EXPLORATION SUPERVISION AND OVERHEAD EXPENSE

Superintendent	$ 3,000
Geologist	2,400
Bookkeeper ½ time	800
Stenographer	800
Labourers 3 x 4 mo.	3,120
Pump Operators 3 x 10 days	600
Helper 1 @ 10 days	150
Office	400
Field House	1,000
Core Boxes	1,500
Sample Bags	50
Drying Equipment	150
Sampling Equipment	100
Transit	80
Office Supplies	100
Heat	150
Light	100
Telephone, Telegraph, Postage	400
Automobile Expense	600
Pumping Equipment	2,000
Fuel	200
Living Allowances	2,400
Payroll Taxes	1,100
Insurance	100
Truck Expense	1,000
Truck Driver	1,600
Road Building (To County)	3,000
	$ 26,900
Contingencies	2,700
	$ 29,600

SECOND DRAFT March 11, 1952

EXPLORATION EXPENSE

Drilling, complete in 5 months @ $9.75/ft.	$117,000
Holes for water measurement	9,000
Assaying complete in 6 months	
300 samples @ $6.95	2,085
1200 " @ $1.70	2,040
Supervision and overhead (see attached schedule)	29,600
	$159,725
25% Private Funds	39,931
Government Funds (DMEA)	$119,794

FIRST DRAFT

FEBRUARY 11, 1952

U C O A CORPORATION

EXPLORATION APPLICATION (DMEA)

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FIRST DRAFT FEBRUARY 11, 1952

EXPLORATION FOR MANGANESE IN SECTION 23 T48N R 27N AITKIN COUNTY, MINNESOTA

SUMMARY

Evidence of a large occurrence of low grade manganese ore is presented in the form of logs of drilling operations carried out by three private agencies and by the U.S.Bureau of Mines. It is shown that although a very large potential ore body may be inferred, improper procedure during much of the drilling necessitates further substantiation of reserves before a large capital outlay is justifiable.

PROPOSAL

A study of the logs and the map indicates that the drilling of thirty diamond core-drill holes according to the pattern established on the accompanying map will prove sufficient potential ore to justify the construction on the property of a plant capable of producing up to 25,000,000 long ton units of metallurgical grade manganese oxide sinter. The success of the method proved by the U.S.Bureau of Mines during the Bureau's diamond core-drilling program, and the questionable character of churn drilling in this deposit definitely dictates the use of large size diamond core-drilling, using special precautions to obtain high core recovery. The indicated depths of overburden and mineralization necessitate an average hole depth of 400 feet, or a total hole footage of 12,000. The best proposal received from a reliable drilling firm bids a price of $10.00 per foot, or a total of $120,000. Assaying and geological supervision costs bring the total requirement up

to $188,400.00, of which the applicant is prepared to pay 25%, or $47,100.00 provided that the government will match the applicant's funds with 75%, or $141,300.00.

UCCOA Corporation control, through assignment of a mining lease, a manganese deposit in Section 23, T48N R27W, Aitkin County, Minnesota. The property was explored for iron ore in 1914 by M.P.Botsford, and again in 1916 and 1917 by the Crosby Exploration Company. Although both manganese and iron were shown over a wide area, and in considerable depth, the content was not of commercial importance, and the property lay dormant until the war depletion of iron ore reserves led M.A.Hanna Company, through its subsidiary, Hanna Coal and Ore Corporation, to drill several more holes, this time using Mesabi techniques to yield more reliable information on a material which showed tendency to concentrate iron and manganese in the hole through loss of fine gangue material. Again the result showed material below shipping grade for manganiferous iron ore, but beneficiation tests were carried out to determine whether a marketable concentrate could be made. This work demonstrated that manganese values could be built up to above 20% with a comparatively simple flow sheet, but iron values did not improve in the same ratio, and the work was discontinued.

During this period, the U.S.Bureau of Mines, Region V, became interested in the property as a domestic source of manganese to supplement the importation of foreign ores. A project was established, and funds were obtained for a drilling program, which culminated the drilling of seven diamond core-drill holes during 1950.

Although good core recovery was found to be very difficult, procedures were established which achieved this result, and the information thus gathered is to be considered the most reliable to date. A comparison with nearby churn drill holes put down previously confirmed the belief that high values found in many of the earlier holes weremisleading, although those drilled by Hanna were found to be very close to the core-drill findings. Beneficiation tests on the cores, done by this Metallurgical Section of the U.S.Bureau of Mines at the University of Minnesota confirmed previous work, and excellent recoveries of manganese were obtained when concentrating to 20-22% manganese.

The results of this preliminary work were considered very encouraging, and Region V set up a program for further work, to take place during the 1951 season. A change in the program for minerals development with the advent of the Defense Minerals Administration curtailed the funds available for projects of this sort under Bureau auspices, and the project was not completed.

In the meantime, a group interested in the Chemico Manganese Technique, a new approach to the problem of utilization of domestic low grade ores, obtained an option on the property, and arranged for tests on samples of the material. This work was done by Battelle Memorial Institute, and consisted of concentration to 20% manganese content, followed by leaching the concentrate, utilizing the Chemico Technique. The sample material, which assayed 4½% manganese, consisted of churn-drill sludge from the Hanna operation, and may be considered representative of the ore body in the light of the core-drill findings. The result of both the beneficiation tests and the leaching tests, with an overall recovery of 77% were extremely encouraging, and the program presented herewith was set up.

FIRST DRAFT

Form MF-100

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

GENERAL TECHNICAL DATA
FOR USE UNDER THE
DEFENSE PRODUCTION ACT OF 1950.

1. (a) The property will produce manganese oxide ore, which will be gravity concentrated on the property. This concentrate will, in turn, be leached to provide a high grade, high purity product suitable for ferro-manganese production.

(b) The ore is high in iron, and effort will be made to recover this as an iron ore.

2. The property is know only by its description, section 23, Township 48N, range 27W. Operations to date have consisted of sampling by churn - and diamond core - drilling, and metallurgical testing, as described below. The total amount of churn-drilling is 14,360 feet and the total amount of diamond core-drilling is 2,583 feet.

3. (a) The property is about eight miles north of Aitkin, Minnesota. The town, which is the county seat, is served by the Northern Pacific Railroad.

(b) The property is north-east of the Cuyuna Range iron mining district.

(c) (d) The ore body lies in section 23, township 48N, range 27W, Aitkin County, Minnesota.

4. (a) Applicant is engaged in an engineering program leading to the production of a 20% gravity concentrate from which a 60% sintered manganese oxide will be prepared by a modified sulphur dioxide leaching process. Continued explorations will furnish additional technical data to be utilized in completing plant designs.

(b) Applicant is the assignee of the lease.

5. Production is not yet under way, but is expected to commence within thirty months.

6. Experience of the operators:

The Utah Construction Company was organized in 1900, and since that time has engaged in heavy construction of all kinds, including hydroelectric power projects, railroads, industrial plants, tunnels, shafts, and military installations of all kinds including a complicated plant and installations for the Chemical Warfare Department.

6. Cont. For a long time the Company has been associated with important mining companies in the performance of mining and stripping work for Kennecott Copper Corporation, Pittsburg Coal Company, and later the Pittsburgh Consolidated Coal Company, Colorado Fuel and Iron Corporation, Columbia Iron Mining Company (Geneva Steel Company), and others.

Important achievements of the company have been the construction of plant facilities for Kennecott Copper Corporation which included smelting works, electrolytic refining plant, power house, and a concentration plant. The company successfully performed the general contract for construction of the major part of the Geneva Steel Plant for the Defense Plant Corporation. Other plant facilities built by the company are the design and construction of zinc fuming plant for American Smelting and Refining Company, a chemical plant for Darco Corporation, a cobalt refinery for Howe Sound Company, and similar projects for other mining companies.

Continuous maintenance contracts are currently being performed for Geneva Steel Company and the Salt Lake Refinery.

Production of iron ore from Utah's own iron mining property near Cedar City, Utah is 150,000 to 200,000 tons per month, ore is being shipped to Kaiser Steel Company at Fontana, California, to Geneva Steel Company at Geneva and Ironton, Utah, to Carnegie Illinois Steel Company at Chicago and Pittsburg, to Inland Steel Company at Chicago, and to others.

In British Columbia the Company is opening a new open pit mine which will be processed through a magnetic separator plant with a capacity of 75,000 tons per month.

Foley Brothers, Inc. of St. Paul, Minn., with seventy-five years experience in the mining and construction fields has a wide knowledge and experience in Minnesota conditions and activities on the iron range, and has performed construction work throughout the U. S., Canada, and Alaska. During the past 27 years Foley has operated the world's largest open pit coal mine at Colstrip, Montana, currently producing about two million tons of coal annually. The firm has acted as consultant and operator for the government of India in connection with open pit mines northwest of Calcutta and other similar projects.

7. (a) This property has been drilled, first for possible iron ore, and later for manganese ore, by three independent organizations. The first explorations were made by M. P. Botsford of Crosby, Minn. in 1913 and by the Crosby Exploration Company in 1917. Later, in 1947, the M. A. Hanna Coal and Ore Company put down a number of churn drill holes, and as recently as the fall of 1950, the U. S. Bureau of Mines made

a series of diamond drill holes. The logs of all of these holes are available, and the split cores may be seen at Region V headquarters, U.S.B.M., Minneapolis, Minn.

7. (a) Cont. The manganiferous material on this property appears to be extensive, and has been shown to be susceptible to beneficiation by simple procedures.

(b) While this property may be considered contiguous to the Cuyuna Range iron formation, it is distinct and separate from the existing mines and is removed from the nearest mine by more than twenty miles.

(c) The private reports which have been made on this property are confidential and not immediately available. All of the reports, however, are substantiated in all respects by those of the U.S.B.M., Region V.

8. See financial statement attached for officers and directors. The five largest stockholders are:

Allen D. Christensen &
Carmen Christensen
1 Montgomery Street
San Francisco, California

Thomas D. Dee
Ogden, Utah

Eccles Hotel Company
Ogden, Utah

E. O. Wattis Estate
% Shepard Mitchell
815 No. Bedford Drive
Beverly Hills, California

P. L. & Phyllis Wattis
220 Bush Street
San Francisco, California

8. & 9. See financial statement of The Utah Construction Company
" " " " " Foley Brothers Inc.
" " " " " Tintic Standard Mining Company

10. Operations have not reached the production stage.

11. Proposed production is at the rate of 12,500 L. T. per 24 hrs. for 300 days per year. This will yield 10,000,000 long ton units of manganese per year.

12. (a) The mineral body consists of bedded sedimentary deposits, considerably metamorphosed and lying in the form of eroded folded beds covered by aluvium some 150 feet thick. The mineral bed appears to vary from 150 to 250 feet in thickness. Assays have run from less than 1% to over 20% Mn. Average minable material is believed to run 4% Mn. The mineral consists of grains of manganiferous material of varying sized embedded in fine, dense clayey material.

12. (b) U.S.B.M. drilling log of 5/13/50, Aitkin County, Minn. Sec. Ref. 1072 is referred to as substantiation, and a plan of the drilling is attached.

Mineral reserve	Estimated tons	% Mn.	Total Mn. content	Total recoverable long tons	Est. Cost of prod.
Indicated	37,800,000 L.T.	3 3/4%	1,400,000	1,100,000	$6/ L. T. of 20% concentrate
Inferred	23,700,000 "	"	880,000	710,000	"

13. It will be necessary to build about two miles of access road from a good county highway. A railroad spur about ten miles long is required. The entire area is perfectly flat, and the cost of these access facilities would be at the minimum for such works.

14. Blind Lake, about 500 acres in extent, is about half a mile due north of the northwest corner of the section, and could supply all the water needed for beneficiation. There would be no seasonal shortage.

15. Power is available from the Minnesota Power and Light Co's grid, which is less than six miles distant. The rate for the estimated 20,000 kw required is under 1½/kw hr.

16. Varying numbers have been employed by previous interests to conduct drilling operations. None is employed at present.

17. There is no improvement on the property.

18. All conditions are believed to be described above.

FIRST DRAFT

Form MF-103

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950.

1 to 5, inclusive, are answered in form MF-100, which is attached.

6. Applicant is assignee of the lease.

7. Lease is in good standing. A copy of the agreement is attached.

8. A financial statement is attached to form MF-100, which accompanies this application.

9. Applicant is prepared to invest $50,000.00 in the exploration project. This sum exceeds our share of the cost as detailed in question 23, and according to the provisions of Section 9 of Mineral Order 5.

The Property

10. (a) The ore body lies in section 23, Township 48 N. range 27 west, Aitkin County, Minnesota.
(b) Explorations are to be conducted over a considerable portion of the entire section.

11. to 14, inclusive, are answered in form MF-100.

15. Mining will be done from an open pit, using power shovel loading and truck haulage. A gravity concentrating plant is to be erected on the property, and the 20% concentrate produced will be leached by a modified sulphur dioxide process, facilities for which will be erected on the property. The leaching process turns out a 60% manganese content sintered oxide, which is suitable for production of ferromanganese.

16 to 18, inclusive, are answered in form MF-100.

19. The foregoing answers are believed to cover the pertinent facts.

The Exploration

20. Explorations are to be conducted for manganese, indications of which have already been established by the drilling described previously. The deposit is believed to be a folded, bedded deposit, and is known to be of considerable thickness and extent. The ore contains manganese and iron as oxides, together with silica and alumina, which constitute the gangue.

21. It is estimated that about 30 holes should be drilled to substantiate further the reserve of mineral, and to gain other information necessary to plan a mine. It is expected that this work can be completed within four months of commencement. Tentative drilling sections are indicated on the plan which is attached, but it is expected that early findings will modify the plan as work progresses.

22. This property was originally drilled as a prospect for iron ore, owing to its position relative to the Cuyuna Range. Later exploration was made with the hope of developing a body of manganiferous iron ore. In the light of recent development of a process for leaching manganese, together with the susceptability of the ore to gravity concentration, the present program has been undertaken. Considerable ore is believed to exist, but the current exploration is necessary to justify large scale capital expenditure for development and production. The substantiation of this request lies in the drilling logs and metallurgical reports of work done on the ore. Photostatic copies of such reports as are available are attached to this application.

The Requirements and Costs

23. It is anticipated that drilling will be done under contract by firms engaged in doing this type of work in the iron ranges. Estimates of costs are based on recent experience of the U.S.B.M and the mining companies operating in the area.

FIRST DRAFT February 11, 1952

EXPLORATION EXPENSE

Drilling complete in 9 months 12000 ft. NX core @ $10.00	$120,000.00
12" hole for water measurement	20,000.00
Assaying complete in 10 months: 300 samples @ $6.95 1200 samples @ $1.70	 2,085.00 2,040.00
Geological supervision and evaluation complete in 12 months	7,200.00
Field office expense	12,500.00
	163,825.00
Overhead at 15%	24,575.00
	$188,400.00
Less 25% Private Funds	47,100.00
Government's Share (DMEA)	$141,300.00

FIRST DRAFT

EXPLORATION PROJECT CONTRACT

EXHIBIT "A"

It is proposed to utilize a supply of low grade manganiferous material occurring on Section 23-T48N R27W in Aitkin County, Minnesota. The mineral apparently occurs in folded beds whose axis is approximately SW-NE. Churn and diamond core drilling indicate an ore body roughly rectangular, about 1000' wide and from 5000' to 6000' long. The thickness of mineralization varies from 150' to 250'. This indicates a tonnage of 62,000,000. With an average content of manganese of 4% and an overall recovery of 75%, the reserve exceeds 100,000,000 long ton units of manganese.

Preliminary ore dressing work by three independent laboratories demonstrates that greater than 80% manganese recovery is possible when concentrating 4.5% ore to 20%. There should be no difficulty in achieving a similar result even with the grade of the ore falling to nearly 3%. This is due to the unusual characteristic of the formation, wherein the gangue exists chiefly as a very fine clayey material which may be washed away. Further refinement is then effected by gravity separation.

The area is perfectly flat, and the overburden consists of sandy loam, clay, gravel and boulders to a depth of 150' over the entire ore body. Because of this thickness of overburden, open pit mining operations must be carried out on a large scale to be economical.

With a proposed leaching plant designed for a yearly production of 10,000,000 long ton units of manganese as a 60% manganese sinter, and assuming 350 working days per year in the leaching plant and 300 working days in the mine, ore production would be 12,500 long tons per 24 hours.

Owing to the depth of overburden, the only means of sampling the ore has been through some 40 churn-drill holes and 7 diamond core-drill holes. These show the undoubted existence of an enormous quantity of potential ore, but information on the actual quality of ore which could be mined and closer delimeation of the ore body is needed.

In order to prove further the extent of the ore body it will be necessary to drill more holes. It is estimated that about 30 more holes should be drilled.

The plan calls for a period of about nine months for exploration.

EXPLORATION WORK

Approximately 30 holes are to be drilled to explore further the full extent of the ore body, and to determine its limits. Previous drilling indicates the apparent axis of the ore body, and the drawing, which forms a part of Exhibit "A", shows a system of cross sections set up on 500 ft. centers. The holes are shown, to indicate where drilling will commence, but the majority of the holes will be planned from the findings of preceding holes.

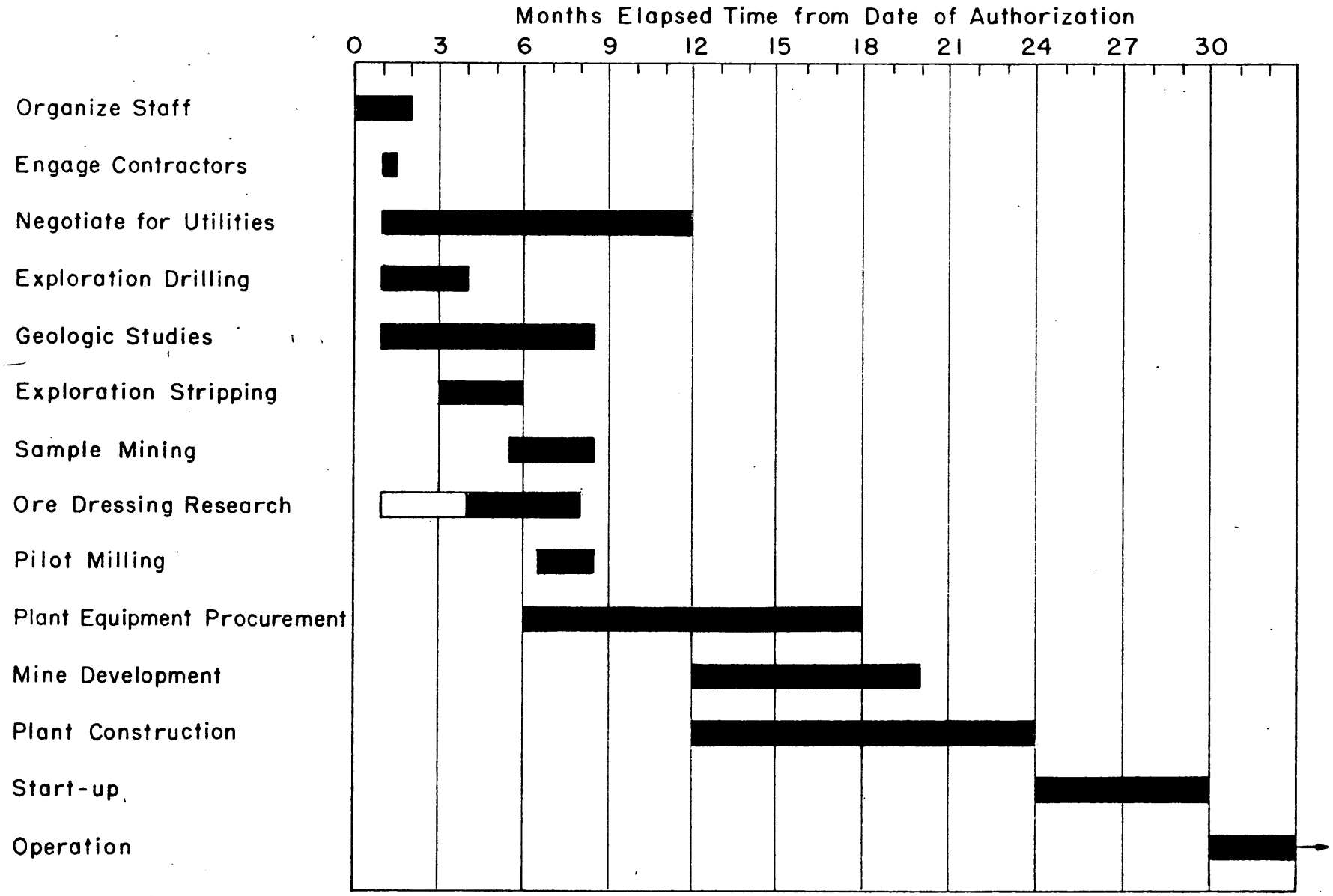
The drilling is to be conducted in a manner to provide maximum core recovery under difficult conditions.

February 11, 1952

EXPLORATION SCHEDULE

Drilling complete in 9 months	
12,000 ft. NX core @ $10.00	$120,000
12" hole for water measurement, complete in 6 months	20,000
Assaying complete in 10 months: 300 samples @ $6.95	2,085
1200 samples @ $1.70	2,040
Geological supervision and evaluation complete in 12 months	7,200
Field office expense	12,500
	163,825
Overhead at 15%	24,575
	$188,400
Less 25% Private Funds	47,100
Government's share (DMEA)	$141,300

Cuyuna Operation



FOLEY BROTHERS, INC.

CONSTRUCTORS
NEW YORK BUILDING
SAINT PAUL 1, MINN.

February 11, 1952

RECEIVED
FEB 15 1952
CHEMETALS

Mr. Conrad Beardsley
Chemetals Corporation
488 Madison Avenue
New York 22, New York

Dear Mr. Beardsley:

In answer to your telephone requests regarding quotations upon which to base an estimate for work to be done at Section 23:

A. Drill 12,000 Lin. Ft. of NX core hole, 30 holes @ 400 ft. each, pull rods every 3 ft. to 5 ft., prices to be all inclusive. Your requirement to have this work completed in a three months' period, perhaps cannot be met due to previous commitments of the drilling companies. A better price may also be arrived at when final negotiating is done.

1.	E. J. Longyear Company drill 12,000 Lin.Ft. NX hole @ $12.50 per ft.	$150,000.00
2.	Adex Corporation drill 12,000 Lin.Ft. NX hole @ $11.50 per ft.	$138,000.00
3.	Atkins-Walker Company drill 12,000 Lin.Ft. NX hole @ $10.00 per ft.	$120,000.00
4.	Layne-Minnesota Co. drill 12,000 Lin.Ft. NX hole @ $11.00 per ft.	$134,000.00

B. Drill one churn drill hole to check water table and also allow a pump test to check on possibility of lowering water to allow stripping overburden necessary to get 2,000 cubic yards of ore in lieu of sinking a shaft. No

1.	E. J. Longyear Company	150 Lin.Ft. @ $6.00	$ 900.00	6"
2.	Adex Corporation	150 Lin.Ft. @ 11.00	1,725.00	6"
3.	Atkins-Walker Company	150 Lin.Ft. @ 8.00	1,200.00	6"
4.	Layne-Minnesota Co.	150 Lin.Ft.	20,000.00	12"

Roads and snow removal additionl. Allow flood insurance.

C. Power availability:
An R.E.A. line of small power potential runs within 1½ miles of the property (7200 volts Y phase). Minnesota Power & Light Company with headquarters at Little Falls, Minnesota, have a high line with about 100,000 volts capacity approximately four miles from the project.

Mr. Conrad Beardsley February 11, 1952

D. Testing of samples:
Local testing laboratory is only capable of testing samples for manganese alone @ $1.75 per test.
Lucius Pitkin & Co. of Fulton Street, New York, with Dr. Bell as a contact and Ledous & Co. of New York with Mr. Bowden as a contact are two known laboratories of merit who are equipped to do this work on a quantitative basis. Lerch Bros. Hibbing, Minnesota are another group who can do a very good job, and they have quoted us. see attached sheet.

E. Excavation for samples in lieu of a shaft.
We do not believe a proper estimate of the cost of such an undertaking can be can be given without further investigation. However, as mentioned to you over the telephone Thursday by Mr. Sinclair, use of a $1.00 to $1.50 per cubic yard will not hurt anything if no one is bound to this estimate. The Layne-Minnesota Co., who are experienced in the art of dewatering on the Iron Range, do not feel they can give a firm price on this portion of the work - unwatering - from the data available.

What's this! I thought the drill holes were for the purpose of obtaining samples.

F. As discussed between Mr. Allen of Utah Construction Co. we of the engineering and construction division of the group are to be reimbursed for cash outlay and employees' time and expense plus a fee of 15% of total expenditure. ?

G. Some of the costs we believe the contractor servicing the job will incur are approximately $12,500.00 in a six months' period, which period will more than cover the drilling time if all goes according to plan. Contractor should be paid a fee of 15% of drilling price plus 15% of $12,500.00 if you can arrange this with the Bureau of Mines organization. ?

Yours very truly,

JGP:lq

DIAMOND DRILLING
SHAFT SINKING
GEOLOGICAL AND MINING REPORTS
MANUFACTURE OF DIAMOND DRILLS AND SUPPLIES

E. J. LONGYEAR COMPANY

MINING ENGINEERS
GENERAL OFFICE
FOSHAY TOWER
MINNEAPOLIS 2, MINNESOTA

February 4, 1952

Foley Brothers, Inc.
New York Building
St. Paul 1, Minnesota

Attention: Mr. J. G. Poore

Gentlemen:

Exploratory Diamond Core Drilling, Aitkin County, Minn.

Based upon our telephone conversation of February 1, we are pleased to submit below proposal for your contemplated exploratory drilling program to be carried out in Sections 23 and 27, 48-27, Aitkin County, Minnesota.

We understand that the work as now planned will consist of the drilling of a series of vertical holes approximately 400 feet in depth and comprising a minimum of 12,000 feet of drilling, and that all ledge material penetrated is to be diamond core drilled preferably at NX size except in those cases where it is necessary to reduce to BX or AX size as a means of completing the drill hole.

For this work, we propose to furnish initially one Longyear diamond core drill unit complete together with the necessary accessory equipment required to accomplish the work as now planned and, upon request, to furnish the second diamond core drill unit at such time as the second unit can be made available. We further propose to furnish all labor, power and equipment as may be required to complete the performance of this work. We also propose to furnish competent drill crews so as to operate the drill and/or drills on single- or double-shift basis, depending upon the availability of competent drill operators.

We will carry public liability insurance covering personal injury and property damage; Workmen's Compensation, Old Age Benefit, Unemployment and any other insurance on our employees required by state or federal laws; also, all-risk insurance on the drilling equipment protecting against loss by theft, fire, flood, land-slides and other similar hazards. Certificates showing the coverage referred to will be furnished if desired.

Based upon the conditions as outlined above, we quote as follows:

Overburden drilling, vertical holes only

0 to 100'	in depth, measured from the collar of the hole	..... $6.00 per ft.
100 to 200'	ditto	..... 6.75 " "
200 to 300'	"	..... 8.25 " "

Diamond core drilling

0 to 500' in depth, measured from the collar of the hole

NX size, recovering core approximately 2-1/8" in diameter...	$12.50	per ft.
BX " ditto ...	12.00	" "
AX " " ...	11.50	" "

It is agreed that reaming and casing operations, as required, will be carried out at the sole expense of the Longyear Company, with the understanding, however, that the casing may be extracted by the Longyear Company and at its expense upon completion of each drill hole.

Building access roads to drill site, when required	$ 7.50	per hr.
Drill hole survey tests	6.00	" "
Delays for your convenience or for which you are responsible	6.50	" "

It is understood that it will be necessary to drill one vertical hole to the bottom of the overburden for the purpose of securing certain information with regard to the elevation of the water table. We propose to drill this hole by standard wash-bore methods in which case it will be necessary that casing be carried down as the hole advances. In the application of this method, all water-bearing strata can be noted as the hole advances. It will not be possible, however, to carry out any pumping tests unless standard well fittings were furnished. The supply of such fittings, including pump or pumps, is not included as a part of this proposal. The size of pipe contemplated in the drilling of this hole would be three-inch.

Based upon the foregoing, we quote asfollows:

Overburden drilling by wash-bore methods, as specified in the preceding paragraph

0 to 100' in depth, measured from the collar of the hole	$ 7.00	per ft.
100 to 200' ditto	8.50	" "
200 to 300' "	10.00	" "

Core is to be turned over to your representative at the drill hole locations in receptacles furnished by you.

Statements will be rendered as promptly as possible after the first of the month.

We appreciate the opportunity of considering this work and, should our proposal be acceptable, we are prepared to commence drilling operations within four weeks following official notice to proceed with the work.

Yours very truly,

E. J. LONGYEAR COMPANY

V. N. Burnhart, Manager
CONTRACT DRILLING DIVISION

VNB:LT
ACCEPTED:
FOLEY BROTHERS, INC.

_____

ADEX
CORPORATION
CONTRACT DRILLING

ROBERT M. ADAMS, President

MALCOM M. ADAMS, Manager

DULUTH 2, MINNESOTA
12th Floor Fidelity Building
Phone 7-5033

IRONTON, MINNESOTA

February 4, 1952

Foley Brothers, Inc.
900 New York Building
St.Paul, Minnesota

Attention: Mr. J. G. Poore

Gentlemen:

Subject: Re Section 23 and 24 drilling.

As per your phone request of February 1 and per our discussion this morning, we should like to submit a bid of $11.50 per foot for all the drilling, regardless of depth, type or location. Adex Corporation will be responsible for procuring its own water, its own moving, any delays due to breakdown of machinery or loss of hole. In addition, Adex will supply the six-inch casing to be left in the ground for pumping as referred to in your conversation.

Foley Brothers are to be responsible for all spotting of locations, directions as to when the hole should be pulled or continued down, and the receiving of samples at the drill by their geologist.

The price we quote, though it may appear high, is as stated because there are requests for pulling core 3 to 5 feet which would neccesitate many more hours of pulling than the usual ten-foot sample. Also the size of the hole makes the drilling operation harder. In addition extreme depth, i.e. 400 feet increases the cost of drilling.

We wish to thank you for the opportunity of submitting a bid and trust that if this price is acceptable you will advise us shortly.

Very truly yours,

ADEX CORPORATION

Malcom M. Adams

Malcom M. Adams

MMA:ct

ATKINS-WALKER COMPANY

DIAMOND AND CHURN DRILL CONTRACTORS

ALWORTH BUILDING
DULUTH 2, MINN.

February 5, 1952

Mr. J. C. Poor, Manager
Foley Bros., Inc.
900 New York Building
St. Paul, Minnesota

Dear Sir:-

This letter confirms our telephoned quotation of prices for your proposed drilling program in Section 23-T48N-R27W, Aitkin County, Minnesota.

Prices are based on 12,000 feet of drilling, including approximately 4,500 feet of casing through over-burden, and 7,500 feet of NX diamond core drilling in ledge. It will also be necessary to case the soft portions of ledge to prevent contamination of sludge samples and to eliminate the possibility of caving material sticking the core barrel and rods in the hole. In the 6 holes which we drilled for the U. S. Bureau of Mines in the latter part of 1950, we found it necessary to blast down the casing after diamond drilling to depths ranging from 233' to 342'. These depths represent points at which ledge material was hard enough to support the weight of the casing and of such character that it would not cave.

We have two hydraulic-feed, heavy duty gas drills available for this work. We would operate on a double shift basis to begin with and increase to three shifts, if necessary, each shift working 48 hours per week. We estimate that with two shifts, the work can be completed in about nine months, and with three shifts, it will require about six months, not allowing for blizzards, floods, storms, fire, etc.

We will do this work at the following prices:

Drilling in surface - - - - - - - - - - - -	$ 5.90	per ft.
Churn drilling in ledge - - - - - - - - - -	7.50	" "
Diamond drilling, NX coring bits - - - -	10.00	" "
Reaming for casing - - - - - - - - - - - -	3.50	" "
Blasting down casing in ledge after diamond drilling - - - - - - - - - - - -	2.50	" "

Due to the nature of the ledge in the area to be drilled, we found that ledge could be cased satisfactorily by "blasting down". The method of advancing casing will be left to our judgment and determination.

Cementing, if necessary, per 8-hr. shift-	$65.00
Water supply from distance of more than 500 feet - - - - - - - - - - - - - - - - - -	At cost, but

not to exceed $25.00 per 8-hour shift. The $25.00 charge would provide a steam pump station which is necessary for winter operation. As soon as above freezing weather prevails, cost would not exceed $5.00 per shift for gasoline pump station, plus cost of work on water lines exceeding 500 feet in length. If the drill holes are not spread out too much, this cost would be very small. If it becomes necessary to haul water for drilling, this would be billed at our cost. However, it is not contemplated that this will be necessary.

Building and maintenance of roads, and
snow removal - Cost

If roads become impassable to crew owned transportation and it becomes necessary to transport crews in special equipment such as a Dodge Power Wagon or team of horses and wagon, such expense will be billed at our cost. Transportation by team and wagon would involve paying crews at least one hour wages to cover one-half of their travel time.

The area to be drilled has been known to be flooded at times by high water. In case of flood, any damages caused by high water to equipment would be reimbursed to us at our cost. Time during which drills are down because of flood will be paid for at the rate of $22.00 per shift (3 men at $4.00 each per shift, and equipment rental at $10.00 per shift).

Casing left in a hole will be billed for at our cost of replacement.

In case of long or difficult moves requiring more than three shifts from the time of beginning to pull casing, until the time drilling is begun at the next hole, such additional time will be charged at the rate of $8.00 per hour.

Invoices will be prepared at the end of each month and submitted by the 10th of the following month.

The conditions of this proposal are subject to continued availability of labor, materials, and supplies, and are based on presently effective wages and prices. Any industry-wide increases in wages will be reflected in a corresponding increase in the prices of this proposal.

Very truly yours,

ATKINS-WALKER COMPANY

By H. C. Walker
Vice-President

HCW:MCB

Dea
JGP
File

ATKINS-WALKER COMPANY

DIAMOND AND CHURN DRILL CONTRACTORS

ALWORTH BUILDING
DULUTH 2, MINN.

February 7, 1952

Foley Bros., Inc.
900 New York Building
St. Paul, Minnesota

Gentlemen:- Attn: Mr. J. G. Poor, Manager

Referring to our proposal dated February 5th covering the drilling in Section 23 north of Aitkin, Minnesota, we overlooked one item which is generally understood in our contracts with the Mining Companies, i.e., that the Mining Company furnishes core boxes for storing core samples and cloth sacks for holding dried sludge samples. Some of the companies even prefer to furnish their own sludge settling tanks. If you do not choose to furnish sludge settling tanks, we will furnish them without cost to you.

We can also furnish cloth sample sacks and wooden core boxes, but we will have to charge you for these items at our cost. We estimate that core storage boxes for NX core will cost about 15¢ to 20¢ per foot of core for boxes holding 20 feet of core in eight 2½-ft. sections or four 5-ft. sections. An order for core boxes to take care of as much as 7,500 feet of core might possibly bring the cost down to about 10¢ per foot.

Cloth sample sacks cost about 30¢ to 60¢ each, depending on the size. It is customary to store one 5-ft. sludge sample per sack. Dried samples in cloth sacks can be transferred to paper sacks in the laboratory and the cloth sacks can be used over again many times so that the ultimate cost would be very small.

One other item which we omitted from our proposal and wish to add thereto, reads as follows:

Delays caused by Mining Company or its representatives - - - - - - - - - - - - - - - $7.00 per hour

This last provision for delay time is intended to cover delays in providing drill hole locations and any other temporary work stoppage ordered for the convenience of the Mining Company while awaiting orders, etc. It is seldom that such a charge is necessary.

Very truly yours,

ATKINS-WALKER COMPANY

By H. C. Walker
Vice-President

HCW:MCB

ESTABLISHED 1892

LERCH BROTHERS INCORPORATED

THE IRON ORE CHEMISTS

CONSULTING SERVICE — MINNESOTA AND ONTARIO

GENERAL OFFICES

CORNER N. 4TH AVE. W. AND GRANT STREET

MAIL ADDRESS — P. O. BOX 810

HIBBING, MINNESOTA

MINNESOTA LABORATORIES

EMBARRASS MINE
CORSICA MINE
VIRGINIA
ALBANY MINE
HIBBING (Special)
SCRANTON MINE
MAHONING MINE
BENNETT MINE

MINNESOTA LABORATORIES

HAWKINS MINE
HILL-ANNEX MINE
DANUBE MINE
CROSBY
SPRING VALLEY MINE

CANADIAN LABORATORY

STEEP ROCK LAKE, ONT.

February 6, 1952

Foley Brothers, Inc.
900 New York Bldg.
St. Paul 1, Minnesota

Attn: Mr. J. G. Poore

Gentlemen:

In confirming our telephone conversation of February 5, 1952, we are pleased to quote the following.

When your samples can be handled in the usual Mesaba Range Method of analyses we can quote you a flat charge of $1.00 per determination for each iron, phosphorous, manganese, and silica analysis. For the determination of lime (CaO) and magnesia (MgO) we quote you a flat rate of $1.25 per determination. For sodium (Na) and potassium (K) we quote you a price of $4.00 per determination. Our rates vary according to the quantity of determinations analyzed for a customer during the fiscal year from December 22nd to the following December 21st. If you should favor us with more than 100 determinations for this period of time we then would charge you at the rate of $.90 per determination. It is our practice to bill our customers, whose number of determinations is small, at the $1.00 rate per determination, and then at the end of the fiscal year, issue them a credit in the form of cash, according to our quantity discount schedule. Our quantity discount schedule is as follows:

Less than		100 determinations per year	$1.00
101	to	500 determinations per year	.90
501	to	1000 determinations per year	.85709
1001	to	2000 determinations per year	.84709

There is no discount for quantities of determinations of lime, magnesia, sodium or potassium.

We are confident that we can give you satisfactory service out of our Crosby Laboratory which is only a few miles from Aitkin. We hope that we may include you as one of our customers.

Sincerely,

Sander G. Lawrence

Sander G. Lawrence
Vice President

CHARLES W. BRITZIUS
PARTNER

JOHN F. GISLASON
PARTNER

JHP ✓ DEA manganese file

TWIN CITY TESTING AND ENGINEERING LABORATORY

CHEMICAL & PHYSICAL TESTS • INSPECTIONS • RESEARCH
2440 FRANKLIN AVENUE NESTOR 4074
St. Paul w4, Minn.

February 6, 1952

Mr. J. G. Poore,
Foley Brothers Construction Company,
900 New York Building,
St. Paul, Minnesota.

Dear Mr. Poore:

This will confirm our telephone conversation on February 5th concerning our fees for the analysis of manganese ore cores for the determination of manganese, and every fifth sample the determination of manganese, iron, calcium oxide (lime) magnesium, sodium, potassium and carbonate.

I wish to advise at this time that we can only run the samples for manganese content. Our fee for this determination would be approximately $1.75 per sample, which would include the preparation of the sample for analysis. The above quotation is subject to an adjustment when we know the type of ore (mineral constituents).

In accordance with our conversation, I would recommend the following laboratories to do all of the ore analysis, or the part which we are not able to do:

Lucius Pitkin, Inc.
47 Fulton Street,
New York 7, N. Y.

Ledoux and Company,
155 Avenue of the Americas,
New York 13, N. Y.

Very truly yours,

TWIN CITY TESTING AND
ENGINEERING LABORATORY

Albert C. Holler
Director, Chemistry Division

ACH:LJ

AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL.

FIRST DRAFT February 11, 1952

PRO FORMA

DRILLING CONTRACT

The contractor undertakes to drill 12,000 linear feet of diamond core-drill holes, using NX core bits, etc.etc.

FIRST DRAFT February 11, 1952

PRO FORMA

ASSAYING CONTRACT

The contractor undertakes to assay 1500 samples of ore, taken from diamond drill cores and sludge, approximately 300 of these samples to be assayed for:

Manganese

Iron

Calcium

Magnesium, Sodium, Potassium, combined

Silica

and 1200 to be assayed for manganese and iron only.

OPTION

KNOW ALL MEN BY THESE PRESENTS: That WHEREAS, the undersigned "Optionors", KAY TODD and SINCLAIR H. TODD, his wife, and EDWARD P. SCALLON and FRANCES SCALLON, his wife, all of the City of St. Paul, Ramsey County, Minnesota, are named as Lessees in and are the owners of a Mining Lease dated January 1, 1950, wherein Andyck Corporation, a New York Corporation, of Yonkers, New York, leased to these Optionors for a period of fifty (50) years from date

> All of Section Twenty-three (23), Township Forty-eight (48), Range Twenty-seven (27), Aitkin County, Minnesota,

for general mining purposes as therein enumerated, and subject to the conditions in said Lease set forth; and

Whereas, Tintic Standard Mining Co., of Salt Lake City, Utah; Nellie B. Mining Co., of Picher, Oklahoma; Hubert E. Howard, of Chicago, Illinois; Harold E. Raddatz, of La Jolla, California, and William M. Hayden, of New York City, New York, hereinafter designated as the Optionees, have now concluded negotiations with the undersigned Optionors for the purpose of procuring an Option, with privileges of exploration and research development, to purchase a Contract of Assignment of the aforementioned Lease and establishing the respective rights and obligations of all of the aforesaid parties in connection therewith; said Contract of Assignment to be in the form of Exhibit "A" attached hereto and made a part hereof;

NOW, THEREFORE,

(a) In consideration of the sum of Twenty-Five Thousand dollars ($25,000.00) in hand paid, the receipt whereof is hereby acknowledged by the Optionors, the above named Optionors do hereby grant to the said Optionees the sole and exclusive right and

privilege: (1) to demand and take said Contract of Assignment from the Optionors at any time up to and including the first day of April, 1951, upon the payment on or before said date of a purchase price of Two Hundred Twenty Five Thousand dollars ($225,000.00); and (2), as an alternative, at their election, to renew this Option for a period from the first day of April, 1951; and, in case that is done, to demand and take from the Optionors the aforementioned Contract of Assignment on or before September 1, 1951, upon the payment of a purchase price of Two Hundred Twelve Thousand Five Hundred dollars ($212,500.00), together with interest on said sum at the rate of four per cent per annum from April 1, 1951; and (3), as a further alternative, at their election, to renew this Option for an additional period from the first day of September, 1951, to and including the first day of April, 1952, upon the payment to the Optionors on or before said first day of September, 1951, of the sum of Twelve Thousand Five Hundred dollars ($12,500.00), together with interest on the sum of Two Hundred Twelve Thousand Five Hundred dollars ($212,500.00) at the rate of four per cent per annum from April 1, 1951; and in such event, to demand and take from the Optionors the aforementioned Contract of Assignment on or before April 1, 1952, upon the payment of a purchase price of Two Hundred Thousand dollars ($200,000.00), together with interest on said sum at the rate of four per cent per annum from September 1, 1951; upon which date of April 1, 1952, this Option shall have been exercised in the manner aforesaid or it shall cease and terminate and be of no further force and effect.

(b) The Optionors do hereb further give and grant to the Optionees during the life of this Option and any renewal thereof, the sole and exclusive right and privilege to enter upon all or any

part of the optioned premises for the purpose of examining and exploring the same for iron ores and other ores in a manner conforming to good engineering and mining practice, and to take away samples of ore materials found therein by testing, drilling or other process, to undertake metallurgical research and experiments thereon and to erect such structures and install such equipment as may be necessary therefor, and in any other manner which may be not in conflict with the terms of the af re-mentioned Mining Lease to carry on activities involving studies preliminary to the development of a mining operation.

(c) The Optionees shall have the right to contract with others to exercise in their behalf the privileges hereinabove granted; all of the operations herein referred to, whether conducted by the Optionees or others, to be done without damage or loss for which the Optioners would be liable under the terms of sai lease.

(d) The Optioners reserve the right during the period of this Option or any renewal thereof to enter upon the premises for the purpose of examination and inspection of the work being con-ducted by the Optionees or others in their behalf, and to demand and be furnished samples of ore or ore-bearing materials being removed therefrom and copies of charts, prints, analyses, drilling reports, research reports and all other data with respect to such operations at the time when the samebecomes available to the Optionees.

(e) This Option may be abandoned and surrendered at any time by giving the Optioners ten days' notice inwriting of the election of the Optionees so to do. Upon any such surrender or termination of this Option, the Optionees shall have a period of thirty (30) days thereafter within which to remove from the optioned premises all tools, supplies, equipment, structures and other chattels of any nature placed thereon by the Optionees during the life of this Option.

(f) Time of performance is of the essence of this Option, and the privileges herein granted shall be considered exercised only by the payment of the sums of money hereinbefore specified at the designated times into the hand of or to the credit of the Optionors at St. Paul, Minnesota.

(g) Any notice required or desired to be given hereunder shall be in writing and forwarded by registered mail to the respective parties at the following addresses or at such other address as any of the parties may from time to time designate.

Kay Todd, W-2681 First National Bank Building
St. Paul 1, Minnesota.

Edward P. Scallon, 137 E. 8th Street
St. Paul 1, Minnesota

Tintic Standard Mining Co.
Salt Lake City, Utah

Nellie B. Mining Co.
Picher, Oklahoma

Hubert E. Howard
Chicago, Illinois

Harold E. Raddatz
La Jolla, California

William M. Hayden, 488 Madison Avenue
New York, N. Y.

(h) The conditions of this Option shall run with the land and insure to the benefit of or be binding upon the respective representatives, heirs, successors and assigns of the parties herein named.

IN WITNESS WHEREOF, This instrument has been executed at St. Paul, Minnesota, by the undersigned Optionors as of November 13, 1950.

IN PRESENCE OF:

Philip J. Mackey /s/

Lillian M. Gardelin /s/
As to Kay Todd and Sinclair H. Todd.

Kay Todd /s/

Sinclair H. Todd /s/

Philip J. Mackey /s/

Lillian M. Gardelin /s/
As to Edward P. Scallon and Frances Scallon

Edward P. Scallon /s/

Frances Scallon /s/

STATE OF MINNESOTA)
SS
COUNTY OF RAMSEY)

On this 7th day of December, 1950, before me, a Notary Public within and for said County, personally appeared KAY TODD and SINCLAIR H. TODD, his wife, to me known to be the persons described in and who executed the foregoing instrument, and each acknowledged the same as his free act and deed.

Philip J. Mackey

STATE OF MINNESOTA)
SS
COUNTY OF RAMSEY)

On this 7th day of December, 1950, before me, a Notary Public within and for said County, personally appeared EDWARD P. SCALLON and FRANCES SCALLON, his wife, to me known to be the persons described in and who executed the foregoing instrument, and each acknowledged that he executed the same as his free act and deed.

Philip J. Mackey

Notary Public
Ramsey County, Minn

EXIBIT "A"

CONTRACT OF ASSIGNMENT

THIS INDENTURE, Made and entered into this _____ day of _____, 19_____, by and between KAY TODD and SINCLAIR H. TODD, his wife, EDWARD P. SCALLON and FRANCES SCALLON, his wife, all of the City of St. Paul, Ramsey County, Minnesota, parties of the first part, hereinafter referred to as the "Assignors", and TINTIC STANDARD MINING COMPANY, of Salt Lake City, Utah; NELLIE B. MINING COMPANY; of Picher, Oklahoma; HUBERT E. HOWARD, of Chicago, Illinois; Harold E. RADDATZ, of LaJolla, California, and WILLIAM M. HAYDEN, of New York City, New York, parties of the second part, hereinafter referred to as the "ASSIGNEES";

WITNESSETH THAT:

For and in consideration of the sum of _____ _____ Dollars in hand paid to the Assignors, the receipt and sufficiency whereof if hereby acknowledged, and in further consideration of the covenants and conditions of this Contract to be performed and observed by the parties hereto, the above named Assignors do hereby sell, assign, transfer, convey and set over unto the Assignees all of their right, title and interest in and to that certain Lease dated January 1, 1950, by and between Andyck Corporation has leased to the Assignors, for mining purposes, the following described land:

All of Section Twenty-three (23), Township Forty-eight (48), Range Twenty-seven (27), Aitkin County, Minnesota.

TO HAVE AND TO HOLD the same unto the said Assignees, their successors and assigns, for a period until July 1, 1999, which is six months prior to the expiration date of said Lease, and all of the Assignors' right, title, estate and interest in and to said Lease and the lands thereby demised, together with all the hereditaments and apputenances, rights and privileges thereunto belonging; upon the condition that said Assignees shall observe and perform all of the covenants and conditions which have been hereby undertaken by them.

The Assignors covenant and agree, for themselves, their executors and administrators, that they are the true and lawful owners of said Lease, and that said leasehold interest is free and clear from all claims and insumbrances, and that they have good right and full power to sell, assign, transfer and convey the same in the manner hereby pursued.

It is understood and agreed between the parties as follows:

1. ASSUMPTION OF LEASE

The Assignees hereby assume all the obligations of the Assignors under the terms and provisions of said Lease; that they will not permit a default to occur in the observance of said obligations; and that at the conclusion of the term of this Assignment or at the time of any earlier cancellation or termination of either said Lease or this Assignment pursuant to the provisions providing therefor, they will execute and deliver to the Assignors a recordable instrument of reassignment of their leasehold interest. The privilege of surrendering said Lease from Andyck Corporation as set forth therein is expressly reserved to the Assignors and is not to be exercised by the Assignees.

2. Royalty

The Assignees hereby covenant and agree that they will on the 20th day of April, July, October and January in each year during the period this Assignment of Lease shall continue in force pay to the Assignors for all iron ore, manganese ore and manganiferous ore or concentrates thereof mined and removed from the leased premises and shipped to market during the three months preceding the first day of the month in which payment is to be made as aforesaid an over-riding royalty, consisting of the difference between the royalty paid by them to the Lessor under the terms of said Lease and one to be computed at the following base rates per gross ton of 2240 pounds of ore so removed and shipped:

Ore with natural manganese content of less than 13%							$ .60
Ore with natural manganese content of 13% up to but not including						14%	.80
"	"	"	"	"	14%	15%	.90
"	"	"	"	"	15%	16%	.95
"	"	"	"	"	16%	17%	1.00
"	"	"	"	"	17%	18%	1.05
"	"	"	"	"	18%	19%	1.10
"	"	"	"	"	19%	20%	1.15
"	"	"	"	"	20%	21%	1.20
"	"	"	"	"	21%	22%	.08*
"	"	"	"	"	25%	30%	.10*
"	"	"	"	"	30% and above		

to be negotiated or arbitrated if its application becomes necessary.

(*additional per percentage point unit; additional cents per percentage point unit, i.e., 21% ore would carry a rate of $1.28; 22% ore would carry a rate of $1.36, etc.)

Provided, however, that when the f.o.b. mine price of Mesabi non-Bessemer ore averaging 51.50% iron natural is in excess of $5.105 per ton, the royalties herein stipulated shall be increased by twenty (20) percent of such excess over $5.105. As used herein, the "published Lake Erie price" is that price generally recognized, means the average market price per ton for ores of the by the iron ore trade, or if no such price is published & recognized,

kind and grade corresponding to the present Mesabi non-Bessemer grade sold for delivery at Lake Erie ports during the season of navigation current at the time of shipment for the then current season's sale and delivery by the principal dealers in such ore. To fix the f.o.b. mine price, there shall be deducted from such "published Lake Erie price" all charges from mine to Lake Erie ports which are included in such "published Lake Erie ports which are included in such "published Lake Erie price" under the then current season's ore sale contracts, the deduction for the year 1950 being:

Upper Lake rail freight plus dock	$1.05
3% Transportation Tax	.0315
Lake freight plus unloading charge (hold to rail of vessel)	1.45
3% Transportation Tax	.0435
Miscellaneous	.02
Total - - - - - - - - - - - - - - - - -	$2.595

(The published Lake Erie price at the date hereof is $7.70 from which should be subtracted $2.595 covering the above charges which results in a current mine price of $5.105.)

Provided, however, anything herein to the contrary notwithstanding, the royalty payable under this Assignment of Lease shall never be less than the base rates established in the foregoing schedule.

3. Minimum Royalty.

The Assignees further agree with the Assignors that beginning as of April 1, 1953, they will pay to the Assignors in quarterly instalments on the 20th day of April, July, October and January in each year, a minimum annual royalty in the amount of the difference between the sum of $25,000.00 and the minimum annual royalty required to be paid to Andyck Corporation; provided, however, that if in any one year or more royalties for the shipment of ore actually mined and removed from said premises shall be paid in an amount in excess of said established annual minimum royalty, then and in such case the amount of such excess may be applied in any subsequent year as a pre-payment on such royalty as may accrue for that year over and above the stipulated annual minimum royalty for said year.

4. Credit for Royalty Paid

The Assignees agree that, when they shall become entitled to credit against royalties to be paid to the Andyck Corporation to the extent of minimum royalties heretofore paid by the Assignors to Andyck Corporation, they will upon taking such credit pay to the Assignors the amounts so credited by way of reimbursement and

as further consideration for this Contract of Assignment. At the date of this Assignment the Assignors are entitled to credits for advance royalty paid to Andyck Corporation in the amount of _____ Dollars, for which reimbursement is thus provided.

5. Payment of Royalty Taxes

The Assignees hereby agree to pay to the proper public authorities whatever royalty tax or other assessment may be levied upon royalty payments made to the Assignors with duplicate tax receipts showing the payment of all such taxes and assessments made by them hereunder. Provided, however, that the Assignees shall be at liberty to contest in the Courts or otherwise the validity of any such tax before they shall be required to pay and discharge the same, upon the condition, however, that they shall not permit or suffer the said premises or any ore mined thereon to be sold at any time for any of such taxes.

6. Furnishing of Reports

The Assignees agree to furnish to the Assignors at the time specified in said Lease duplicate reports of exploration, mining operations, shipments and ore treatments required to be furnished to Andyck Corporation under Paragraphs Ten (10), Eleven (11), Twelve (12), and Thirteen (13) of said Lease.

7. Right of Inspection

The Assignors of their agents shall at all times have the right to enter upon said lands or upon any other lands upon which ore from the leased premises shall be stockpiled or treated for the purpose of observing the manner of handling said ore and treating same, and to check its quantity and quality, but not in any manner to interfere with the operations of the Assignees; and the Assignees agree to furnish the Assignors with such additional information from time to time as may be reasonably requested covering any matters pertaining to the mining, treatment, shipment, and removal of the ore.

8. Assignment and Subletting

The Assignors agree that the Assignees shall have the right to assign this contract and to sublet said lands for all the purposes of said mining lease, or to contract with others to operate any mine or mines on said lands, but no assignment of their rights by the Assignees shall relieve them of their obligation hereunder unless and until such assignment shall have been approved in writing by these Assignors.

9. Surrender

The Assignors agree that the Assignees not being in default hereunder may terminate this Contract of Assignment and the estate

hereby granted on the last day of any quarterly period in any year by giving to the Assignors written notice of their election so to do not less than sixty (60) days prior to the effective date of such surrender, and by paying to the Assignors prior to the date of suh termination all sums that shall then have accrued to them thereunder, whether payable then or thereafter, and by performing all the covenants and agreements and observing all the conditions hereof on the part of the Assignees to be performed and observed up to the date of such termination; and thereupon all obligations hereunder of the parties hereto shall cease and terminate except the obligations of the Assignees to pay all taxes payable by them hereunder which shall not be payable on the date of such termination.

10. Termination on Default

In case of default by the Assignees this Contract of Assignment may be terminated by the Assignors upon sixty (60) days' notice; provided if the default involves matters which are subject to arbitration under this compact, and the Assignees deny the default, the termination shall not be effective until sixty (60) days after final determination that a default exists. Should the claimed default involve the payment of money by the Assignees, then the Assignees shall pay the amount in dispute and should it subsequently be determined that the amount so paid was not due, then the Assignors shall reimburse the Assignees for the amount so paid with interest at the rate of 4% per annum from the date of such payment. In any event, the termination shall not become effective if the default is cured within said sixty (60) days after giving notice as above provided or, to the extent that it cannot be cured by performance, if the Assignees shall pay the damages for default as determined by arbitrators within sixty (60) days after such determination. In the event of the insolvency, bankruptcy, or receivership of all or any of the Assignees, or should an execution against either or any of them remain unsatisfied, no are shall thereafter be removed unless paid for in advance or satisfactory security be furnished to the Assignors.

11. Assignors Right to Remedy Default

If, upon default or claim of default in the performance of the terms of the Lease from Andyck Corporation, committed or permitted to exist by the Assignees hereunder, and said Andyck Corporation shall give notice to the Assignors of the termination of said Lease under the provisions thereof, the said Assignors hereby expressly reserve to themselves the right to make good such default so as to maintain said lease in good standing and upon doing so shall have the right to charge against the account of the Assignees all sums of money paid out together with expenses, attorneys' fees, and any other costs which they shall have borne in connection therewith, which amounts shall be immediately due and payableand shall bear interest at the rate of 6% per annum from the time that the same were paid by the Assignors until the date of repayment. Until repayment is made, such sums shall be secured by the Assignors by lien as hereinafter provided.

12. Rights of Parties on Surrender or Termination

Upon the termination of this Contract of Assignment in any

manner and for any cause whatsoever, the Assignees shall peaceable surrender said lands to the Assignors, and being in default hereunder shall have sixty (60) days after such termination in which to remove all engines, tools, machinery, railroad tracks, frames, structures and other chattels erected or placed by the Assignees on said premises but shall not have the right to remove or impair any supports placed by the Assignees on said premises in any mine or any timber or frame work necessary to the use and maintenance of the shafts or approaches to such mine, nor any tramways therein, nor to impair the stability of any such mine or shafts on any such lands.

13. Retention of Lien

The Assignees agree that the Assignors shall at all times have, possess and hold a lien upon all ore mined from said lands and the concentrated product thereof until the same shall have been actually shipped away from said lands or from the place of treatment if treated off said lands, and all movable machinery, implements and personal chattels of the Assignees which shall be on said lands as security for the payment of all royalty, taxes, or other claims arising hereunder and that become payable hereunder, which lien may be enforced against such property in like manner as chattel mortgage liens may be enforced against such property in like manner as chattel mortgage liens may be enforced under the laws of the State of Minnesota in such case made and provided.

14. Arbitration

Any disagreement or controversy between the parties hereto shall be determined by arbitration in the manner and with the effect provided for in Paragraph 20 of the Lease between Andyck Corporation and these Assignors. In the application of the provisions of said paragraph, the Assignors and Assignees shall occupy the positions of the respective Lessor and Lessees referred to in the Andyck Corporation Lease, and otherwise the provisions of said paragraph are incorporated herein by reference the same as though fully set forth at this point.

15. Interests of Assignors

As for the interests of the Assignors in this Contract of Assignment, they do hereby declare that they are each the owners of an undivided one-half interest in the leasehold hereby assigned and that unless written notice is given to the contrary, payment of royalty is to be made to them in that proportion.

16. Interests of Assignees

As for the interests of the Assignees in this Contract of Assignment, they do hereby declare that they take the following undivided interests therein:

Tintic Standard Mining Company, a one-third interest;

Nellie B. Mining Company, a one-third interest;

Hubert E. Howard, a one-ninth interest;

Harold E. Haddatz, a one-ninth interest; and
William M. Hayden, a one-ninth interest

17. Notices

Any notices to be given hereunder shall be in writing and sent by registered mail addressed respectively as follows:

Kay Todd, K-2681 First National Bank Building,
St. Paul 1, Minnesota

Edward P. Scullion, 137 East Eighth Street,
St. Paul, 1, Minnesota

Tintic Standard Mining Company,
Salt Lake City, Utah

Mollie B. Mining Company,
Picher, Oklahoma

Hubert L. Howard,
Chicago, Illinois

Harold E. Saddatz,
La Jolla, California

William M. Hayden, 458 Madison Avenue,
New York 22, New York.

Any parties desiring to record a change of address shall notify the others in writing to that effect.

18. Obligations to Run with the Land

The covenants, conditions and agreements herein contained shall inure to the benefit of, and be obligatory upon the heirs, personal representatives, successors and assigns of the parties hereto, and the same shall run with the land.

IN TESTIMONY WHEREOF, the parties hereto have executed this agreement as of the day and year first above written.

(To be executed and acknowledged by the contracting parties)

EXHIBIT I

MINING LEASE

THIS AGREEMENT, made and entered into as of the 1st day of January, 1950, by and between ENDYCK CORPORATION, a New York Corporation, of Yonkers, New York, as party of the first part, hereinafter called the "Lessor", and KAY TODD, of St. Paul, Minnesota, and EDWARD P. SCALLON, of St. Paul, Minnesota, parties of the second part, hereinafter called the "Lessees",

W I T N E S S E T H:

1. Ownership of Land.

The Lessor hereby represents that it is informed and believes that at the date hereof it is well seized of the following described lands, hereinafter called "the leased premises", situated in Aitkin County, Minnesota, viz:

All of Section Twenty-three (23), Township Forty-eight (48), Range Twenty-seven (27),

but it is distinctly understood that the Lessor makes no warranties whatever with respect to the title to said premises, except that it has not made, done or executed any act whatsoever whereby said premises may be encumbered or imperilled.

2. Granting Clause.

In consideration of the sum of One Dollar ($1.00) to it in hand paid by Lessees, the receipt and sufficiency of which is hereby acknowledged and in further consideration by Lessees of the covenants and conditions herein contained to be kept and performed by them, and in further consideration of the payment of One Thousand One Hundred Thirty-six Dollars and Ninety-three Cents ($1,136.93) by Lessees to Lessor, Lessor does hereby lease to the Lessees the leased premises for the term of fifty (50) years from and after the date hereof, unless this agreement is earlier terminated in accordance with the provisions hereof, with all surface rights, and also all rights to explore for, develop, mine, by open pit or underground methods or both, treat and remove all iron ore, manganiferous iron ore, siliceous ore and other ores, metals and materials found therein and thereon.

3. Habendum Clause.

To HAVE AND TO HOLD said lands to the Lessees for and during said term upon condition that the Lessees shall well and truly perform, keep and observe each and every of the covenants, agreements and conditions hereinafter contained and on the part of the Lessees to be performed, kept or observed.

4. Treatment of Ores.

It may prove to be economically feasible to dry ore from said lands or to concentrate it, or to treat it in some other manner; therefore Lessor hereby agrees that Lessees shall have the right at this option to dry, wash, screen or other wise treat any of such ore, and that the royalty herein provided for shall, as to any ore thus treated, accrue on the

product of such treatment and not on the crude ore before such treatment. Such treatment of ore may be conducted by Lessees either on said lands or on other lands in the vicinity available for the installation of a plant adapted to such purpose, provided that the Lessees shall first obtain the fee title to such other lands or such a lease thereon that the lien and rights of Lessor in any ore removed thereto shall be fully preserved and protected to the same extent as thought shuch ore had remained on said lands. Any ore removed from the leased premises to any other lands for the purpose of treating the same shall not be deemed to be mined and removed from said lands so as to cause the royalty thereon to accrue, and such royalty shall not accrue until the product or concentrate resulting from such treatment shall be actually shipped from the place of treatment to market. In the event Lessees shall erect on the leased premises a plant for the treatment of ore mined therefrom, they shall have the right to treat in such plant ore mined and removed from other lands. Ore mined from the leased premises and the product of any treatment thereof shall be kept separate and apart from all other ores and ore concentrates, until the ore from the leased premises shall have been weighed or royalty has been paid thereon, and all said operations shall be conducted and completed within a reasonable length of time. In case such treatment shall be conducted on the leased premises, Lessees agree that any refuse or waste arising from such treatment shall be so deposited as not to interfere with the future operation of any mine or mines on the leased premises. Lessees agree to conduct the washing, screening or other treatment of any such ore in a good and workmanlike manner and according to good engineering practice and sound business judgment and so as not to cause any greater waste of such ore than is necessary to render the ore product or concentrate thereof merchantable and of proper composition and character for successful and economical furnace use, and that they will use in any such treatment proper machinery and appliances to that end.

2. Royalty.

The Lessees hereby covenant and agree that they will on the 20th day of April, July, October and January in each year during the period this Lease shall continue in force, pay to the Lessor for all iron ore, Manganese ore and manganiferous ore or concentrates thereof mined and removed from leased premises and shipped to market during the three months preceding the first day of the month in which payment is to be made as aforesaid, a base royalty at the rate of twenty-two and one-half cents (22½¢) per gross ton of 2,240 pounds of ore so removed and shipped.

Provided, however, that when the F.o.b. mine price of Mesabi Non-Bessemer ore averaging 51.50% iron natural is in excess of $3.75 per ton, the royalties herein stipulated shall be increased by ten per cent (10%) of the excess over $3.73. As used herein, the "published Lake Erie Price" is that price generally recognized by the iron ore trade, or if no such price is published and recognized, means the average market price per tonfor ores of the kind and grade corresponding to the present Mesabi Non-Bessemer grade sold for delivery at Lake Erie ports during the season of navigation current at the time of shipment for the then current season's sale and delivery by the principal dealers in such ore. To fix the f.o.b. mine price there shall be deducted from such "published Lake Erie price" all charges from mine to Lake Erie ports which are included in such "published Lake Erie price" under the then current season's ore sale contracts, the deduction for the year

1948 being

Upper Lake Rail Freight	1.05
3% Transportation Tax	.0276
Lake Freight	1.15
3% Transportation Tax	.0345
Unloading Charge (Hold to Rail of Vessel	.18
3% Transportation Tax	.0054
Arbitrary	.02
	2.4675

Provided, however, anything herein to the contrary notwithstanding, the royalty payable under this lease shall never be less than the said rate of twenty-two and one-half cents (22½¢) per gross ton of 2240 pounds of ore.

6. Minimums

The Lessees further agree with the Lessor that during the period in which this lease agreement continues in force, they will mine or cause to be mined from said land and shipped as defined herein the following minimum amounts of direct shipping ore and/or ore concentrates, namely, at the rate of 2,500 tons per year for each of the first three (3) years of the term of said lease, and at the rate of 5,000 tons per year for the fourth (4th) year of said term and each year thereafter. In case the Lessees shall not so ship the full quantity of the agreed minimum output hereby stipulated to be mined and shipped in any such year, the Lessees shall nevertheless pay to the Lessor a royalty of twenty-two and one-half cents (22½¢) per ton on the tonnages stipulated to be mined and shipped for that year until this Lease shall expire or be terminated in manner herein expressed; provided, however, that if in any one year more iron or manganese ores or concentrates thereof are thus paid for in excess of what is actually mined and shipped in such year or years, then and in such case such ores and concentrates not removed may be removed in any subsequent year during the continuance of this Lease without payment therefor, but such iron ore or concentrates so permitted to be moved in such subsequent year, in consideration of such prepayment therefor, must be in excess of the stipulated minimum amount of tons agreed to be taken from the leased premises for that year under this contract. The Lessees agree that they will pay all of such royalties on the 20th day of April, July, October and January in each year during the period this lease shall continue in force.

7. Manner of Operation

Lessees shall conduct all operations hereunder in a good, skillful and workmanlike manner and in accordance with good engineering practice, and will not do, or cause or suffer to be done anything which will hinder, prevent or detract from the profitable development and use of said lands as an iron ore or manganiferous ore mine or which will unnecessarily increase the cost of developing or operating the same or result in waste of the minerals therein except such as is usual and necessary in skillfully conducting said mining operations, or except by the removal of ores and minerals as herein permitted, lessen the present and future value of said lands as such ore-producing property, and Lessees shall deposit any waste material resulting from the mining or treatment of iron ore, manganese ore and manganiferous ore from said lands in such manner as not to interfere with the future operations of any mine on said lands.

8. Cross-Mining Right.

Lessees shall have the right to use said lands for ingress to and egress from other adjoining lands, and to construct, maintain and operate

over and upon said lands railroad tracts, truck roads, pole and pipe lines and other facilities in connection with mining operations on such other lands, Lessees shall also have the right to carry on the mining of ore from said lands and from adjoining lands as one operation, removing from either property through the other; provided, however, that ore mined and removed from said lands shall not be stockpiled on other lands until such ore has been weighed or royalty thereon shall have been paid to Lessor, and that surface overburden or other waste material removed from other lands shall not be placed on said lands withouth the written consent of Lessor.

9. Taxes to be paid by Lessees.

The Lessees further agree to pay all taxes and assessment, general or specific, which may be levied or assessed against or upon said premises, or any part thereof, or on any ores, or the product thereof, or upon any property that may be placed thereon by the Lessees, from and after the date hereof, before the same shall become delinquent, during the period that this lease is in force and effect; provided, however that in theyear of termination hereof, the Lessees shall be liable for only that proportion of the total of said taxes for such year that the number of days in such year that the Lessees have possession of the Premises bears to three hundred sixty-five (365) days. The Lessees shall also pay all lawful personal property taxes that may be assessed or imposed upon the iron and other ores mined from the demised premises or from other lands and stockpiled upon the demised premises, and upon the iron and other ores mined from the demised premises and stockpiled on other lands or shipped therefrom. The Lessees agree to pay the Minnesota royalty tax upon royalty payments made by them hereunder but shall not be liable to contest in the courts, or otherwise, the validity of any tax for which they are liable hereunder before the Lessees shall be required to pay and discharge the same, or any part thereof, provided, further, that the Lessees shall not permit or suffer said premises, or any part thereof, or any ore mined thereon, or any improvements or personal property thereon, to be sold at any time for any of such taxes. The Lessees agree to furnish Lessor with duplicate tax receipts showing the payment of all taxes and assessments made by them hereunder.

*/for any other tax or assessment levied upon or measured by income to the Lessor hereunder. Provided, however, that the Lessees shall be at liberty to contest .....///

10. Reports of Exploration.

Lessees agree that on or before the twentieth day of January, April, July and October in each year, they will furnish to the Lessor a

report of all explorations carried on by them on said lands during the preceding three calendar months, each such report to be accompanied by blueprints showing the location of all work of exploration and the results thereof and also showing the character of any ore encountered, and by reports of all analyses of such ore.

11. Reports of Mining Operations.

Lessees shall furnish to the Lessor on or before the twentieth day of January in each calendar year during the continuance of this lease blueprints or maps showing the true condition of the workings of any mine or mines on said lands on the first day of such month, together with the location of all ore bodies and any information which Lessees may have showing the character of such ore bodies and also showing the places from which ore shall have been extracted and generally showing the underground and open pit workings of such mine or mines.

12. Reports of Shipments.

Lessees shall cause all ore removed from said lands to be weighed by the person or corporation transporting the same therefrom to market, and shall on or before the twentieth day of each calendar month furnish to the Lessor a detailed report of such shipments for the preceding calendar month, showing the dates thereof and the quantity of each such shipment as set forth by the manifest thereof, which report shall be verified by some one having knowledge of the facts or otherwise, sufficiently authenticated.

The Lessees further agree to furnish Lessor a duplicate copy of each of the railway company's weight tissues, showing date and weight of all ore shipped from the demised premises, and also to furnish Lessor with duplicate

copies of all analyses of crude ores, concentrates of ores taken by the Lessees from their exploration on said premises or shipments of ore there-from.

All such reports of any such transportation company and all copies of transcripts from the books of any such transportation company relative to the transportation or weight of such ores shall, as against Lessees, be prima facie evidence of the facts so stated or appearing in any suit at law or equity or in any controversy between the parties hereto in and before any court, reference or arbitration. Lessees shall also furnish to the Lessor on each of the quarter days hereinabove x fixed for the payment of royalties, written reports of all ore removed from said lands during the three months preceding each quarter day.

13. Reports of Treatments.

The Lessees shall cause all ore treated by them in any way whatsoever to be weighed, and shall cause the product of such treatment to be weighed, and shall on or before the twentieth day of each calendar month during the continuance of this lease furnish to the Lessor a detailed report of the number of tons of ore in its natural condition so treated and the number of tons of the product of such treatment, together with copies of any analyses which the Lessees may have made showing the mineral content of such ore before treatment and after treatment.

14. Lessor's Right to Additional Information.

Upon request made by the Lessor, from time to time, the Lessees shall furnish to the Lessor such additional information as the Lessor may reasonably request and as may not be obtained by the Lessees from their records, tending to show the quantity and quality of all iron ore and manganese bearing material mined and removed from said demised lands, the quantity, quality and mining availability of the iron ore and manganiferous bearing material then remaining therein, including copies of maps, cross sections, analyses and other engineering data obtained by the Lessees for their own use.

15. Lessor's Right to Inspect said Lands.

Lessor, through its agents and employees, shall at all times have the right to enter upon said lands or any part thereof, or upon any other lands upon which ore from said lands shall be treated, and view the same and the method of said treatment, and take all reasonable means to ascertain the condition of said land and the quantity of ore removed therefrom, but not so as to hinder or interfere with the operations of Lessees thereon, and Lessor shall furnish the results of all such inspections to Lessees.

16. Peaceable Surrender of said Lands on Termination of Lease.

At the termination of this lease, Lessees shall peaceably surrender said lands to Lessor or to its successors in interest, with all stopes, supports, pits, shafts and other improvements and erections that may be thereon or therein (buildings, head-frames, machinery, tools, implements and all movable personal chattels excepted) in good order and condition save for reasonable wear and tear; provided, however, that the Lessees shall not be entitled to remove any of said excepted personal property if the Lessees are then in default under the terms of this lease.

17. Satisfaction of Lease on Termination.

Lessees agree that when this lease shall terminate for any cause they will enter or cause to be entered a certificate of that fact upon the proper books of record in Aitkin County, Minnesota, provided this lease shall have been recorded there.

18. Assignment and Subletting by Lessees.

Lessor agrees that Lessees shall have the right to assign this lease and to contract with others to work any mine or mines on said lands, and to sub let said lands for all the purposes of this lease and with the same rights and privileges as are herein granted to Lessees, but no assignment of their rights by the Lessees shall relieve them of their obligations hereunder unless and until such assignment shall have been approved in writing by the Lessor.

19. Termination for Default.

In case of Default by Lessees, this lease may be terminated by Lessor upon sixty (60) days notice; provided that if the default involves matters which are subject to arbitration under the provisions of Section 20 hereof, and Lessees deny the default, the termination shall not be effective until sixty (60) days after final determination that a default exists pursuant to such arbitration provisions. Should the claimed default involve the payment of money by Lessees, then Lessees shall pay the amount in dispute, and should it subsequently be determined that the amount so paid was not due, then Lessor shall reimburse Lessees for the amount so paid, with interest at the amount so paid, with interest at the rate of four per cent (4%) per annum from the date of such payment. In any event, the termination shall not become effective if the default is cured within said sixty (60) days after giving notice as provided in Section 19 hereof, or, to the extent that it cannot be cured by performance, if Lessees pay the damages for default as determined by such arbitrators within sixty (60) days of such determination. In the event of insolvency, bankruptcy or receivership of Lessees, or should an execution against them remain unsatisfied, no ore shall thereafter be removed unless paid for in advance, or satisfactory security be furnished to the Lessor, and in any event this lease shall not be assigned within the written consent of the Lessor.

20. Arbitration.

In case any disagreement or controversy shall arise between the parties hereto relative to the observance or fulfillment of the terms and obligations hereof by either party, then such controversy or disagreement shall be determined by arbitration. Either party may within thirty (30) days after such disagreement arises, demand arbitration thereof, and the party or parties making such demand shall in writing specify the matter to be submitted to arbitration and at the same time choose and nominate some disinterested competent person to act as an arbitrator; thereupon, within ten (10) days after receipt of such written notice, the other party to this lease shall in writing choose and nominate a disinterested and competent arbitrator and the two arbitrators so chosen shall forthwith select a third arbitrator, giving written notice to both parties of the choice so made and fixing a place and time for meeting not later than thirty (30) days thereafter, at which both parties may appear and be heard touching such controversy. The decision of said arbitrators should be made in writing within thirty (30) days after the completion of hearings thereon, and when signed by a majority of them shall be final and conclusive upon both parties and the award so made shall be forthwith complied with. In case the notified party shall neglect or refuse to choose and nominate an arbitrator as above provided and within the time hereinabove specified, or in case the two chosen by either method herein provided shall fail to agree upon a third arbitrator, then such arbitrator shall in each case, upon application of either party, be named by the person (or any one of the person) who may then be holding the office of Senior Judge of the United States District Court in and for the district in which the mine is located, or the person holding an office which corresponds to such office as now extant if it shall then have been abolished. The expenses of any such arbitration, including reasonable compensation for the arbitrators, shall be paid by the party against which the award therein shall be made or as otherwise directed by the arbitrators.

21. Surrender of Lease by Lessees.

Lessor agrees that Lessees, not being in default hereunder, may terminate this lease and the estate hereby granted on the last day of any quarterly period in any year by giving to Lessor written notice of their election so to do not less than sixty (60) days prior to the effective date of such surrender, and by paying to Lessor prior to the date of such termination all sums that shall then have accrued to it thereunder, whether payable then or thereafter, and by performing all the covenants and agreements and observing all the conditions hereof on the part of Lessees to be performed and observed up to the date of such termination; and thereupon all obligations hereunder of the parties hereto shall cease and terminate except the obligation of Lessees to pay all taxes payable by them hereunder which shall not be payable on the date of such termination.

22. Right of Lessee to Remove Personal Property After Termination of Lease.

Lessor agrees that upon the termination of this lease for any cause the Lessees, not being in default hereunder, shall have sixty (60) days after such termination in which to remove all engines, tools, machinery, railroad tracks, head frames and structures erected or placed by Lessees on said lands, but shall not have the right to remove or impair any supports placed in any mine or any timber or framework necessary to the use and maintenance of the shafts or approaches to such mine, nor any tramways therein, nor to impair the stability of any such mine or shafts on said lands. Any such property not removed from said lands by Lessees within such sixty-day period shall become the property of the Lessor.

23. Lessor's Lien on Ore and Personal Property Belonging to Lessees.

Lessees agree that Lessor shall at all times have, possess and hold a lien upon all ore mined from said lands and the concentrated product thereof until the same shall have been actually shipped away from said lands or from the place of treatment if treated off said lands, and on all movable machinery, implements and personal chattels of Lessees which shall be on said lands, as security for the payment of all royalty, taxes, or other claims arising hereunder, that may become payable hereunder, which lien may be enforced against such property in like manner as chattel mortgage liens may then be enforced under the laws of the State of Minnesota.

24. Manner of Giving Notices.

All notices hereunder shall be written and sent by registered mail, addressed respectively as follows:

Andyck Corporation, c/o United States Trust Company
45 Wall Street
New York 5, New York

c/o Harold G. Cant, Attorney at Law
1010 Midland Bank Building
Minneapolis 1, Minnesota

Kay Todd, Attorney at Law, W-2681 First National Bank Building
St. Paul 1, Minnesota

Edward P. Scallon, Mining Engineer, c/o Butler Bros.
136 East 8th Street
St. Paul 1, Minnesota

or at such different addresses as may be in writing hereafter specified by the respective parties to the other party. All notices served hereunder shall be effective as of the day when deposited in the United States mail properly addressed, stamped and registered.

Royalty payments shall be made to Lessor at the first above given address unless otherwise directed by it in writing.

23. Obligations Hereof to Run with the Land.

The covenants, conditions and agreements herein contained shall inure to the benefit of, and be obligatory upon, as the case may be, the heirs, personal representatives, successors and assigns of the parties hereto, and the same shall run with the land.

The Lessees hereby acknowledge receipt of a copy of this instrument.

IN TESTIMONY WHEREOF, the parties hereto have executed this agreement in triplicate as of the day and year first above written.

Signed and sealed and delivered in presence of:

(Signed) Eleanore B. Benedict

(Signed) John J. Judge
As to Andyck Corporation

Lillian M. Gardelin (Signed)

Philip J. Mackey (Signed)
As to Kay Todd

Lillian M. Gardelin (Signed)

Philip J. Mackey (Signed)
As to Edward P. Scallon

ANDYCK CORPORATION

By (Signed) Helen A. Benedict
Its President

and (Signed) Frederick M.E. Puelle
Its Secretary-Treasurer

Kay Todd (Signed)
Kay Todd

Edward P. Scallon (Signed)
Edward P. Scallon

STATE OF NEW YORK

COUNTY OF NEW YORK

On this 17th day of January, 1950, before me, a Notary Public within and for said county, personally appeared Helen A. Benedict and Frederick M. E. Puele to me personally known, who, being by me duly sworn, did say that they are respectively the President and Secretary-Treasurer of ANDYCK CORPORATION, the corporation named in the foregoing instrument, that the seal affixed to said instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors, and said President and Secretary-Treasurer knowledged said instrument to be the free act and deed of said corporation.

(Signed) Stephen E. Faherty
Notary Public, New York County, N. Y.
My commission expires Mar. 30, 1950.

(Rubber Stamp)

Stephen E. Faherty
Notary Public, State of New York
Residing in Queens County. Queens
Co. Clk's No. 3788, Reg. No. 293-f-0
N. Y. Co. Clk's No. 860. Reg. No. 328-F-
0 Commission Expires March 30, 1950.

Quit Claim Deed.
Corporation to Individual.

Form No. 30-M.

Miller-Davis Co., Minneapolis, Minn.
Minnesota Uniform Conveyancing Blanks (1931).

This Indenture, *Made this* 19th *day of* December, *19* 50, *between* Andyck Corporation

a corporation under the laws of the State of New York, *party of the first part, and* Helen W. Benedict, Leland E. Stowell and the United States Trust Company of New York as trustees under the will of John E. Andrus, *of the County of* New York *and State of* New York, *parties of the second part,*

Witnesseth, *That the said party of the first part, in consideration of the sum of* ---One Dollar and other good and valuable consideration --- ~~DOLLARS~~, *to it in hand paid by the said parties of the second part, the receipt whereof is hereby acknowledged, does hereby Grant, Bargain, Quitclaim, and Convey unto the said parties of the second part, their successors ~~heirs~~ and assigns, Forever, all the tracts or parcels of land lying and being in the County of* Aitkin *and State of Minnesota, described as follows, to-wit:*

All of Section Twenty-three (23), Township Forty-eight (48), Range Twenty-seven (27),

Subject to mining lease dated January 1, 1950, made by said Andyck Corporation as lessor ~~p~~to Kay Todd and Edward P. Scallon, both of St. Paul, Minnesota, as lessees

(This conveyance is not subject to revenue stamp taxes under Section 3492 Internal Revenue Code and regulation 71, Sec. 113.84)

To Have and to Hold the Same, *Together with all the hereditaments and appurtenances thereunto belonging or in anywise appertaining, to the said parties of the second part, their successors ~~heirs~~ and assigns, Forever.*

In Testimony Whereof, *The said first party has caused these presents to be executed in its corporate name by its President and its* Secretary *and its corporate seal to be hereunto affixed the day and year first above written.*

ANDYCK CORPORATION

By Helen W. Benedict

Its President

In Presence of

John J. Judge

J. R. Roby

Its Secretary

NEW YORK

State of ~~Minnesota~~, } ss.
County of New York

On this 19 day of December, 1950, before me, a Notary Public within and for said County, personally appeared Helen W. Benedict and F. M. E. Puelle to me personally known, who, being each by me duly sworn each did say that they are respectively the President and the Secretary of the corporation named in the foregoing instrument, and that the seal affixed to said instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors and said Helen W. Benedict and F. M. E. Puelle acknowledged said instrument to be the free act and deed of said corporation.

Stephen E. Faherty
STEPHEN E. FAHERTY
Notary Public, State of New York
No. 41-6222400
Qualified in Queens County
Certificate filed with N. Y. Co. Clk's and Reg's Offs
Commission Expires March 30, 1952

Notary Public n.y. County, ~~Minn.~~

My commission expires, 19

Minnesota Form No. 30.

Doc. No. 124516

QUIT CLAIM DEED
Corporation to Individual

Andyck Corporation

TO

Helen W. Benedict

Office of Register of Deeds,
State of Minnesota,

County of Aitkin } ss.
I hereby certify that the within Deed was filed in this office for record on the 30th day of December, 1950, at 1:30 o'clock P. M., and was duly recorded in Book 72 of Deeds, page 290

T. E. Lauriskari
Register of Deeds.
By A. G. Lauriskari Deputy.

Taxes for the year 1949, on the lands described within, paid this 20th day of December, 1950

Geo. C. Tufland
County Treasurer.
By Deputy.

Taxes paid and Transfer entered this 30 day of Dec, 1950

George T. Cosse
County Auditor.
By Deputy.

Recording Fee $1.00

ASSIGNMENT OF MINING LEASE

KNOW ALL MEN BY THESE PRESENTS: That the undersigned, Kay Todd and Sinclair H. Todd, his wife, and Edward P. Scallon and Frances Scallon, his wife, of the City of St. Paul, Ramsey County, Minnesota, for and in consideration of the sum of One Dollar and other valuable considerations to them in hand paid, the receipt whereof is hereby acknowledged, and in further consideration of the assumption on the part of the assignees hereinafter named of the obligations of these assignors under the Lease hereinafter referred to, do hereby assign, set over and deliver unto Tintic Standard Mining Company, of Salt Lake City, Utah; Nellie B. Mining Company, of Picher, Oklahoma; Hubert E. Howard, of Chicago, Illinois; Roy M. Jacobs, of Milwaukee, Wisconsin; and William M. Hayden, of New York City, New York, that certain Mining Lease made and entered into as of January 1, 1950, between Andyck Corporation, a New York corporation, of Yonkers, New York, as party of the first part, and the undersigned Kay Todd and Edward P. Scallon, of St. Paul, Minnesota, as parties of the second part, by which Lease the lessees are granted mining privileges for the period of fifty (50) years on the following described lands:

Section Twenty-three (23), Township Forty-eight (48), Range Twenty-seven (27), Aitkin County, Minnesota.

TO HAVE AND TO HOLD the same unto the said assignees, their successors and assigns, for the period until July 1, 1999.

Dated at St. Paul, Minnesota, this 4th day of October, 1951.

IN PRESENCE OF:

Philip J. Mackey

Lillian M. Gardelin

As to Kay Todd and Sinclair H. Todd

Kay Todd

Sinclair H. Todd

Philip J. Mackey
Lillian M. Gardelin
As to Edward P. Scallon and
Frances Scallon

Edward P. Scallon
Frances Scallon

STATE OF MINNESOTA)
SS
COUNTY OF RAMSEY)

On this 4th day of October, 1951, before me, a Notary Public within and for said County, personally appeared Kay Todd and Sinclair H. Todd, his wife, and Edward P. Scallon and Frances Scallon, his wife, to me known to be the persons described in and who executed the foregoing instrument, and acknowledged that they executed the same as their free act and deed.

Philip J. Mackey

PHILIP J. MACKEY
Notary Public, Ramsey County, Minn.
My Commission Expires Apr. 26, 1957.

FIRST DRAFT February 11, 1952

"DUMMY"

ASSIGNMENT OF MINING LEASE

Tintic Standard, William M.Hayden, et al assign the certain mining lease etc. etc. to The Utah Construction Company and Associates Inc. a Nevada Corporation.

MF-302

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of Aitkin, State of Minnesota, described in a certain Exploration Project Contract dated _____, 1951, between The Utah Construction Company and Associates, Sub-the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated January 1, 1950, does by these presents subordinate all of his right, title, and interest under the provisions of said lease to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Sub-Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

Dated this 6th day of August, 1951

Kay Todd
Kay Todd

Edward P. Scallon
Edward P. Scallon,

U. S. GOVERNMENT PRINTING OFFICE 16—64562-1

LESSEES

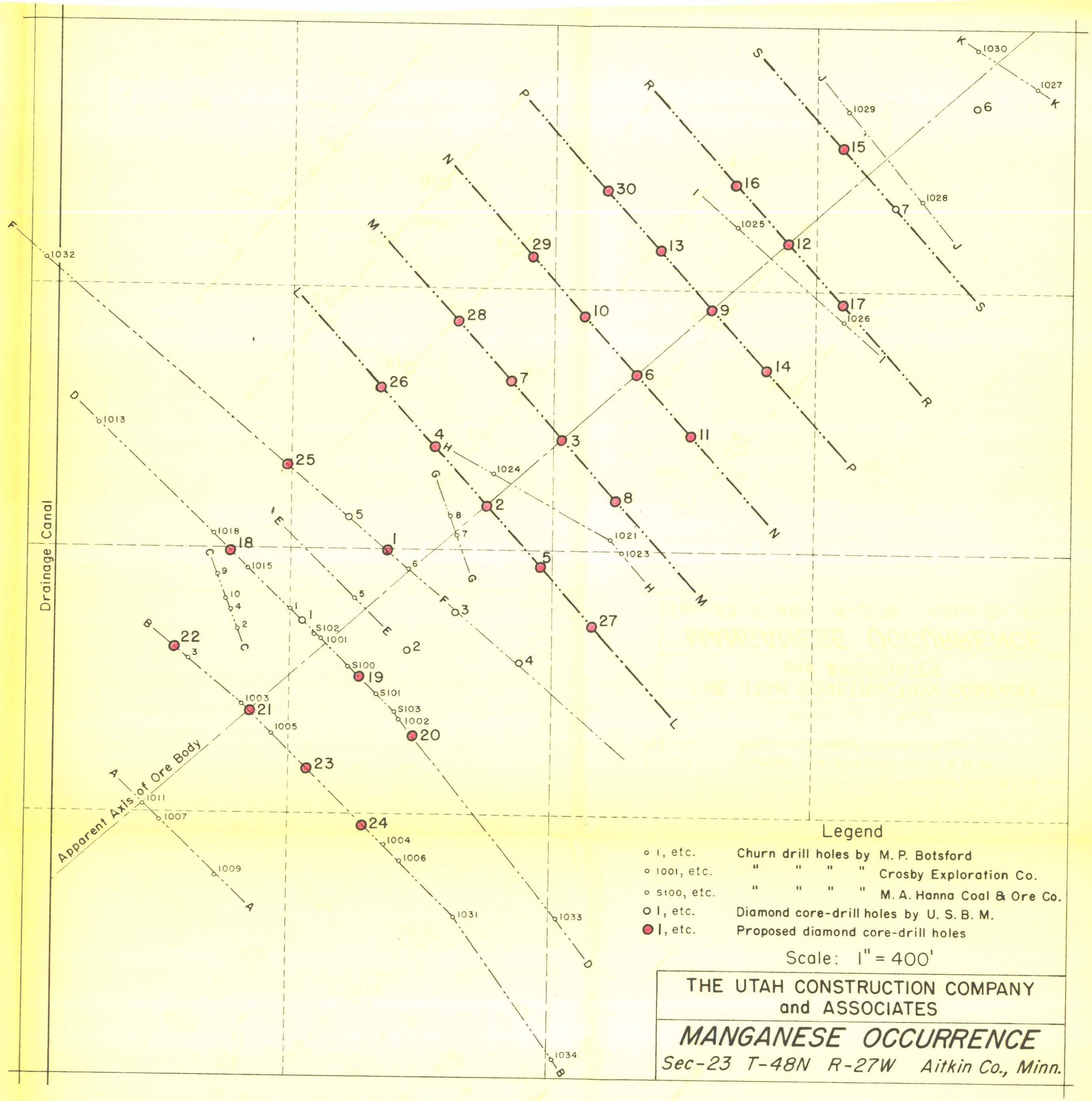
Helen W. Benedict, Leland E. Stowell and the United States Trust Company of New York, as trustees under the will of John E. Andrus

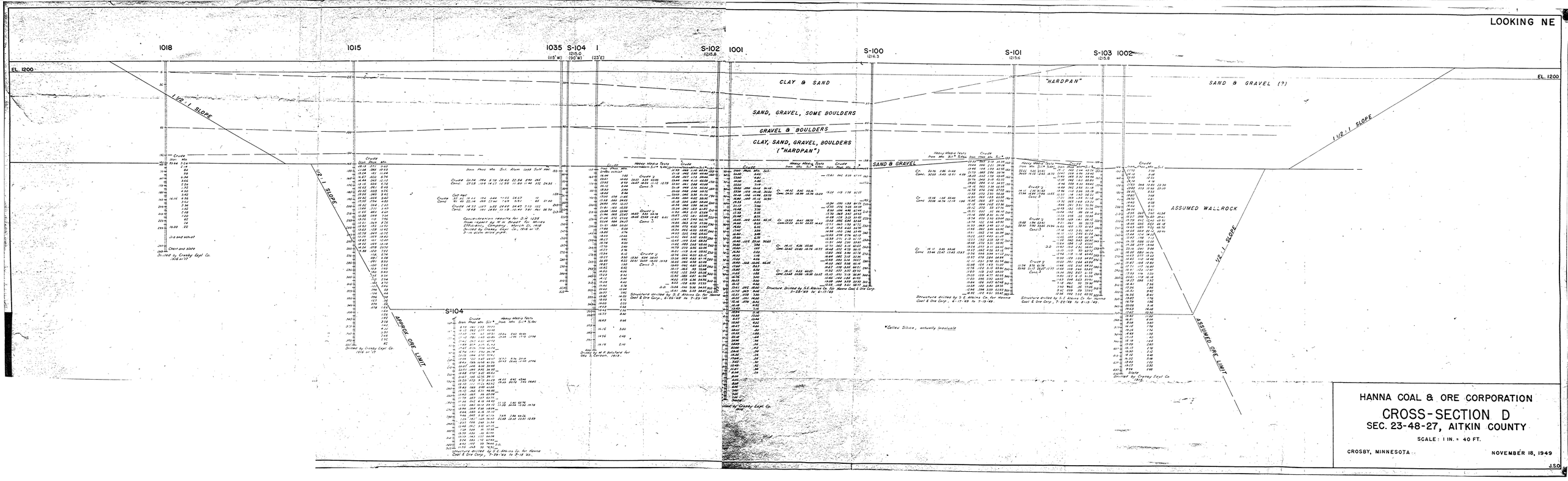
By _____
Assistant Vice President OWNER OF FEE

FIRST DRAFT February 11, 1952

"DUMMY"

The Tintic Standard Mining Co. et al do hereby subordinate their rights under lease dated January 1, 1950 to the U.S.A. under the provisions of the Exploration Contract,etc.


N
Drainage Canal
Apparent Axis of Ore Body
Legend
1, etc. Churn drill holes by M. P. Botsford
1001, etc. " " " " Crosby Exploration Co.
S100, etc. " " " " M. A. Hanna Coal & Ore Co.
1, etc. Diamond core-drill holes by U. S. B. M.
1, etc. Proposed diamond core-drill holes
Scale: 1" = 400'
THE UTAH CONSTRUCTION COMPANY
and ASSOCIATES
MANGANESE OCCURRENCE
Sec-23 T-48N R-27W Aitkin Co., Minn.


LOOKING NE
1018
1015
1035 S-104 1
(115' W) 1215.0 (90' W) (23' E)
S-102 1215.8
1001
S-100 1216.3
S-101 1215.6
S-103 1002 1215.8
EL. 1200
EL. 1200
CLAY & SAND
SAND, GRAVEL, SOME BOULDERS
GRAVEL & BOULDERS
CLAY, SAND, GRAVEL, BOULDERS ("HARDPAN")
SAND & GRAVEL
"HARDPAN"
SAND & GRAVEL (?)
ASSUMED WALLROCK
1 1/2:1 SLOPE
1 1/2:1 SLOPE
1 1/2:1 SLOPE
1 1/2:1 SLOPE
APPROX. ORE LIMIT
ASSUMED ORE LIMIT
S-104
*Calles Silica, actually insoluble
HANNA COAL & ORE CORPORATION
CROSS-SECTION D
SEC. 23-48-27, AITKIN COUNTY
SCALE: 1 IN. = 40 FT.
CROSBY, MINNESOTA
NOVEMBER 18, 1949
J.S.O.