FEB 16 196

Minerals of Utah, Inc.
Box 1453
Santa Rosa, California

Re: Docket No. OME-6049 (Manganese)
Minerals of Utah, Inc.
Lakeview Manganese Mine
Rich County, Utah

Gentlemen:

Your application for aid in an exploration project and other information available to us in Washington concerning the above property have been reviewed.

Careful study of all the information available to us indicates that the probability of disclosing significant ore reserves on your property is not sufficiently promising to justify Government participation in the proposed explorations. We regret to advise you that, under these circumstances, your application for exploration is denied.

In accordance with your request, Report No. 1 and Map No. 1 are returned herewith.

Sincerely yours,

Frank E. Johnson

Acting Director

Enclosures

SFHolt/gla
2-10-60
cc to: Director's Reading File
Operating Committee
G. L. DeHuff, Jr., USBM) with copy
Harold Kirkemo, USGS) Report No. 1 and Map No. 1
OME Field Team, Region III (2) w/2 cys each USBM and USGS memoranda
Docket
Chron

Burns Brothers
MINING COMPANY

Minerals of [illegible]
Box 1453.
Santa Rosa, Calif.

CONTRACTORS - ENGINEERS - GEOLOGISTS
Home Office
[illegible] South Main Street Phone [illegible]
SALT LAKE CITY 11, UTAH

November 4, 1957

Reply to:

LAKEVIEW MANGANESE

Location.

The property is located in the NW 1/4 of Sec. 9 T.12N., R.6E in Rich County, Utah. From Laketown on Bear Lake the property lies southeast six miles including three quarters of a mile of farm road. It is fifty miles northwest of Evanston, Wyoming.

According to one of the owners, Wilson Mavrogeb of Ogden, Utah, there are twenty claims in the group. These are located on farm land. The other primary owner is John M. Halvorsen of Jerome, Idaho. Under an agreement with the owners, Mr. Howard E. Johnson and Mr. Fred A. Winkler, both of Spokane, Washington, have undertaken to explore and develope the property.

Previous Exploration.

At some time a forty to ninty foot deep shaft was sunk on this manganese deposit. It is reported that extremely cavernous, vuggy ground carrying irregular shots or pods of manganese was encountered. Later a local farmer open cut the property and piled up a dump containing about 4,000 tons of rock and soil mixed with manganese. Some of the chunks of manganese are in this dump are of excellent quality.

General Geology.

The Bear Lake Region is noted for a complexity of limestone of different Geologic ages ranging from the Langston Limestone of lower Middle Cambrian to the younger limestone of Tertiary age. The extent of local faulting is a primary reason for the numerous outcrops of varying age range.

The manganese in question is in Madison limestone of Mississippian age in the Carboniferous period. It is generally a medium to thin-bedded dark limestone averaging a thickness of 1,000 feet.

The limestone in section nine appears to be an isolated pod cut off from the more massive body by faulting. It has a tribe of N. 75°E. and dips steeply [illegible]

Mi[illegible]
Box [illegible]
Santa R[illegible]

[illegible] development. Much of the [illegible] soil cov[illegible] [illegible] the formation is Wasatch and [illegible] another [illegible] a relatively small [illegible] displacement of a few thousand [illegible] making a [illegible] in terms of [illegible] millions of years; for the Carboniferous limestone [illegible]

Mineralization.

Beyond the [illegible] mostly in the form of pyrolusite, is present [illegible] surface [illegible] 4,000 [illegible] There is little to be learned by a surface [illegible]. The [illegible] open cutting effectively destroyed the surface [illegible] showing [illegible] are present indicating a manganese [illegible] associated [illegible] may be of iron carbonate origin.

The manganese mineralization [illegible] follow a cherty member in the limestone formation. Because the [illegible] under less stress and confining pressure than the pure limestone, this member is most likely the one to receive the mineral injections. [illegible] mineralization would favor the purer limestone, and may [illegible] beyond the [illegible] cherty zone.

[illegible] Drilling.

A recent attempt to [illegible] only in proving [illegible] It was found [illegible] No. 1, 2 and 4 showed [illegible] The drill [illegible] is as follows:

Hole No.	Ore From	To	[illegible]	[illegible]	Remarks
1	22	27	[illegible]	[illegible]	
	46	?	[illegible]	[illegible]	
2	30	?	[illegible]	[illegible]	
3	No ore		[illegible]	[illegible]	
4	Wet clay				
	[illegible]		[illegible]		Lost [illegible]
5	No ore		[illegible]	?	Vugs
6	No ore		[illegible]	?	Vugs

The above work was done [illegible] first [illegible] equipment. A 500 c.f.m. [illegible] compressor and a new drill was [illegible]

Discounting the problems [illegible] would expect [illegible] was [illegible] be [illegible] Other [illegible] in the [illegible]

It is recommended that an initial three holes be drilled to [illegible] feet each for the purpose of evaluating quality and thickness of ore. If the [illegible] and thickness of the ore so warrants, additional holes must be drilled [illegible]. The number of additional holes required can best be determined after the initial holes have been evaluated.

Drilling Cost.

The cost of drilling three initial holes will be about:

600 feet @ $6.50 per foot	$ 3,900.00
Mobilization	250.00
	$ 4,150.00

Ten additional holes would probably cost:

2,000 @ $6.50 per foot	13,000.00
Or a total of	$17,150.00

Should the diamond loss and general drilling costs prove less than anticipated in the initial holes the above costs may be a little less. For the purpose of anticipating costs a minimum of $15,000.00 should [illegible].

Shaft.

The shaft estimate requested is prel[illegible]. Primary factors in determining the shaft size are:

1. Size of ore body.
2. Economic size of mill for [illegible] in a given number of [illegible].

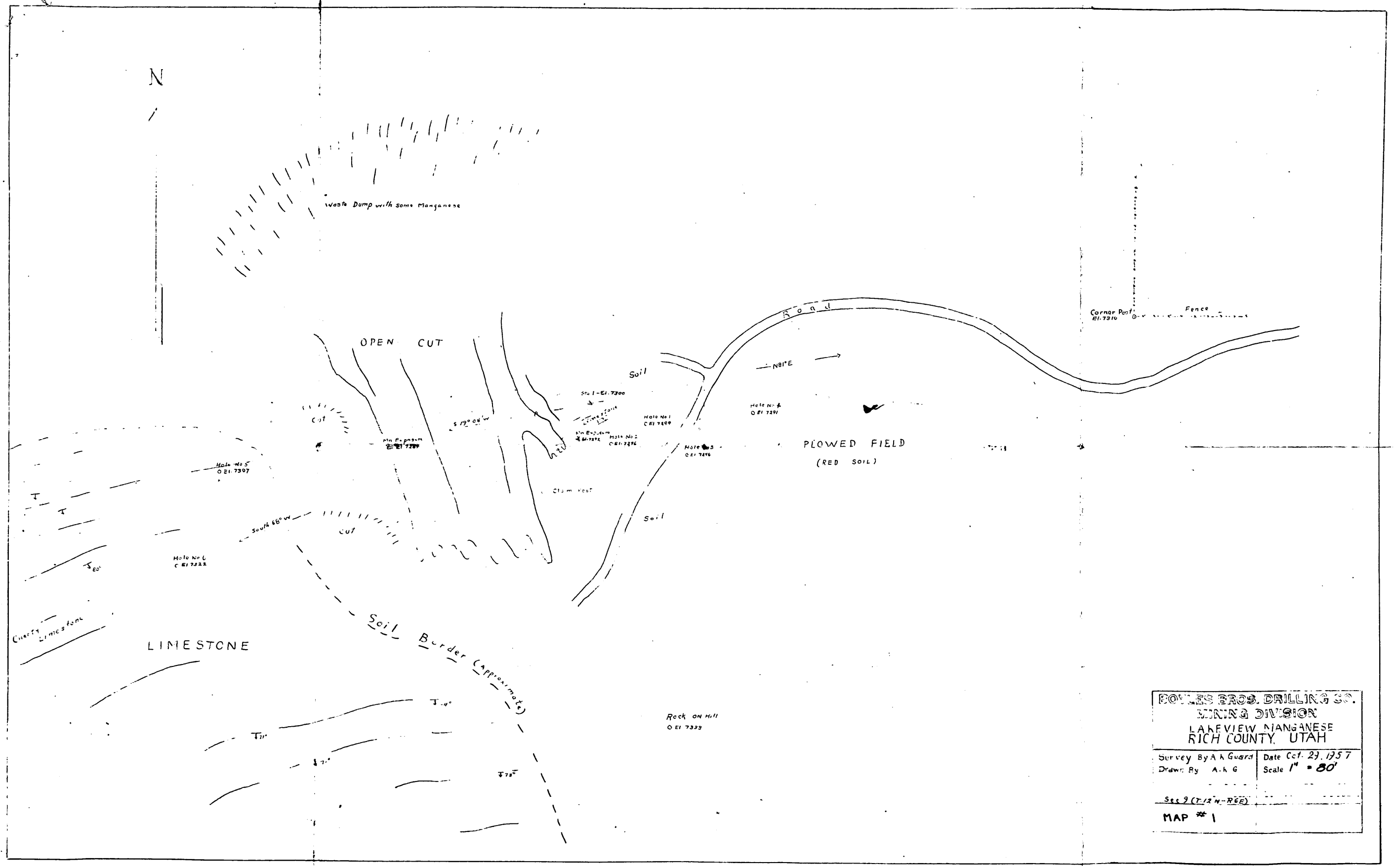
Assuming there are 75,000 tons of [illegible] processed in the [illegible] four years then a fifty ton mill is the logical size.

Because the actual tonnage and quality [illegible] is not known, it is impossible to plan a suitable set-up. What are [illegible] conditions going to be. For instance, what proportion of development [illegible] to be [illegible] the ore. Will it, when the true conditions are [illegible] a 100 ton mill to handle twice the tonnage of [illegible]. The best [illegible] proper recommendations on the mill and [illegible] be made [illegible].

The per ton cost of a small operation [illegible] high. The [illegible] two compartment shaft that might serve this [illegible] feet including timber, air, water [illegible] cost about $[illegible] and there will, in addition, be [illegible] toilet house, dry building, powder [illegible] all underground installations, tracks [illegible].

A. K. Grant - Geologist

AKG:[illegible]



BOYLES BROS. DRILLING CO.
MINING DIVISION
LAKEVIEW MANGANESE
RICH COUNTY, UTAH

Survey By A.K. Guard	Date Oct. 29, 1957
Drawn By A.K.G	Scale 1" = 80'
Sec 9 (T.12 N.-R6E)	
MAP # 1	

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
Washington 25, D. C.

Date: February 12, 1960

~~DMA~~ OME Docket No. 6069
DMA Contract No.
Commodity Manganese
Name of Applicant Minerals of Utah, Inc.
Name of property Newcomb, or Lakeview
Location of property Rich County, Utah
Estimated cost of project $50,000

Memorandum

To: W. R. Griswold, OME

From: G. L. DeHuff, Jr., Commodity Specialist,
Branch of Ferrous Metals and Ferroalloys

Subject: Review of Field Team Report
(Application, Field Team Report, etc.)

1. Date of subject document: 1/22/60. 2. Date received by reviewer: 2/4/60

3. Prior reports on this property known to reviewer: Yes [X] No [ ]

4. Prior reports on nearby properties known to reviewer: Yes [ ] No [X]

5. Information available on past production: Yes [X] No [ ]

6. Other pertinent factors known to reviewer: Yes [ ] No [X]

7. Explain items marked "yes" above: Please see my 11/19/59 memo.

8. Factors needing special consideration:
   a. Location [ ]
   b. Ownership [ ]
   c. Evidence of mineralization [ ]
   d. Geology [ ]
   e. Proposed exploration method [ ]
   f. Alternate exploration method [ ]
   g. Costs
   h. _____ [ ]

9. Action advised:
   a. Obtain information from applicant [ ]
   b. Refer to Field Team [ ]
   c. Denial [X]
   d. Agree with Field Team [X]
   e. Disagree with Field Team [ ]
   f. Suggest alternate plan [ ]
   g. Request another consultation [ ]
   h. Approval [ ]
   i. Consult with Mr. _____ at _____ AEC office.

10. Remarks: (Use back of page if necessary)

GLDeHuff:tf
Copy to: Mr. Kiilsgaard 5224 Int
Div. of Minerals
Ferrous Metals - Files

February 9, 1960

Re: OME 1069 (Manganese)
Lakeview Manganese Minerals
of Utah, Inc.
Rich County, Utah

Memorandum

To: W. R. Grimwald, Office of Minerals Exploration

From: Harald Kirkham, U. S. Geological Survey

Subject: Review of field examination report

The field examiners report that chances of finding significant quantities of manganese ore at depth on this prospect are not good. The Applicant has mined the bulk of a mass of oxidized manganese minerals which occurred in stringers and pods on the surface and extended to a shallow depth. In the bottom of the open pit manganese-bearing veins and pods are less numerous and the limestone host rock is more dense and less mineralized than in the near surface portion of the pit.

I concur with the field examiners' recommendation to deny the application.

Harald Kirkham

cc: OME (3)
Gilbert DeHoff, 3321
Director's reading
Branch reading
Chron. file
Docket file

HKirkham/mm
9-MB-2-9-60

November 24, 1959
Re: OME 6069 (Manganese)
Lakeview Manganese
Minerals of Utah, Inc.
Rich County, Utah

Memorandum

To: W. R. Griswold, Office of Minerals Exploration

From: Harold Kirkemo, U. S. Geological Survey

Subject: Review of application for exploration assistance

The Applicant proposes to explore a low-grade manganese oxide deposit located four miles south of Bear Lake in northeastern Utah. A program of shaft sinking, crosscutting, and drifting is outlined. Work would begin about May 1, 1960. Total cost of the project is estimated at about $50,000.

The deposit consists of pyrolusite and psilomelane in two sets of intersecting veinlets in brecciated, cherty limestone of the Madison formation. Siderite, quartz, and calcite occur with the manganese oxides. Hematite and limonite are reported in a dike crossing the deposit and in gossan overlying some veins. Probably several thousand tons of ore have been mined from an open cut 180 feet long, 10 to 30 feet wide and up to 50 feet deep. Ore has averaged between 15 and 18 percent manganese. Samples of vein material are reported to average about 40 percent manganese.

No clues are noted as to the primary manganese mineral or minerals below the oxidized zone. Siderite gangue is present but base metal minerals which usually are associated with manganesiderite are not mentioned. The vertical extent of the oxidized deposit is unknown. Both impoverishment and enrichment are noted in the open cut. Whether the Applicant's shaft sinking proposal provides an adequate test of this important feature of the deposit seems unlikely.

The Applicant chooses to explore the deposit by underground workings rather than drilling because of the vuggy or cavernous nature of the limestone host rock. Perhaps a combination of the two methods would yield more information on the size and extent of the deposit.

I recommend that the application be referred to the Field Team for consideration.

Harold Kirkemo

cc: OME (3)
Gilbert DeHuff
Director's reading
Branch reading
Chron. file
Docket file
Harold Kirkemo/mm
G-MD-11-24-59

6069

EXTRA COPY
O. M. E
RECEIVED FEB 1 1960

DATE	INITIALS	CODE

Building 20 - Federal Center
Denver 25, Colorado
January 26, 1960

Memorandum

TO: Chairman, Operating Committee, OME

From: OME Field Team, Region III

Subject: Docket No. OME 6069 (Manganese) Minerals of Utah, Inc. (Wilderado claims) Rich County, Utah

Enclosed are the original and two copies of a Joint Engineering and Geologic Report dated January 22, 1960, by J. W. Bunker, Geologist, Geological Survey and member of the OME Field Team, Region III, and T. M. Rumsin, Mining Engineer, Bureau of Mines combining their recommendations after examination of the subject property.

The examiners contend that the possibility of finding a significant quantity of manganese ore by further exploration of the property is too remote to warrant Government participation in the costs of the proposed exploration work; therefore, they recommend that the application be denied which has my concurrence.

Returned herewith, as instructed, is the material forwarded by your memorandum of December 23, 1959.

Original signed by

By _____
J. W. Vanzant
Executive Officer

JWV:lbm

cc: Docket No. OME 6069
Bunker
OME/DFC
DMR/DFC
Chron.

Reviewed by
OME OPERATING COMMITTEE

_____
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FRED A. SEATON, SECRETARY

OFFICE OF MINERALS EXPLORATION
REPORT XXI

EXTRA COPY
O. M. E
RECEIVED FEB 1 1960
DATE | INITIALS | CODE

OME 6060

Minerals of Utah, Inc.

Lakeview Manganese mine

Rich County, Utah

Manganese

Joint Engineering and Geologic Report

by

J. W. Hazlett, Geologist
Geological Survey

T. M. Kosklo, Mining Engineer
Bureau of Mines

Reviewed by
OME OPERATING COMMITTEE

(date)

January 22, 1960

Reviewed by
OME OPERATING COMMITTEE

(date)

CONTENTS

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The property	2
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Proposed exploration	7
Conclusions and recommendations	7

ILLUSTRATIONS

Figure	Follows page
1. Location Map, Minerals of Utah, Inc., Lakeview Manganese mine, Iron County, Utah	2

OMS 6069

MINERALS OF UTAH, INC.
LAKEVIEW MANGANESE MINE
RICH COUNTY, UTAH

INTRODUCTION AND SUMMARY

Minerals of Utah, Inc., OMS Docket 6069, Box 1453, Santa Rosa, California, applied to the Office of Minerals Exploration on September 20, 1959, to explore for manganese ore on their property in (Lakeview manganese mine) Rich County, Utah. The application was referred to the field and an examination was made on December 9, 1959, by J. William Mather, geologist, USGS, and T. R. Ramsly, mining engineer, U. S. Bureau of Mines.

The mine was operated first as an underground operation and later as an open pit. Approximately 330 tons of manganese ore and concentrates have been produced from a mineralized zone approximately 200 feet by 200 feet by 15 feet deep, and essentially all indicated reserves of manganese have been mined out.

The applicant has proposed sinking a 140 foot shaft and cross-cutting at depth to intersect possible extensions of the manganese mined at the surface. The estimated cost of the project was $30,000.00.

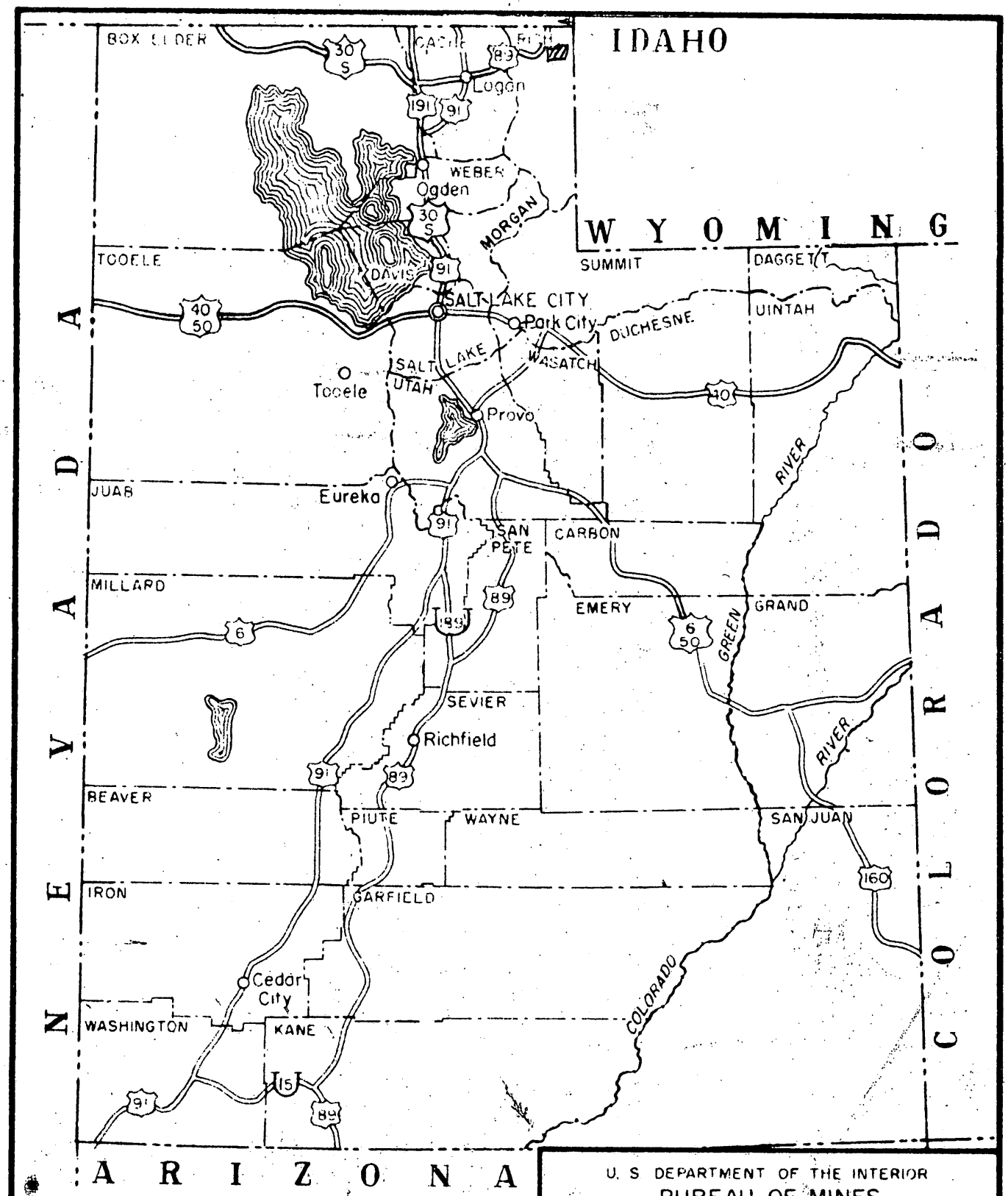
Results of an investigation show that the possibility of continuation of the manganese ore at depth is not good and that the chances of discovering manganese ore in significant quantities is not good. It is therefore recommended that the application be denied.

THE PROPERTY

Location and physical features

The Minerals of Utah, Inc. (Lakeview claims on Moscomb property, also Lakeview mine) property is situated 6.1 road-miles southeast of Laketown, Utah, in the SW¼ NW¼ of sec. 9, T. 1S N., R. 6 E., Rich County, Utah (fig. 1). The mine area can be reached from Laketown by travelling south on State Highway U-3 for 4.2 miles from the junction of U-3 and U-145, thence to the right onto a graded dirt road for 0.3 mile, thence right for 0.9 mile, and thence again to the right 0.7 mile to the open pit.

The Lakeview mine is at an altitude of about 7,400 feet and is situated on the Bear River Plateau, whose surface is considerably dissected, but the hilltops are flattish or gently contoured sloping, owing to the altitude of the outcropping rocks, chiefly the sandstone and conglomerate of the Wasatch formation. Locally in the valleys adjacent to Bear Lake, where the Wasatch beds have been removed by erosion, thereby exposing steep dipping Mesozoic and Paleozoic rocks, the topography is rough. Altitudes range from 5,424 feet above the level on the surface of Bear Lake to 9,114 feet on the Bear River Range. The climate is semi-arid, the average annual rainfall being about 13 inches, and semi-frigid, the mean annual temperature being about 41° F. At higher altitudes the country supports a growth of fir, spruce, and pine trees. The greater part of the area, however, is bare of trees, and most of the surface is covered with sagebrush and other allied desert plants.



U. S DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Figure 1 Location Map, Minerals of Utah, Inc., Lakeview Manganese mine, Rich County, Utah

ENGINEER	DATE Dec. 1959
TRACED:	OME 6069
CHECKED:	

The land is used largely for grazing, dairying, and farming. The area is not traversed by a railroad. Sage, Wyoming, on the Union Pacific Railroad, 17 miles to the southeast, and Montpelier, Idaho, on the Oregon Short Line Railroad, 22 miles to the north, are the chief transportation centers in the surrounding region. An improved highway connects Evanston and Montpelier by way of Woodruff, Randolph, Laketown, and Garden City, and a highway extends from Garden City southwestward across the Bear River Range to Logan, Utah. Supplies are brought from the towns of Logan, Utah, Montpelier, Idaho, or Evanston, Wyoming, each being approximately 30 miles from Laketown, Utah.

History and production

Early exploration work on the property was done by Mr. Wilson Norcomb, at which time a 40- to 60-foot shaft was sunk in ore. Later a bulldozer uncovered an ore zone approximately 150 feet by 60 feet wide. From this zone a carload of ore was mined in 1953 and sold to the U. S. Government. It averaged about 20 percent Mn.

A gravity mill (250 TPD) was built during the period of November 1958 through May 1959. Some 310 tons (long) of metallurgical grade concentrates were produced and sold to the Government before the purchase program terminated. The pit was extended 200 feet in an easterly direction at a depth of from 20 to 30 feet below the surface. The applicant states: "While an accurate figure is not available of the actual tons of crude ore mined to produce these concentrates, mill

bands varied between 12 and 30 percent Mn with an average somewhere around 15-16 percent." "The open pit method as used in mining this ore diluted it considerably. Approximately 3-5 tons of waste were removed for each ton of ore produced. Most of what would be considered proven ore reserves were mined this summer."

Extent and ownership

Eighty acres, covering and surrounding the mine workings are owned by Minerals of Utah, Inc. The mineral rights of this land are reserved to the Landowner. There are no liens, mortgages or other encumbrances upon the land. The land is recorded in the books of the County Recorder at Randolph, Utah, in Book 8 of deeds, page 306. The property consisted of 80 acres of deeded land located in the SE¼ NW¼ and SW¼ NE¼ of sec. 9, T. 12 N., R. 6 E., Rich County, Utah.

Present status

The Lakeview mine is not being worked at the present time. Buildings at the mine consist of one 10-foot by 10-foot shed. There is no equipment of any kind at the mine.

A mill with a reported capacity of 250 TPD is located at the south edge of Laketown, and is a gravity type concentration. Major equipment in the mill consists of two jaw crushers, three jigs, and four tables. Power used is electric.

GEOLOGY AND ORE DEPOSITS

The area in the vicinity of Laketown, Utah, is underlain largely by Quaternary alluvium and rocks ranging in age from Cambrian to Eocene. In old Laketown Canyon, immediately east of Laketown, there is a monoclinal succession of steeply tilted beds standing practically on end, which range from the St. Charles limestone on the west to the Bugget sandstone on the east and include two horizon phosphate rocks--one in the Brazer limestone and the other in the Phosphoria formation.

South of Laketown the partial exposures reveal the presence of a southward-plunging anticline and a southward-plunging syncline. The axis of the syncline, trending slightly west of north, lies near the junction of the southeast and southwest forks of Laketown Canyon where the Madison limestone is exposed, flanked by the normal succession of Threeforks, and Jefferson limestones and Laketown dolomite. The lowest beds exposed in the anticline are of the St. Charles formation, which occupies the low foothills east and south of Laketown. The highest beds are those of the Devonian, which swing around the north end of the syncline just described. Obscure faults are indicated 1/.

1/ Richardson, G. B., 1941, Geology and Mineral Resources of the Randolph Quadrangle, Utah-Wyoming: U. S. Geol. Bull. 923, p. 40.

The country rock in the immediate area of the Lebovier mine is the gray Madison limestone of Mississippian age; the beds strike N. 75° E. and dip 75°-80° southeastward. The limestone is extremely dense, cherty, and highly fractured. Mining activities have exposed a zone of manganese mineralization that strikes north 70°-80° east and dips from 75°-85° south. The mineralized material consists largely of a series of stringers and pods of pyrolusite and calcite, associated with an irregular mass of iron-stained jasperoid. Some manganese fills fractures trending about south 85° east as well as some trending N. 15° east in the east end of the pit.

Although some fairly good grade manganese ore has been mined from the open pit, and the material has been proven to be amenable to milling, further production of ore-grade material in any great quantities would require selective mining.

A field examination disclosed a marked decrease in degree or amount of mineralized material at depth. The open pit nearer the surface contains much larger amounts of pyrolusite and vein material than does the limestone in the bottom of the pit "A." The manganese-bearing veins and stringers occur less frequently near the bottom of the open pit and are narrower and tight. The general character of the limestone at depth appears to be even more dense and less mineralized than is evident in the near surface portion of the pit. Contrary to the applicant's theory, the examining team thinks that the chances of finding higher-grade ore or even ore at depth are not good. The applicant states that "most of the proven ore reserves were mined this

summer," and that only an "inestimable amount of probable and possible reserves depends upon several factors." The examining team feels that the chances of finding significant manganese ore reserves on the Lakeview property are not good because of the poddy nature of the ore and the rapid decrease in mineralized or ore-grade material shown at depth.

PROPOSED EXPLORATION

The applicant proposes to explore for probable extension at depth of a zone of mineralized fractures and pods containing manganese minerals. They proposed to sink a two-compartment vertical shaft to a depth of 140 feet and to cut a station at a depth of 125 feet, then drive a crosscut southward to intersect the east-west zone of mineralized material should they extend to that depth. After the mineralized zone has been exposed on the 125-foot level east-west drifts would be driven 180 and 60 feet, respectively, in an effort to explore a major ore body within the vein.

The applicant's estimated costs of the program were $50,000.00.

CONCLUSIONS AND RECOMMENDATIONS

Detailed study resulting from a field examination as well as reviewing all available data on the Lakeview mine area indicates that mineralized material decreases in quantity as mining at depth has progressed in the Lakeview mine. Stringers of manganese-bearing material become smaller and tight, and the country rock becomes more dense and

less mineralized. Showings of mineralized material in the bottom of the pit are not significant, and there is no reason to believe they will become more so with depth. It is therefore recommended that the application be denied.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
WASHINGTON 25, D. C.

NOV 27 1959

Memorandum

To: Executive Officer, OME Field Team, Region III

From: Chairman, Operating Committee, OME

Subject: Docket No. OME-4069 (Manganese)
Minerals of Utah, Inc.
Inkeview Manganese Mine
Rich County, Utah

The subject application is being referred to you for a field examination.

Copies of memoranda, dated November 19 and 24, by G. L. DeRuff, Jr., Bureau of Mines, and Harold Kirkemo, Geological Survey, respectively, are attached. Also attached is an extra copy of the application for the use of the Field Team.

The Applicant submitted letters from two banks as evidence of its inability to secure funds from commercial sources on reasonable terms. Since instructions attached to the application form did not request financial statements from the corporation or its officers, and the Applicant appears to have limited resources, we are referring the application to you without further proof of financial eligibility. However, if you intend to recommend a contract, you should inform the Applicant that a necessary part of the processing is a review of data on financial eligibility, and that it should submit to the Washington Office a recent detailed statement showing assets, liabilities and net worth of the corporation, also the names of the five largest stockholders and the percent of interest that each holds in the corporation. Care should be taken in requesting this information that granting a contract is not implied.

George C. Selfridge

APPROVED:

P. F. Yopes

Member, Bureau of Mines

Harold Kirkemo

Member, Geological Survey

SFMolt/gla 11-25-59
cc to: Director's Reading File
Operating Committee
G. L. DeRuff, Jr., USBM
Harold Kirkemo, USGS
Docket
Chron

Enclosures

Report No. 1

Diamond Core Drilling
Mining
Quarries
Shaft Sinking
Tunnel Driving

Boyles Bros. Drilling Company

CONTRACTORS - ENGINEERS - GEOLOGISTS
General Offices
1551 South Main Street Phone Wasatch 4-4551
SALT LAKE CITY 15, UTAH

Minerals of Utah Inc.
Box 1453,
Santa Rosa, Calif.

November 4, 1957

Reply to:

LAKEVIEW MANGANESE

Location.

The property is located in the NW 1/4 of Sec. 9 T. 12N., R. 6E in Rich County, Utah. From Laketown on Bear Lake the property lies southeast six miles including three quarters of a mile of farm road. It is fifty miles northwest of Evanston, Wyoming.

According to one of the owners, Wilson Newcomb of Ogden, Utah, there are twenty claims in the group. These are located on farm land. The other primary owner is John N. Jefferson of Jerome, Idaho. Under an agreement with the owners, Mr. Howard E. Johnson and Mr. Fred A. Whittier, both of Spokane, Washington, have undertaken to explore and develope the property.

Previous Exploration.

At some time a forty to sixty foot deep shaft was sunk on this manganese deposit. It is reported that extremely cavernous, vuggy ground carrying irregular shots or pods of manganese was encountered. Later a local farmer open cut the property and piled up a dump containing about 4,000 tons of rock and soil mixed with manganese. Some of the chunks of manganese ore in this dump are of excellent quality.

General Geology.

The Bear Lake Region is noted for a complexity of limestones of different Geologic ages ranging from the Langston limestone of lower Middle Cambrian to the younger limestones of Tertiary age. The extent of local faulting is the primary reason for the numerous outcrops of varying age range.

The manganese in question is in Madison limestone of Mississippian age in the Carboniferous period. It is generally a medium to thin-bedded dark limestone averaging a thickness of 1,000 feet.

The limestone in question rises appears to be an isolated pod cut off from the more massive rock by faulting. It has a strike of N. 75°E. and dips steeply (77°)

to the southwest. Much of this section is soil covered and under cultivation, but the formation is Wasatch and so you have another example of a relatively small fault displacement of a few thousand feet making a displacement in time of untold millions of years; for the Carboniferous limestone lies surrounded by Tertiary rock.

Mineralization.

Beyond the fact that some good grade manganese, mostly in the form of pyrolusite, is present scattered on the surface and in the 4,000 ton dump, there is little to be learned by a surface examination. The haphazard open cutting effectively destroyed the surface manganese showings. Some limonite boulders are present indicating a manganese iron association. The limonite may be of iron carbonate origin.

The manganese mineralization appears to follow a cherty member in the limestone formation. Because the cherty member breaks under less stress and confining pressure than the pure limestone, this member is most likely the one to receive the mineral injections. In a replacement deposit mineralization would favor the more pure limestone, and may extend beyond the ten-foot cherty zone.

Exploration Drilling.

A recent attempt to wagon drill the deposit succeeded only in proving that the ore zone extends at least an additional 147 feet southerly. It was found that the ground was too honeycombed (full of vugs and solution caves) to effectively return cuttings from the drilling. Neither extent nor quality of the ore could be thus determined. The accompanying map is from a survey of the deposit and the holes drilled. Holes No. 1, 2 and 4 showed ore, but holes No. 3, 5 and 6 showed no ore, however, had deeper penetration been possible ore may have been encountered. The drill log is as follows:

Hole No.	Ore From	Ore To	Total Depth	Cuttings In Hole	Remarks
1	32	37			
	48	?	58	9	
2	30	?	54	7	
3	No ore		72	8	
4	Wet clay (some Mn)		34		Lost steel & bit
5	No ore		40	?	Vuggy
6	No ore		70	?	Vuggy

The above work was done with first class equipment. A 600 c.f.m. rotary compressor and a new drill was used.

Discussing the problem of sample recovery with expert core drillers, it was concluded that careful core drilling can be successfully employed. Core recovery except in the vugs can be made.

It is recommended that an initial three holes be drilled to a depth of 200 feet each for the purpose of evaluating quality and thickness of ore. If the quality and thickness of the ore so warrants, additional holes must be drilled to prove tonnage. The number of additional holes required can best be determined after the initial holes have been evaluated.

Drilling Cost.

The cost of drilling three initial holes will be about:

600 feet @ $6.50 per foot	$ 3,900.00
Mobilization	250.00
	$ 4,150.00
Ten additional holes would probably cost:	
2,000 @ $6.50 per foot	13,000.00
Or a total of	$17,150.00

Should the diamond loss and general drilling costs prove less than anticipated in the initial holes the above costs may be a little less. For the purpose of anticipating costs a minimum of $18,000.00 should be used.

Shaft

The shaft estimate requested is problematic. Primary factors in determining the shaft size are:

1. Size of ore body.
2. Economic size of mill for amortization in a given number of years.

Assuming there are 75,000 tons of ore to be processed in the course of four years then a fifty ton mill is the logical size.

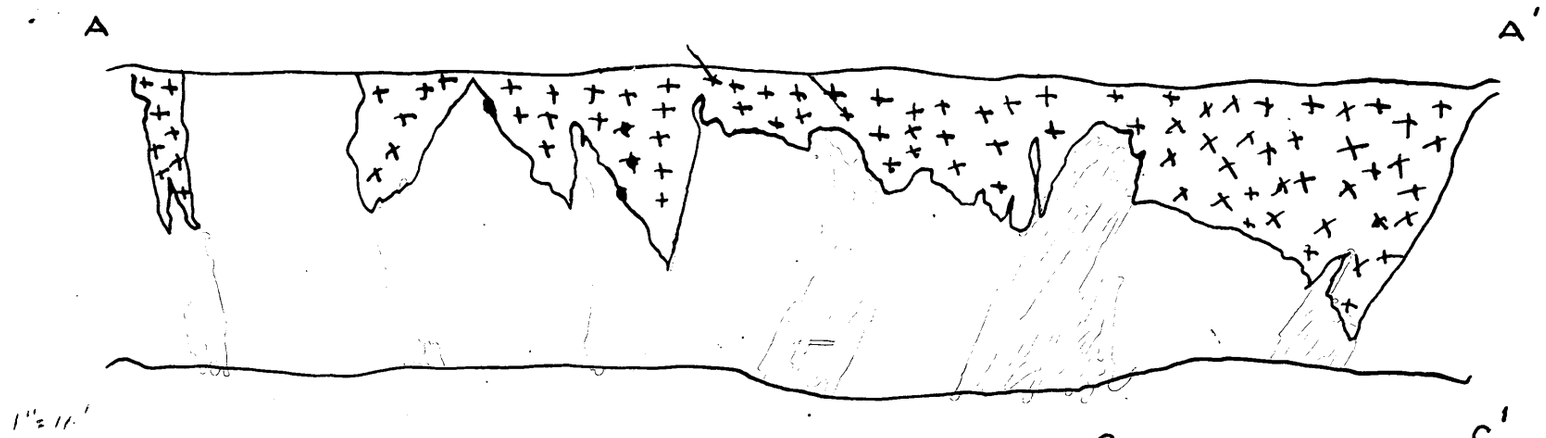
Because the actual tonnage and quality of the deposit is not known, it is impossible to plan a suitable set-up. What are the mining conditions going to be? For instance, what proportion of development muck will have to be hoisted along with the ore. Will it, when the true conditions are known, prove more economic to build a 100 ton mill to handle twice the tonnage of a lower grade? The fact is that no proper recommendations on the mill and mining set-up can be made at this time.

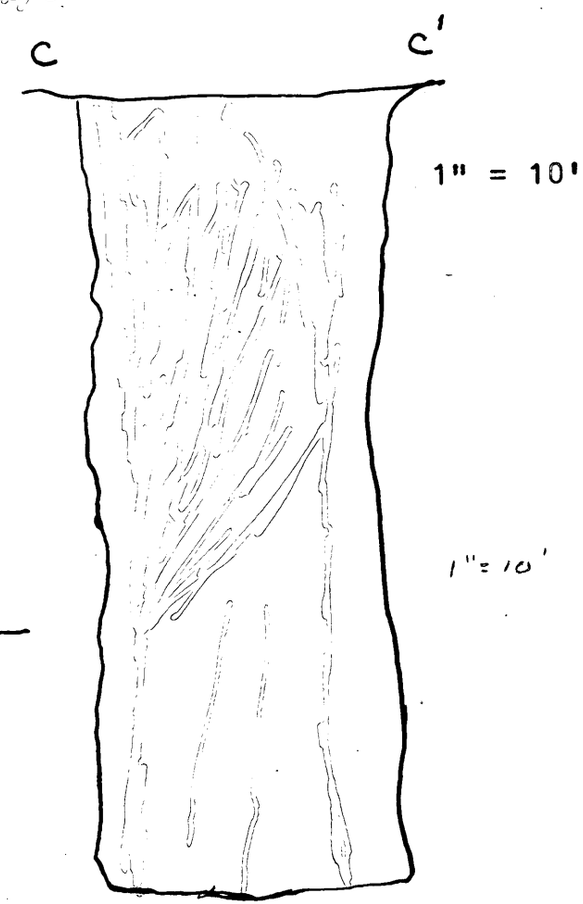
The per ton cost of a small operation is always high. The probable two compartment shaft that might serve this operation will run about $200.00 per foot including timber, air, water and vent pipes. The head frame and accessories cost about $2,000.00 and there will, in addition, be the cost of a powered hoist, hoist house, dry building, powder magazine and of course mining equipment and all underground installations, trunks, ore chutes, etc.

A. K. Geard

A. K. Geard - Geologist

AKG:bg





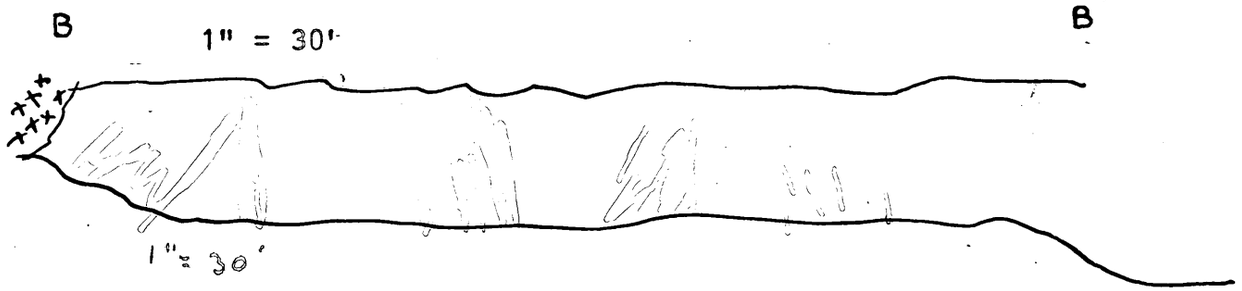


DIAGRAM # 2
SECTIONS OF MAP # 2
MINERALS OF UTAH, INC.
LAKETOWN, UTAH
8/31/59
PHJ

LEGEND

ORE RED
HEMATITE ++++ +

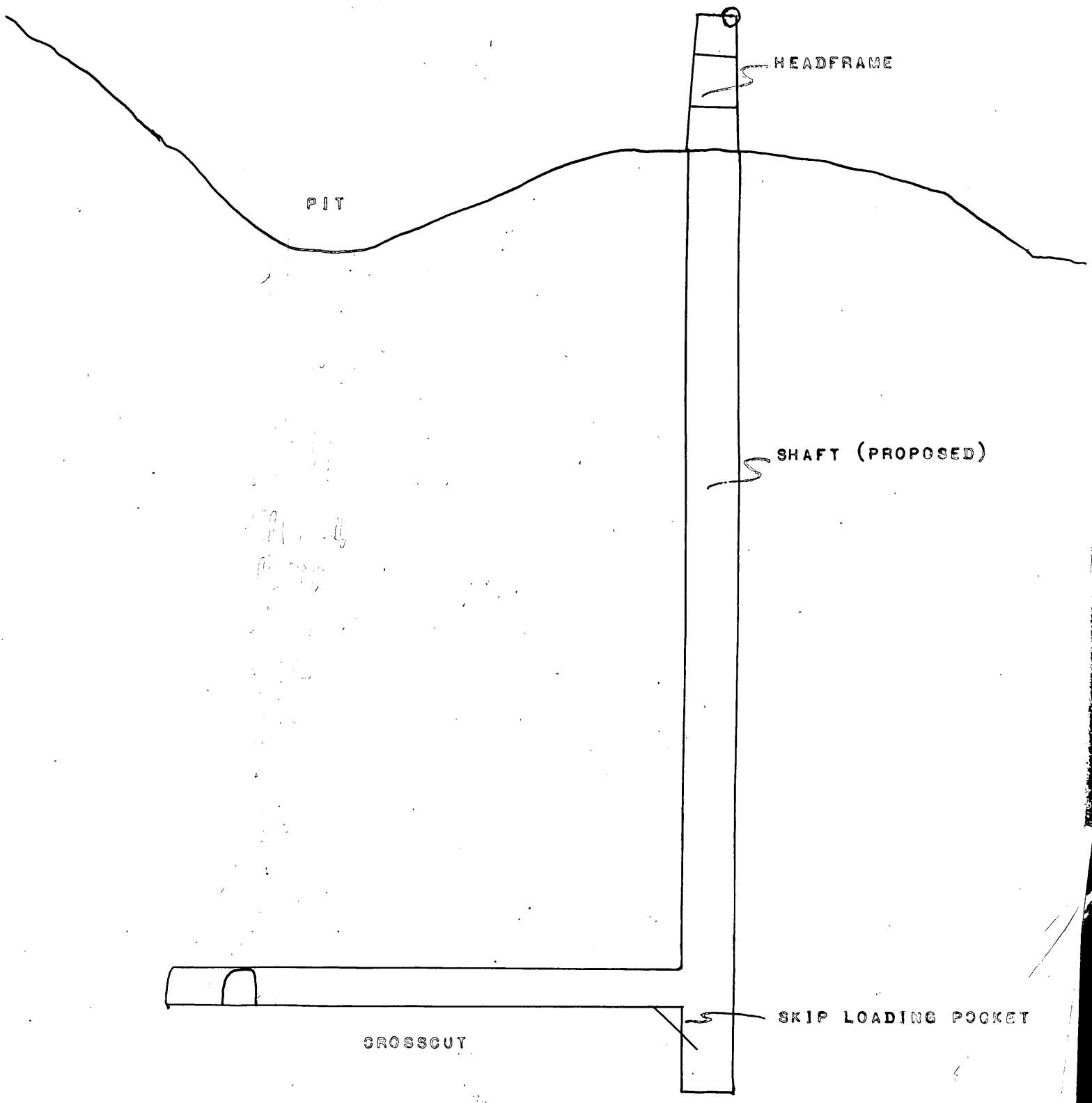


DIAGRAM # 3
ELEVATION VIEW OF PROPOSED SHAFT
SCALE: 1" = 20'
MINERALS OF UTAH, INC.
LAKETOWN, UTAH
8/31/59
PHJ

Minerals of Utah Inc.
Box 1453
Santa Rosa, Calif.

MME Form 40
Dec. 1958

6069

Budget Bureau No. 42-R1368
Approval expires Dec. 31, 1963

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

Pursuant to Public Law 85-701 (72 Stat. 700; 30 U.S.C. 641)

NAME OF APPLICANT *(Full legal name and mailing address as they should appear on contract if one is executed.)*

Minerals of Utah Inc.
Box 1453
Santa Rosa, California

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER: OME-6069

DATE RECEIVED: 11-10-59

REGION: III

DIVISION CODE: 500

BUSINESS ORGANIZATION *(Check one)*

- INDIVIDUAL [ ]
- CORPORATION [X]
- PARTNERSHIP [ ]
- OTHER *(Specify)* [ ]

STATE IN WHICH FIRM IS ORGANIZED: Utah

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
Howard E. Johnson	Box 1453, Santa Rosa, Calif.	Pres.
Paul H. Johnson	Box 1453, Santa Rosa, Calif.	Vice Pres.
Herman E. Ballof	General Delivery, Santa Rosa, Calif.	Secretary & Treasurer

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE: Manganese (pyrolusite)

ESTIMATED COST OF PROJECT: $ 50,000

PROPERTY NAME	LOCATION COUNTY	STATE
Minerals of Utah Inc.	Rich	Utah

GENERAL INSTRUCTIONS

Before filling out this application, please read the *OME Regulations for Obtaining Federal Assistance in Financing Explorations for Mineral Reserves* (30 CFR Chap. III). To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit four copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 2, existing mine workings and geology in item 3, and the proposed exploration work in item 5. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 3(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Office of Minerals Exploration, Department of the Interior, Washington 25, D. C., or with the nearest OME Field Office.*

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief, and that he would not ordinarily undertake the proposed exploration under current conditions and circumstances at his sole expense.

9/20/59
DATED

Howard E. Johnson
BY *(Signature)*

Pres. - Gen. - Mgr.
TITLE

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense. U. S. Code, Title 18, Sec. 1001.

INFORMATION REQUIRED WITH THIS APPLICATION

1. Financial Eligibility:

(a) Submit evidence of efforts made within 90 days preceding the filing of this application to obtain credit from your bank of account and at least one other banking institution or other private source of credit. Such evidence shall include true copies of correspondence which show: (1) date of loan request, (2) amount and terms requested, (3) proposed use of loan funds, and (4) the replies from credit sources. If the loan was offered under terms which you consider unreasonable, state why you consider them so.

(b) List names and addresses of affiliated, parent, or controlling companies or organizations and state extent and nature of their interest.

(c) State how you propose to furnish your share of the exploration [redacted] cost.

2. Applicant's Rights in Land:

(a) State your interest in the land and mineral rights, whether owner, lessee, purchaser under contract, or other. If you are not the owner, submit one true copy of the lease, contract, or other document (with address of owner) under which you control the property. Describe all liens, mortgages, or other encumbrances on the land and state book and page number and official place where recorded.

(b) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all adjacent land which you own or control. Describe any part of the land or workings which should not be subject to Government royalty and liens. If the land consists of unpatented claims, state book and page number for each recorded location notice, including amended locations, and official place where recorded. State all the names by which you know the property.

(c) For all land or mineral rights encumbered or not owned, submit five copies of Lien and Subordination Agreements on MME Form 52. If the agreements cannot be obtained, state reasons and provide copies of letters of refusal.

3. Physical Description:

(a) Describe in detail and illustrate with maps or sketches all mining or exploration operations which you know have been or are being conducted upon the land. Include existing mine workings and all production facilities.

(b) State your interest, if any, in operations described in (a).

(c) State, if you know, the past and current production, supporting your statement with copies of settlement sheets, mine records, or published data if available.

(d) Describe known ore reserves, giving quantities and grades and sampling methods used. Support your statement with copies of assay certificates and assay maps if available.

(e) Describe by narrative and maps or sketches the geologic features of the property, including ore minerals, geologic formations if known, and type of deposit (vein, bedded, etc.).

(f) State your reasons for expecting to find ore, and if you have sampled the area you propose to explore, show where the samples were taken, describe sampling methods used, and provide copies of assay certificates.

(g) Send with your application at least *two* copies of all geologic or engineering reports, assay maps, or technologic information which you have, indicating whether you require their return.

4. Accessibility of Property:

(a) To aid the OME representative who may examine the property, state name and address of person who will meet him; give directions for reaching the property; and describe accessibility of property and of any mine workings.

(b) Name the shipping and supply points and state the distances to the property.

5. Exploration Work:

(a) Describe fully the proposed exploration work giving individual footages and sizes of openings *for each item of work.* Use narrative, maps, plans, and sections as necessary. Show location of the proposed work as related to geologic features such as veins, ore-bearing beds, contacts of rock formations, etc. Show also the relation of the proposed work to any existing mine workings and to *land boundaries* or to the closest identifiable corner.

(b) If an access road must be built, show the proposed location on the property map and state the length, type and construction methods proposed.

(c) If an OME contract is executed, state how soon thereafter work would be started and finished. State your anticipated average daily or monthly rate of progress for each type of work.

6. Experience:

State your operating experience and background to conduct this exploration work and also that of the person who will supervise the work.

7. Estimate of Costs:

Furnish detailed estimates of the necessary costs *for each item of the work proposed in 5(a)* under the headings listed below with a total for each heading and the estimated total cost of the work. Costs for any work to be performed by an independent contractor should be listed separately under category (a) below. Costs for any work that is not to be performed by an independent contractor should be listed under categories (b) through (g).

(a) Independent contracts. State the total cost of any proposed independent contract for all or any part of the work, and the number of units and the unit cost for each type of work, such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, or per cubic yard of material moved. Cost estimates should be supported by bids from three contractors if possible. (*Note*—If none of the work is to be contracted, write "none" after this item.)

(b) Personal services. The cost of supervision, engineering and geological services, outside consultants, and labor should be itemized by numbers and classes of employees; rates of wages, salaries or fees; and periods of employment. State whether these services are available.

(c) Operating materials and supplies. List items of material and supplies giving quantity and cost of each. Include under this heading power, water, and fuel, and units of equipment and tools costing less than $50 each.

(d) Operating equipment. List items of equipment and tools costing $50 or more per unit. Give specifications and indicate how each item is to be acquired—i.e., rented, purchased or provided by the applicant. If rented or purchased, state the estimated rental or purchase price. If furnished by the applicant, state condition and present fair market value.

(e) Initial rehabilitation and repairs. Describe the type and the cost of *initial* rehabilitation or repair of existing buildings, fixtures, installations (exclusive of mine workings), and movable operating equipment now owned by the applicant which will be used in the exploration work.

(f) New buildings, fixtures, installations. Describe each building, fixed improvement, and installation to be purchased, constructed, or installed for the exploration work, stating specifications and cost including labor, materials, and supervision.

(g) Miscellaneous. Describe the type and estimate the cost of repairs and maintenance of the operating equipment listed in 7(d). Do not repeat initial repairs listed in 7(e). Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories. [*Note*—The Government will not contribute to costs incurred before the date of the contract, or to costs of or incident to: (1) acquiring, using, or possessing land and any existing improvements, facilities, buildings, installations, and appurtenances, or the depreciation and depletion thereof; (2) general overhead, corporate management, interest and taxes (other than payroll and sales taxes); (3) insurance (other than employees' liability insurance); and (4) damages to persons or property (other than authorized repair to or replacement of equipment or other property used in the work).]

INT.-DUP. SEC., WASH., D.C. 48740

MINERALS OF UTAH, INC

LAKETOWN

1. FINANCIAL ELIGIBILITY:

[illegible] PLEASE FIND OUR COPIES OF LETTERS TO [illegible] THEIR [illegible] WHEREIN THEY FORWARD DOWN OUR [illegible]

SEPTEMBER 1, 1959

FIRST SECURITY BANK OF IDAHO N.A.
MONTPELIER, IDAHO

GENTLEMEN:

IN ACCORDANCE WITH OUR CONVERSATIONS AND YOUR INSPECTIONS OF OUR MANGANESE PROPERTY AND WITH APPROVAL OF OUR BOARD OF DIRECTORS WE HEREBY MAKE FORMAL APPLICATION FOR A LOAN OF $ 25,000.00 TO DEVELOP OUR MANGANESE PROPERTY AT LAKETOWN, UTAH.

WE REQUEST THIS LOAN FOR A PERIOD OF ONE YEAR AND OFFER OUR MANGANESE DEPOSIT AND MINING EQUIPMENT AS SECURITY FOR SUCH LOAN, AT REGULAR BANK RATES.

INASMUCH AS WE HAVE DISCUSSED OUR PROJECT WITH YOU MANY TIMES YOU PROBABLY ARE WELL ACQUAINTED WITH OUR PROBLEMS AND DESIRES FOR THIS DEVELOPMENT WORK, BUT IF THERE ARE STILL QUESTIONS TO BE ANSWERED PLEASE FEEL FREE TO ASK AND WE WILL FURNISH YOU WITH ANY ENGINEERING OR ACCOUNTING INFORMATION YOU MAY DESIRE.

PLEASE LET US HEAR FROM YOU.

VERY TRULY,

HOWARD E. JOHNSON
PRES. AND GEN. MGR.
MINERALS OF UTAH, INC.

SEPTEMBER 6, 1959

FIRST SECURITY BANK OF UTAH, N.A.
LOGAN, UTAH

GENTLEMEN:

WE HEREBY MAKE FORMAL APPLICATION FOR A LOAN OF $ 25,000.00 TO DEVELOP OUR MANGANESE DEPOSIT AT LAKETOWN, UTAH, BY SINKING A SHAFT AND CROSSCUTTING THE VEIN AT DEPTH. WE REQUEST THIS LOAN FOR ONE YEAR AT REGULAR BANKRATES AND PROPOSE TO USE OUR MINERAL DEPOSIT AND MINING MACHINERY AS SECURITY FOR SUCH LOAN.

AS OUR ENGINEER AND ACCOUNTANT HAVE GONE OVER OUR BOOKS AND EXPLAINED OUR DEVELOPMENT PROGRAM TO BANK PERSONNEL WE FEEL YOU HAVE A TRUE PICTURE OF OUR NEEDS AND DESIRES, HOWEVER WE ARE AT YOUR SERVICE TO PROVIDE ANY ADDITIONAL INFORMATION YOU MAY DESIRE.

THANK YOU VERY KINDLY FOR YOUR ATTENTION IN THIS MATTER. PLEASE LET US HEAR FROM YOUR AS SOON AS POSSIBLE.

VERY TRULY YOURS,

Howard E. Johnson

HOWARD E. JOHNSON
PRES. AND GEN. MGR.
MINERALS OF UTAH, INC.

NATIONAL ASSOCIATION
NORTHWEST BRANCH
MONTPELIER, IDAHO

October [illegible], 1959

Mr. Howard L. Johnson, President
Minerals of Utah
Box 1453
Santa Rosa, California

Dear Mr. Johnson:

We wish to thank you for the opportunity to assist you in the development of your Manganese property at Laketown, Utah. We regret, however, that we must decline your application for a loan of $25,000.00. We find the loan in the classification of a capital loan and under current economic conditions, we have adopted a conserative policy in extending loans, and we are not, at the present time, making loans for expansion or capital loans.

We regret our inability to be of service to you at this time.

Very truly yours,

W. G. Wright
Manager

WGW:gmc

MEMBER FIRST SECURITY CORPORATION SYSTEM
LARGEST INTERMOUNTAIN BANKING ORGANIZATION

First Security Bank of Utah
NATIONAL ASSOCIATION
LOGAN OFFICE

LOGAN, UTAH

October 29, 1959

Mr. Howard E. Johnson
President and Gen. Mgr.
Minerals of Utah, Inc.
Box 673
Santa Rosa, California

Dear Mr. Johnson:

We acknowledge receipt of your application of September 1, 1959, for a loan of $25,000.00 to assist you in developing your manganese deposit near Laketown, Utah. This in our opinion is a capital loan which we can not qualify. We regret very much we will be unable to serve you in this instance, but we do appreciate your calling it to our attention.

We sent a similar letter to you at Laketown, Utah Box 800, which you apparently have not received.

Yours truly,

N. D. Salisbury
Vice President

NDS/jj

[illegible]

THE KIND [illegible] WORK [illegible] ARE [illegible]

[illegible]

[illegible] LATER A [illegible]

[illegible]

EXPLORATION WORK [illegible]

UTAH INC.) IN THE [illegible]

Minerals of Utah Inc.
Box [illegible]
Santa [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

PRODUCTION EQUIPMENT INCLUDED A COMPLETE 250 TPD GRAVITY MILL, COMPRESSORS, [illegible] HOISTS, AIRPLANES, [illegible] MOUNTED JACKLEGS, [illegible] INTERMEDIATE LOADERS, TRUCKS, TRACTORS, AND [illegible], [illegible] SAW, VENTILATING FAN, VENTILATING [illegible], [illegible] DRILLS AND ROCK BITS.

(b) I WAS VICE PRESIDENT AND GENERAL SUPERINTENDENT OF MINERALS OF UTAH INC. DURING THE [illegible].

*see - U S BM RI 4524 concentration of oxide manganese are from Newcomb properties, Rich county, Utah.

Minerals of Utah Inc.
Box 1453
Santa Rosa, Calif.

EXPLORATION BODY HAS [illegible]

[illegible]

ORE OF ORE [illegible]

BETWEEN JUNE 1 AND [illegible], [illegible], [illegible]

OF MANGANESE [illegible] WERE [illegible] THE [illegible]

MENT FOR $[illegible] [illegible] CARLOT PROGRAM [illegible]

OF UTAH, INC. SETTLEMENT SHEET [illegible] ILLUSTRATES THE

GRADE OF THESE CONCENTRATES. WHILE AN ACCURATE

FIGURE IS NOT AVAILABLE [illegible] TONNAGE OF

ORE MINED [illegible] CONCENTRATES, [illegible]

VARIED BETWEEN 10 AND 30% [illegible] AVERAGE [illegible]

WERE AROUND 15-18% [illegible]

USED IN MINING [illegible]

APPROXIMATE [illegible] RATIO [illegible] TON OF ORE PROCESSED.

(8) [illegible] WHAT WOULD BE CONSIDERED [illegible]

ORE RESERVES WERE MINED THIS SUMMER, LEAVING A RATHER

INESTIMATABLE AMOUNT OF PROBABLE AND POSSIBLE RESERVES,

THE AMOUNT OF WHICH ARE DEPENDENT ON SEVERAL FACTORS.

THE CURRENT STEEL STRIKE AND THE TERMINATION OF THE

CARLOT PROGRAM HAVE DECREASED THE VALUE OF [illegible]

MANGANESE TO THE POINT WHERE FEW, IF ANY, [illegible]

MINES CAN OPERATE. HOWEVER, THERE ARE [illegible] INDICATIONS THAT SUPPORT WILL BE GIVEN TO THE INDUSTRY IN THE NEAR FUTURE. IF AN OREBODY OF SUFFICIENT SIZE CAN BE FOUND OF THIS ORE IT MIGHT WELL WARRANT THE ADAPTATION OF OUR MILL TO FLOTATION, IN WHICH CASE WE CAN PRODUCE A PRODUCT FOR INDUSTRIES WHICH PAY MUCH HIGHER PRICES FOR MATERIAL OF PREMIUM GRADE.

Minerals of Utah Inc.
Box [illegible]
Santa [illegible], Calif.

Undoubtably, there are yet, many thousands of tons of ore similar to that which was fed through the mill. If underground mining would prove conducive, higher grades of ore can be expected as dilution will be much less. Channel samples of vein material commonly run around 40% Mn while samples taken of the overall structure ran between 10 and 30% Mn which compared favorably with those taken as head samples at the mill.

(e) Report # 1 describes the geology as [illegible] prior to mining done this Summer. Map # 2 illustrates the geology as it is presently exposed. Mining has revealed the deposit to consist of a series of east-west hydrothermal veins crossing another like series of veins. At the intersection of these veins, and in one instance the intersection of veins with a [illegible] dyke, invariably pockets of high grade ore were formed. Replacement is common near the surface along with supergene enrichment. There is little, if any evidence to show there to be any serious faulting. In some areas impovishment resulted with depth while enrichment resulted in others. In many instances it was necessary to mine through several feet of limestone cap rock before hitting orebodies.

Massive pyrolusite and psilomelane are the principal ore minerals present. Gangue minerals include siderite, calcite and quartz.

The deposit is between mezothermal and epithermal in type. This is evidenced by the minerals present and the nature in which they occur.

(f) The reasons for finding ore at a greater depth are as follows

1. There is little reason to believe that the downward extension of existing oretodies will not continue.

2. There is a liklihood of a major vein structure with depth as the many veins present and the epithermal nature of the deposit

Minerals of Utah Inc.
Box 1453, Santa Ro

suggests horsetailing of small veins from a central stem.

The proposed exploration work is at a depth much greater than that of any previous work. Section 3 (d) describes the grade and methods of sampling of that portion of the deposit near the surface.

(e) Enclosed are several maps and reports. Please return Report #1 and Map # 1 when you finish your investigation.

4. Accessibility of Property

(a) The property is situated in Rich County, Utah, about 6 miles from Laketown. Mr. Richard Lamborn or Mr. Ray Esterholt will direct your representative to the property. Both men live in the small town of Laketown. The mine is reached from Laketown by traveling to the summit of Laketown Canyon over paved road, thence 1½ miles over a graveled road.

(b) Ore is shipped via the Union Pacific railroad from Sage, Wyoming where we have our own loading platform. It is a distance of 17 miles from the mine to Sage. Supplies are brought in from the towns of Logan, Utah, Montpelier, Idaho or Evanston, Wyoming, each of which are approximately 50 miles from Laketown.

Exploration Work

(a) The proposed exploration work as is shown on Map # 2 and Diagram #3 consists of the following:

1. The sinking of a two compartment vertical shaft to a depth of 140 feet, the dimensions of which will be sufficient to provide for a 5' x 7' sinking compartment and a 4' x 7' ladderway and pipe compartment. A station will be cut at a depth of 125', the additional depth being used for a skip loading pocket.

As can be seen on Map # 2, the shaft will be located in the footwall of the vein structure, well away from the ore zone.

2. From the station , a crosscut will be driven south to intersect the east-west vein structure. The dimensions of this drift will be approximately 6.5' x 6.5' and it's length, 75'.

[illegible]

[illegible]

highly likely [illegible]

to be timbered. [illegible]

approximately [illegible]

Map # 2 shows the location of the proposed exploration [illegible]

in relationship [illegible] geologic features and [illegible] and Diagram [illegible]

illustrates it's [illegible] from land boundaries.

(b) The access road is built.

(c) The work would be started on or about [illegible] 1st, 1970.

The following is an estimate of the monthly rate of [illegible]

for each type of work.

Type of Work	Rate of Advance/Day	Time Required/Days
Erection of headframe, installation of hoist & compressor lines	- -	12
Sinking Shaft	2'	20
Cutting station	-	3
Drifting to vein structure	5'	15
Drifting laterally in ore	4'	60
Total		16[illegible] days

5. Experience

I am a professional mining engineer holding a M. S. degree from the University of Washington in mineral engineering. During the last two years I have been working as a supervisor with as many as 30 men under my command at on time. I may supervise the work, if not, a competent miner or engineer will be in charge.

Estimate of Costs

A) No independent contracts are anticipated.

B) Personal Services

a. Shaft Sinking - (includes erection of headframe & equipment, sinking shaft, cutting station, and building skiploading pocket.)

	Supervision	Engineering & Geological Services	Labor
1. Number of Employees	1*	1*	6
2. Rate of Pay	$550/mth	$750/mth**	$2.40/hr
3. Period of Employment	duration of project	duration of project	duration of projedt - 3 men to a shift
4. Cost of Item	$1870	$2560	$9790

b. Crosscutting to vein structure

1, 2, & 3 same as above

4. Cost of Item	$335	$450	$1730

c. Drifting Within Vein Structure

1, 2, 3 same as above

4. Cost of Item	$1100	$1500	$5800
	$3305	$4510	$17,320

TOtal $25,135

* Services of these men are available
** 25 working days per month

Minerals of Utah
Box 1453
Santa Rosa, California

7. Estimate of Costs (cont.)

(C) Operating materials and supplies

(a) Shaft Sinking (erection of headframe & equipment, sinking shaft, cutting station and building skiploading pocket.)

	Items	Quantity	Cost/$
1. Power	oil & fuel filters	-	50
	compressed air pipe lines & fittings	300' of 3" pipe & couplings	450*
2. Water	drill water lines	100' of 1" pipe	25
	drill water hose	100' of hose	60*
	drill water tanks	2	100*
3. Fuel	gas for air compressor	4000 gal @ 32¢/gal	1280
	gas for generator	200 gal.	64
	oxygen & acetylene	6 tanks of each	100
	30 SAE oil	110 gal.	120
	drill oil	110 gal.	100
	gas for trucks	500 gal.	103
	misc. oils & greases	--	50
4. Units of equipment costing less than $50.	general carpenter, mechanic, surveying and mine tools	--	250
			250*
5. Timbering & accessories	Timber (treated) (see page)	24 MBF	2400
	hanging bolts	100	150
	wedges	300	80
	nails	400#	75
6. Powder & accessories	powder, 40% Gel	600#	150
	fuse & caps	--	50

* Furnished by applicant.

Minerals of Utah Inc.
Box 1463
Salt Lake City, Utah

Minerals of Utah, Inc.
Box 1453
Santa Rosa, Calif.

(b) Crosscut to vein structure

1. Power, water, fuel and units of equipment costing less than $50 are included in shaft sinking.

	Items	Quantity	Cost/$
2. Powder & accessories	60% Gel,	1000#	250
	fuse & caps	--	75
3. Timber		none anticipated	

(c) Drifting laterally in ore (240')

1. Power, ~~water~~ fuel and units of equipment costing less than $50 are included in shaft sinking.

2. Timber	Sets	100 - 8" x 8" x 12' 6400# BF	640
	Lagging	2" x 12" x 12' 4800 BF	320
	~~[illegible]~~ Wedges	300	50
3. Powder & accessories	60% Gel.	3350#	840
	fuse & caps	--	150
	Total Amount		$8,210
	Amount furnished by applicant	-- $860	

(d) Operating equipment

(e) Sinking of shaft etc.

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Box 1453
Santa Rosa, Calif.

Item	Specifications	[illegible]	[illegible]
Dump truck	1949 Dodge 3 ton	FA*	1500
sinking hoist	air driven, 14" x 24" drum	FA	800
sheave wheel	24"	purchase	50
wheel cable	5/8" x 175'	purchase	125
compressor	120 cfm at 120 psi	FA	4000
air receiver tank & valves	36" x 8'	FA	500
air hose	200' x 3/4"	FA	250
generator plant	3 KW	purchase	600
power saw	8" dia. blade	FA	150
2 sinking buckets	8 cu. ft.	purchase	200
1 jackhammer	55# Thor	FA	150
2 oilers	std.	FA	50
drill steel	10 - pcs. 7/8" hexes various lengths to 6' with TC bits	FA	180
	1 ton of 7/8" hex without TC bits	purchase	600
drill bits	12 - 1 ¼" TC	FA	175
ore skip	15 cu. ft.	purchase	500
ventilation fan	6" discharge	FA	300
ventilation fan motor	2 hp gas	purchase	150
ventilation tubing	[illegible] canvas, 8" dia	FA	150

* Furnished by applicant.

(b) Crosscutting to Vein Structure

Item	Specifications	How Acquired	Value
air slusher & Blade	24" blade	FA	$1500
1 jackleg drill	--	purchase	$700
drill bits	200 steel bits, 1¼"	FA	$200

(c) Drifting Laterally on Vein

Items found in a & b will be used.

Total Cost of Operating Equipment --	$12,830
Amount Furnished By Applicant --	$ 9,905

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Box 1453
Santa Rosa, California

7. Estimate of Costs

(E) Initial Rehabilitation and Repairs.

There is little, if any, repair work to be done on existing buildings, fixtures or installations. The compressor house and shop is a new building and the powder magazine is adequate for this work. Initial rehabilitation of equipment would include approximately the following costs.

Item	Cost/$
Dump truck	100
Hoist	10
Compressor	75
Air slusher	50
Total	$235

(F) New Buildings, Fixtures, Installations.

No new buildings, fixtures or installations are anticipated.

(G) Miscellaneous

Item	Cost/$
General repairs such as engine overhauling, broken parts, replacing worn parts, etc..	500
analytical work	40
accounting work	500
workmen's compensation & liability insurance	500
Payroll taxes	included in wage estimate

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Box 1453
Santa Rosa, Calif.

transportation of equipment to mine	2[illegible]
long distance telephone costs	[illegible]
cost of a pickup and gas for it for 6 months	1000
road repair	100
TOTAL	$3140

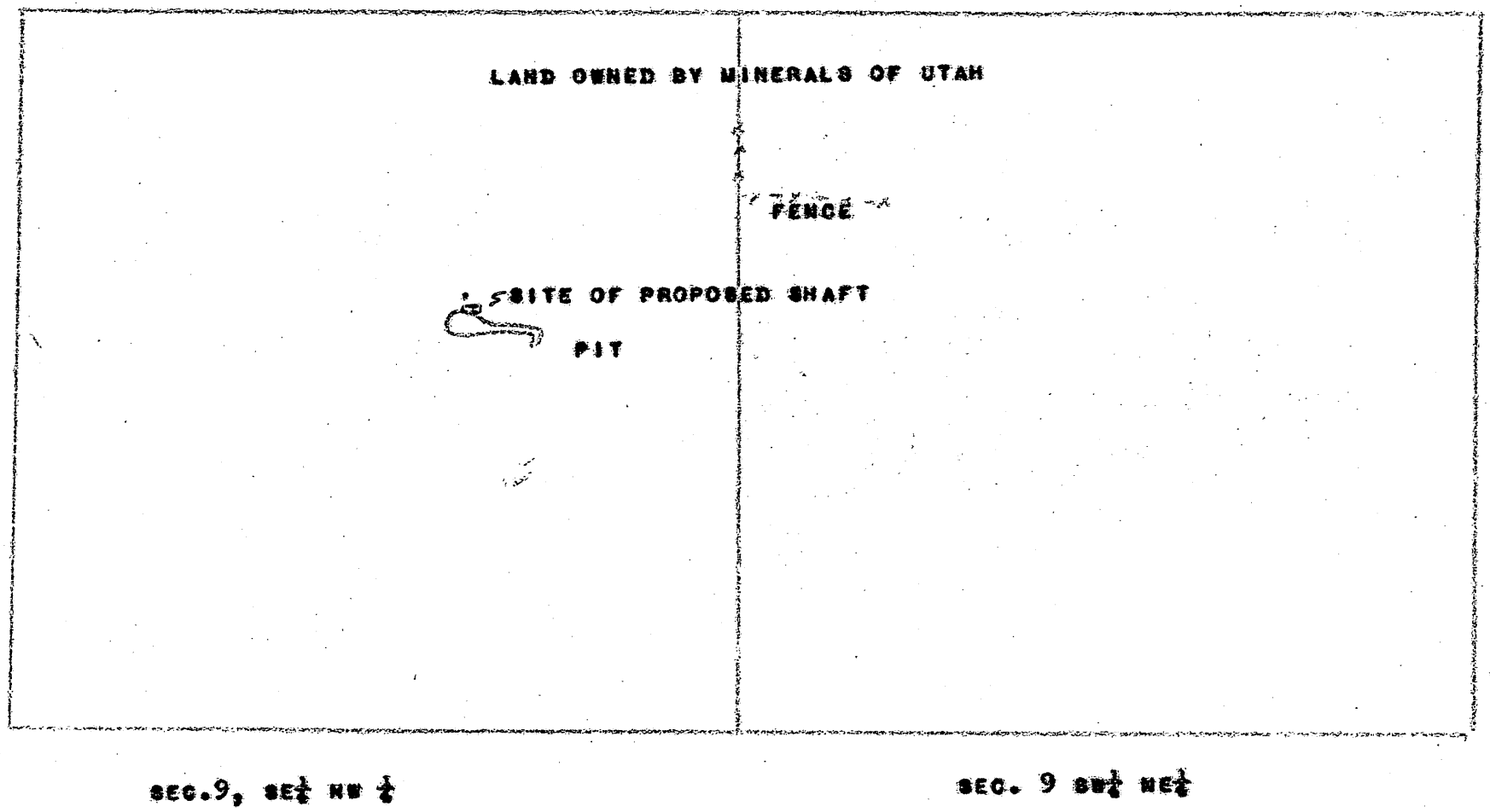
Total Costs

Personal services	$ 25,135
Operating materials & supplies	8210
Operating equipment	12,830
Initial rehabilitation and repairs	235
Miscellaneous	3,140
TOTAL	$49,150

Amount furnished by applicant -- $10,765

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]
Star & Marex [illegible]	[illegible]	[illegible]
	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible] (fir)	[illegible]	[illegible]
Miscellaneous	[illegible]	[illegible]
TOTAL		[illegible]

DIAGRAM # 1
LAND BOUNDARIES
MINERALS OF UTAH INC.
LAKETOWN, UTAH
SCALE: 1", = 300'
8/31/59
PHJ



Minerals of Utah Inc.
Box 1453
Santa Rosa, Calif.

Minerals of Utah Inc. Box 143, [illegible], California

FORM APPROVED BY COMPTROLLER GENERAL, U.S. SEPTEMBER 15, 1952

GENERAL SERVICES ADMINISTRATION
DOMESTIC MANGANESE PURCHASE PROGRAM
(CARLOAD LOTS)

ACCEPTANCE AND INVOICE

DATE: June 23, 1959

ACCEPTANCE NUMBER: Lot 2

ISSUED UNDER CERTIFICATE OF AUTHORITATION NUMBER: 3-0/1-22?

To: Minerals of Utah, Inc.
P. O. Box 800
Anketown, Utah

Subject to the terms and conditions of the Manganese Regulation establishing the Government's Purchase Program for Domestic Manganese Ore or Concentrates in carload lots, the Government accepts 18.10 long tons (wet basis) of ☐ Manganese Ore ☒ Concentrates delivered f.o.b. by you at Sage, Wyoming, consigned to GSA, Ft. Worth General Depot at Ft. Worth, Texas on B/L Nos. listed below. Such material has a moisture content of 5.83% and analyses in a dry basis as follows:

B/L NOS.	BASIS	ANALYSES	
[illegible]-1287327, CBO 82276	☐ WEIGHTED AVERAGE	MANGANESE (Mn)	46.20 %
		IRON (Fe)	1.00 %
	☒ LOT	SILICA (SiO_2) PLUS ALUMINA (Al_2O_3)	6.80 %
		PHOSPHORUS (P)	.02 %
		COPPER PLUS LEAD PLUS ZINC (Cu + Pb + Zn)	.00 %

EVALUATION AND SETTLEMENT DATA

						DOLLARS
BASE PRICE – PER L.D.T. UNIT						2.30
PREMIUMS	DIFFERENCE		DOLLARS		DOLLARS	
Mn ABOVE 48%		x	.005	=		
Mn BELOW 6%	5.00	x	.005	=	.025	
NET INCREASE						.025
PENALTIES	DIFFERENCE		DOLLARS		DOLLARS	
Mn BELOW 48% TO AND INCLUDING 44%	3.80	x	.01	=	.038	
Mn BELOW 44% TO AND INCLUDING 40%		x	.015	=		
Si ABOVE 6% TO AND INCLUDING 8%		x	.01	=		
Fe ABOVE 8% TO AND INCLUDING 16%		x	.0075	=		
SiO_2 + Al_2O_3 ABOVE 11% TO AND INCLUDING 15%		x	.01	=		
P ABOVE 0.12% TO AND INCLUDING 0.30%		x	.0033	=		
(1/3 cent per unit for each 0.01 percent up to and including 0.30 percent)				NET DECREASE		.038
NET AMOUNT OF ADJUSTMENT						PLUS / MINUS .007
ADJUSTED BASE PRICE – PER L.D.T. UNIT						2.307

LONG WET TONS		MOISTURE CONTENT		LONG DRY TONS		% Mn.		L.D.T. UNITS		ADJUSTED BASE PRICE		AMOUNT DUE
18.10	–	2.80	=	15.30	x	46.20	=	2,092.86	x	2.307	=	4,828.23
								AMOUNT PREVIOUSLY PAID				None
								BALANCE DUE				4,828.23

ACCEPTANCE

RECEIVED AND ACCEPTED BY GENERAL SERVICES ADMINISTRATION AT Sage, Wyoming

NAME (Type name)	SIGNATURE	TITLE
[illegible] WOMERS		Regional Director, DMS

FOR USE OF PRODUCER ONLY

INVOICE

TO	REGION NUMBER	CITY AND STATE
General Services Administration	8	Denver, Colorado

FOB ☐ MANGANESE ORE ☒ CONCENTRATES delivered as indicated above $ 4,828.23

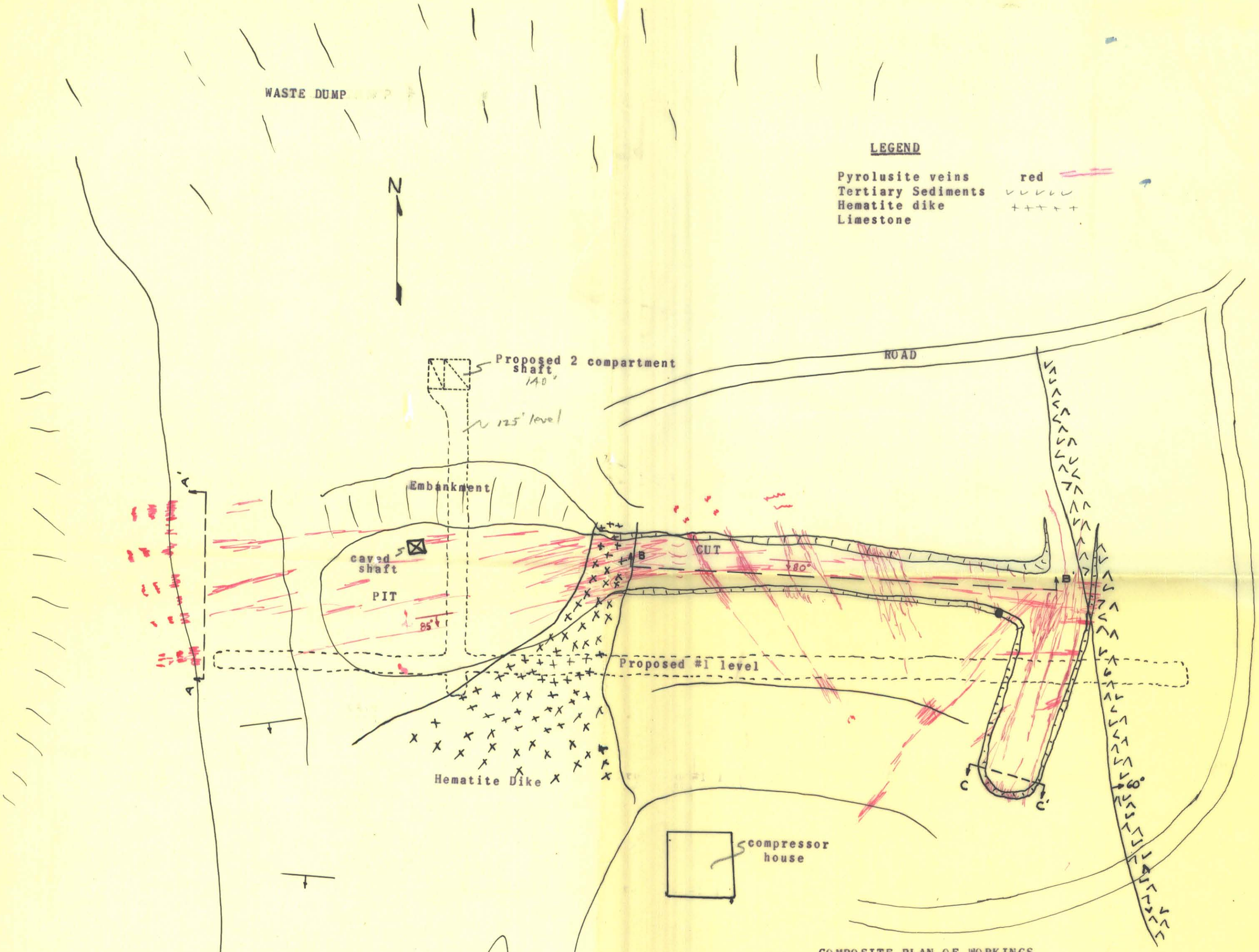
I certify that the above bill is correct and just and that payment therefor has not been received. The producer warrants that said material was mined in the Continental United States.

PRODUCER (Type name)	DATE
By (Signature) Minerals of Utah, Inc.	TITLE

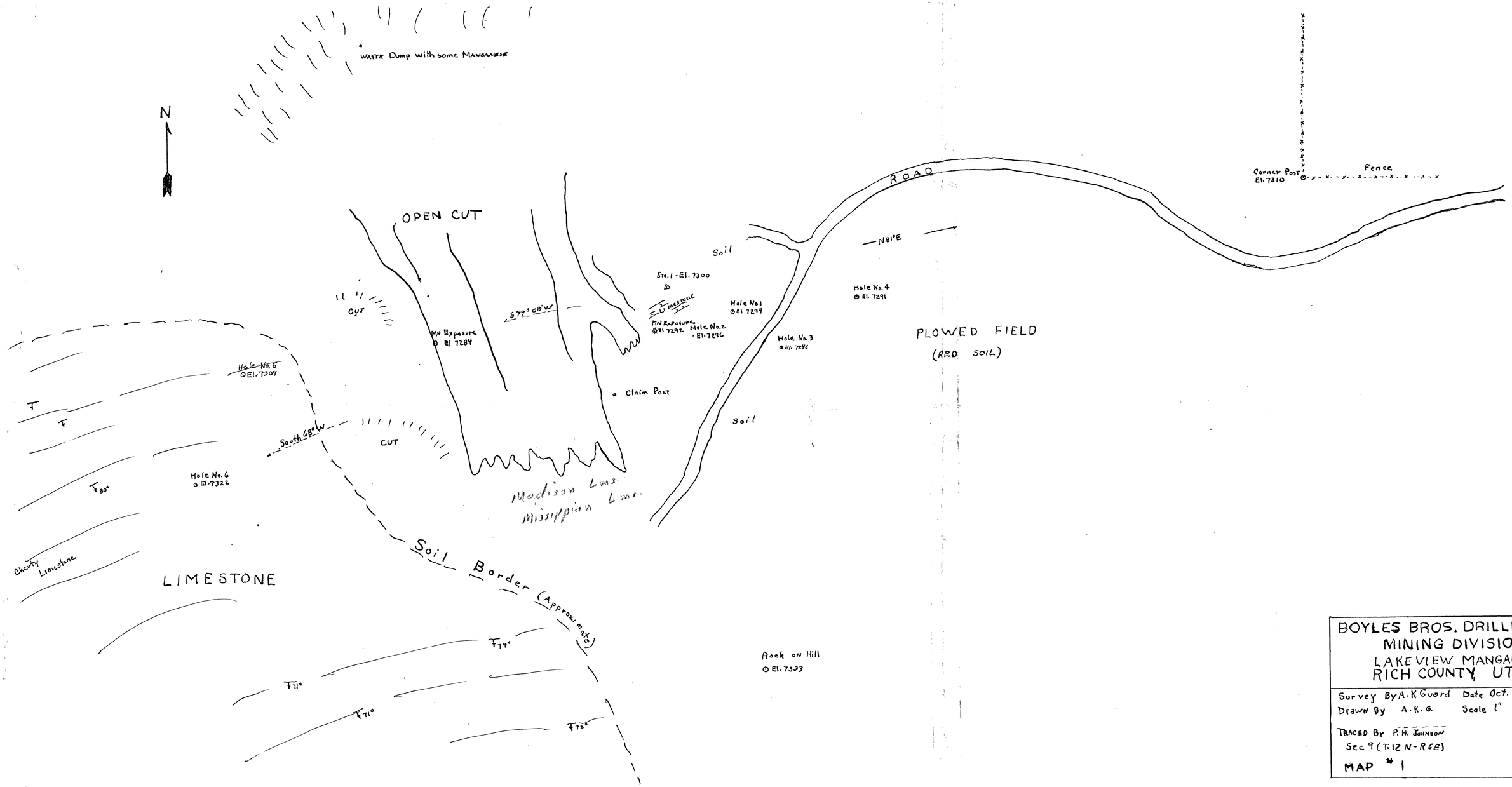
GSA WASH DC 55-2490

Settlement Sheet # 1

GSA FORM 1037 SEPTEMBER 1954



COMPOSITE PLAN OF WORKINGS
Minerals of Utah Inc.
Laketown, Utah
8/31/59
Scale: 1" = 20'
Dwg by: Paul H. Johnson, M. E.
MAP # 2



BOYLES BROS. DRILLING CO.
MINING DIVISION
LAKEVIEW MANGANESE
RICH COUNTY, UTAH

Survey By A. K. Guard Date Oct. 29, 1957
Drawn By A. K. G. Scale 1" = 40'

TRACED BY P. H. JOHNSON
Sec. 9 (T. 12 N - R 6 E)

MAP # 1