan interest	4%-2 yr.	29,526.00	4,921.00	
	Total		~~$921,327.00~~ 977,335	$77,931.00	~~$999,258.00~~ 1,055,266
					~~Deficit $237,795.00~~

SMELTING

Notes: ~~#1.~~ Eagle-Picher Mining & ~~Milling~~ Co. 2/15/51, $1.40.
#2. Dewatering, surface & underground preparation. (See EXHIBIT "E")
#3. Time: dewatering - - - - - 14½ mo. plus
Mining "A" block - - 24 mo. plus
Mining "B"& "C"blocks 4 mo.
~~47½~~ 42 mo.
#4. Assumed to be the same rate as obtained by Lavrion Mining Co. LEASE

Blue Diamond
Diamond
Kentucky Corp

1/

EXHIBIT ~~"6"~~ "C"

PUMPING DATA (383)
(From Lavrion Mining Co. Logs)

Water Level

Dates	Days	Shaft Lowered	Level in Shaft	Level in Drill Hole # 29CR	D.H. #29CR Lowered
1948					
Jan. 11 to Feb.9	29	155	208-363	240-272	32
#2 Feb.9 to Feb.11 1/	--	2	363-365	272-275	3
Feb.11 to Mar.12	30	61	365-426	275-302	27
#3 Mar.12 to Apr. 8 2/	--	0	426-426	302-320	18
Apr.8 to Apr. 27	19	3	426-429	320-323	3
Apr.27 to June 1	34	7	429-436	323-328	5
June 1 to Nov.14	167	0	436-436	328-374.6	46½
Nov.14 to Dec. 1	16	-11	436-425	374½-375	1/2
Dec. 1 to Jan.18	49	0	425-425	375-380	5
1949					
Jan.18 to June 5	138	0	425-425	380-383	3

Pumping Days	G.P.M.	G.P.M.x Days	Gallons
29 days	4,000	116,000	167,040,000
30 "	6,000	180,000	259,200,000
19 "	6,000	114,000	164,160,000
34 "	4,000	136,000	165,840,000
167 "	5,300	885,100	1,371,344,000
49 "	6,000	294,000	423,360,000
#1) 138 " 3/	5,200	717,600	1,033,344,000
466 days	5,242 G.P.M.	2,442,700	3,584,288,000

Proposed pumping of 8,000 G.P.M. = 11,520,000 Gal. per day.
Therefore, to obtain same result as Lavrion Co. it will take 311 days.
(i.e. dewatering to 383 LEVEL)

Power Cost - Lavrion operation - Total $72,407.71 #1/
~~Estimate power cost - field team~~ ~~$70,000.00~~ ~~#1/~~

3/ #1 - Power cost, Jan. - June 1949 - $20,965.00
~~Est. labor - 1951 -~~ ~~4,752.00~~
Pumping - 1,033,344,000 gal. - ~~$25,717.00~~

1/ #2 FEB 9 - 11th INSTALLING PUMPS.
2/ #3 MAR 12 - APR. 8 RESETTING PUMPS.

14
30
426

EXHIBIT "D"
POWER COSTS (G.M.)

~~EXAMPLE~~ - PUMPING ONLY -

7 copies one for each field

CONNECTED LOAD

3 - 350 HP - 2000 G.P.M PUMPS	1,050 HP
2 200 HP - 1,000 G.P.M PUMPS	400 HP
TOTAL	1450 HP

1 MONTH OPERATION (720 HOURS) - 1,044,000 H.P. HRS.

EQUIVALENT TO 782,000 KW HRS CONSUMPTION

"RESERVE CAPACITY"

1st 100 H.P.	CONNECTED LOAD		100%	=	100 HP
NEXT 200 H.P	"	"	75%	=	150 HP
NEXT 400 H.P.	"	"	50%	=	200 HP
ADDITIONAL 750 HP	"	"	65%	=	487 HP
1450		RESERVE CAPACITY			937 H.P.
BILLING		"	"		703 KW

1ST 50 HRS - X 703 KW @ $0.0350 = $1,230.250 (35,150 KW HR)

NEXT 150 HRS. x 703 KW. @ $0.0135 = 1413.575 (105,450 KW HRS)

BALANCE (782000 KW HRS - 140,600) @ .007 = 4489.800

FUEL COST (1948-1949). @ $.0021 - (~~[illegible]~~) 1/ 1942.200

$9,075.8.25

FOR FIELD TEAM ESTIMATING Purposes (DISCOUNT NOT CONSIDERED) $9,000.00 PER MO.

14 MONTH OPERATION..... $126,000.

NOTE 1/ - 1950 FUEL CHARGE @ AVE 0.00077 [illegible]

POWER COST DAVRLON MINING CO OPERATION - 72,40.771

EXHIBIT ~~"2"~~ "E"

INITIAL COSTS

Item	Field Team By Naughten Feb. 1951
1. Drilling 2 - 12" pump holes	$8,900
Casing 12" - @ $4.00/ft.	3,560
Placement - $1.00/ft.	890
Total - - - - - - - -	$13,350
2. 2 - 1,000 G.P.M. pumps installed	16,274
2 motors	6,672
Controls - switch gear	2,054
Total - - - - - - - -	$25,000
#1 3. Recondition 3 pumps — (LIQUIDATION VALUE 7,500)	25,000
Installation pumps & standpipe	1,500
Total - - - - - - - -	$26,500
3 new pumps installed	($~~45,000~~) → (45,000)
4. Electric power dewatering "D"	~~70,000~~ 126,000.
Total (see Exh. ~~H-5~~)	~~$70,000~~ 126,000
5. Pump men & miscellaneous labor	14,000
Total - - - - - - - -	$14,000
6. Supervision	6,300
Total - - - - - - - -	$6,300
7. Miscellaneous (contingencies)	16,195
Total - - - - - - - -	$16,195
Sub-Total (Dewatering only) - -	~~$171,345~~ $227,345

TO MONTHLY

#1 Item 3 & Item 14 estimate based upon confidential R.F.C. liquidation value of equipment. This is the lowest expected value thought possible. However before purchase can be made equipment will be put up for bid and it is contemplated that much higher sale value will result from the action.

"E"

Exhibit ~~F-2~~ - continued

INITIAL COSTS

~~COMPARISON OF~~ ESTIMATES OF EXPENDITURE TO PRODUCTION STATUS

(DEVELOPMENT)

	Item	Field Team By Naughten Feb. 1951
	SUBTOTAL (REF. TO DEWATERING ONLY) --	~~227,345~~
8 ~~1~~.	Sinking shaft	$25,000
	Connecting drift, 200 Ft. @ $15.00	3,000
9 ~~2~~.	Hopper, derrick & railroad spur	$17,500 ~~22,500~~
10 ~~3~~.	Electric hoist installed	$5000
11 ~~4~~.	Ground equipment AND CONTINGENCIES	25,000
12 ~~5~~.	Meter deposit and others	15,000
13 ~~6~~.	Working capital	50,000
#~~7~~ 14 ~~7~~.	Purchase present equipment (PUMPS NOT INC.) 1/	8,753
15 ~~8~~.	Underground equipment Mechanization of operations	30,000
	Total applicant's estimate - $300,000	
	Estimate adequate total - - - - (using reconditioned pumps)	~~350,598~~ 406,598
	If new pumps are ~~added~~ INSTALLED - - ADD	18,500
#	Gross estimate - - - - - - - - - -	~~$369,098~~ 425,098

REQUIREMENTS TO PRODUCTION STATUS WITH WORKING CAPITAL OF $50,000 (13) and ample provision FOR SURFACE CONTINGENCIES - $25000 (.16)

1/ _____

Block	Hole No	Height	Ave	% Zns	% Zn	Ht x Zn	Ave Zn	Area	Cu. Ft	Rock Tons	Rock Tons 10% Pillars	Tons Zn	Mill Rec. Ton	60% Zn C.
	27CR	10.0		3.09	2.07	20.07								
	BM5	12.5		2.55	1.71	21.38								
	BM4	10.0		8.18	5.48	54.80								
	22CR	10.0		5.27	3.53	35.53								
Block "A"	Z-2	9.5		3.71	2.49	23.66								
	20CR	9.0		5.81	3.89	35.01								
	Z8	10.0		3.53	2.37	23.70								
	18CR	12.0		4.81	3.22	38.64								
	17CR	17.0		2.17	1.45	24.65								
	16CR	19.0		3.35	2.24	42.56								
	14CR	24.0		2.77	1.86	44.54								
	Z3	30.0		7.67	5.14	154.20								
	13CR	9.0		2.60	1.54	13.86								
	12CR	10.0		0.52	.35	5.20								
Totals	14	192	13.71			537.90	2.801	146487	2,008336	160,667	144,600	4,048.8	3441.80	5,735.8

INDICATE ORE

53790 / 192 = 2.801

85% of 4048.8

Tons 60% Zinc Concentrate

(Operating Revenue, or Net Value @ 115.00 per Ton 60% Concentrate $ 659,517.00)

INFERRED"

Block "B"			~~13.71~~					33100	138358	11,069	9,963			
Block "C"			13.71					41200	172,216	13,777	12,400			
			13.71				2.80	74300	310574	24846	22363	626.2	532.2	887.1

Value @ 115/ton 60% Concentrate $ 102,016.50