MME Form 9
Rev. Nov. 65

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey

OFFICIAL DOCKET FILE Contract No. _____ Docket No. 6745

Application
- [ ] Denied
- [x] Withdrawn

Contract
- [ ] Terminated - Not Certified
- [ ] Terminated - Certified
- [ ] Cancelled
- [ ] Royalty Agreement

The records contained in this file are marked (x) and arranged in this order:

Folder No. 1:

Left Side

- [ ] Royalty Audits
- [ ] Certification of Discovery
- [ ] Closing Letter
- [ ] Cost Audits
- [ ] Termination Notice or Agreement
- [ ] Recision Notice
- [ ] Assignment of Contract
- [ ] Contract Amendments
- [ ] Contract with all exhibits and annexes
- [ ] Owner's Consent to Lien and Subordination Agreement
- [x] Application and Attachments

Right Side

- [ ] Project Summary (final)
- [ ] Work Completed Analysis (final)

All other material filed in chronological order including the following reports if checked:

- [ ] Field Team Semiannual Report for Certified Project
- [ ] Final Field Team Report (Tab)
- [ ] Operator's Final Report (Tab)
- [ ] Interim Field Team Reports
- [ ] Operator's monthly reports and all attachments
- [ ] On-site Exam. Report (Tab)
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

Left Side

Folders No. _____: Reports

- [ ] Analysis of Semiannual Inspection Reports
- [ ] Project Summary (Interim) by MME Engineers

Right Side

- [ ] Field Team Semiannual Report for Certified Project
- [ ] Field Team Interim Reports
- [ ] Operator's Monthly Reports with Transmittal, Narrative and Maps

Folders No. _____: Maps (Use pocket folder or envelope)

Folders No. _____: Settlement Sheets

Folders No. _____: Drill Logs

Folders No. _____: Royalty Material

72195-65

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
FEDERAL CENTER, DENVER, COLORADO 80225

Office of Minerals Exploration
Building 53 Room 203

July 22, 1968

OFFICIAL COPY
O. M. E.
RECEIVED
JUL 25 1968
INITIALS | CODE

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region III

Subject: Alta United Mines Company (Silver)
Emma Unit, Alta United Mines
Salt Lake County, Utah

Transmitted herewith is an application for financial assistance in minerals exploration on the above-stated subject. One copy has been retained for the Region III field office files.

J. William Hasler
mc

J. William Hasler,
Field Officer, Region III
Office of Minerals Exploration

MME Form 40
Jan. 65

Budget Bureau No. 42-R1508
Approval expires Dec. 31, 1968

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

OFFICIAL COPY
O. & G. RECORDS
JUL 25 1968
INITIALS CODE

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.)*

Alta United Mines Company
900 American Oil Building
Salt Lake City, Utah

OME Region III
RECEIVED
JUL 22 1968
Denver, Colorado

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER 6745

DATE RECEIVED 7/25/68

REGION III

DIVISION CODE

BUSINESS ORGANIZATION *(Check one)*

INDIVIDUAL
CORPORATION X
PARTNERSHIP
OTHER *(Specify)*

STATE IN WHICH FIRM IS ORGANIZED

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
George T. Hansen Jr.	2058 Pheasant Way Salt Lake City, Utah.	President
Walter Hoppe	216 5th Ave., S. L. C., Utah.	Vice-President
Page P. Blakemore	39 Exchange Place Salt Lake City, Utah.	Director
John Kasteler	Box 432, Lovelock, Nevada	Director
Jack N. McCrary,	Commercial Bank Tower, Midland, Tex.	Sec-Treas.

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE
Silver

ESTIMATED COST OF PROJECT
$ 200,000

PROPERTY NAME	LOCATION COUNTY	STATE
Emma Unit, Alta United Mines	Salt Lake	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 two 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.~~ Washington, D. C., 20242, 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.

June 22, 1968
DATED

George T. Hansen Jr.
BY *(Signature)*
George T. Hansen Jr. President
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 cost of the exploration work.

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).]

DUP. SEC., WASH., D.C

ALTA UNITED MINES COMPANY
900 American Oil Building
Salt Lake City, Utah

OME Region III
RECEIVED
JUL 22 1968
Denver, Colorado

July 17, 1968

Mr. J. William Hasler, Field Officer, Region III
Office of Minerals Exploration - U. S. Geological Survey
Denver Federal Center - Building 53 - Rooms 200-203
Denver, Colorado 80225

Dear Mr. Hasler:

Enclosed is an application for OME financing from Alta United Mines Company, Inc.

We hope that you will find all in order; however, in the event that questions should arise or further information is required, please contact our President, Mr. George T. Hansen, Jr., 900 American Oil Building, Salt Lake City, Utah 84111.

Yours very truly,

Jack N. McCrary
Secretary

JNMcC/su
Encl.

APPLICATION FOR FINANCIAL ASSISTANCE

IN

MINERALS EXPLORATION

BY

ALTA UNITED MINES COMPANY

AMERICAN OIL BUILDING

SALT LAKE CITY

UTAH

1. FINANCIAL ELIGIBILITY

a) *Attached are letters from two banking institutions disallowing loans to Alta United Mines Company for the sum of $200,000.00

b) There are no affiliated, parent or controlling companies or organizations connected with Alta United Mines.

c) Alta United Mines Company's share will be furnished by a loan or loans from officers or stockholders of the company, or other interested parties.

d) Applicant hereby certifies that because of the cost involved in proposed exploration program, applicant cannot undertake this venture at his sole expense.

*

Exhibits 1 and 2.

2. APPLICANT'S RIGHTS IN LAND

a) Alta United Mines Company has owned the subject claims for more than twenty years. Alta United is successor in interest to companies through merger that had owned the claims for forty years or more. There are no known conflicts of interest and no liens, mortgages or encumbrances on the subject claims.

b) The claims are located in Section 32, Township 2 South, Range 3 East, SLBM and Section 5, Township 3 South, Range 3 East, SLBM in the Little Cottonwood Mining District, Salt Lake County, Utah.

The mining property involved in the proposed project consists of the following contiguous claims:

2 - b) continued

PATENTED CLAIMS

Emma	Lot No. 37	5.510 acres
Cincinnati	Lot No. 94	5.509 acres
No. 1	Lot No. 124	2.280 acres
No. 2	Lot No. 125	1.468 acres
No. 3	Lot No. 126	2.314 acres
North Star	Lot No. 104	9.300 acres
South Star	Lot No. 95 Amd.	3.620 acres
Allegan	Lot No. 78 Amd.	5.280 acres
Hiawatha	Lot No. 40	5.000 acres
Last Chance	Lot No. 39	2.750 acres
Montezuma	Lot No. 128	2.202 acres
Savage	Lot No. 129	2.664 acres
Revolution	Lot No. 130	1/10 acres
Mackay	Lot No. 131	10 acres
Dickman	Sur No. 5684	14.214 acres
Cohen	Sur No. 5684	14.214 acres
		2/72.111 acres

UNPATENTED CLAIMS

Buffalo No. 2	Sur No. 5546 Amd.	4.920 acres
Buffalo	Sur No. 5715	3.139 acres
Good Luck	Sur No. 5715	0.796 acres
Silver Star	Sur No. 6035	0.452 acres
Lucky Star	Location	3/ 6.000 acres
		4/15.307 acres
	TOTAL	87.418 acres

1/ Approximate
2/ Patented
3/ Approximate
4/ Unpatented

c) No land or mineral rights are encumbered or not owned by Alta United Mines Company.

3. PHYSICAL DESCRIPTION

a) Accompanying this application are maps of the Emma Mine area and existing mine workings included as part of Blakemore - Cramer Report.

b) All operations are proposed to be conducted for Alta United Mines account by independent contractor.

c) The past production of the subject area has been:*

Tons	Silver (oz)	Lead (lbs)	Gold (oz)
68,928	5,167,045	40,098,600	204

*The above information is from company records, congressional record, USGS Professional Paper No. 201 by F. C. Calkins and Bureau of Mines Mineral Statistics.

Early production was unrecorded in part and the above figures are thought to represent the minimum production from the subject property.

No ore has been produced from the claims since 1920 except a sample shipment from fissure ore on the surface in 1963 by the present operators.

The analysis follows:

Tons	Au	Ag	Pb	Zn
7.86	.018	12.42	8.65	10.93

During early production, 1865-1880, crude ore as shipped to smelters at Swansea, Wales averaged 150-180 ounces of silver per ton.

Production from the faulted segment of the Emma ore body discovered in 1917 by J. J. Beeson during 1919-1920 averaged:

Tons	Au	Ag	Pb
1,432.14	.02	33.4	7.8

d) There are no known ore reserves.

e) Commercial silver ore carrying more or less lead and zinc occurs in fissure and bedded deposits on eight east-west ore zones in at least four stratigraphic horizons on the subject property. Each was mined in the period 1870-1885 in one or two beds and on the fissures downdip to the east to the Montezuma fault, a normal fault with a 230-250 ft. displacement. Only one ore zone has been prospected for beyond the fault resulting in the discovery of the faulted segment of the North fork of Emma ore body in 1917. The segment as mined in the fault block between the Montezuma and Hiawatha faults contained:

1917-1918	10,362.55 tons Au - Gross value - $35/ton
1919-1920	1,432.14 tons - 33.4 oz. Ag (Weighted Average)

Reference is made to reports by Page P. Blakemore and Louis W. Cramer included with and made a part of this application and a report by Joseph J. Beeson also attached* Maps are included in the former report.

f) Prospects for additional ore.

In part at least, due to very unconsolidated ownership, early operators apparently did not understand fault problems which abruptly terminated mining operations. Not one of several ore trends other than the Emma was prospected for east of the Montezuma Fault, and no effort was made to discover the faulted segment of the Emma ore body west of the Bay City fault. Little understanding of either structure or stratigraphy was exhibited until detailed mapping was done by Mr. J. J. Beeson in 1917 and by Mr. F. C. Calkins of the United States Geological Survey which agency published in 1943 Professional Paper No. 201 on the district.

Geologic mapping of the Emma - North Star vicinity was done in 1962-1963 by Mr. Louis Cramer and Mr. Page P. Blakemore. West dips in lower Jefferson Dolomite just under the favorable medial section were observed west of the Bay City Fault in the Illinois Tunnel. (See Plates I and II)

It is thought that the upward extension of the Emma ore body lies westerly of the Bay City Fault at relatively shallow depth, i. e. 200 feet deep in the unexplored block west of the Bay City Fault. If discovered, it could continue for several hundred feet west until truncated by the flat lying west dipping Snow Fault. Evidence of truncation is good since an ore body was extracted above the Tom Moore Tunnel on the same fissure and trend 750 feet away in the upper plate of the Snow Fault Zone in Jefferson Dolomite (Plate III b). The angles of intersection between the plane of the Snow Fault and the favorable bed will determine the length of the ore shoot.

* Exhibit 3.

In order to prospect this locality the company prepared roads and began drilling from the surface with rotary tools in late 1965. A total of 30 holes were drilled, several of which had subcommercial mineralized intercepts. (See logs of drilling.) It is thought that the holes fell on the edge of an ore zone occuring just north of the profile, and new drill sites were constructed to allow another row of holes. There proposed holes have not been drilled.

It will be noted that the mineralization encountered was typical of the Emma fissure zone with a high silver, low lead ratio. However, it is doubtful if full recovery of sulfide minerals was obtained from these holes because the compressor used to blow out the holes was old and operated at approximately 45 pounds per square inch of pressure.

There is no significant mine workings in the area of interest despite several thousand feet of workings to the east and west.

The proposed work for which this application is made is:

1) Exploration for the faulted segments of several ore zones west of the Bay City Fault.

2) Exploration of favorable beds (other than the medial Jefferson) on ore bearing fissures with previous production histories.

3) Exploration from the surface by drilling for the upper segment of the Emma ore body between the Bay City and Snow Faults.

It is regarded as essential to conduct several of the projects simultaneously to increase operating efficiency and utilize supervisory capacity.

Lack of continued production in the district since the 70's is due to:

1) Widely divided ownership--frequently hostile of adjoining claims.

2) Inadequate knowledge of ore deposition, structure and stratigraphy.

3) Momentary activity confined to one ore run at a time which when faulted or pinched or the grade decreased, the operation was shut down.

4) Wide variation in the prices for the metallic contents of the crude ore.

Presently these factors are of less consequence.

g) Copies of reports include:

Emma Silver Mines Company
J. J. Beeson, November 25, 1919

Alta United Mines Emma Unit
Page P. Blakemore and Louis W. Cramer

Maps include:

Plate I	Composite Map with Project Locations
Plate II	Emma Tunnel Map
Plate III a	Sections with Proposed Objectives
Plate III b	Sections with Proposed Operations
Plate IV	Topographical Map
Plate V	Claim Map Subject Area
Plate VI	Location of Drill Holes and Surface Works
Plate VII	Cross Section and Drill Logs
Plate VIII	Cross Section and Drill Logs

4. ACCESSIBILITY OF PROPERTY

a) The following persons will meet an OME Representative at his convenience.

1) Page P. Blakemore

Residence - 4735 Naniloa Drive, Salt Lake City, Utah
Telephone - 278-1673

Office - 39 Exchange Place, Salt Lake City, Utah
Telephone - 322-4362

2) Walter Hoppe

216 Fifth Avenue, Salt Lake City, Utah
Telephone - 328-1444

3) George T. Hansen, Jr., Company President

Residence - 2058 Pheasant Way, Salt Lake City, Utah
Telephone - 277-1415

Office - 900 American Oil Building, Salt Lake City, Utah
Telephone - 364-3787

Preliminary work is suggested in the Bay City Tunnel which has been rehabilitated in 1963-64 by the company. The portal of this tunnel is on a state-maintained, paved highway at Alta, Utah. Other workings are served by improved roads maintained by the company.

b) Shipping point is Midvale, Utah where U. S. Smelting and Refining has a concentrator and railroad loading facilities. The mill and ramp is 21 miles by paved road from the Bay City portal. Rail Freight rates to Tooele smelter of International Smelting is $0.90 per ton from Midvale, commodity rate.

5. PROPOSED EXPLORATION WORK

a) The proposed exploration consists of eight projects all closely related, accessible from workings recently rehabilitated and all regarded as having an excellent chance for success. One of the difficulties in prior operations before coalition of the claims in the area was the discovery and extraction of a single ore body which when exhausted resulted in the abandonment of the mine. Discovery

of several ore bodies is thought to be probable among the proposed objectives on the subject claims. This will increase planned development and extraction program.

The individual projects are described in detail as follows. The project areas are designated on the map titled "Emma Project". (Plate I).

PROJECT AREA "A"

Proposed is exploration of the intersection of the middle Jefferson or Emma beds, the Emma thrust zone, a northwest fissure and the productive North Star ore zone. This fissure was productive near the surface on the Jefferson Madison contact and above the Bay City 100 ft. - level on the Maxfield-Jefferson contact. The medial beds are regarded as more favorable for deposition than either of the above horizons. See Project Map and Sections. (Plate I)

Work required is 125 feet of cross-cut 6 x 7.5 feet and 50-100 feet of raising when northwest fissure is encountered. The proposed work is at coordinates 11300 North and 6300 East, and it is to be conducted from the Bay City level.

Costs

Project Area "A"

Drive 125 foot crosscut in limestone - @ $55.00 per foot. (Cost includes pipe and rail)	$ 6,875.00
Drive 100 foot raise @ $45.00 per foot	4,500.00
Cut station for percussion drilling long holes. Percussion drilling 10 holes @ 50 feet each @ $1.50 per foot	750.00
Assaying	250.00
Total.....	$12,375.00

Average progress of cross-cutting is estimated to be three feet per day, raising 4 feet per day, drilling 25 feet per day.

PROJECT AREA "B"

Required is 320 feet of drifting and excavation of two or three drill stations. Sixteen holes 450 feet deep or less should adequately explore the down dropped segment of the North Star fissure zone in the Madison limestone and the three ore horizons in the Jefferson dolomite. The first hole should be drilled for stratigraphic information to determine the elevation of the Maxfield-Jefferson contact which is the deepest ore horizon that it is thought practical to explore. The coordinates of this proposed project are 11400 North and 6500 East, and it is to be conducted from the Bay City level.

Cost

Project Area "B"

Drive crosscut 400 feet @ $55.00 per foot. (Rail and pipe included)	$22,000.00
Cut two diamond drill stations @ $1,200.00	2,400.00
Drilling 2,000 feet @ $10.00 per foot	20,000.00
Assaying	250.00
Total	$44,650.00

Average progress for crosscutting is estimated to be three feet per day. The stations 7 days each, the diamond drilling 20 feet per day.

PROJECT AREA "C"

This proposed drilling is to explore the down dropped segment of the Savage fissure zone east of the Montezuma fault and consists of 200 feet of crosscut, excavation of a station and 2,000 feet of drilling, coordinates 11600 North and 6400 East, work to be conducted from Bay City level.

Costs

Project Area "C"

Drive crosscut 210 feet @ $55.00 per foot (Includes pipe, rail and hardware)	$11,550.00
Cut two diamond drill stations @ $1,200.00	2,400.00
Drilling 2,000 feet @ $10.00 per foot	20,000.00
Assaying	250.00
Total	$34,200.00

Estimated average progress for crosscutting is estimated to be 3 feet per 8 hour shift, the stations 7 days each, and the diamond drilling about 20 feet per day.

PROJECT AREA "D"

A strongly brecciated, mineralized zone about 100 feet long is exposed in the crosscut to the southeast from the drift on the Hiawatha fault on the Bay City level. Coordinates 10800 North and 6800 East. It will be noted that the outline of the old Emma stope was bifurcate on its downward extension and that a projection of the so-called "south fork" fissure passes through this zone which stratigraphically is at the Jefferson-Madison contact.

Large open cavities stained with iron and considerable subsidence are thought to be possibly the result of oxidation of ore immediately beneath. Geochemical sampling of the material gives strong reaction for the heavy metals, using USGS methods with dithiozone. Samples were also run by X-ray diffraction methods yielding above trace amounts of lead, zinc, silver and copper.

Proposed is level cleanup, excavation of drill station and drilling to be conducted on Bay City level.

Costs

Project Area "D"

Labor, cleanup, install rail and pipe. 21 days x 3 men equals 63 man days @ $24.60	$ 1,549.80
Purchase rail - 670 feet 20 lb. rail - 4.5 tons @ $243.00 per ton	1,093.50
Purchase rail hardware	357.40
Purchase pipe - 670 ft. black 2 inch @ .60 per foot	402.00
Excavate diamond drill station - $1,200.00	1,200.00
Drill 6 x 200 feet equals 1,200 feet x $10.00	12,000.00
Assaying	250.00
Total	$16,852.70

The cleanup will require about 3 weeks, the station 7 days, the drilling about 20 feet per shift.

PROJECT AREA "E"

The block west of the Bay City fault coordinates 10800 North and 6000 East and is gently northwest dipping and it is regarded as probable that the medial ore beds of the Jefferson are at shallow distance below the surface and under the projection of the Snow fault plane. Thus, another segment of the original Emma ore body may exist in unexplored ground above and west of the Illinois tunnel. This prospect has been regarded as an excellent one by every observer in the district to the writer's knowledge, but it has not been tested. The segment over the Snow fault was discovered in Cabin Mining Company ground and was mined in 1925 to the Alta United line, a distance of about one thousand feet from where the old Emma ore body was cut off by the Bay City fault. Discovery of this near-surface segment could lead to production of a substantial tonnage of easily extracted high grade silver ore.

Drilling is proposed from surface using rotary tools.

Drill roads and sites have been prepared (See Plate VI). It is expected that after the past winter the sites may have to be cleaned up.

Costs

Project Area "E"

Clean up sites	$ 250.00
Drilling 5000 feet at $3.00 per foot	15,000.00
Sampling and Assaying	500.00
Total.....	$15,750.00

Estimated penetration with rotary drill is about 100 feet per day; one day will be required for sites with Bulldozer.

PROJECT AREA "F"

At the intersection of the Bay City level drift on the Montezuma fault and a drift southwest coordinates 11400 North and 6200 East, a mineralized breccia zone is exposed for 30-40 feet in the southwest drift. This material is thought to be in medial Jefferson Dolomite and is nearly identical in appearance with the same beds immediately beneath the old Emma stope. A crosscut about 350 geet in length is proposed to explore this zone which could lead to the undiscovered lower half of the productive Gunderson stope which was cut off by the Snow fault.

This work consisting of a crosscut drill station and drilling would be conducted from the Bay City level.

Costs

Project Area "F"

Drive crosscut 180 feet @ $55.00 per foot	$ 9,900.00
Station for percussion long hole drill	500.00
Hammer drilling - 10 holes @ 50 feet @ $1.50 per foot	750.00
Assaying	250.00
Total.....	$11,400.00

Progress for x-cut is estimated at 3 feet per shift, the station about 4 days, the drilling about 25 feet per day.

PROJECT AREA "G"

In 1963 Alta United Mines Company drove a raise and crosscut to explore ground south of the old Emma stope. It was found that the south wall of the stope was a fault with considerable drag ore in the breccia and gouge. Surface work disclosed several ore bearing fissures and an outcrop of a thrust zone in the Jefferson Dolomite. Ten rotary holes from the surface 200 feet deep are proposed to explore the ground immediately south of the stope. The proposed project also includes extension of raise from new crosscut to explore ground under surface ore fissure. (Plates II and IV). Surface samples on ore bearing fissures over this unexplored block are Numbers 1, 3, 4, 6 and 9. Coordinates are 10600 North and 6200 East. Work is to be undertaken from sublevel above Emma additional level.

Costs

Project Area "G"

Site preparation surface rotary drilling	$ 5,000.00
Drilling - 4,000 feet @ $3.00 per foot	12,000.00
Raising - 200 feet @ $45.00 per foot from "new" crosscut	9,000.00
Assaying	350.00
Total.....	$26,350.00

Site preparation, drilling and blasting will require 10 days. The drilling rate is about 100 feet per day, the raising about 5 feet per shift.

PROJECT AREA "H"

An ore body was discovered in 1919-20 above the first level from the Bay City shaft coordinates 11250 North and 6300 East. This ore occurred at the Maxfield-Jefferson contact on the North Star fissure. A similar zone could be present at 11200 North and 6050 East. It is proposed that a crosscut be driven about 100 feet as indicated from the Bay City level to explore this possibility.

Costs

Project Area "H"

Rehabilitate 370 foot tunnel Labor, cleanup and install rail 13 days x 3 men equals 36 man days @ 24.60	$ 885.60
Purchase rail - 1-1/2 tons @ $243.00 per ton	364.50
Purchase pipe - 370 feet 2 inch @ .60 per foot	222.00
Rail hardware	210.00
Drive crosscut 100 feet @ $55.00 per foot	5,500.00
Drive raise 40 feet @ $50.00 per foot	1,600.00
Assaying	100.00
Total	$ 8,881.00

Rehabilitation will require about 12 shifts. The crosscut can be driven about 3 feet per shift, and the raise about 5 feet per shift.

SUMMARY OF PROJECT COST ESTIMATES

PROJECT AREA "A"	$12,375.00
PROJECT AREA "B"	44,650.00
PROJECT AREA "C"	34,200.00
PROJECT AREA "D"	16,852.00
PROJECT AREA "E"	15,750.00
PROJECT AREA "F"	11,400.00
PROJECT AREA "G"	26,350.00
PROJECT AREA "H"	8,881.00
Contingencies - 5% of $161,958.70	8,097.50
Insurance	1,500.00
Supervision	16,000.00
Administration, legal, accounting, etc.	3,943.80
Total	$200,000.00

6. EXPERIENCE

The project will be supervised by the Board of Directors of Alta United Mines Company, four of whom have been involved in mining for a number of years. Resumes for these men follow.

George T. Hansen, Jr.
900 American Oil Building
Salt Lake City, Utah

Mr. Hansen first became involved in the search for mineral resources through his father, who organized Utah Southern Oil Company, and Mike Dougan, organizer of Equity Oil Company. After serving as Vice-President and Exploration Manager for Utah Southern, he organized Hyland Oil Corporation and has served as President since. He became interested in the mining potential of the properties at Alta, Utah in March, 1962, and has served as President of Alta United Mines Company since August, 1962.

Mr. Hansen is a resident of Salt Lake City and has been an active member of the Salt Lake City Library Board, Hansen Planetarium Board and a Trustee at Westminster College.

John I. Kasteler
P. O. Box 432
Lovelock, Nevada

Mr. Kasteler was graduated from the University of Utah in 1934 with a B. S. in Geological Engineering. Prior to and during his formal education he was employed in the milling and smelting facilities of both American Smelting & Refining Co. at Murray, Utah and U. S. Smelting & Mining Co. at Midvale, Utah. On graduation he was employed by Combined Metals Co. at various properties at Pioche and Bristol, Nevada. He then became affiliated with U. S. Smelting Refining & Mining Company as Engineer at the Lark, Utah mine. Two years later he was placed in charge of operations at the Company's newly established Park City operations. In 1941, he was transferred to Hidden Treasure mine at Stockton, Utah as superintendent.

In 1942, he was drafted and entered into government mineral exploration work in Utah and Wyoming. After his discharge, he was employed first as an engineer at the Cedar City, Utah iron operations and later as an exploration geologist and engineer in Montana, Idaho and British Columbia.

During 1946 and 1947 he leased various properties in the Alta and Park City districts. In 1948 he was employed by Park City Consolidated Mines as an exploration geologist. In late 1948 he began rehabilitation of the Park City Consolidated Mine at Park City, Utah. Shortly thereafter he discovered the Keystone prospect at Crested Butte, Colorado. He then transferred the

entire Park City operation to Colorado for a period of two years, during which time the Keystone mine was developed into one of Colorado's substantial producers.

In 1950 he was made General Manager of the Columbus Rexall mine at Alta, Utah, and left Colorado when American Smelting purchased controlling interest in the Keystone mine. In 1952 and 1953, he was superintendent of the Cardiff mine when Columbus Rexall was taken over by another group.

In 1954 he bagan working at the Emily mine and for the next 8 years worked for Alta United mines. Since 1962, he has been developing mineral properties in Nevada.

Page P. Blakemore
4735 Maniloa Drive
Salt Lake City, Utah

Mr. Blakemore attended the University of Chicago. Aside from military service during World War II he has worked continuously in the mineral industry. His experience has been wide and varied. Prior to moving to Salt Lake City he worked as a geologist and engineer throughout all the western states. He has operated several mines in California and Nevada and has been engaged in mill design and erection of facilities for ore beneficiation.

Since moving to Utah he has supervised the rejuvenation of the Milford, Utah mining district, has overseen recent development work in the Alta district and has discovered two new mining properties in Nevada. He is the author of numerous mining reports and technical papers.

Walter Hoppe
216 Fifth Avenue
Salt Lake City, Utah

Mr. Hoppe has been associated with the mining companies of the Alta district since the 1930's, beginning as a miner and lessee. He has continuously studied the Alta area and is considered to be an authority on the district. His first-hand factual knowledge of mine workings in the area and his intimate association with the miners who have worked them have been of invaluable assistance to the company.

7. ESTIMATES OF COSTS

Item Number 7 has been incorporated into Item Number 5.

EXHIBIT 1.

WALKER BANK & TRUST COMPANY

ESTABLISHED 1859 MEMBER FEDERAL RESERVE SYSTEM

ROBERT W. BERNICK
VICE PRESIDENT

SALT LAKE CITY, UTAH

June 24, 1968

Mr. George T. Hansen, Jr.
President
Alta United Mines Company
900 American Oil Building
Salt Lake City, Utah

Regards letter?

Dear Mr. Hansen:

We appreciate your bringing in your loan proposal involving expenditures of $200,000 for a silver exploration on twenty claims surrounding the Emma Mine in the Alta district.

Unfortunately, your developments at this time will be classified as a prospect and as the company has not yet developed an ore reserve on which a loan may be made, it will be impossible for our bank to advance this sum under these conditions. However, we wi sh you success in this prospect, and should you develop sufficient reserves, at a later date we would entertain a loan situation with your firm.

Yours very truly,

Robert W. Bernick

Robert W. Bernick
Vice President

RWB:db

EXHIBIT 2.

THE CONTINENTAL BANK AND TRUST COMPANY

SALT LAKE CITY, UTAH 84110

June 21, 1968

Alta United Mine Company
900 American Oil Building
Salt Lake City, Utah

Attn: George T. Hansen, President

Requested loan ?

Gentlemen:

We regret to advise you that your application for a loan of $200,000.00 for the purpose of mineral exploration has been declined by our Loan and Discount Committee.

If we can be of any further assistance to you please call on us at any time.

Very truly yours,

W. E. Gile
Senior Vice President

WEG/gh

RE[illegible]
JUN 24 1968
HYLAND OIL

EXHIBIT 3.

REPORT

ON

THE EMMA-NORTH STAR

MINES

UNIT

BY

PAGE P. BLAKEMORE

LOUIS W. CRAMER

SITUATION AND SURROUNDINGS

The Emma-North Star mines are located in the Little Cottonwood Mining District, Salt Lake County, Utah, about 20 miles southeast of Salt Lake City and immediately adjacent to Alta, Utah. The mines are in Section 2, Township 3 South, Range 3 East, S.L.B.M.

Nearest shipping point is Midvale, Utah, 22 miles west reached by paved road. Concentration facilities are available for sulfide ores on a custom basis at Midvale.

TOPOGRAPHY

The mine is located near the head of Little Cottonwood Canyon at an elevation of 8720 feet. The lower, or Bay City tunnel at the former elevation is on the paved state highway at Alta and the upper or Emma tunnel, at an elevation of 9000 feet, is reached by a graded dirt and gravel road with moderate grades from the paved highway. A topographic map of the general vicinity is attached.

The surface is mountainous and moderately steep with little vegetation. Early logging for firewood, boilers and smelters removed virtually all of the large trees, principally conifers. Trees now standing are small third growth conifers and aspen. Little timber of use for mining is available.

Absence of significant forest growth has promoted the frequent and dangerous occurrence of snowslides which are controlled by the Forest Service with artillery and explosives.

Weather is mild and cool in summer, quite cold in winter with considerable annual precipitation mostly as snow in winter.

GEOLOGY

Rocks:

The rocks on the subject property are, except for minor dikes, sedimentary, ranging in age from Cambrian Ophir shale through Mississipian Deseret limestone.

Structure:

The geologic structure is quite complex.

Several northwest trending, steeply east dipping, normal faults, the South Star, Bay City, Montezuma, and Hiawatha faults, divide the property into a series of slices each successive block eastward generally downthrown in relation to its western counterpart.

An older, flat, west dipping fault with several hundred feet of displacement truncates the block in which the main Emma ore body occurred. Ore bodies occur in both upper and lower segments of this structure which is called the snow fault.

In addition, there is considerable evidence that minor thrusting has further complicated the less competent rocks especially the Cambrian Maxfield and Devonian Jefferson formations.

The Grizzly dike composed of alaskite porphyry is cut near the portal of the Bay City tunnel and minor granodiorite dikes are exposed in eastern workings on this level. No igneous rock is known to occur in upper workings.

Ore Bodies:

Ore occurs as fissure filling, limestone replacement and thrust fault breccia filling.

Replacement of limestone by ore minerals in the vicinity of ore fissures occurs on (1) the Maxfield - Jefferson contact, (2) in medial Jefferson on the locally named "Emma" beds, and (3) on the Jefferson - Madison contact and in certain beds in lower middle Madison. Substantial tonnages of relatively high grade ore have been mined from each of these horizons in or on the immediate vicinity of the subject locality.

Fissure deposits replace wall rock in favorable horizons to form bedded replacement deposits resembling mantos.

Bedded deposits, whether formed by selective replacement or breccia filling and replacement in flat thrusts rudely parallel with the bedding, have been the most productive in the district.

Most of the early higher grade ore bodies were roughly tabular in outline lying more or less parallel with the bedding. The general attitude is a function of the intersection of an ore fissure, of a favorable bed, and a generally barren, northwest trending fissure.

Where a bed and fissure only are involved the outline of the ore body is more or less an inclined cylinder or chimney, the cross section of which generally shows marked increase in size when crossed by other fissure systems or pre-mineral fault breccia.

Commercial mineralization occurs in the deepest levels penetrated in the district without significant change in grade or size. Ore of excellent grade has been mined a considerable distance below the Wasatch Drain tunnel, lowest working level in the district some several hundred feet below the lower workings from the Bay City shaft, on Alta United property.

The size of ore occurrences in the Emma vicinity vary from knife edge seams to substantial limestone replacement bodies. The Emma ore body was 50 X 70 feet in cross-section where penetrated by the Emma tunnel. Other similarly large but not so spectacularly highgrade ore bodies have been extracted from the North Star and Savage ore zones which are presently part of the area proposed for exploration.

The large Emma stope was formed principally by the replacement of beds in middle Jefferson dolomite in an ill-defined thrust zone. The

oxidized ore consists of altered but unreplaced angular fragments of dolomite in a rubble or loose breccia loosely cemented with ore minerals. Large rounded fragments of argentiferous galena coated with fine dolomite and massicot are common on the footwall. There has been considerable migration of zinc into underlying dolomite in the zone of oxidation.

Ore minerals from the oxidized zone include galena, anglesite, cerussite, smithsonite, massicot, chalcocite, tetrahedrite, hydrozincite, malachite, hemimorphite, bindheimite, plumbojarosite, beaverite, wulfenite and stolzite.

The sulfide and sulfo-salts are principally relict fragments of hypogene minerals which escaped oxidation.

Below the Bay City level the ore was principally sulfide with a core of quartz-rich ore of lower metallic content than the envelope of more massive ore. The principal value in the ore mined has been silver and the primary ore mined below the Bay City averaged about 39 ounces per ton.

Typical oxidized ores encountered by the present operators in prospecting on surface and underground had the following metallic content:

	Au	Ag	Pb	Zn	Cu	B.	As	
1.	.025	35.60	40.2	7.1	--	--	--	18" Surface Fissure
2.	--	22.5	10.10	--	--	--	--	Ore Breccia Footwall of Stope
3.	.07	91.3	75.4	.7	--	--	--	Salena Float
4.	.04	23.5	13.7	23.9	--	--	--	16" Surface Fissure
5.	--	44.6	57.05	--	--	--	--	Surface Ore North Star
6.	--	20.2	23.5	12.9	--	--	--	Phoenix Fissure Surface
7.	--	3.2	2.95	4.9	--	--	--	Emma Stope Low Grade
8.	--	42.3	21.4	29.8	--	--	--	Company Raise, Emma
9.	--	47.7	14.1	32.2	--	--	--	Surface Fissure Emma

HISTORY

The Emma Claim was located in 1886 by Chisholm, Woodhull and Reich. Numerous locations had been made previously in the district without significant discovery.

There was no outcrop nor mineralized fissure exposed, but about 180 tons of high grade argentiferous galena had been gathered from the soil in a ravine near the site chosen for the first prospect shaft.

An unmineralized northwest fissure was exposed in surface trenching and this was selected as location for an inclined shaft. After about ten months

sinking without encouragement the operators reached a depth of 93 feet at which horizon the Emma ore body was encountered.

R. W. Raymond with the United States Geological Survey described the mine in 1871 as follows:

"The Emma mine is one of the most remarkable deposits of argentiferous ore ever opened. Without any well marked outcroppings there was nothing upon the surface to indicate the presence of such a mass of ore except a slight discoloration of the limestone and a few ferriginous streaks in the face of a cut made for starting the shaft." 1/

"After discovery of the deposit by means of the shaft, a tunnel was run in so as to intersect it at depth." 2/

"From this level called the first floor ore had been mined above and below until an excavation or chamber has been formed varying from 20 to 50 feet in width and from 50 to 70 feet in length and 77 feet in height above the tunnel and 50 in depth below." 3/

According to the Salt Lake Tribune, January 4, 1873, the Walker Brothers of Salt Lake City purchased in 1870 a one-sixth interest in the mine for $30,000. The issue further stated:

"... the quantity of ore taken out of the mine was 10,500 tons and the average value was about $100 per ton, making a total value of $1,050,000.00.

The proportion of silver was 100 ounces to the ton of ore and 45% lead.

"Dividends have been declared and paid monthly at the rate of 1½% on the capital stock."

The mine was operated by its original discoverers who shipped most of the early production to England. Two lots in 1870-71 containing 4,311 tons returned $795,265 or an average value of $184.53 per ton.

On November 9, 1871 a sales contract was entered into with English Capital. An English company, Emma Silver Mining Company, Limited of London was formed, capitalized at 1,000,000 or 50,000 shares of 20 each.

Among the mostly English stockholders was an American, Major General Shenck, United States Minister to England. He purchased 500 shares on a note and his participation in the stock offering gave confidence to English investors who were already familiar with the high grade ore.

The life of the English operation was a short one for the mine caved in from the surface and from wall to wall of the large stope, and down to the tunnel level, on June 3, 1872. Considerable ore was recovered around the edge of the stope, but no further exploration was undertaken above the tunnel level. A quantity of ore was removed, illegally according to the operators, by means of the Illinois tunnel driven to intersect the Emma subsidence area. Eventually connection was made and a heavy timber door and padlock was installed to prevent further trespass on Emma ground and ore removal therefrom.

The downward extension of the ore body had already terminated against the Montezuma fault and the English stockholders were infuriated at what was termed an "infamous swindle". A congressional investigation was begun in February of 1876 to determine General Schenk's responsibility in the sudden collapse of the English company. The report is contained in an 879 page volume which makes fascinating reading today.

A total of $2,700,000 worth of ore was produced above the Montezuma fault prior to 1880 when the mine was abandoned.

In 1874 the mine was attached for debts.

In 1875 a St. Louis Company obtained a lease and drove the Bay City tunnel at a cost of $75,000.00. A vertical shaft about 300 feet in depth was sunk in 1877 and drifts run off on three levels: No. 1 - 119 feet; No. 2 - 208 feet; No. 3 - 283 feet. This work calculated to discover the faulted extension of the Emma ore was unsuccessful and was abandoned in 1879.

No production nor exploration of consequence was made until 1916 when J. J. Beeson recommended diamond drilling from the Bay City level, prior to unwatering the shaft. The fourth hole encountered ore in September, 1916 about 208 feet below the level.

The shaft was unwatered and refitted and the new ore body was found to have passed between the No. 1 and No. 2 levels, the latter only 29 feet below without any indication of its proximity.

The ore body was opened up in 1916-1917 and the first ore shipped in January 1917. About 10,000 tons was shipped under the direction of Mr. Beeson to U. S. Smelting at Midvale, Utah netting after treatment and freight, $273,742.05.

The mine was allowed to flood and reopened in 1919 by George Dern, later Governor of Utah. Another 1,432.14 tons, averaging 33.4 oz. of silver, was produced when the ore terminated against the Hiawatha fault.

No shipments of consequence have been mined since.

The Bay City tunnel was stripped of track and pipe and allowed to cave and was not re-opened until 1963 when the present owners, Alta United Mines Company, opened the caved portal and re-railed and repiped the tunnel to the main shaft.

The North Star was an early location, about 1865, and finally included several later locations including the South Star, Western Star, Savage, and others.

Production was considerable prior to the later 1800's, most of the ore having been shipped to local smelters erected for Little Cottonwood and Bingham Canyon lead-silver ores.

Records are incomplete, but those available indicate a production in excess of $2,000,000.00 which may be as little as half the actual production. The Joab Lawrence stope alone in the North Star paid $180,000.00 in dividends. The principal value of the metallic content was silver.

Because of heavy ground on the Phoenix fissure, a drift that had been begun on the Montezuma fault was driven towards making connection with the Bay City workings under the North Star and Savage Stopes in 1965 etc.

In 1966 Alta United Mines Company prepared drill roads to test the western extension of the main Emma ore body. About 30 rotary drill holes averaging a little over one hundred feet in depth were drilled. Logs of the drilling are attached as Exhibits (Plates VII and VIII).

Extensive sub-commercial silver mineralization was encountered at shallow depth (see logs). The vertical extent of mineralization was considerable and it is thought that the holes were drilled in a row paralell to an ore body lying just north of the profile. It was impossible to drill another row of holes because of the lateness of the season, but suitable sites have since been prepared to accomplish this during the coming season.

THE MINE

Underground access to the Emma mine is entirely through tunnels which have been re-opened by the Alta United Mines Company. The Montezuma, Phoenix and Illinois are open but not serviced, while the Emma and Bay City have been equipped for mechanical haulage and piped for compressed air.

The interior vertical shaft was sunk in the hanging wall of the Montezuma fault on the Bay City Level and three levels at 119, 208 and 283 feet driven.

This shaft, last unwatered in the 1920's appears to be in good condition. It fills with water to the collar and overflows during summer months and falls to forty feet or so in winter. Several thousand feet of work have been done on the three levels. (See composite map).

Ventilation is excellent, so ample that it must be controlled by doors on the level.

Mining to date has been conducted by either square setting in the case of the Emma or open stopes with occasional stulls. No heavy ground has been encountered and no timbering is required with the exception of sections in the Maxfield beds along the Phoenix fissure and Bay City fault.

The Emma adit is equipped with a diesel trammer, the Bay City with a pneumatic locomotive and one ton cars. There is no equipment installed for the internal shafts on the latter level.

Maps included with this report are:

1. 50-scale plan map of underground workings showing Project locations Plate I.

2. 20-scale plan map of underground workings vicinity of Emma Tunnel Plate II.

3. 2-20 scale cross sections showing workings and Geologic Structure Plates III a & b.

4. 50-scale topographic map of surface Plate IV.

5. 50-scale claim map of subject area.

6. 50-scale topographic map of Drill Roads, Drill Holes (Drilled and proposed), and Open Pit.

7. Profile and Drill Logs, 1965 drilling.

8. Profile and Drill Logs, 1965 drilling.

TREATMENT

Except for jig plants on Emma ore, no treatment has been attempted on ores previously produced. Sulfide ores are purchased at Midvale by U. S. Smelting and Refining for their concentrator and oxide ores are purchased by either the above company or by International Smelting at Tooele, Utah.

Truck freight from Alta to Midvale is $2.00 - $2.50 per ton, rail freight from Midvale to Tooele is .90 per ton. 50 Ton minimum.

District Statistics

Underground labor - day's pay	$20 - $22
Maintenance	$20 - $22
Supervision (foreman) - monthly	$750 - $900
Timber thousand	$125 - $150
Powder (dynamite) - CWT	$22.50
Powder (slurry) - CWT	$6.00 - $8.00
Fuel (gasoline) - gal.	$0.30
Fuel (diesel oil) - gal.	$0.20

REPORT ON THE PROPERTY

OF THE

EMMA SILVER MINES COMPANY

IN

LITTLE COTTONWOOD MINING DISTRICT

ALTA, UTAH

By J.J. Beeson

Salt Lake City, Utah,
November 25, 1919.

Property of the
1. EMMA SILVER MINES COMPANY

2. LOCATION.

The property of the Emma Silver Mines Company is located in the Little Cottonwood mining district, at Alta, Utah, about nineteen miles southeast of Salt Lake City. The property itself is almost at the head of the Little Cottonwood canyon and lies just to the north of the Alta townsite. It includes a large part of the southern slope of a ridge which, in earlier days, was well known as Emma Hill.

The elevation, above sea level, of the principal workings of the property is 8700 feet, or about 4500 feet above the Salt Lake valley.

The exact locations of the claims are shown on the accompanying claim map attached inside back cover.

3. CLAIMS AND AREA.

In the following list are included a number of claims and groups of claims that, in the past, have been operated as individual mines, among which the more important have been the Emma mine that formerly owned the Emma claim and later acquired the Cincinnati No. 1, No. 2 and No. 3; the old Joab Lawrence property, which owned the North Star, South Star and other claims; and the smaller properties known as the Last Chance, Montezuma, Savage, Mackay, Revolution and others. The earlier claim locations were made more than 50 years ago. In the early days the properties were cursed with much litigation, but as the years have passed, consolidations of claims and groups of claims have taken place until now it will be seen, on the claim map showing the property, that the Emma Silver Mines Company has quite a compact area with little chance for future litigation. The following is a complete list of the claims and their respective areas, owned by the Emma Silver Company; their locations and the total area covered are shown on Map No. III:

Emma	Lot No. 37		5.510 acres
Cincinnati	Lot No. 94		5.509 acres
No. 1	Lot No. 124		2.280 acres
No. 2	Lot No. 125		1.468 acres
No. 3	Lot No. 126		2.314 acres
North Star	Lot No. 104		9.300 acres
South Star	Lot No. 95 Amd.		3.620 acres
Allegan	Lot No. 78 Amd.		5.280 acres
Hiawatha	Lot No. 40		5.000 acres
Last Chance	Lot No. 39		2.750 acres
Caledonia	Lot No. 53		3.770 acres
Montezuma	Lot No. 128		2.202 acres
Savage	Lot No. 129		2.664 acres
Revolution	Lot No. 130	1/	10 acres
Mackay	Lot No. 131		10 acres
Dickman	Sur. No. 5684		14.214 acres
Cohen	Sur. No. 5684		14.214 acres
		2/	75.881 acres
Buffalo No. 2	Sur. No. 5546 Amd		4.920 acres
Buffalo	Sur. No. 5715		3.139 acres
Good Luck	Sur. No. 5715		0.796 acres
Silver Star	Sur. No. 6035		0.452 acres
Lucky Star	Location	3/	6.000 acres
		4/	15.307 acres
	Total		91.188 acres

4. OWNERSHIP AND TITLE.

The patented and unpatented claims as listed above, with the possible exception of part of the Caledonia (Lot No. 53), are owned by the Emma Silver Mines Company, a corporation of Utah. Titles of all patented claims are clear, while the titles of the unpatented claims may be subject to land office regulations.

1/ Approximate.
2/ Patented.
3/ Approximate.
4/ Unpatented.

5. HISTORY.

Even a brief history of each claim or group of claims that are now included in the holdings of the Emma Silver Mines Company would be too long to be included in this report; thus, only a short summary of the facts in the history of the more important properties will be included.

(a) The Emma Mine.

The Emma mine was located in 1868 by Woodman Chisholm, Woodhull and Reich, 1/ and the discovery is described as follows:

From the testimony of Curtis J. Hillyear, Washington, D. C., April 3, 1876, 2/ " our first surface workings were done at a time when there was no development made in the district. There had not been, at that time, a 25 foot shaft sunk in the whole district, in my opinion. The district had been abandoned. Men had become disgusted with their efforts in opening mines, and had left and gone to other sections of the country. At the time we commenced opening the Emma mine we had nothing as a guide to cause us to prosecute our labors, and we were all poor, and yet we had faith that there was a bed of ore there. We sunk through ninety-three feet of blasting rock before we found it. There was nothing on the surface to indicate that deposit except what miners call "float ore". If I recollect aright we got about 180 tons of that ore lying on the surface, as though it had slidden from the mountain. We did not know but it had come a quarter of a mile from there, rolling down the steep mountain and locating there. After exhausting that ore we found a seam running in a northwest and southeast direction, penetrating the hard rock, but without a trace of ore in it. My experience in the Illinois lead mines, in my young days, led me to conclude that the bed of ore might lie underneath. Mr. Chisholm and Mr. Woodman were the only two men that I had to consult with in regard to it, and neither of them had means for prosecuting the work. They asked me what could be done in case of finding a bed of ore. I said that our only hope would be to open the bed of ore, and that the railroad would soon give us the means of shipping the ore to market. The construction of a railroad to Salt Lake City was then in active progress. Then the question with us was whether we could hold out, or to what depth we would have to go. Of

1/ Tenth Census of the United States, 1880, Vol. XII, Page 423.
2/ Emma Mine Investigation, Page 452.

course we could not tell that, because we had no developments in the district as a guide. We continued to work for eight or nine or ten months without getting a hundred pounds of ore, until we reached a depth of 93 feet. There was a little bed, I think, at the depth of 40 feet. In all my mining experience I never knew an instance where men prosecuted their labors so energetically as we did to get through that hard rock, or under similar circumstances. Mr. Woodman was not an experienced miner, in that kind of work, and my own knowledge of mining would have caused me to abandon the work before we reached that deposit. I was called upon by Mr. Woodman, and was furnishing him with moneys from time to time, as he called for them. About the time that he struck through the cap rock on to this, he came to me to take a look at his work. I had not been there for several months, and I rode on horseback some sixty miles to the place. I was then operating in another district. When I examined it, I said to Mr. Woodman, "If this proves a valuable thing, we can only attribute it to your ignorance of mining, for I am satisfied that no experienced miner would have ever gone through that rock to reach the deposit." "

As nearly as can be learned, the mine was operated by the original discoverers until early in 1871, then a company was formed which was called the Emma Company of Utah. Shortly after this, a bond or option to purchase was offered to the Irwin Davis Company of San Francisco for the sum of $1,500,000.00 for the entire mine, subject to the claim of James E. Lyon, who was having some litigation with the discoverers over an interest in the property which he claimed. The Irwin Davis Company then interested T. W. Park and H. H. Baxter of New York City, in the property. These two men went to Salt Lake City and after examining the mine, purchased an undivided half interest in the property for $375,000.00. It is believed that later they acquired a still larger interest in the mine and the final figures indicate that the Emma Mining Company received about $1,500,000.00 and the control passed from them about April 25, 1871. The Emma Silver Mining Company of New York was then formed and Mr. Park left for London where he soon succeeded in interesting influential people in the Emma mine.

The Emma mine had already gained a wide-spread reputation both in the United States and England on account of the size and extraordinary

richness of the ores. Eminent engineers of the early 70's described the Emma ore body as one of the most remarkable mines of argentiferous lead ore ever opened. This was fully confirmed by the shipments that had gone to England. Consignments of ore were made to the well known firms of Messrs. Lewis & Son, of Liverpool, and Messrs. Bath and Son, of London, in about equal proportions. The sale of the ore by Messrs. Lewis & Son, was on the 27th of October, 1870, and the first sale by Messrs. Bath & Son on the 29th of October, 1870. The total amount shipped to these two firms up to July 15, 1871, was 4,311 tons which produced $795,265.00. This ore, consequently, realized an average of $184.53 per ton.

With the above figures on shipments available it was not a difficult problem to interest the people of England in the Emma mine. Finally, through the influence of T. W. Park and W. H. Stewart, United States Senator from Nevada, and Baron Albert Grant, Coates & Hankey of London and others, a contract was made on November 9, 1871, for the sale of the mine in England. The company which was organized to purchase the Emma mine was the Emma Silver Mining Company, Limited, of London, which had a capital of £1,000,000, divided into 50,000 shares of £20 each. The terms upon which the property was to be acquired were £50,000 cash and £500,000 in 25,000 fully paid shares.

One of the terms of the sale was that the mine should be examined and that a report should be submitted by the engineer covering his examination. Professor B. Silliman of Yale College was selected to make this examination and his report was a most favorable one. A printed copy of this report will be found on Page 65, Report 579, of the Emma Mine Investigation.

Major General Robert C. Schenck, United States Minister to England was induced to become one of the directors of the English company, and at this time, he also purchased 500 shares of the stock, which was then valued at about $50,000.00, on his personal note. The fact, that he was one of the directors gave the English people more confidence in the enterprise and this, together with the fact that he had purchased shares in the company, finally led to a congressional investigation.

After the English operators took hold of the property it had but a short life; this was due to the poor management and poor engineering,

which is described in the report of Clarence King in 1873 as follows: 1/

"Why the management of a fine and paying mine should gut the reserves with such hurry and such insufficient engineering precautions against caving, and the sudden closure of the very entrance of the mine itself; why, when funds were ample, and the fatal indications of a downward closure stared them in the face from level to level, the management failed to push explorations to the deep, and prevent such a sudden and fatal collapse of the mine's value, are questions which it were highest charity to solve on the theory of stupidity."

The great square set stope from which almost the entire production of the mine had been taken caved on the 3rd day of June, 1872, and from this time on the larger part of the production came from the lower workings of the mine and from concentrating the second class ore which had accumulated in the past. The ore body became much narrower than near the surface and finally terminated against a smooth wall which represented a fault or dislocation of the limestone beds and the ore body contained therein. At this time the cry of swindle became so strong in England that finally the United States Congress made an official investigation of the entire case. This report was made by the 44th Congress, 1st Session, House of Representatives, published in Report No. 579, containing 879 pages of testimony and reports. The investigation was made to determine the following questions: (Page I and II of the above report.)

1. "Whether it is proper for an American minister to allow the use of his name, and consequently of his official position, for the two cannot be separated, to further the sale of American property in the open markets of the country to which he is accredited.

2. "Whether his relations to the vendors of the property have been such as to cast suspicion upon his motives, and subject his action to unfavorable criticism.

3. "Whether his subsequent action in connection with the company, or its shares, by dealing in them or otherwise, is compatible with the proper exercise of his diplomatic functions and the maintenance of a position of honor and usefulness at his post of duty.

1/ The Emma Mine Investigation, Page 634.

"If the committee are right in their view of the inquiry submitted to them, it will be seen that the question of the real value of the Emma mine has no special bearing upon the conclusions to be reached. They have, however, felt themselves compelled to take a large amount of testimony on this subject, because evidence bearing upon that point had been taken prior to the arrival of General Schenck, who therefore insisted that it was necessary for his defense and vindication that further testimony should be taken, and they were unwilling to deny to a man so long and eminent in the public service any privilege which he might feel disposed to claim. He has therefore had full liberty to produce evidence giving the whole history of the enterprise, and the result is the volume of 879 printed pages, which is herewith submitted to the House as part of this report."

At the end of the above report there are no well defined statements as to the conclusions reached, but from a review of the principal facts in the entire case it appears that the motives of General Schenck were honorable and upright in every detail.

It appears that the mine was in active operations until September, 1874, when it was attached by T. W. Park and others for an indebtedness of $300,000.00, and it was then idle until 1877 when the American Emma Mining Company was incorporated and work resumed. This company first prospected the old ore bodies and then leased the Bay City tunnel, which was 1700 feet long and 90 feet below the lowest workings of the Emma.

During the years 1873, 1874, 1878 and 1879 much low grade ore was concentrated by jigs. The total production up to and including 1880, including all but the first few hundred tons sold, is given by one authority 1/ as $2,692,789.98.

The Bay City tunnel was run by a St. Louis company at a cost of $75,000.00 and was abandoned in 1876. Under the American Emma Mining Company, a connection was made withthe lowest workings of the old mine and a vertical shaft was sunk to a vertical depth of a little over 300 feet below the Bay City tunnel. This shaft was sunk on the hanging wall side, and about 300 feet northeast of the place where the Montezuma fault (the fault that cut off the ore body) was cut in the Bay City tunnel; this makes the location of the vertical shaft a little over 1600 feet from the portal of the Bay City tunnel. From the vertical shaft levels were driven at vertical depths below

1/ Tenth Census of the United States, 1880, Vol. XII; Appendix I, Mining Industries of Utah.

the Bay City tunnel as follows: First Level, 119 feet; Second Level, 208 Feet; Third Level, 283 feet.

On the First Level from the vertical shaft a drift was run 450 feet to the southeast, a large part of this distance being along the fault plane, a small amount of drag ore was encountered on the fault plane just below the place where the old ore body was terminated by the fault; a raise was driven upward along the fault; also a winze, some 14 feet in depth, was sunk below the level at this point, but evidently, the small lenses of drag ore pinched out and the work was discontinued.

On the Second Level from the vertical shaft a drift was run 450 feet almost directly below and parallel to the First Level. No ore was encountered and practically no development work aside from the drifting along the fault was done. It has since been shown that the First Level passed over the ore body while the Second Level passed under it just 29 feet.

On the Third Level from the vertical shaft a drift was driven over 300 feet to the southeast, approximately parallel to the First and Second Levels; this drift was also run the larger part of the total distance along the fault plane.

It is said attempts were made to go still deeper but, on account of the large amount of water to pump and probably financial difficulties, the property was closed down and the workings were allowed to fill with water. From this time on, probably 30 years, there was very little work done on the property except for an occasional leaser who gouged out small quantities of ore from the upper workings.

About the middle of May, 1916, the present writer was called to direct the development work at the adjoining Emma Copper Company's property, and after about a month's work in investigating the geology and the underground workings it was recommended that a complete topographic and geologic map be made of the Emma Copper holdings and such parts of adjoining property as had a direct bearing on the geology of this ground. Work was immediately started and during the course of the study it developed that a large fault, which we called the montezuma, had cut the limestone beds not only at the Emma mine, but for miles to the north. In correlating this fault with faults which had been noted in the underground workings, it became evident that the montezuma

was identical with the fault which had cut off the old Emma ore body. The facts also showed, in a study of the surface geology, that there had been a downward movement on the east side of the Montezuma fault and that this movement had taken place after the mineralization which formed the ore bodies; thus, it was only logical to believe that the Emma ore body continued beyond the fault. With these facts established the writer personally recommended that, if possible, a lease and bond be secured on the Emma mine then owned by the old Emma Mines Company. On the strength of this recommendation, Mr. G G. Rice of New York City, purchased a lease and bond, on the Emma property which was held by A. O. Jacobson of Salt Lake City. For a short time the lease was operated by a new company known as the Old Emma Leasing Company.

The Old Emma Leasing Company was put on the market at 10 cents per share and the returns from the sale of this stock financed an extensive campaign of diamond drill development work, which had for its object the locating of the faulted portion of the Old Emma ore body.

The diamond drilling started early in August, 1916, and in the latter part of September, 1916, the fourth diamond drill hole intersected the ore body at a depth of 208 feet. This diamond drill hole showed the ore body to have a thickness of about 30 feet; three other drill holes were put down, in rapid succession, to the northeast, and the ore body was proved to extend on its dip, at least, 150 feet beyond the Montezuma fault. Up to this time the working below the Bay City tunnel were filled with water and there were not even maps available to show the amount of development work that had been done from the vertical shaft.

With the information furnished by the diamond drill holes and also our knowledge of the old stope just above the point where it was cut off by the fault, equipment was purchased, the mine was unwatered and put in running condition.

Shortly after this, or in October, 1916, the Emma Consolidated Mines Company was organized under the laws of the State of Delaware with a capitalization of 3,000,000 shares, par value of $1.00 each. The Emma Consolidated was a holding company and acquired more than 80 per cent of the outstanding stock of the Old Emma Mines Company and the larger percentage of the outstanding stock of the Emma Copper Company

and also purchased the lease of the Old Emma Leasing Company, and from this time on, the entire property was controlled by the Emma Consolidated Mines Company.

The first shipment of ore from the Emma ore body, on the east side of the Montezuma fault, left the mine early in January, 1917, and in the year that followed some 9,000 tons of ore were shipped to the U. S. Smelter, at Midvale, Utah; the net returns from the smelter, after smelting charges and certain freight charges had been deducted, amounted to more than $251,000.00. The writer was in charge of the mine from January 10, 1917, to January 10, 1918, when he resigned to enlist in an engineering regiment of the American Expeditionary Forces that arrived in France on the 18th of May, 1918. The mine continued to operate until August, 1918, making a total production of 10,362.55 tons, from which the net smelter returns were $273,742.05, or an average net value of $26.41 per ton; this would give a gross value of something over $35.00 per ton.

As had been the case in the mining of the old ore bodies in the early days the actual extraction of the ore was pushed far beyond the development work or beyond the point where the ore could be economically mined; and without ample funds with which to do the necessary development work the mine was again forced to shut down in August, 1918, and a receiver was appointed.

Since the above date there has been a complete reorganization and a new Utah corporation, known as the Emma Silver Mines Company, has acquired the property. This company is on a firm financial basis and has resumed mining operations under an entirely new management. Resumption of operations is coincident with the phenomenal increase in the price of silver, hence, the gross value of the ore is now much higher than during the Emma Consolidated operation.

The Joab Lawrence Property

The old Joab Lawrence property is well described by Mr. D. B. Huntley, in the Tenth Census of the United States, 1880; Volume XIII, Appendix I, Mining Industries of Utah, Page 424, as follows:

The Joab Lawrence Company, the principal actively working

company on Emma hill at the time of the writer's visit, was organized in the spring of 1870. Its property consists of the Vallejo and the North Star, adjacent claims situated between the Emma and the Flagstaff. The North Star was one of the earliest claims of the district, having been located in 1865, and has yielded largely. There are said to be large bodies of low grade oxide of iron ore in the lower levels, but little had been done for some time excepting a small amount of "tribute" work. The Vallejo was worked in 1872, 1873, 1874, 1875 and 1877 by several companies, and much ore was extracted. It was being worked on an extensive scale at the time of the writer's visit. The ore is found in irregular chutes or pipes near the hanging wall. Three bodies began near the grass roots, and others were found as depth was attained. At the period under review there were ten chutes having a triangular or lenticular cross-section, and a uniform dip SE 80 degrees. These were from 20 to 100 feet apart, and lay almost at right angles to the strike of the belt. The largest was 150 feet long, extreme dimensions from 6 inches to 10 feet wide, and had been followed 300 feet deep. In this mine the foot wall of the belt had not been prospected, and the horizontal development did not exceed 200 feet. It was worked by tunnels, from which were raises and short inclines. It had no machinery. The total cuttings were estimated at several thousand feet. The mine was dry. The ore was an oxide of iron, carrying galena, cerussite, anglesite, and a little oxide of manganese and malachite. It was fine, and contained from 20 to 45 per cent lead, from 15 to 90 ounces silver, from 20 to 35 per cent iron, and from 9 to 14 per cent of moisture. It was in great demand among the smelters, owing to the lack of silica and the presence of so much iron. A low grade of ore containing from 40 to 50 per cent of iron, no lead and a few ounces of silver was also shipped."

According to the best information available the Joab Lawrence property, during a period covering approximately five years, distributed in excess of $600,000.00 in dividends. The property has been closed down for a good many years. It was acquired by the Emma Copper Company from Mr. Moylan C. Fox of Salt Lake City, and is now one of the properties included in the holdings of the Emma Silver Mines Company.

The company also owns a number of small properties that produced considerable quantities of rich silver-lead ores in the early days.

6. ADJOINING AND OTHER NEARBY PROPERTIES.

The properties adjoining the holdings of the Emma Silver Mines Company are as follows: On the south the claims of the Centennial Mining Company, the Alta Townsite Development Company and the claims of the Cabin Mining Company; on the west and north are the claims of the Wasatch Mines, which include the famous old Flagstaff mine, while on the east and northeast are the claims of the Clements Mining Company and the Alta Consolidated Mining Company. The properties now owned by the Alta Consolidated and Michigan Utah have both been shipping intermittently for a good many years. The South Hecla mine is about a quarter of a mile to the southwest while the Columbus Rexall and the Cardiff are about a mile to the west and northwest of these properties; the Cardiff is probably the largest shipper. The South Hecla and Columbus Rexall have been shipping for the past few years.

7. FACILITIES.

Omitted - Not applicable.

8. TOPOGRAPHY.

The topography of the Little Cottonwood mining district is typical, glacial topography such as is common in high mountainous districts. The Little Cottonwood canyon itself is a long U-shaped channel, walled on each side by steep mountains. Near the mouth of the canyon are towering cliffs of granite rounded by glaciation and exfoliation. Passing up the canyon toward Alta hanging valleys and glacial terraces are prominent features of the topography. On nearing Alta the ridges and bluffs are more precipitous, and here and there erosion canyons have been cut through the quartzite, shales and limestones, with their directions determined by harder or softer formations and in some cases by porphyry dikes, fissures or faults.

Just to the south of the Emma mine is a great amphitheatre in the form of a flat valley, a mile or more in width, hemmed in by the crests of the Wasatch mountain ridges. This valley has been the uppermost part of the Little Cottonwood glacier in past geological times. The glaciers in starting from this amphitheatre have turned into the main canyon just above the Bay City tunnel level, extending down the canyon for several thousand feet.

The direct bearing of this glaciation on the Emma Silver Mines property has been that in many places on the lower part of the property, especially along the bench, the geology is, more or less, obscure on account of the deposits of glacial drift. It is probably due to this fact, that heretofore, it has been very difficult for any one to solve the geological problems without the most detailed study of both the surface and underground workings and this had never been done until the present writer undertook the solution of the complex problems.

9. GEOLOGY.

Most of the geologists and engineers who have studied the Little Cottonwood mining district agree that, from the standpoint of structural geology, it is one of the most complicated of the western mining districts. This is due chiefly to the thrust faulting which is so common throughout the district. A clearer conception can probably be gained by taking up the geological phenomena according to their importance in the formation of ore deposits.

In the vicinity of Alta the Wasatch mountains have been cut by a great series of intrusive stocks and dikes extending through the mountains for miles to the northeast and southwest. One of the largest of these stocks is well exposed in the Little Cottonwood canyon for several miles above Wasatch, while another may be seen in the South Fork of Little Cottonwood which is described under topography as a glacial amphitheatre. At both places great masses of grano-diorite or diorite have been intruded into the sedimentary rocks and in many places about the borders of the intrusive masses, the elevated and upturned strata, show clearly the geologic column, and some of the fissures, porphyry dikes and faults that have all been responsible, in a measure, for the formation of commercial ore bodies. The geologic column is well illustrated by the upturned beds shown on the photograph immediately preceding the diagram showing the geologic column in the vicinity of Alta.

A close study of the formations and structures indicate that immediately following the intrusion of the great igneous masses parallel fractures, fissures and fissure zones have been formed, by deep seated disturbances for miles to the northeast and southwest of Alta, with their course almost parallel to the general direction of the intrusives themselves, thus, in zones for several

miles on each side of the main belt of igneous rock may be found mineralized fissures. Many of the main fissures, if extended in a northeasterly direction on their present strike, would pass through the great fissure zones of Park City, some 8 miles to the northeast. In the vicinity of Alta there have been but few commercial ore deposits, found where the northeast fissures pass through the quartzite, but in certain limestone beds, some of which are indicated on the geologic map, the mineralizing solutions that came through the fissures have formed silver-lead ore bodies by a replacement of the limestone.

In the upturned strata that have since been exposed by the erosion of deep canyons, one may clearly see the geological phenomena which have formerly taken place at great depths below the surface. It appears that in the vicinity of the Little Cottonwood mining district we find some of the maximum disturbances that have taken place in the formation of the great Rocky Mountain range.

In early geological times the history was, probably very much the same as in the Park City and Tintic districts, that is in this respect, great pressure from the east and west has caused enormous thicknesses of sedimentary beds, composed of quartzite, shales and limestones to be folded into long anticlinal and synclinal folds with their axes extending in a general north-south direction. In the Park City and Tintic districts the folding seems to have been the final result of a great dynamic compression, while in the Little Cottonwood mining district the strata has been broken under this pressure and long flat thrust faults have taken place. In some cases not a single thrust fault, but a series have taken place and the final result of this action can be clearly seen today where the old Cambrian quartzite may cap the highest mountains and be underlaid by much younger formations, which in their ordinary sequence should be high above this formation. If these faults had taken place after the ore bodies were formed the solutions of the geological problems, as far as the ore deposits are concerned, would be a hopeless jumble; but the evidence shows that the thrust faulting took place before the intrusion of the great igneous masses, and long before the formation of the ore bodies. Thus, instead of the thrust faults being a hinderance to the formations of ore bodies they have been, in certain mines, a very important factor in the formation of ores. This is well demonstrated in the Cardiff, Columbus Rexall, Wasatch Mines and in the Emma mine itself.

The formation of the Emma ore body along a thrust fault is clearly shown on the cross section included with the maps. The formation of the Emma ore body, above the Montezuma fault, is well described in the report of Professor Silliman[1] and is as follows:

"Another evidence of the strength and deep seated origin of the Emma vein is found in the brecciated nature of large portions of the veins outside the richest deposits of ore, and penetrated by them.

"This breccia consists of angular fragments of vein stuff cemented by rich silver ores, largely black sulphurates of silver in a fine granular state. It is distinctly separated from the country limestone, which it cuts at an angle, and selvages a various colored argillaceius matter, all containing notable quantities of silver which line this ore mass. These are all well recognized characteristics of a vein filling a deep seated fissure and expanding at intervals into vast chambers filled with rich ores in a decomposed and friable condition.

"The absence of any visible gangue in the great chamber of the Emma is a noticeable feature of this remarkable deposit, but chemical analysis reveals the fact that over forty (40) per cent of the average mass is composed of silica, thus showing that this familiar vein stuff is the real gangue of the Emma mine disguised by the highly decomposed condition of the ores.

"These several facts, in my opinion, establish beyond all reasonable doubt the conclusion that the Emma is a true mineral vein of great power, and place it in the category of the great mines of the world.

"Explorations in depth and on the course of the lode will doubtless confirm these conclusions, and sustain the wonderful productiveness which the mine has heretofore exhibited."

Up to the time of Professor Silliman's death the Emma mine was, undoubtedly, a great disappointment to him, but the work of the past three years has done much toward proving his predictions to be true as to the downward extent of the ore body. It will be seen by the map, accompanying this report, that the ore body beyond the fault is much narrower than in the upper workings on the foot-wall side of the

1/ The Emma Mine Investigation, Page 64.

Montezuma fault, but the same highly brecciated limestone cemented vein quartz and sulphides still continue, to the very bottom of the winze, some 80 feet below the Third Level. The greatest difference between the ore in this stope and that which was mined in the early days is that the ore is now composed of unoxidized sulphides finely disseminated through the quartz gangue with here and there, a large irregular mass of almost pure sulphide. As in the early days the largest amount of high grade galena is found on the foot-wall of the ore body. The sulphides found in the ore body named in the order of their abundance are as follows: Galena, Sphalerite, Pyrite and Tungstenite; together with smaller amounts of arsenic, antimony and manganese; in the ore body above the Montezuma fault only the oxidation products of these sulphides are found, with the exception of the galena much of which was little effected. The chief gangue mineral is quartz, this is well proven by the shipment sent to the smelter in 1917 and 1918, which often showed as much as 60 per cent insoluble (the insoluble was composed almost wholly of quartz). Along with the quartz there is a considerable quantity of dolomite and calcite. As to the downward extension of the ore body there is good reason to believe that it will continue for a considerable distance beyond the point where it is now being mined in the bottom of the winze. It is quite likely that the ore body will encounter other faults parallel to the Montezuma but there is no indication on the surface of any faults as large as the Montezuma within several hundred feet of the present workings; thus, the management does not anticipate any trouble along this line.

The ore zone in the Old Joab Lawrence property has been well proven by a production running up into the millions of dollars. The ore bodies are outlined on the claim map and it may be well to state at this point, that the boundaries, in many cases, do not indicate the outer extremity of a solid mass of ore but indicate a zone along the fissures in which there have been found chimneys and irregular replacements along a certain bed of limestone. In certain stopes, however, there was, undoubtedly, a continuous shoot of ore passing down the intersection of a northeast fissure with a certain limestone bed on a dip of from 35 to 45 degrees. A number of these ore bodies ended near the Montezuma fault and geological data is now in hand which gives good promise of finding this ore zone on the east side of the Montezuma fault. Whether the ore bodies extended to the fault itself or not, is of no great importance,

because it is an established fact that this particular limestone bed has contained large ore bodies and is thus a proven ore zone. With these facts in mind the prospecting of this ore zone to the east of the Montezuma fault will certainly be a promising piece of development work.

It will be noted on the geologic column that two ore zones are indicated below the Emma ore zone and there are, at least, three thrust faults passing through the Emma Silver Mines property. With northeasterly ore bearing fissures already proven by the ore bodies in the Emma limestone in the Joab Lawrence property, there is good reason to believe that in the ore zones just mentioned or along the thrust faults there will likewise be commercial ore bodies. At present, however, all work is being concentrated in the Emma ore body to the east of the Montezuma fault, but in the future, possibly during the coming summer, it is quite likely that development work will be started in other parts of the property to prove the possibilities of the lower ore zones.

10. EQUIPMENT.

Omitted - Not applicable.

11. DEVELOPMENT.

In former times, it has been possible to enter the Tom Moore tunnel, climb up to the old Flagstaff workings, then pass through the Joab Lawrence workings and finally come down to the workings of the old Emma mine and come out through the Bay City tunnel without passing to the surface during the entire trip. During the past few years, however, some of the tunnels have caved, but in general, the tunnels in the old workings stand almost indefinitely without timbering.

A rough approximation of the development work in the old Joab Lawrence property would be close to 15,000 feet of drifts, cross-cuts, shafts and raises, while in the Emma mine the total amount of development work would be something over 8,000 feet. The main transportation tunnel at the Emma mine is the Bay City tunnel, which runs almost due north for about 1700 feet under Emma hill; at a little over 1600 feet from the portal of this tunnel a vertical shaft was sunk, in the early days, to a depth of over

300 feet. From this tunnel are three drifts, the First Level at a depth of 119 feet below the Bay City tunnel, the Second Level 208 feet and the Third Level 283 feet. The First and Second Levels extend about 450 feet to the southeast; the larger part of this distance being along the Montezuma fault. The Third Level is parallel to the First and Second and is about 350 feet in length. From the Second Level a cross-cut 86 feet in length connects with the stope while on the Third Level a cross-cut 150 feet in length connects with the stope. The stope itself extends from the Montezuma fault in a general north 85 degrees east direction downward on a dip of 35 degrees for a distance of 350 feet. Part of the development work which has just been described is clearly shown on the vertical cross-section, included with the maps.

Development work in the immediate future will be largely in the stope below the Montezuma fault. The winze below the Third Level will be sunk as rapidly as possible to develop the ore body below this level. It is just possible that a small fault will be encountered in this winze some distance below the point where operations are now in progress. It is well to know that we expect this to happen; thus, by making it known, it is only a protection to the stockholders as, otherwise, it might be rumored that the ore had pinched out, as was the case in the early days when the ore body encountered the Montezuma fault. If this fault should be encountered it may be sufficient to cut the orebody in two but, at most, it should not be more than 100 feet.

It is quite likely that a diamond drill campaign will be started, at a date to be later announced, to prospect the limestone beds in the immediate vicinity of the Emma ore body and other favorable ore zones.

12. METHODS AND COSTS.

(a) Mining.

In the mining operations during 1917 and 1918 there were two methods employed in the mining of the ore; one, the shrinkage system where the ore was broken down in the stope and drawn off through short raises to the ore body just rapidly enough so that the accumulated ore would always be within several feet of the top of the stope, thus permitting the miners to work on top of the broken ore. Second method

employed is commonly known as the top slicing system and was carried out by extending the raises through the ore body to the hanging wall then widening the top of the raise. In the immediate vicinity of this raise the ore was caved into it, while farther away it often became necessary to shovel the ore. Neither of the systems employed required the use of timber in the stope, and even today in the part of the stope that has been mined out below the Montezuma fault the top and sides remain perfectly solid. This is quite remarkable when it is known that the stope was from 30 to 40 feet wide and over 30 feet high and is now represented by a great open cave.

Under ordinary conditions, the mining of the ore should not exceed a cost of $10.00 per ton after all the expense of mining, hoisting and pumping has been charged against each ton of ore produced. In the past, the overhead expense was the greatest burden of the mine.

(b) Reduction.

In the past three years all of the ore has been shipped direct to the smelter without concentration and with but very little sorting. The average smelting charge has been about $8.00 per ton.

In summing up a reasonable estimate of the costs are as follows: Mining and overhead expense, $10.00 per ton; transportation, $5.00 per ton, and smelting $8.00 per ton, giving a total of about $23.00 per ton. When it is considered that the ore shipped to the smelter during 1917 and 1918 had a gross value of close to $35.00 per ton, one can readily see that with a conservative management and a wise expenditure of funds there should be a good margin for profit in the ores that are now being mined by the Emma Silver Mines Company. In mining the ore from the winze below the Third Level the cost of production may be a little more than the above estimate, and also during short periods when transportation is not available the storing of the accumulating ore may cause an additional expense, but with all this there should still be a good profit in the ore.

13. PRODUCTION.

(a) Past.

A very conservative estimate, which is based on the available records of past production, of the total value of the ore produced from the Emma mine up to January, 1917, is $3,500,000.00. While the gross value of the ore mined from January, 1917, to August, 1918, would be close to $325,000.00, which should give a total production of about $3,825,000.00.

The records now in the company's office show that the total production from January, 1917, to August, 1918, was 10,362.55 tons from which the net smelter returns were $273,742.05, or an average net value of $26.41 per ton. This would give a gross value of something over $35.00 per ton.

The production of ore in 1917 and 1918 may be considered a good indication of the character and value of ore that will be mined in the future; as to the amount of ore that will be produced, this must remain one of the factors to be determined by future development work.

Respectfully submitted,

J. J. BEESON,

Mining Geologist.

FILE COPY

GEOLOGICAL SURVEY
National Center, Mail Stop 920
12201 Sunrise Valley Drive
Reston, Virginia 22092

November 23, 1973

Mr. Edwin A. Dwyer, President
Alta United Mines Company
620 Commercial Bank Tower
Midland, Texas 79701

Re: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Dear Mr. Dwyer:

This is in reply to your letter of November 5, 1973, requesting that your application for financial assistance to explore the Emma be kept open.

We appreciate your interest in keeping the application in active status, and upon receipt of the information needed to complete the application we will be glad to reactivate it. We prefer that our present records show it in a withdrawn status until such material is received. Please be assured that a withdrawn application will be given prompt consideration when reactivated.

Because of severe constraints on funds for the OME program in the current fiscal year ending June 30, 1974, only very modest financial assistance can be offered for approved applications. The balance of funds available for the remainder of the fiscal year is less than $20,000. The outlook for the next fiscal year is not promising either. We regret that this is the situation, but we ~~would~~ will keep your application on file in the event additional funds become available.

Please note our new address.

Sincerely yours,

Harold Kirkemo, Chief
Office of Minerals Exploration

cc:
DRF
MR Rdg.
OME Rdg. OME Files Mr. Kirkemo Region III Mr. Kirkemo/gpw

OFFICIAL
COPY
O. M. E.
RECEIVED
NOV 19 1973
INITIALS | CODE
HK

ALTA UNITED MINES COMPANY
620 COMMERCIAL BANK BLDG.
MIDLAND, TEXAS 79701

November 5, 1973

Mr. Harold Kirkemo, Chief
Office of Minerals Exploration
U. S. Department of Interior
Geological Survey
Washington, D. C. 20242

Re: OME 6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Dear Mr. Kiekemo:

We are still in the process of obtaining the information you asked for in your letter of June 25, 1973. We are experiencing the same difficulty we have had in the past in finding qualified contractors to do the required work. We wrote just last week, additional contractors requesting quotes so that we could follow your instructions by having at least three bids. At the present time we have one highly qualified bidder, and as soon as we obtain bids from two more we will send in the information you require.

By copy of this letter, we would appreciate your keeping our application open.

Yours truly,

E. A. Dwyer

Edwin A. Dwyer
President

I certify the OME Application #6745 (Silver) is this

_____ day of _____, 1973, considered reactivated in

our files.

_____
Harold Kirkemo, Chief

FILE COPY

November 1, 1973

Mr. Edwin A. Dwyer
President
Alta United Mines Company
620 Commercial Bank Tower
Midland, Texas 79701

Re: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Dear Mr. Dwyer:

We wrote to you on June 25, 1973, concerning your application for financial assistance to explore the Emma mine.

To date, we have not heard from you so we assume that you are no longer interested in proceeding with the application. Accordingly, we are considering it as having been withdrawn effective this date. If some time in the future you wish to reactivate the application, you may do so by referring to this docket number and furnishing up-to-date information for all applicable items listed on the back of the application form.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo, Chief
Office of Minerals Exploration

cc
DRF
MR Rdg.
OME Rdg.
OME Files
Mr. Kirkemo
Region III

HKirkemo/gpw

OME FILE COPY

JUN 25 1973

Mr. Edwin A. Dwyer
President
Alta United Mines Company
620 Commercial Bank Tower
Midland, Texas 79701

Re: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake ~~City~~ County, Utah

Dear Mr. Dwyer:

This is in reply to your letter of June 7, 1973, advising us of the adverse conditions delaying inspection of the property and submittal of an amended application, and inquiring about the length of time required to process an application.

As we informed Mr. Tom Phipps and you on January 23 and March 22, 1973, respectively, budget constraints in fiscal year 1974, beginning July 1, 1973, will restrict the OME program to the point where only modest assistance can be offered to a very few of the more promising proposals. Appropriations for OME contracts are expected to be about $80,000 in FY 1974. We are considering several completed applications now, and will be pleased to consider yours whenever it is received. We can advise you of our decision on your application in about two weeks in the event of a denial, and, in the event of approval, a contract can be drafted in about six weeks. In the latter instance, you would not have much field season remaining this year to conduct the exploration.

In reviewing several aspects of your application dated June 22, 1968, we note some problems which would require clarification, particularly in the event the amended application warrants approval. The statement in reply to Item 1(c) that "Alta United Mines Company's share will be furnished by a loan or loans from officers or stockholders of the company, or other interested parties," is not adequate assurance that funds will be available at the beginning of a project to pay the Operator's share of the costs. We would request that funds either be on deposit or assurance given that they would be available when needed. Current financial statements of the company officers, and of those stockholders involved in furnishing such funds would be required.

With reference to Item 2. Applicant's Rights in Land, it is not possible to determine on the maps submitted with the application the locations of the lots and claim fractions owned by Alta United Mines Company. A map showing the boundaries of each of these parcels of land, and the locations of the proposed work in relation to the claim boundaries should be furnished. Can you provide any documents such as deeds, purchase contracts, or other legal evidence indicating ownership by Alta United Mines Company of the patented claims? Also, for the unpatented claims, please furnish the book and page number for each recorded claim notice, place of recordation, and name of locator. If the applicant company is not the locator, documents showing transfer of the claims to Alta United Mines Company are required.

Your current requests to banks for a loan should be in the amount of the Governments' share of the estimated costs of your revised proposal, not the total cost of the project.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

cc: Director's reading file
Mineral Resources
OME reading file
Region III
Mr. Kirkemo

HKirkemo/cac 6/25/73

ALTA UNITED MINES COMPANY
620 COMMERCIAL BANK TOWER
MIDLAND, TEXAS 79701

ORIGINAL
COPY
O. M. E.
RECEIVED
JUN 14 1973

INITIALS	CODE
Cee	120
HK	120

June 7, 1973

Mr. Harold Kirkemo, Chief
Office of Minerals Exploration
U. S. Department of the Interior
Geological Survey
Washington, D. C. 20242

Re: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake City, Utah

Dear Mr. Kirkemo:

We are quite anxious to pursue this project this year. Because of the adverse conditions for inspection, it will be late June at the best, and probably the middle of July before we will be able to submit copies of the information necessary to update our application.

We are wondering since your fiscal year begins July 1, 1973, what the normal time lapse would be from the time we give you our updated application until we would be able to receive or know that we will receive the money for the project. As you know we will only have July, August, September and possibly October to complete the work.

We would appreciate any information you could furnish us regarding this matter.

Yours very truly,

E. A. Dwyer

Edwin A. Dwyer
President

Copy to R-III

EAD:GS

ALTA UNITED MINES COMPANY
620 Commercial Bank Tower
Midland, Texas 79701

OFFICIAL COPY
O. M. E.
RECEIVED
MAY 11 1973
INITIALS | CODE
Cal | 20
HK | 20

May 8, 1973

Mr. Harold Kirkemo, Chief
Office of Minerals Exploration
United States Department of the Interior
Geological Survey
Washington, D. C. 20242

Re: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake City, Utah

Dear Mr. Kirkemo:

We thank you for your letter relative to the proposed exploration Project E, at the Emma Mine.

We now find that the contractors are reluctant to bid on the work without examination of the area, possibly because of increased costs.

As there are and has been several feet of snow covering the area, it will not be possible to make an examination until late spring. As soon as this can be done and bids are received, we will forward them to you for your consideration and advice.

Yours very truly,

ALTA UNITED MINES COMPANY

Edwin A. Dwyer

Edwin A. Dwyer
President

EAD:GS

Copy to Reg. III

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code

Mr. Edwin A. Dwyer
President
Alta United Mines Company
620 Commercial Bank Tower
Midland, Texas 79701

Subject: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Dear Mr. Dwyer:

This is to acknowledge receipt of your letter of February 14, 1973, informing us of your continued interest in financial assistance to explore proposed Project X at the Emma mine. We are unable to consider this request in the current fiscal year because available funds are committed, but we will be glad to review a proposal for the next fiscal year beginning July 1, 1973.

We suggest that you submit two copies of all information that is necessary to up-date your application. This would include a complete new application form, MME Form 40, (use the referenced docket number) new letters to and from banks, new cost data, and any other information applicable to current conditions and prices. The technical information already submitted need not be resubmitted unless there are changes to be noted.

The amount of funds available in fiscal year 1974 is expected to be very modest, so any project considered also will have to be modest..

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

Enclosure: MME Form 40 (3 copies)

cc: J. William Hasler
OME Field Officer, Region III
U.S. Geological Survey
Denver Federal Center
Building 53 Room 28
Denver, Colorado 80225

cc: Director's reading file
Mineral Resources
OME reading file

Mr. Kirkemo
HKirkemo/cac 3-22-73

OFFICIAL
COPY
O. M. E.
RECEIVED
FEB 21 1973
INITIALS | CODE
CAC | 120
HK | 120
RMW | BW

ALTA UNITED MINES COMPANY
620 Commercial Bank Tower
Midland, Texas 79701

February 14, 1973

Mr. Harold Kirkemo, Chief
Office of Minerals Exploration
United States Department of the Interior
Geological Survey
Washington, D. C. 20242

Re: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Dear Mr. Kirkemo:

Thank you for your letter of January 23, 1973, advising us that you would consider our proposal for Project E in the next fiscal year, and in which you ask if we would be interested in a project of this scope.

Please be advised that we would be interested in your assistance in this project.

Sincerely yours,

Edwin A. Dwyer
President

EAD:lt

MMS Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
1/23/73	Weeks	120
		120
		220

January 23, 1973

AIRMAIL

Mr. Tom Phipps
Operations Manager
Alta United Mines Company
620 Commercial Bank Tower
Midland, Texas 79701

Re: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Dear Mr. Phipps:

Your application for financial assistance to explore the Emma mine has been pending for a considerable length of time for a number of reasons as you know. We have again reviewed proposed Projects A through H, and compared the cost of the individual projects to the amount of funds available on the OME program.

We would not be able to offer any assistance to you for the balance of the fiscal year, ending June 30, 1973, because available funds will be obligated for contracts on approved applications. The outlook for the next fiscal year beginning July 1, 1973, is for continued budgetary constraints. For this reason, we will be able to offer only modest assistance to a very few of the most promising applications.

If you are interested in exploring one of the target areas with OME assistance, we could perhaps consider your proposal for Project E within our limited means in the next fiscal year.

Please advise if such modest assistance would be of interest to you so that we can either process the application or withdraw it.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Mineral Resources
OME docket
OME Reading file
OME Region III
Mr. Kirkemo

HKirkemo/gla 1-23-73

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
1/23/73	Kirkemo	

January 15, 1973

Memorandum

To: The File

From: Robert A. Weeks, Assistant Chief, Office of Minerals Exploration

Subject: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Review of Field Officer's Report of Examination

I have carefully reviewed the Field Officer's report, and his recommendation that the application be denied. I disagree with the Field Officer's basic reason for denial, that is, the probable average value of potential ores. He quotes the average values from published accounts about mineral production, $26.00 to $35.00 per ton, without converting the value to current metal prices. The average value, based on present prices would range somewhere between $50.00 and $70.00 per ton. Trial shipments of ore made in 1963 would have an average value of $67.00 per ton based on January 1973 metal prices.

I recognize the Field Officer's comment that closing of smelters at Midvale and Tooele since the application was originally filed would significantly increase the distance to market, and thus the economic return on potential ores would be decreased.

In view of the length of time since the application was filed, and the fact that several of the proposed target areas are of low geologic probability, I believe a revised application might be requested. If so, the geologic targets E, F, and G appear to offer greatest potential, and if the applicants are interested, we should consider favorably a proposal limited to one or more of these, within the limits of available funds. If funds are available for only one target, project E appears to be most preferred.

Robert A. Weeks

Robert A. Weeks

cc: OME Reading File
OME docket

1/3/73

Haslar considers
Areas E, F & G
are best targets.

1-3-73

Kirk:

Bill has based his recommended denial on 2 principal points - low value of ore and added distance to market (that is, Midvale + Tooele are no longer buyers of such ores).

Harler has taken the 1917-18 metal prices of his quoted sources without any revaluation for todays prices. The $26 to $35/ton price is unfair and unrealistic, it probably should be somewhere between $50 and $70/ton

(The 1963 shipments would be $90.00 at 1972 prices)
A guess of an average 30 oz Ag, 3% Pb metal content would give about $67.00/ton)

The shipping problem is real, and I recognize that the market value of the ore in the target areas might be marginal in repaying an OME loan. The geology is relatively favorable, however, so I have no basis for recommending a denial. Should I look for a basis for recommending a portion of the application? E, F, & G under are best target

Value of ore -

Harlee has taken the 1917-18 metal values as the basis for his $26. to $35/ton appraisal. This is unfair & unrealistic.

The average value, using 1972 values based on ~~would suggest~~ silver content about 30 oz/ and Pb at 3%

60 x .14 = 8.40
30 x 1.95 = 58.50
66.90

1963 shipments = at 1972 prices

$24.22	Ag
24.36	Pb.
41.42	Zn
$90.00	

Value should be somewhere between $50 - $70.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
FEDERAL CENTER, DENVER, COLORADO 80225

Office of Minerals Exploration
Building 53 Room 28

December 12, 1972

OFFICIAL COPY
O. M. E.
RECEIVED
DEC 14 1972

INITIALS	CODE
gla	130
HK	120
RAW.	RAW

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region III

Subject: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Transmitted herewith is the Report of Examination on the subject application, recommending that the application be denied, due largely to the extremely complicated geologic structure, the many variable possibilities of discovery versus non-discovery, in the eight proposed project areas, plus the likely small size of target areas, and the fact that proposed new ore bodies may have a gross value ranging from $26.41 to as much as $35.00 per ton of ore.

Problems concerning shipment of ore, even if some were discovered, will be magnified due to the closing of the Midvale and Tooele, Utah smelters, necessitating shipment to out of state smelters, and consequently adding to already higher costs.

UNITED STATES

DEPARTMENT OF THE INTERIOR

ROGERS C. B. MORTON,

SECRETARY OF THE INTERIOR

REPORT OF EXAMINATION

REGION III

OME-6745

ALTA UNITED MINES CO.

SALT LAKE COUNTY, UTAH

By J. William Hasler

Geologist

December 1972

FIELD ON-SITE REPORT

Introduction and Summary

Alta United Mines Company, 900 American Oil Building, Salt Lake City, Utah applied to the Office of Minerals Exploration to explore for new and undiscovered reserves of silver at the Emma Mine (Emma Unit) near Alta, Salt Lake County, Utah. The applicant's total estimated cost for a multi-target exploration program was $200,000.00 The application was referred to the field, and a field examination was scheduled for November 25, 1968, however, a sudden heavy snowstorm prevented an examination at the Emma mine as its portals lie at an elevation of between 8,700 feet and above 9,000 feet above sea level. A general discussion and review of the various project proposals were held in company with Messrs. George T. Hansen, Jr., Page P. Blakemore and Mr. John Kasteler.

The mine area was inaccessible throughout the winter months and consequently an actual on-site examination was not made until July 19, 1969. The applicant was advised at that time of pending budget restrictions.

There was no contact made by the applicant for an extended period of time, consequently it was assumed that the applicant did not want to pursue the application, however, upon inquiry it was learned that the applicant did in fact wish to have, at least a portion of their originally proposed program considered for possible financial assistance.

In studying and reviewing the various exploration target areas it was first thought that areas "E", "F" and "G" had some potential, or

at least were better targets than the others, and where they do have some possibility of a discovery it is now thought that partly because of the complexity of the geologic structure involved, and partly because of the rather small size of the expected possible commercial ore bodies, the chances of finding a significant discovery of silver is considerably lessened.

The average value of ore expected to be discovered ranges from $20.00 to $35.00 per ton, and ore bodies in this range of value are hardly economic at today's prices and today's increased costs. Should ore bodies be discovered the ore or its concentrates, could not be shipped to either the Midvale, or Tooele, Utah smelters as both are now closed. Ore would have to be shipped either to El Paso, Texas, Kellogg, Idaho, East Helena, Montana, or Tacoma, Washington.

Even though consideration was given to projects E, F and G, which are discussed herein as having some possible degree of success, it is now recommended that the application for financial assistance in mineral exploration be denied.

Location

The Emma mine and claims are located in the Little Cottonwood Mining District, Salt Lake County, Utah some 20 miles southeast of Salt Lake City, Utah, in Section 32, Township 2 South, Range 3 East, SLBM and in Section 5, Township 3 South, Range 3 East, SLBM. The nearest shipping point was at Midvale, Utah, 22 miles west of the property.

Property

The property, consisting of 16 patented and 5 unpatented mining claims are located in Section 32, T. 2 S., R. 3 E., SLBM and in Section 5, T. 3 S., R. 3 E., SLBM in the Little Cottonwood Mining District, Salt Lake County, Utah. No land or mineral rights are encumbered or not owned by Alta United Mines Company.

Applicant's Rights in Land

Alta United Mines Company has owned the subject claims for more than twenty years. Alta United is successor in interest to companies through merger that had owned the claims for forty years or more. There are no known conflicts of interest and no liens, mortgages or encumbrances on the subject claims.

History and Production 1/

The Emma Mine, as previously stated, has been owned by the Alta United Mines Company for more than twenty years, and is successor to an interest to companies through merger that had owned the claims for forty years or more.

"The Emma claim was located in December 1868, by F. B. Woodman and the Emma ore body was discovered in the following year."

"In 1870 the Walker Brothers purchased an interest in the mine. This firm reported the shipment of 4,200 tons of galena ore, mostly from the Emma mine, in the last half of 1870. The ore averaged 35 percent of lead and $182.00 a ton in silver and returned a net value of $125.00 a ton. The total amount of ore shipped in 1870 was 5,293 tons."

"Early in 1871 a half interest in the mine was sold to T. W. Park and H. H. Baxter for $75,000.00, and subsequently a one-sixteenth interest was sold to this pair for about $100,000.00 more, subject to a claim in litigation for one-third of the property by J. E. Lyon. Park, Baxter and Lyon, by forcing production to the utmost, extracted between April 25 and September 1, 1871, 5,638 tons of ore from which a net profit of 158,268 English pounds was won. The ore was sold in Great Britain, and these sensational profits enabled the promoters to float a sale of the mine to an English company, which was capitalized at 1,000,000 in English pounds. After dividends were paid at the rate of 1-1/2 percent a month until about the end of 1872 the ore body above the fault was exhausted; on June 11, 1872, Clarence King declared, in a letter to the secretary of the British company, that not over 280 tons of ore was in reserve. The spectacular collapse of the English Company created an international incident, because of the participation by the American minister, General Schenck, in its flotation, and lead to an exhaustive examination by the Committee on Foreign Affairs of the House of Representatives. The report of this investigation makes most interesting reading, revealing, as it does, the manner in which a truly remarkable ore deposit was utilized more as a basis of financial market rigging than as a mineral resource."

"During the years 1873, 1874, 1878 and 1879 much low-grade ore was concentrated by jigs. When, in 1877, the American Emma Co. began

work after reorganization of the property, it first prospected the old ore bodies and then leased the Bay City tunnel, which was 1,700 feet long and 90 feet below the lowest old workings of the Emma. This tunnel had been run by a St. Louis company at a cost of $75,000 and had been abandoned in 1876. Under the American Emma Co., a connection was made with the lowest workings of the old mine, and a shaft was sunk to a depth of a little more than 300 feet below the Bay City tunnel. This shaft was sunk on the hanging-wall side and about 300 feet northeast of the place where the Montezuma fault (the fault that cut off the ore body) was crossed in the Bay City tunnel, Drifts were driven from this shaft at 119,208 and 283 feet below the Bay City tunnel, and it is said that attempts were made to go still deeper. But on account of the large amount of water that had to be pumped, and probably also because of financial difficulties, the property was closed and the workings allowed to fill with water. For perhaps 30 years from this time, very little work was done on the property except by an occasional lessee who gouged out small quantities of ore from the upper workings."

"Various combinations were effected to work parts of the 91 acres that were held under the names of the Old Emma Mines Co., Emma Copper Co., Emma Consolidated Mines Co., and Emma Silver Mines Co. included the following patented claims: Emma, lot 37 of 5.51 acres; Cincinnati, lot 94 of 5,509 acres; North Star, South Star, Allegan, Hiawatha, Last Chance, Caledonia, Montezuma, Savage, Revolution,

Mackay, Dickman, and Cohen. Nearly all these claims are mentioned as producers of rich ore in the early printed reports of the United States Commissioner[71] of Mining Statistics. The Vallejo and North Star, adjacent claims situated between the Emma and Flagstaff, were part of the Joab Lawrence property, organized in 1870, which was taken into the recent consolidation. Huntly described the early conditions as follows:

"The North Star was one of the earliest claims of the district, having been located in 1865, and has yielded largely. There are said to be large bodies of low-grade oxide of iron ore in the lower levels, but little had been done for some time excepting a small amount of "tribute" work. The Vallejo was worked in 1872, 1873, 1874, 1875, and 1877 by several companies, and much ore was extracted. It was being worked on an extensive scale at the time of the writer's visit. The ore was fine and contained from 20 to 45 percent lead, from 15 to 90 ounces of silver, from 20 to 35 percent iron, and from 9 to 14 percent of moisture. It was in great demand among the smelters, owing to the lack of silica and the presence of so much iron. A low grade of ore containing from 40 to 50 percent of iron, no lead, and a few ounces of silver was also shipped. The following table shows the price received per ton for some lots in February and March 1880."

Weight (pounds)	Assay value Lead (percent)	Silver (ounces)	Price received (per ton)
111,855	5	5	$10.00
76,225	41	48	$66.50
56,877	42	65	$85.10
54,376	35	39	$52.25
74,011	12	15	$17.50
130,304	43	54	$73.75
140,525	6	9	$12.00

The ore was transported from the mine to the tramway of the Wasatch & Jordan Valley Railway by a wire-rope tramway.

"The Joab Lawrence property maintained a steady output for several years, the company having distributed more than $180,000 in dividends; but prior to its sale to the new company, the property had been closed for many years, and the owner was loath to disclose the early figures of production to the Geological Survey."

"In order to develop the Emma property and find the faulted portion of the lost Emma ore body, the new operators undertook diamond-drilling from the Bay City tunnel level, under the guidance of J. J. Beeson, who had made a careful study of the geologic structure. The drilling was begun early in August 1916, and in the latter part of September the fourth diamond-drill hole intersected the ore body at a depth of 208 feet. This hole showed the ore body to have a thickness of about 30 feet. Three other drill holes were put down in rapid succession to the northeast, and the ore body was proved to extend on its dip at least 150 feet beyond the Montezuma fault. (See Fig. 5). Shortly after the ore was located the mine was unwatered and put into running condition. The first shipment of ore from the part of the ore body on the east side of the Montezuma fault left the mine early in January 1917. In that year about 9,000 tons of

ore was shipped to United States Smelting, Refining & Mining Co.'s smelter at Midvale, Utah, the net returns from which, after smelting charges and certain freight charges had been deducted, amounted to more than $251,000.00. The mine continued to operate until August 1918, making a total production of 10,362.55 tons of ore, from which the net smelter returns were $273,742.05, an average net value of $26.41 a ton, or a gross value of about $35.00 a ton."

"According to the records of the Geological Survey, 10,378 tons of ore shipped in 1917 and 1918 averaged 14 cents in gold and 39.89 ounces of silver to the ton and 3.42 percent of lead. This ore contained 0.1 percent of copper."

"The mine was closed in August 1918 and a receiver appointed because the company had not done adequate development work beyond the point where ore could be economically mined and was without sufficient funds to continue. Operations were resumed in 1919, in which year 431 tons of ore was shipped."

"According to the published records of past production of the Emma mine, its output in 1880 was 778 tons, obtained by lessees and from the jigs, which sold for $55,071.54. According to Charles Smith of Salt Lake City, whose accounts of ore sales included all but the first few hundred tons sold, the total production of the mine up to June 1, 1880, was 27,451 tons, for which $2,637,727.44 was received. Beeson estimates that the total output of the mine to the end of 1918 was valued at $3,826,000."

1/ Calkins, F. C., and B. S. Butler, Geology and Ore Deposits of the Cottonwood-American Fork Area, Utah; U. S. Geological Survey Professional Paper 201, pp. 122-123, 1943.

"The past production of the Emma Mine area, according to the applicant is as follows:

Tons	Silver (oz.)	Lead (lbs.)	Gold (oz.)
69,928	5,167,045	40,098,600	204

*The above information is from company records, congressional record, USGS Professional Paper No. 201 by F. C. Calkins and Bureau of Mines Mineral Statistics.

Early production was unrecorded in part and the above figures are thought to represent the minimum production from the subject property.

No ore has been produced from the claims since 1920 except a sample shipment from fissure ore on the surface in 1963 by the present operators. The analysis follows:

Tons	Au	Ag	Pb	Zn
7.86	.018	12.42	8.65	10.93

During early production, 1865 - 1880, crude ore as shipped to smelters at Swansea, Wales averaged 150-180 ounces of silver per ton.

Production from the faulted segment of the Emma ore body discovered in 1917 by J. J. Beeson during 1919 - 1920 averaged

Tons	Au	Ag	Pb
1,432.14	.02	33.4	7.8

There are no known ore reserves at the Emma mine at the present time.

Geology[2/]

"The geology of the Emma mine (pl. 41) is related to that of the adjacent Tom Moore tunnel. The rocks exposed in the company's claims are Cambrian shale and limestone, Jefferson (?) dolomite, and Madison limestone. In part of the area the limestones are much bleached by metamorphism and are therefore rather difficult of separation. This alteration increases the difficulty of working out the structure, which, as in all other properties in this part of the district, is too complex to be described in detail and must be gathered mainly from the map (fig. 5). The area is crossed by the Reed and Benson thrust zone and by higher minor thrust faults, which are not conspicuous but have locally thickened and brecciated the limestones. The area is also crossed by several north-south faults, of which the Monezuma is the mostprominent. The Snow fault passes north of the workings on the property. The easternmost workings drift on and cross the Hiawatha fault, which is about parallel to the Montezuma."

"The occurrence of the ores is in general similar to that in the Flagstaff and other deposits to the northwest. They have been formed mainly by replacement of one or more beds in the Jefferson(?) dolomite and the lower part of the Madison limestone. Most of the ore shoots appear to be associated with northeast fissures. The largest body of ore that has been developed was the Old Emma shoot, a replacement deposit in a breccia zone that probably represents a minor thrust fault. (See pl. 43, A)."

"A geologic cross section (fig. 5) made by J. J. Beeson,

geologist of the company, shows the workings and the positions of the main ore shoots.

The ore bodies in this area, as in that to the northwest, appear to decrease in size with increase in depth. This is notably true of the Old Emma body so far as developed. The north-south faults that cross the area have displaced the ore bodies. The largest, the Montezuma fault, with downthrow to the east, displaced the Emma ore body 250 feet."

"The primary mineralization in the Old Emma deposit consisted mainly of the deposition of pyrite and galena in a gangue of quartz or of unreplaced limestone. There are lesser amounts of sphalerite, tetrahedrite, and tungstenite. In the lower workings the ore body contains a core composed mainly of quartz with only a very small percentage of metallic minerals. Around this center the percentage of metallic minerals increases, and there is a further change from ore in which the main gangue is quartz to ore in which unreplaced stone is the principal gangue (pl. 42, B) with the metallic minerals occurring mainly as a cement around angular fragments of limestone. (See pl. 42, A.)"

"In some of the vein in the northwestern part of the property there is considerable manganiferous siderite, which on oxidation gives rise to hydrous oxides of iron and manganese."

"The deposits that have been mined in the ground of the Emma Silver Mines Co., except that in the east, or footwall, side of the Montezuma fault, have been partially oxidized. The writer had no adequate

opportunity to study the oxidized ores, which were mostly extracted long ago, but from published descriptions they were mingled oxidized compounds of lead, silver, copper and zinc, but contained residual sulfides. Wulfenite (lead molybdate) is especially mentioned by Silliman as being an abundnat minor constituent of the ore, but it seems probable that the supposed wulfenite was really stolzite, which is present in the oxidized ores. Silliman's description would indicate that stolzite in the oxidized ore was quite as abundant as tungstenite in the sulfide ores."

2/ Calkins, F. C., and B. S. Butler, Geology and Ore Deposits of the Cottonwood American Fork Area, Utah, USGS Prof. Paper 201, pp. 123-125, 1943.

Applicant's Proposed Exploration Program

The applicant has proposed exploration work in eight project areas in the vicinity of the Emma Mine, designated as project areas A through H for a total estimated cost of $200,000.00.

The applicant indicates that commercial silver ore carrying more or less lead and zinc occurs in fissure and bedded deposits on eight east-west ore zones in at least four stratigraphic horizons on the subject property. Each was mined during the period 1870 - 1885 in one or two beds on the fissure down dip to the east towards the Montezuma fault, a normal fault with 230 - 250 feet of displacement. Only one ore zone has been prospected for beyond the fault, that resulted in the discovery of the faulted segment of the north fork of the Emma orebody in 1917. This segment as mined in the fault block between the Montezuma and Hiawatha faults contained the following as quoted:

Years		
1917 - 1918	10,362.55 tons ~~Au~~ ore ?	Gross value $35.00/ton
1919 - 1920	1,432.14 tons	33.4 oz. Ag (weighted average)

Geologic mapping of the Emma-North Star vicinity was done during 1962 - 1963 by Mr. Louis Cramer and Mr. Page Blakemore, and found that west dips in the lower Jefferson dolomite just under the favorable medical section were observed west of the Bay City fault in the Illinois Tunnel (See Plates I and II in their application). ?

It is thought, by the applicant that the upward extension of the Emma ore body lies westerly of the Bay City Fault at relatively shallow depth, i.e., 200 feet deep in the unexplored block west of the Bay City fault. If the upward extension of the Emma ore body were discovered here it could continue for several hundred feet west until it is truncated by the flat lying west dipping snow fault. The applicant is of the opinion that the chances of truncation are good since an ore body was mined out above the Tom Moore tunnel on the same fissure and trend 750 feet in the upper plate of the Snow fault zone in the Jefferson Dolomite (Plate IIIb), in the application), and that the angles of intersection between the plane of the Snow fault and the favorable bed will determine the length of the ore shoot.

The applicant completed 30 drill holes, several of which intersected noncommercial mineralized material, and they think that the drill holes were drilled on the edge of an ore zone lying north of the profile in the application. Another row of holes was designed to

penetrate the zone north of the profile but the holes have not been drilled to date.

The mineralized material penetrated by the holes was typical of the Emma fissure zone in that it is high in silver, with a low lead ratio, however, the applicant thinks that the drilling may not have recovered all the sulfide material because of poor air return, due to a faulty compressor.

The applicant proposes to explore three general areas, with eight individual projects, as follows:

I. Explore for the faulted segments of several ore zones west of the Bay City fault.

II. Explore favorable beds (other than the medial Jefferson) on ore bearing fissures that have had previous production.

III. Explore from the surface by drilling for the upper segment of the Emma ore body between the Bay City and Snow faults.

The eight projects proposed by the applicant are as follows:

Project Area "A"

They propose to explore the intersection of the middle Jefferson or Emma beds, the Emma thrust zone, a northwest fissure and the productive North Star ore zone. This fissure was productive near the surface of the Jefferson-Madison contact, and above the Bay City 100 foot level on the Maxfield-Jefferson contact. The medial beds are regarded as more favorable for deposition than either of the above horizons. This work will consist of crosscutting and raising at an estimated cost of $12,375.00.

Project Area "B"

This area is to be explored by 320 feet of drifting, preparation of two or three underground drill stations, and to drill a total of some 2,000 feet to explore the down-dropped segment of the North Star Fissure zone in the Madison limestone and the three ore horizons in the Jefferson dolomite. The first hole should be drilled for stratigraphic information to determine the elevation of the Maxfield-Jefferson contact which is the deepest ore horizon that it is thought practical to explore. The estimated cost of this project is $44,650.00

Project Area "C"

This project consisting of crosscutting and drilling estimated to cost $34,200.00 is designed to explore the down-dropped segment of the Savage fissure zone east of the Montezuma fault.

Project Area "D"

This project consists of clean-up work of a portion of the Bay City tunnel, and installing track and pipe, excavating a diamond drill station, and drilling an estimated 1200 feet of diamond drilling. The applicant states that there is a strongly brecciated, mineralized zone about 100 feet long that is exposed in the crosscut to the southeast from the drift on the Hiawatha fault on the Bay City level, and that the outline of the old Emma stope was bifurcate on its downward extension and that a projection of the so-called "south fork" fissure passes through this zone which stratigraphically is at the Jefferson-Madison contact. Exploration in this area is estimated to cost $16,582.70.

Project Area "E"

This project is to be explored by drilling from the surface, and is regarded by the applicant to be one of the better possibilities for ore discovery, at an estimated cost of $15,750.00. The block west of the Bay City fault (Coordinates 10800 North and 6,000 East) dips gently northwest, and it is probable that the medial ore beds of the Jefferson are at shallow depths below the surface, and under the projection of the Snow fault plane. Thus, another segment of the original Emma ore body may exist in unexplored ground above and west of the Illinois tunnel. The applicant thinks a discovery of this near-surface segment could lead to production of a substantial tonnage of easily extracted high grade silver ore. Estimated cost of this project is $15,750.00

Project Area "F"

At the intersection of the Bay City level drift on the Montezuma fault and a drift southwest (coordinates 11,400 North and 6200 East), a mineralized breccia zone is exposed for 30 - 40 feet in the southwest drift. This material is thought, by the applicant, to be in medial Jefferson dolomite and is nearly identical in appearance with the same beds immediately beneath the old Emma stope. A crosscut of about 350 feet would explore this zone and could lead to the undiscovered lower half of the productive Gunderson stope which was cut off by the Snow fault. The estimated cost of this project is $11,400.00.

Project Area "G"

The applicant company drove a raise and a crosscut in 1963 to

explore the ground south of the old Emma stope. It was found that the south wall of the stope was a fault with considerable drag ore in the breccia and in the gouge. Surface work disclosed several ore bearing fissures and an outcrop of a thrust zone in the Jefferson dolomite. Surface samples taken by the applicant on the ore bearing fissures over this unexplored block, showed some interesting assays, and they are encouraging ones, especially those on the fissure zones.

The applicant proposes to drill some 4,000 feet of rotary drilling, and the extension of a raise that was driven off the new crosscut. The estimated cost of this project is $26,350.00.

Project Area "H"

This project would consist of crosscutting and raising plus rehabilitation of some 370 feet of tunnel to explore a possible occurrence of ore at the Maxfield-Jefferson contact on the North Star fissure above the first level of the Bay City shaft, near coordinates 11,200 North and 6050 East. The estimated cost for this project area is $8,881.00.

During the interval between the time the application was submitted to Washington, the initial attempt to make a field examination on November 25, 1968 and the actual field examination on July 29, 1969 the application was reviewed by Max Crittenden, U. S. Geological Survey. Pertinent comments were made concerning six of the eight project areas. These comments were discussed with the applicant's geologist, Mr. Page Blakemore on July 29, 1969, and replied to on March 10, 1969 by the applicant's Mr. Jack McCrary. The data was actually documented

below using Washington's query of July 31, 1968 and the applicant's reply:

Q-Project A. "The target has already been explored by the No. 4 level from the Emma Winze at an elevation of 8,865 and 8905."

A-PROJECT A: "The enclosed section (see original application) demonstrates the objectives in this project which are not explored by existing workings. The target section lies between the Bay City level and the Number 4 of the Emma Winze. It is also interesting to note the Number 4 level has been inaccessible for at least fifty years and was driven during a period of bonanza ore extraction. It is our impression that the grade encountered in the upper beds on the North Star Ore Zone may not have been very attractive in the 1870's."

Q-Project B: "The proposal to drill 16 closely spaced holes (450 foot depth) is considered development drilling. We note in the cost estimate only 2,000 feet of drilling is indicated for this phase."

A-Project B: "The maximum depth quoted is for an ore hole required for stratigraphic information. It is necessary to determine the elevation of the Jefferson-Maxfield contact in order to plan intelligently the location and direction of additional holes. We feel that the number of holes is not excessive in that the lateral displacement on the Montezuma Fault is unknown. Several holes will probably be required to discover the location of the ore zone, and one or two others to determine whether its size and grade is commercial."

Q-Project E: "The proposal to drill a large number of holes on

20-foot centers is considered development drilling. The upper segment of the Emma ore body in this area has already been explored by the drilling program conducted in 1965."

A-Project E.: In Project E, the large number of holes is thought to be required because of lateral movement on the fault systems. The number could be reduced if discovery was made early in the drilling program and existence of a commercial ore body established. The close spacing is regarded as necessary to avoid straddling the elliptical pipes which are the principal modes of ore occurrence."

Question-Project F: "Why not drill from the Bay City level crosscut."

A-Project F.: "The proposed crosscut is needed to establish stratigraphic position in the section prior to drilling, and because the drift to the northwest is on the Montezuma Fault, the fault is also very wet in this area. Further, there are many "caught up" slivers in the fault zone which could give erroneous information and would undoubtedly result in expensive drilling due to lost circulation and hole deviation."

Q-Project G: "Drilling many closely spaced holes is considered development. In addition, the proposed underground work would explore the same target as the drilling."

A-Project G: "It is felt that a minimum of ten holes should be drilled to discover and delineate any ore present in this ground. The raise proposed from the Emma sub-level would permit a much more accurate conclusions as to the commercial character of any ore encountered in drilling. The proposed raise from the Emma sub-level could not be used for ore extraction and therefore is not strictly development work. The ore delineated by the drill holes and the proposed raise would

have to be mined from another raise on the Illinois level. This is work that would be undertaken by the company. The cost of using a transfer drift and the proximity of the Emma sub-level to the caved Emma stope renders the use of the old Emma tunnel impractical for economic ore extraction."

Q-Project H: "The work appears to be prospecting as no evidence has been presented indicating an eligible target."

A-Project H: "The ore body discovered in 1919-1920 was on the down-dropped or hanging wall side of the Montezuma Fault, which is unquestionably post-ore. This was mined from the 1st level from the Bay City interior Shaft to the above fault which intercepted it. It is reasonable to assume that the equivalent beds on the same ore zone in the "up" block could contain similar ore."

A review of the eight project areas A through H, indicates that only areas E, F and G have the best chance of discovering new silver ore bodies in the Emma mine area. I would agree with Max Crittenden's overall appraisal that some of the proposed target areas are small after eliminating the old workings -- i.e. "Area A. Areas "B" and "D" do not have enough potential for the money involved. Much of the proposed exploration work is, of necessity, designed to obtain stratigraphic information as a result of the already complicated structural geology, as emphasized in Max's letter dated June 4, 1969. The different interpretations between U. S. Geological Survey geologists and company geologists also complicates the picture, and I would feel more inclined

to accept the Survey's interpretations than the applicant's work, as the Survey's work here, has been much more detailed than that of the applicant.

During the applicant's ownership of the property over a period of some twenty years, apparently very little exploration work has been done to search for new and undiscovered ore bodies, except for the geologic mapping completed by Cramer and Blakemore during 1962 - 1963, and only the limited amount of raising and surface drilling since that time. These were years when many moderate and small mining companies were able to obtain funds for exploration more easily than at the present time. It appears to me that, because of the many limiting factors, as outlined by Crittenden that even the most likely project areas are fraught with only probable chances to find ore, or favorable beds or the correct structures, or pipes. Because of these complications, and the limiting possibilities that the ore bodies may be partly controlled by the Reed and Benson thrust zone (USGS Prof. Paper 201, discussion of the Snow Fault, Reed and Benson thrusts and Emma mine), and fact that the Emma mine lies in the relatively restricted block between the Snow and Silver Fork faults, which converge northward at least on the surface, plus the fact that there is no real knowledge where this fault might cut them off underground.

Mr. J. J. Beeson's report accompanying the application has a conservative estimate, based on records of past production, of the total values of ore produced from the Emma Mine up to January 1917, of $3,500,000. Gross value of ore mined from January 1917 to August 1918 would be close to $325,000.00 which should give a total production

of about $3,825,000.00.

Records cited by Mr. Beeson shows the gross value of ore produced from the Emma Mine up to August 1918, to be worth something over $35.00 per ton. He also states that the production between 1917 and 1918 may be considered a good indication as to the value of the ore that may be mined in the future, having a net value of $26.41 per ton, as net smelter returns totalling $273,742.05 were obtained from 10,362.55 tons of ore. If the gross value of the ore produced, as based upon J. J. Beeson's report accompanying the application, is used, it is doubtful in my estimation that $26.41 or even $35.00 per ton ore can be mined at a profit at today's increased costs. Much of the near surface ore mined in the Emma mine and adjacent properties is oxidized ore and was shipped largely to local smelters, at Midvale and Tooele, Utah. These smelters are now closed. There are now some 6 zinc smelters in the United States that have closed down since 1969, taking 30% of our capacity out of circulation, several comparable sized companies in REgion III cannot now market their zinc, and the zinc concentrates may well be the margin of profit. Because of the many variables and unknowns, it is the opinion of the examining geologist that the chances of discovering significant new silver ore bodies in the Emma mine are not too promising. It is therefore recommended that the application for financial assistance be denied.

ALTA UNITED MINES COMPANY
620 Commercial Bank Tower
Midland, Texas 79701

September 16, 1970

OME Region III
RECEIVED
SEP 18 1970
Denver, Colorado

Mr. William J. Hasler
Field Office, Region III
Office of Minerals Exploration
Federal Center, Denver, Colorado 80225

Re: OME 6745 (Silver)
Alta United Mines Company
Emma Unit
Salt Lake County, Utah

Dear Mr. Hasler:

I am sorry to be so long in answering your letter of July 28, concerning additional information desired by you in relation to the caption loan request.

I am enclosing two copies each of our letters to the two banks renewing our requests for the loans. I am also enclosing two copies of the two banks reply. We are at present in the process of obtaining data to supply you in relation to the cost of the projects. I will contact you as soon as definite data is available.

If further information is desired at this time, please contact me.

Very truly yours,

Ruby Moore

for Tom Phipps
Operations Manager

TP:rm
Enclosures

Walker Bank & Trust Company

ROBERT W. BERNICK
VICE PRESIDENT

August 18, 1970

Mr. Tom Phipps
Operations Manager
Alta United Mines Company
620 Commercial Bank Tower
Midland, Texas 79701

Dear Mr. Phipps:

Mr. Page Blakemore of your city was in the bank on August 18, 1970 representing your company and requested a $200,000 exploration loan from the Walker Bank and Trust Company.

It is not the policy of the Walker Bank and Trust Company to lend funds on mineral prospects which of course have not yet reached the stage where there are reserves on which a bank loan would be based.

Yours very truly,

Robert W. Bernick
Vice President

RWB:db

THE CONTINENTAL BANK AND TRUST COMPANY

SALT LAKE CITY, UTAH 84110

August 19, 1970

Mr. W. B. Blakemore
Alta United Mines Company
Postoffice Box 4605
Midland, Texas 79701

Dear Mr. Blakemore:

We regret to advise you that your application for a loan of $200,000 for the purpose of mineral exploration has been declined by our Loan and Discount Committee.

If we can be of any further assistance to you, please call on us at any time.

Very truly yours,

William A. Piatt

William A. Piatt
Second Vice President

WAP/bep

Office of Minerals Exploration
Building 53 Room 28

October 1, 1971

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region III

Through: Assistant Chief, Office of Minerals Exploration

Subject: OME-6745 (Silver)
Alta United Mines Company
Emma Mine Unit
Salt Lake County, Utah

Enclosed are revised bids for proposed projects "E" and "G" that were received from the applicant on September 28, 1971. The applicant wishes to reactivate the application for financial assistance to explore for silver ore bodies at the Emma mine, Salt Lake County, Utah.

Recommendations will be forthcoming on this docket.

J. William Hasler
Field Officer, Region III
Office of Minerals Exploration

Enclosures

cc: OME-6745
OME chron
Mr. Hasler
Mr. Emerick

ALTA UNITED MINES COMPANY
620 Commercial Bank Tower
Midland, Texas 79701

September 27, 1971

Mr. J. William Hasler, Field Officer
Region III, U. S. Geological Survey
Office of Minerals Exploration
Building 53, Room 200
Denver Federal Center
Denver, Colorado 80225

Re: OME 6745 (Silver)
ALTA UNITED MINES COMPANY
Emma Mine
Salt Lake County, Utah

Dear Mr. Hasler:

We have been unavoidably delayed in submitting the estimated cost for the exploratory drilling of Projects "E" and "G," on the above-numbered application, until recently.

There are enclosed, in triplicate, three bids from contractors and map of road and drilling pattern, together with a detailed estimate of actual costs. Please note that the amounts of exploratory drilling as originally specified for Projects "F" and "G" have been revised and somewhat reduced and the 200 feet of raise at $45.00/foot has been eliminated.

Mr. M. C. Godbe, III, 721 First Security Building, Salt Lake City, Utah 84111, has been engaged to supervise the above proposed work on Projects "E" and "G." So far, we have not located competent contractors for Project "F."

If further information is desired, please contact me.

Very truly yours,

Tommy Phipps

Tommy Phipps
Operations Manager

TP:lt

Enclosures

ESTIMATED COSTS OF THE PROJECT

Project "E"

Actual Costs

Category (1) Independent Contracts

Drilling: 17 - 4-3/4" X 300' holes 5100 feet at $3.20/foot	$ 16,320.00
Standby time, 100 hours @ $60.00/hour	6,000.00

Category (1)a

Bulldozing roads and drill sites, to be done on an hourly basis by local contractor, available at $25.00/hour. Estimate 50 hours @ $25.00/hour	1,250.00

Category (2) Personal Services

None except:

Subcategory (a) Supervision and Technical Services

1 Supervisor/geologist/engineer 4 months at $900.00/month	3,600.00
1 Consulting geologist 8 days at $120.00/day	960.00

Category (3) Operating Materials and Supplies

300 sample sacks @ $0.15/sack	45.00

Category (7) Miscellaneous

None except:

Per diem, consulting geologist 8 days at $25.00/day	200.00
Transportation, geologic consultant 350 miles at $0.12/mile	42.00

Project "E" (continued)

Category (7) Miscellaneous (continued)

Office expense 4 months at $50.00/month	$ 200.00	
Payroll taxes, F.I.C.A. insurance at 20%	720.00	
Sampling and assaying 200 silver-lead samples at $6.00	1,200.00	
Total Estimated Actual Costs		$ 30,537.00
Government Participation at 75%		$ 22,902.75

Project "G"

Actual Costs

Category (1) Independent Contracts

Drilling: 10 - 4-3/4" x 200' holes 2000 feet at $3.20/foot	$ 6,400.00
Standby time, 12 hours @ $60.00/hour	720.00

Category (1)a

Bulldozing roads and drill sites, to be done on an hourly basis by local contractor, available at $25.00/hour. Estimate 15 hours at $25.00/hour	375.00

Category (2) Personal Services

None except:

Subcategory (a) Supervision and Technical Services

1 Supervisor/geologist/engineer 1½ months at $900.00/month	1,350.00
1 Outside consulting geologist 3 days at $120.00/day	360.00

Category (3) Operating Materials and Supplies

150 sample sacks @ $0.15/sack	22.50

Category (7) Miscellaneous

None except:

Per diem, outside consultant 3 days at $25.00/day	75.00
Transportation for consultant 175 miles at $0.12/mile	21.00
Office expense 1½ months at $50.00/month	75.00

Project "G" (continued)

Category (7) Miscellaneous (continued)

Payroll taxes, F.I.C.A. insurance 1½ months at 20%	$ 270.00	
Assaying silver-lead samples 150 at $6.00 each	900.00	
Total Estimated Actual Costs		$ 10,568.50
Government Participation at 75%		$ 7,926.38

DIAMOND CORE DRILLING
DIAMOND DRILLING EQUIPMENT
GROUTING
MINING
QUARRYING
FOUNDATION TESTING
TUNNEL DRIVING
SHAFT SINKING
MINE PLANT DESIGN
AND FABRICATION

Boyles Bros.
DRILLING COMPANY

CONTRACTORS-ENGINEERS-GEOLOGISTS
General Offices and Plant
1624 Pioneer Road P. O. Box 58 Phone (801) 487-3671
SALT LAKE CITY, UTAH 84110
Cable: BOYLESCO

BRANCH OFFICES
ARIZONA (PHOENIX)
CALIFORNIA (AUBURN)
COLORADO (GOLDEN)
NEVADA (SPARKS)
TENNESSEE (MURFREESBORO)
WASHINGTON (SPOKANE)
CHILE (SANTIAGO)
CABLE: BOYLESBROS
MEXICO, D.F.
PERU (LIMA)
CABLE: BOYLESCOP

September 3, 1971

Mr. Murray C. Godbe III, President
East Utah Mining Company
721 First Security Building
405 South Main Street
Salt Lake City, Utah 84111

Subject: Alta United Mines

Dear Sir:

We are pleased to quote you the following based on 5,000 feet of Rotary Non-Core Drilling at your site at Alta, Utah.

1. Mobilization and Demobilization $ 350.00 L.S.

2. Drilling
   Overburden $ 5.00 per L.F.
   0 - 250 ft. 3.85 per L.F.

3. If at depth holes penetrate harder formations than the limes or shales expected, bit costs will be to customers' account.

4. Standby, asked for or caused by Owner, will be charged for at $ 27.50 per hour.

5. Water truck, if necessary, will be charged for at $ 350.00 per month rental, plus $.15 per mile driven.

6. Should this job be plagued by winter weather conditions that hamper operations we will move off location and when work commences again, will charge $ 350.00 mobilization.

7. Moving from hole to hole will be charged at $ 27.50 per hour.

8. Owner to provide drill sites.

Thank you for giving us the opportunity to quote prices on this work.

Sincerely yours,

Jack D. Powers

JDP/jc

Whatley DRILLING CO

1512 WEST PRINCE ROAD
TUCSON, ARIZONA 85705

AREA CODE 602
PHONE 887-3310

September 8, 1971

Mr. M. C. Godbe, III
East Utah Mining Company
721 First Security Building
Salt Lake City, Utah 84111

Dear Mr. Godbe:

The following is our proposal for your proposed drilling project near Alta, Utah for Alta United Mines Company.

1. Equipment:
   1 HD 1000 Mayhew rig with 580 cfm low pressure compressor, 5 x 6 mud pump, 2 7/8" drill pipe, 3½" drill collars. Mounted on IHC truck.

2. General scope of project:
   Drill 4 3/4" holes to depths of ± 250 feet with air and take samples at 5 foot intervals. Minimum footage - 5,000 feet.

3. Prices:

0 - 300 feet	$ 4.00 per foot
Mobilization - in and out-	$ 500.00

4. Certificates of insurance will be furnished as required.

Sincerely,

Leon Whatley (dw)

Leon Whatley

LW:dw

JAMES E. ANDERSON
SALT LAKE CITY, UTAH
484-1387

JAMES L. ANDERSON
MOAB, UTAH
253-4731

Anderson

MINING & DRILLING CONTRACTORS
BOX 369
MOAB, UTAH 84532

Sept 1, 71

Alta United Mines
% East~~ern~~ Utah Mining Co.
721 First Security Bldg.
Salt Lake City, Utah 84111

BID PROPOSAL

Project
5000 feet of plug drilling in the Alta Mining District.
Hole size - 4 3/4 inch.
Depths - approximatly 250 feet maximum.
Sample interval - 5 feet.

Bid price (footage)
$3.20 per foot.

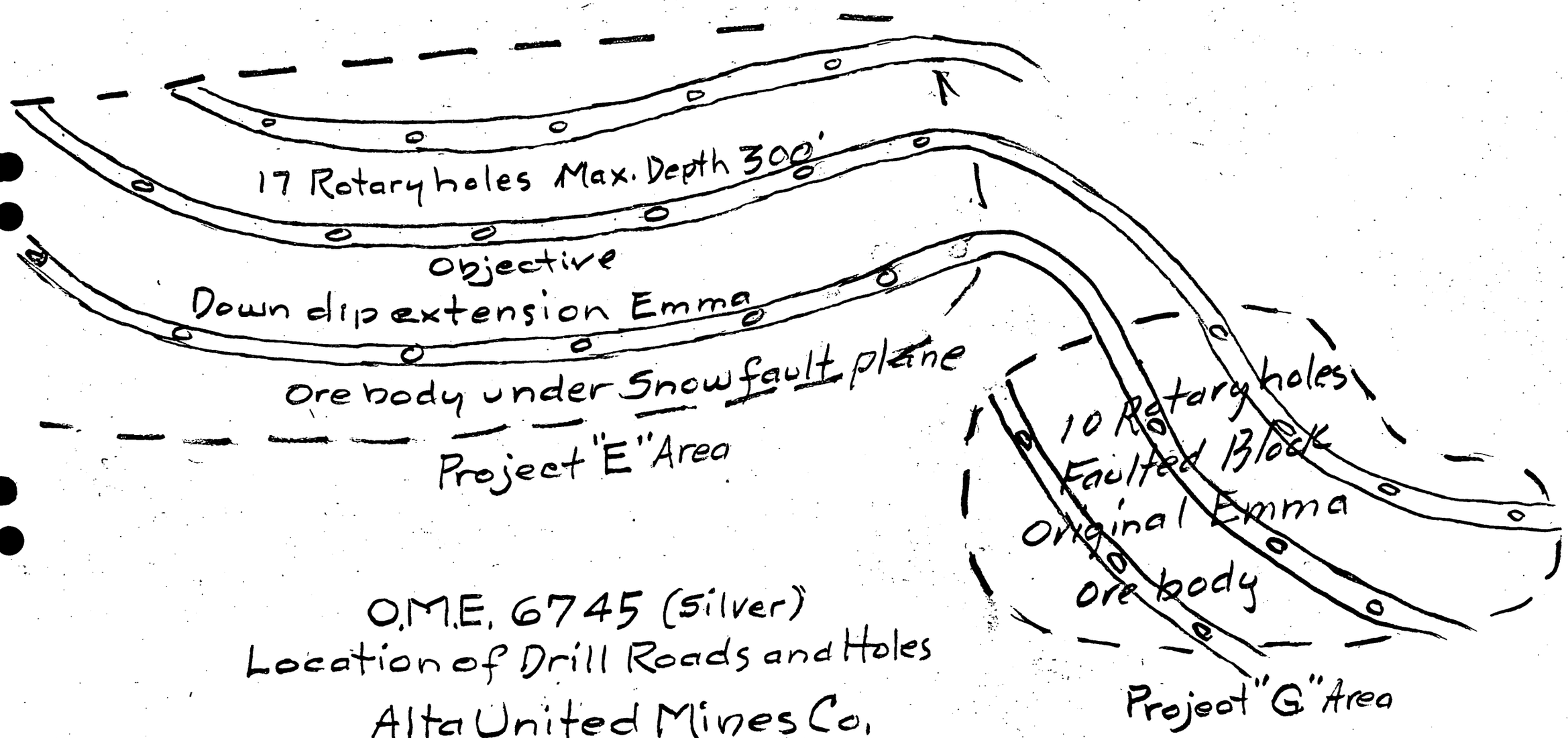
Bid price (hourly)
$40.00 per hour rig time plus bits and drill supplies.
$20.00 per hour standby or water haul.

Contractor will furnish one Gardner Denver 1500 H P rig, 3000 gallon water truck, operators, tools, fuel and sampling equipment.

Operator (East Utah) will supply drill sites and roads.

James L Anderson

James L Anderson



O.M.E. 6745 (Silver)
Location of Drill Roads and Holes
Alta United Mines Co.

Refer to Plate 1. Emma Project
Large Map-

Scale: 1 inch = 50 feet
Aug. 19 1971

ALTA UNITED MINES COMPANY
Salt Lake City, Utah
Midland, Texas

March 10, 1969

OME Region III
RECEIVED
MAR 12 1969
Denver, Colorado

Mr. J. William Hasler
Field Officer Region Three
Office of Mineral Exploration
U. S. Geological Survey
Denver Field Office - Building 53
Rooms 200-203
Denver, Colorado 80225

Dear Mr. Hasler:

Further, in relation to our conversation today, the following are the responses that your office has requested.

PROJECT A: $12,375.00

The enclosed section demonstrates the objectives in this project which are not explored by existing workings. The target section lies between the Bay City level and the Number 4 of the Emma Winze. It is also interesting to note the Number 4 level has been inaccessible for at least fifty years and was driven during a period of bonanza ore extraction. It is our impression that the grade encountered in the upper beds on the North Star Ore Zone may not have been very attractive in the 1870's.

PROJECT B: $46,650.00 C - 36,200.00 D. 16,852.70

The maximum depth quoted is for an ore hole required for stratagraphic information. It is necessary to determine the elevation of the Jefferson-Maxfield contact in order to plan intelligently the location and direction of additional holes. We feel that the number of holes is not excessive in that the lateral displacement on the Montezuma Fault is unknown. Several holes will probably be required to discover the location of the ore zone, and one or two others to determine whether its size and grade is commercial.

PROJECT E: $15,750.00 [illegible]

In Project E, the large number of holes is thought to be required because of lateral movement on the fault systems. The number could be reduced if discovery was made early in the drilling program and existence of a commercial ore body established. The close spacing is regarded as necessary to avoid straddling the elliptical pipes which are the principal modes of ore occurrence.

PROJECT F: $11,400.00 [illegible]

The proposed crosscut is needed to establish stratagraphic position in the section prior to drilling, and because the drift to the northwest is on the Montezuma Fault, the fault is also very wet in this area. Further, there are many "caught up" slivers in the fault zone which could give erroneous information and would undoubtedly result in expensive drilling due to lost circulation and hole deviation.

Cont.

PROJECT G: $26,350.00 [illegible]

It is felt that a minimum of ten holes should be drilled to discover and deliniate any ore present in this ground. The raise proposed from the Emma sub-level would permit a much more accurate conclusion as to the commercial character of any ore encountered in drilling. The proposed raise from the Emma sub-level could not be used for ore extraction and therefore is not strictly development work. The ore deliniated by the drill holes and the proposed raise would have to be mined from another raise on the Illionis level. This is work that would be undertaken by the company. The cost of using a transfer drift and the proximity of the Emma sub-level to the caved Emma stope renders the use of the old Emma tunnel impractical for economic ore extraction.

PROJECT H: $9,881.00

The ore body discovered in 1919-1920 was on the down-dropped or hanging wall side of the Montezuma Fault, which is unquestionably post-ore. This was mined from the 1st level from the Bay City interior Shaft to the above fault which intercepted it. It is reasonable to assume that the equivalent beds on the same ore zone in the "up" block could contain similar ore.

I thoroughly enjoyed visiting with you on the telephone today and hope that you will forgive the delay in our response. It is certainly our intention to proceed with the utmost speed in this matter, and I assure you a prompt response in the future.

We shall certainly be looking forward to hearing from you.

Very truly yours,

Jack N. McCrary
Secretary
ALTA UNITED MINES COMPANY

JNMcC:jj

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
10/5/71		120
		220
10/5	cae	120M

AIRMAIL

Mr. Tom Phipps
Operations Manager
Alta United Mines Company
620 Commercial Bank Tower
Midland, Texas 79701

OCT 5 1971

Re: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Dear Mr. Phipps:

Thank you for your letter of September 29, 1971, advising us that you have furnished bids to Mr. J. W. Hasler, Field Officer, Region III. Accordingly, we are reactivating your application and will proceed with our review.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

cc: Alta United Mines Company
900 American Oil Building
Salt Lake City, Utah 84111

cc: Director's Reading File
Mineral Resources
OME docket
OME Reading File
OME Region III w/cy Mr. Phipps' letter 9/29/71
Mr. Kirkemo

HKirkemo/gla 10-5-71

TOM PHIPPS
620 COMMERCIAL BANK TOWER
MIDLAND, TEXAS 79701
915 682-5267

September 29, 1971

OFFICIAL COPY
O. M. E.
RECEIVED
OCT 4 1971

INITIALS	CODE
Cal	20
gla	130
HK	~~120~~

Mr. Harold Kirkemo
Chief Office of Minerals Exploration
Department of The Interior
Geological Division
Washington, D.C. 20242

Re: OME - 6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Dear Mr. Kirkemo:

It is my understanding that the captioned OME application has been placed in the inactive file, pending receipt of additional information from us. This information has now been supplied to Mr. Hasler at your Denver office, and I understand that he is forwarding it to your office. This letter is for the purpose of formally requesting that the file be placed on the active status.

If further information is desired, please contact me.

Very truly yours,

ALTA UNITED MINES COMPANY

Tom Phipps

Tom Phipps, Operations Manager

TP:rm

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
FEDERAL CENTER, DENVER, COLORADO 80225
Office of Minerals Exploration
Building 53 Room 28

COPY
OCT 4

October 1, 1971 Cal 120 MW
glr 120
HK ~~120~~

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region III

Through: Assistant Chief, Office of Minerals Exploration

Subject: OME-6745 (Silver)
Alta United Mines Company
Emma Mine Unit
Salt Lake County, Utah

Enclosed are revised bids for proposed projects "E" and "G" that were received from the applicant on September 28, 1971. The applicant wishes to reactivate the application for financial assistance to explore for silver ore bodies at the Emma mine, Salt Lake County, Utah.

Recommendations will be forthcoming on this docket.

J. William Hasler
J. William Hasler
Field Officer, Region III
Office of Minerals Exploration

Enclosures

ALTA UNITED MINES COMPANY
620 Commercial Bank Tower
Midland, Texas 79701

September 27, 1971

Mr. J. William Hasler, Field Officer
Region III, U. S. Geological Survey
Office of Minerals Exploration
Building 53, Room 200
Denver Federal Center
Denver, Colorado 80225

Re: OME 6745 (Silver)
ALTA UNITED MINES COMPANY
Emma Mine
Salt Lake County, Utah

Dear Mr. Hasler:

We have been unavoidably delayed in submitting the estimated cost for the exploratory drilling of Projects "E" and "G," on the above-numbered application, until recently.

There are enclosed, in triplicate, three bids from contractors and map of road and drilling pattern, together with a detailed estimate of actual costs. Please note that the amounts of exploratory drilling as originally specified for Projects "F" and "G" have been revised and somewhat reduced and the 200 feet of raise at $45.00/foot has been eliminated.

Mr. M. C. Godbe, III, 721 First Security Building, Salt Lake City, Utah 84111, has been engaged to supervise the above proposed work on Projects "E" and "G." So far, we have not located competent contractors for Project "F."

If further information is desired, please contact me.

Very truly yours,

Tommy Phipps

Tommy Phipps
Operations Manager

TP:lt

Enclosures

OME Region III
RECEIVED
SEP 28 1971
Denver, Colorado

ESTIMATED COSTS OF THE PROJECT

Project "E"

Actual Costs

Category (1) Independent Contracts

Drilling: 17 - 4-3/4" X 300' holes 5100 feet at $3.20/foot	$ 16,320.00
Standby time, 100 hours @ $60.00/hour	6,000.00

Category (1)a

Bulldozing roads and drill sites, to be done on an hourly basis by local contractor, available at $25.00/hour. Estimate 50 hours @ $25.00/hour	1,250.00

Category (2) Personal Services

None except:

Subcategory (a) Supervision and Technical Services

1 Supervisor/geologist/engineer 4 months at $900.00/month	3,600.00
1 Consulting geologist 8 days at $120.00/day	960.00

Category (3) Operating Materials and Supplies

300 sample sacks @ $0.15/sack	45.00

Category (7) Miscellaneous

None except:

Per diem, consulting geologist 8 days at $25.00/day	200.00
Transportation, geologic consultant 350 miles at $0.12/mile	42.00

Project "E" (continued)

Category (7) Miscellaneous (continued)

Office expense 4 months at $50.00/month	$ 200.00	
Payroll taxes, F.I.C.A. insurance at 20%	720.00	
Sampling and assaying 200 silver-lead samples at $6.00	1,200.00	
Total Estimated Actual Costs		$ 30,537.00
Government Participation at 75%		$ 22,902.75

Project "G"

Actual Costs

Category (1) Independent Contracts

Drilling: 10 - 4-3/4" x 200' holes 2000 feet at $3.20/foot	$ 6,400.00
Standby time, 12 hours @ $60.00/hour	720.00

Category (1)a

Bulldozing roads and drill sites, to be done on an hourly basis by local contractor, available at $25.00/hour. Estimate 15 hours at $25.00/hour	375.00

Category (2) Personal Services

None except:

Subcategory (a) Supervision and Technical Services

1 Supervisor/geologist/engineer 1½ months at $900.00/month	1,350.00
1 Outside consulting geologist 3 days at $120.00/day	360.00

Category (3) Operating Materials and Supplies

150 sample sacks @ $0.15/sack	22.50

Category (7) Miscellaneous

None except:

Per diem, outside consultant 3 days at $25.00/day	75.00
Transportation for consultant 175 miles at $0.12/mile	21.00
Office expense 1½ months at $50.00/month	75.00

Project "G" (continued)

Category (7) Miscellaneous (continued)

Payroll taxes, F.I.C.A. insurance 1½ months at 20%	$ 270.00	
Assaying silver-lead samples 150 at $6.00 each	900.00	
Total Estimated Actual Costs		$ 10,568.50
Government Participation at 75%		$ 7,926.38

DIAMOND CORE DRILLING
DIAMOND DRILLING EQUIPMENT
GROUTING
MINING
QUARRYING
FOUNDATION TESTING
TUNNEL DRIVING
SHAFT SINKING
MINE PLANT DESIGN
AND FABRICATION

Boyles Bros.
DRILLING COMPANY

CONTRACTORS-ENGINEERS-GEOLOGISTS
General Offices and Plant
1624 Pioneer Road P. O. Box 58 Phone (801) 487-3671
SALT LAKE CITY, UTAH 84110
Cable: BOYLESCO

BRANCH OFFICES
ARIZONA (PHOENIX)
CALIFORNIA (AUBURN)
COLORADO (GOLDEN)
NEVADA (SPARKS)
TENNESSEE (MURFREESBORO)
WASHINGTON (SPOKANE)
CHILE (SANTIAGO)
CABLE: BOYLESBROS
MEXICO, D.F.
PERU (LIMA)
CABLE: BOYLESCOP

September 3, 1971

Mr. Murray C. Godbe III, President
East Utah Mining Company
721 First Security Building
405 South Main Street
Salt Lake City, Utah 84111

Subject: Alta United Mines

Dear Sir:

We are pleased to quote you the following based on 5,000 feet of Rotary Non-Core Drilling at your site at Alta, Utah.

1. Mobilization and Demobilization $ 350.00 L.S.

2. Drilling
   Overburden $ 5.00 per L.F.
   0 - 250 ft. 3.85 per L.F.

3. If at depth holes penetrate harder formations than the limes or shales expected, bit costs will be to customers' account.

4. Standby, asked for or caused by Owner, will be charged for at $ 27.50 per hour.

5. Water truck, if necessary, will be charged for at $ 350.00 per month rental, plus $.15 per mile driven.

6. Should this job be plagued by winter weather conditions that hamper operations we will move off location and when work commences again, will charge $ 350.00 mobilization.

7. Moving from hole to hole will be charged at $ 27.50 per hour.

8. Owner to provide drill sites.

Thank you for giving us the opportunity to quote prices on this work.

Sincerely yours,

Jack D. Powers

JDP/jc

Whatley DRILLING CO

1512 WEST PRINCE ROAD
TUCSON, ARIZONA 85705

AREA CODE 602
PHONE 887-3310

September 8, 1971

Mr. M. C. Godbe, III
East Utah Mining Company
721 First Security Building
Salt Lake City, Utah 84111

Dear Mr. Godbe:

The following is our proposal for your proposed drilling project near Alta, Utah for Alta United Mines Company.

1. Equipment:
   1 HD 1000 Mayhew rig with 580 cfm low pressure compressor, 5 x 6 mud pump, 2 7/8" drill pipe, 3½" drill collars. Mounted on IHC truck.

2. General scope of project:
   Drill 4 3/4" holes to depths of ± 250 feet with air and take samples at 5 foot intervals. Minimum footage - 5,000 feet.

3. Prices:
   0 - 300 feet $ 4.00 per foot
   Mobilization - in and out- $ 500.00

4. Certificates of insurance will be furnished as required.

Sincerely,

Leon Whatley (dw)

Leon Whatley

LW:dw

JAMES E. ANDERSON
SALT LAKE CITY, UTAH
484-1387

JAMES L. ANDERSON
MOAB, UTAH
253-4731

Anderson

MINING & DRILLING CONTRACTORS
BOX 369
MOAB, UTAH 84532

Sept 1, 71

Alta United Mines
% Eastern Utah Mining Co.
721 First Security Bldg.
Salt Lake City, Utah 84111

BID PROPOSAL

Project
5000 feet of plug drilling in the Alta Mining District.
Hole size - 4 3/4 inch.
Depths - approximatly 250 feet maximum.
Sample interval - 5 feet.

Bid price (footage)
$3.20 per foot.

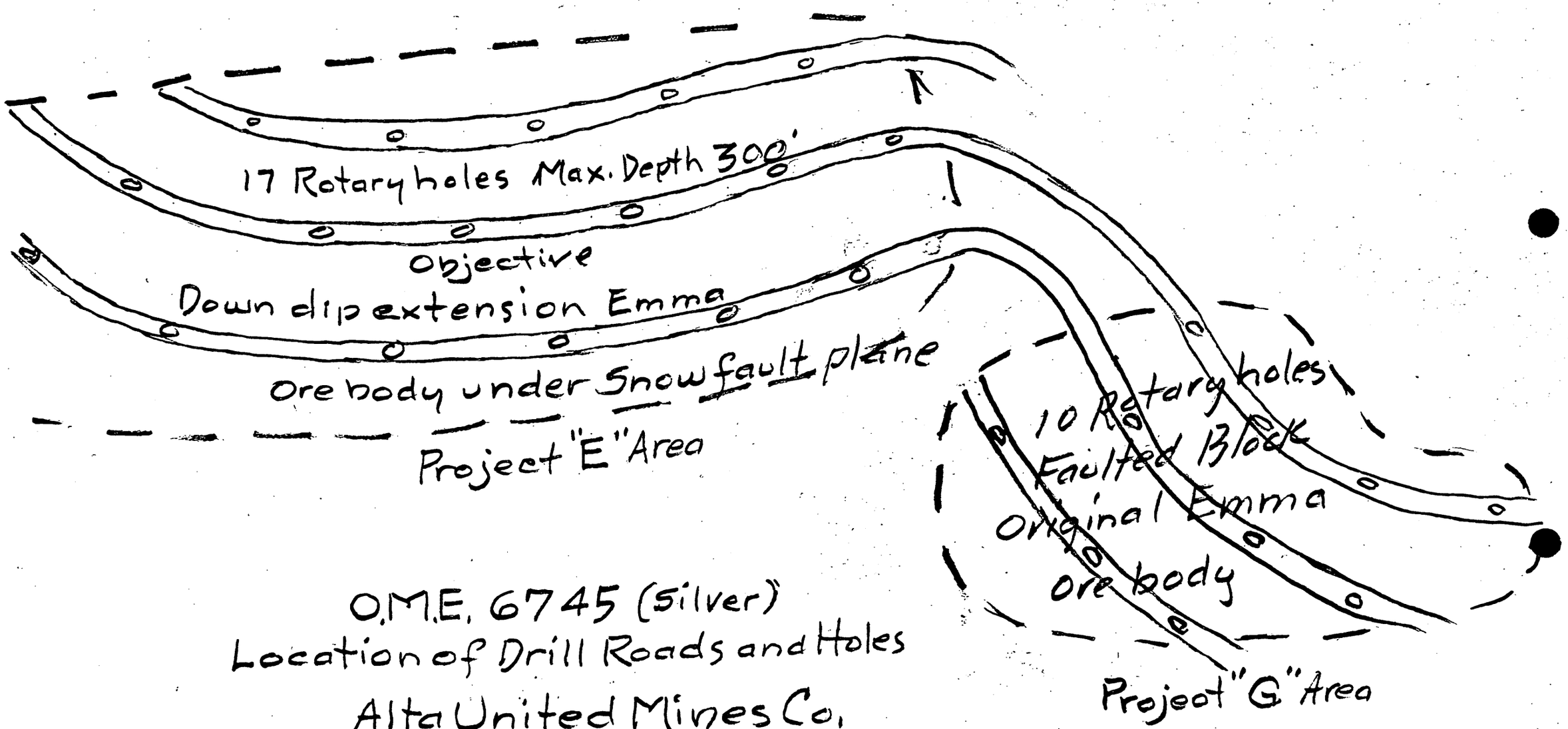
Bid price (hourly)
$40.00 per hour rig time plus bits and drill supplies.
$20.00 per hour standby or water haul.

Contractor will furnish one Gardner Denver 1500 H P rig, 3000 gallon water truck, operators, tools, fuel and sampling equipment.

Operator (East Utah) will supply drill sites and roads.

James L Anderson

James L Anderson



O.M.E. 6745 (Silver)
Location of Drill Roads and Holes
Alta United Mines Co.

Refer to Plate 1. Emma Project
Large Map-

Scale: 1 inch = 50 feet
Aug. 19 1971

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
8/18/71	Emerick	120E
		120
		220

August 18, 1971

Memorandum

To: The File

From: Chief, Office of Minerals Exploration

Subject: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

The Applicant has not replied to our letter of June 30, 1971. Accordingly, the subject docket is referred to the inactive file and the application considered as having been withdrawn.

Harold Kirkemo

Harold Kirkemo

cc: Director's Reading File
Mineral Resources
OME Docket
OME Reading File
OME Region III
Mr. Kirkemo

WLEmerick/gla 8-18-71

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
6/30/71		120
6/30	Case	220
7/1	Cal	120M

AIRMAIL

JUN 30 1971

Alta United Mines Company
900 American Oil Building
Salt Lake City, Utah 84111

Re: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Gentlemen:

We have received no information from you as promised in Mr. Tom Phipps' letter of February 23, 1971, to Mr. J. W. Hasler, Field Officer, OME Region III.

Since that date the level of funding for the Office of Minerals Exploration in fiscal year 1972, beginning July 1, 1971, has been established. Budget constraints in fiscal year 1972 will restrict the OME program to a very few of the more promising proposals. As the total amount available for contracts during the coming year will be much less than the amount you requested, we regret that we cannot consider your application for the full amount. Perhaps a less extensive exploration project could be planned in the event you decide to continue with your application.

If we do not hear from you within 30 days from the date of this letter, we must assume that you are not interested in revising your proposal and completing the application. In that event, we shall consider it as having been withdrawn.

Sincerely yours,

Harold Kirkemo gla

Harold Kirkemo
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Mineral Resources
OME Docket
OME Reading File
OM E Region III
Mr. Kirkemo

HKirkemo/gla 6-30-71

rd 2/26/71

TOM PHIPPS
620 COMMERCIAL BANK TOWER
MIDLAND, TEXAS 79701
915 682-5267

February 23, 1971

OFFICIAL COPY
O. M. E.
RECEIVED
MAR 4 1971
INITIALS CODE
~~130~~
bsl 120 MO
120 ~~MS~~

Mr. J. William Hasler, Field Officer
Region III, U. S. Geological Survey
Office of Minerals Exploration
Building 53 - Room 200 Denver Federal Center
Denver, Colorado 80225

Re: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Dear Mr. Hasler:

We are extremely appreciative of your efforts in the captioned application.

It is Alta United Mines Company's intention to pursue the information required in your letter of February 12, and the information will be supplied to you as soon as it is obtained.

We are concerned that it may not be possible to obtain bids for this work until the snow has been largely melted, but we shall pursue it nevertheless.

We shall keep you posted of our progress.

Very truly yours,

Tom Phipps

Tom Phipps

TP:rm

cc: Mr. Page P. Blakemore

Office of Minerals Exploration
Building 53 Room 200

February 12, 1971

RECEIVED
16 1971

INITIALS	CODE
	20
bol	20
HK	20
WZ	20

Mr. Page P. Blakemore, Director
Alta United Mines Company
39 Exchange Place
Salt Lake City, Utah 84111

Subject: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Dear Mr. Blakemore:

Please pardon my delay in the processing of the subject application. However, I have now studied it more thoroughly and find that many of your costs appear to be too low, and you also lack bids on the various aspects of the exploration work, unless you intend to complete the exploration work yourselves, however, you indicated in a telephone conversation that the prices you quoted for drilling should be increased, and were bid costs. I have indicated that we might consider project areas "E", "F" and "G" as being the most likely target areas to discover new ore bodies for the least amount of money. My estimate for the three project areas totals $86,495.60. Government participation at 75% would be $64,871.70.

I am including a sample copy of a portion of two contracts, one including rotary drilling, and diamond drilling and the other involving cross-cutting and drifting for your use in detailing the exploration costs, as I did. The items listed in my estimation (enclosed) are legitimate costs and should be included.

Listed on the reverse side of the MME Form 40 (Revised Nov. 1968), Application for Financial Assistance in Minerals Exploration (enclosed), under item 7 (a) Estimate of Costs the instructions are as follows: "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 drifting,

per foot of drilling, 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 to be contracted write "none" after this item."

I obtained price lists from Union Assay Office, Inc and Crismon and Nicols Assayer and Chemists, both in Salt Lake City, Utah. Their prices for gold and lead determinations totals $6.00/which is a higher figure than you quote for your total, even though you do not state the number of samples or determinations necessary for each project area.

We also require a sketch map, possibly page size, for each project area showing the approximate location of the proposed drill holes and drifting and/or raising as the case may be.

I would question whether or not 5,000 feet of rotary drilling is justified in proposed project area "E" even if the holes were drilled on 200-foot centers. However, if you feel this much footage may be required in order to avoid straddling the elliptical pipes please justify it further.

Would you please obtain the bids as rapidly as possible so we can complete processing the application. Should you have any questions please feel free to call me and discuss any questions you might have. My address and telephone are: Mr. J. William Hasler, Field Officer, Region III, U. S. Geological Survey, Office of Minerals Exploration Building 53 - Room 200 Denver Federal Center, Denver, Colorado 80225. Phone 303-233-3611, extension 8598 or 8731.

Sincerely yours,

J. William Hasler

J. William Hasler,
Field Officer, Region III
Office of Minerals Exploration

cc: Mr. Tom Phipps, Operations Manager
Mr. George T. Hansen, Jr.

Chief, OME
OME-6745
OME chron
Mr. Hasler

July 28, 1970

Mr. Jack N. McCrary, Secretary
Alta United Mines Company
620 Commercial Bank Tower
Midland, Texas 79701

Dear Mr. McCrary:

Re: OME 6745 (Silver)
Alta United Mines Company
Emma Unit
Salt Lake County, Utah

We are considering the possibility of an OME contract on Projects E, F and G at the Emma Mine as cited in your letter of March 10, 1969, for an estimated cost of some $50,000.00; however, because of a lapse of time due to our budget restrictions, it will be necessary for you to supply us with updated bank letters.

We will need two copies each of your letters to the banks requesting the amount of money you are asking of us and two copies of the bank's reply to you.

In your application the estimate of costs are rather sketchy, and in proposing drilling on the three project areas we should have three bids from reputable drilling companies unless the exploration work is to be done by you, as well as bids for assaying.

Sincerely yours,

J. William Hasler
Field Officer, Region III
Office of Minerals Exploration

cc: Chief, OME
OME 6745
OME Chron.
Hasler Chron.
JWHasler:evm

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
7/7/70	Emerick	120
		120
7/7	CM	220
		120M

JUL 7 1970

AIRMAIL

Memorandum

To: Field Officer, Region III

From: Chief, Office of Minerals Exploration

Subject: OME-6745 (Silver)
Alta United MinesCompany
Emma Mine
Salt Lake County, Utah

You have indicated that the subject application will be recommended as a prospective contract. If your recommendation will be made during this first quarter of Fiscal Year 1971, the application should be updated with new bank letters and, if any drilling is proposed, a request that bids from three drilling companies be furnished if possible.

Harold Kirkemo (gla)
Harold Kirkemo

cc: Director's Reading File
Mineral Resources
OME docket
OME Reading File
Mr. Emerick
130

WLEmerick/gla 7-7-70

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Southwestern Branch
345 Middlefield Road
Menlo Park, California 94025

OME Region 4
RECEIVED
JUN 9 - 1969
Denver, Colorado

6745
Alta United Mines

OFFICIAL COPY
O. M. E.
RECEIVED
JUN 11 1969
INITIALS | CODE
120

June 4, 1969

OME-6745
Alta United Mines

J. William Hasler
Field Officer, Region III
Office of Minerals Exploration
Building 53, Room 200
Federal Center
Denver, Colorado 80225

Dear Bill:

Herewith the docket on the Alta area sent me with your letter of April 18. I hope the following brief notes, some general, some more specific will be helpful. As we noted in our phone conversation, I surely feel the need for more general maps and a lot more geology in a faulted area such as this.

General comment:

Some of the proposed targets are awfully small after eliminating old workings--i. e. "Area A". For the money involved target areas "B" or "D" may have a bit more potential, though the risk is probably higher to start with.

One problem in this district has been the identification of the vague structures that have controlled the N. 80 E.-trending elliptical pipes (see answer to Washington's Project E question). The only place I've seen this was in the discovery made about 1948 in the Cardiff area further west. As I remember it, there was a clearly visible fissure in the slope itself, but as so often happens, it wasn't clearly traceable outside. Nevertheless, the abundance of dikes and other structures with about this same strike indicates that these controlling structures are real. Whether they could be traced and made usable by some kind of more careful mapping or exploration technique could be a $64 question.

Mr. J. William Hasler June 4, 1969

A third general problem is that the Emma ore bodies may be partly controlled by the Reed and Benson thrust zone that comes into this area from the northwest, but which would require Calkins' knowledge of the stratigraphy to recognize. (See PP 201, discussion of the Snow Fault, Reed and Benson thrusts, and Emma mine.)

Notes on Emma proposals:

Plate III a.--Their "downdip" extension of Emma ore body is really updip, but dragged by Snow fault.

Plate VII and VIII.--I'm wondering whether they may not have misplaced the projection of the Phoenix fissure with respect to the surface--holes B and C3 could be either right in it or right beside it.

Plate III b.--The faulted ore shoot shows in the necessity of the Coleman Tunnel must be something beside the Emma itself, because the throw on the Snow fault is more like 2,000 feet from the 500 feet or so referred in this cross section.

Another thing that limits the possibilities in this area is the fact that it lies in the relatively restricted block between the Snow and Silver Fork faults, which converge northward at least on the surface. I don't have much hint where this might cut them off underground.

I hope this may help.

Best regards to you and Marge.

Sincerely,

Max

Max D. Crittenden, Jr., Chief
Southwestern Branch

Enclosures

Office of Minerals Exploration
Building 53 Room 200

April 18, 1969

OFFICIAL
COPY
O. M. E.
RECEIVED
APR 21 1969
DIRECTOR

Memorandum

To: Max Crittendon

From: J. William Hasler

Subject: OME-~~6754~~ 6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Transmitted herewith is the Region III copy of the subject application with the new cross section recently submitted by the applicant.

I have reviewed the program only generally with the applicant and have not really had a chance to digest the whole proposal, espeically in the light of the answers provided to the questions raised by Washington in their field referral memorandum.

Some of the project appears worthy of consideration, however, I would appreciate your comments on their proposal and ideas as to the best possibilities for discovery of additional reserves of silver in the Emma Mine.

The inquiries from Washington and the reply by the applicant are listed as follows:

Q. Project "A:--The target already has been explored by the No. 4 level from the Emma winze on elevations of 8865 and 8905.

A. The enclosed section demonstrates the objectives in this project which are not explored by existing workings. The target section lies between the Bay City level and the Number 4 of the Emma Winze. It is also interesting to note the Number 4 level has been inaccessible for at least fifty years and was driven during a period of bonanza ore extraction. It is our impression that the grade encountered in the upper beds on the North Star Ore Zone may not have been very attractive in the 1870's.

RECEIVED
APR 22 1959

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
7/30/68	Patterson	120
7/30/68	Kirbemo	120
		110
7/31	CAC	220
		120M

JUL 31 1968

AIRMAIL

Memorandum

To: Field Officer, Region III

From: Chief, Office of Minerals Exploration

Subject: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

The subject application is referred to you for further consideration, a field examination if warranted, and recommendations.

We offer the following comments regarding the individual projects included in the proposal.

Project A. The target has already been explored by the No. 4 level from the Emma winze on elevations of 8865 and 8905.

Project B. The proposal to drill 16 closely spaced holes (450 foot depth) is considered development drilling. We note in the cost estimate only 2,000 feet of drilling is indicated for this phase.

Project E. The proposal to drill a large number of holes on 20-foot centers is considered development drilling. The upper segment of the Emma ore body in this area has already been explored by the drilling program conducted in 1965.

Project F. Why not drill from the present Bay City level crosscut.

Project G. Drilling many closely spaced holes is considered development. In addition, the proposed underground work would explore the same target as the drilling.

Project H. The work appears to be prospecting as no evidence has been presented to indicate an eligible target.

~~of any~~ ore encountered in drilling. The proposed raise from the Emma sub-level could not be used for ore extraction and therefore is not strictly development work. The delineated by the drill holes and the proposed raise would have to be mined from another raise on the Illinois level. This is work that would be undertaken by the company. The cost of using a transfer drift and the proximity of the Emma sub-level to the caved Emma stope renders the use of the old Emma tunnel impractical for economic ore extraction.

Q-Project "H" . The work appears to be prospecting as no evidence has been presented to indicate an eligible target.

A. The ore body discovered in 1919-20 was on the down-dropped or hanging wall side of the Montezuma Fault, which is unquestionably post-ore. This was mined from the 1st level from the Bay City interior shaft to the above fault which intercepted it. It is reasonable to assume that the equivalent beds on the same ore zone in the "up" block could contain similar ore.

I hope to visit with you at the GSA meeting in Salt Lake City the first part of May. My best regards to you and your family.

Sincerely yours,

J. William Hasler

J. William Hasler,
Field Officer, Region III
Office of Minerals Exploration

cc: Chief, OME
OME-6745
OME chron
Mr. Hasler

SPEED LETTER®

FROM Mr. William J. Hasler
Field Officer, Region III
Office of Minerals Exploration
Federal Center, Denver Colorado 80225

TO Jack N. McCrary
Secretary
Alta United Mines Company
620 Commercial Bank Tower
Midland, Texas

SUBJECT

—FOLD

MESSAGE

DATE March 24 19 69

Dear Mr. Hasler:

As you have requested, we are attaching a duplicate copy of our letter to you of March 10th. As we submitted the only copy of the cross section to your office, we are unable to duplicate it. Hopefully, you will be able to obtain a second copy of the map from Page Blakemore.

SIGNED J. H. Johnson/for Jack N. McCrary

REPLY

DATE 19

—FOLD

SIGNED

GrayLine "SNAP-A-WAY" FORM 44-902P 3 PARTS
WILSON JONES COMPANY • © 1961 • PRINTED IN U.S.A.

RETAIN WHITE COPY, RETURN PINK COPY. TURN OVER FOR USE WITH WINDOW ENVELOPE.

ALTA UNITED MINES COMPANY
Salt Lake City, Utah
Midland, Texas

March 10, 1969

OME Region III
RECEIVED
MAR 25 1969
Denver, Colorado

Mr. J. William Hasler
Field Officer Region Three
Office of Mineral Exploration
U. S. Geological Survey
Denver Field Office - Building 53
Rooms 200-203
Denver, Colorado 80225

Dear Mr. Hasler:

Further, in relation to our conversation today, the following are the responses that your office has requested.

PROJECT A:

The enclosed section demonstrates the objectives in this project which are not explored by existing workings. The target section lies between the Bay City level and the Number 4 of the Emma Winze. It is also interesting to note the Number 4 level has been inaccessible for at least fifty years and was driven during a period of bonanza ore extraction. It is our impression that the grade encountered in the upper beds on the North Star Ore Zone may not have been very attractive in the 1870's.

PROJECT B:

The maximum depth quoted is for an ore hole required for stratagraphic information. It is necessary to determine the elevation of the Jefferson-Maxfield contact in order to plan intelligently the location and direction of additional holes. We feel that the number of holes is not excessive in that the lateral displacement on the Montezuma Fault is unknown. Several holes will probably be required to discover the location of the ore zone, and one or two others to determine whether its size and grade is commercial.

PROJECT E:

In Project E, the large number of holes is thought to be required because of lateral movement on the fault systems. The number could be reduced if discovery was made early in the drilling program and existence of a commercial ore body established. The close spacing is regarded as necessary to avoid straddling the elliptical pipes which are the principal modes of ore occurrence.

PROJECT F:

The proposed crosscut is needed to establish stratagraphic position in the section prior to drilling, and because the drift to the northwest is on the Montezuma Fault, the fault is also very wet in this area. Further, there are many "caught up" slivers in the fault zone which could give erroneous information and would undoubtedly result in expensive drilling due to lost circulation and hole deviation.

Cont.

PROJECT G:

It is felt that a minimum of ten holes should be drilled to discover and deliniate any ore present in this ground. The raise proposed from the Emma sub-level would permit a much more accurate conclusion as to the commercial character of any ore encountered in drilling. The proposed raise from the Emma sub-level could not be used for ore extraction and therefore is not strictly development work. The ore deliniated by the drill holes and the proposed raise would have to be mined from another raise on the Illionis level. This is work that would be undertaken by the company. The cost of using a transfer drift and the proximity of the Emma sub-level to the caved Emma stope renders the use of the old Emma tunnel impractical for economic ore extraction.

PROJECT H:

The ore body discovered in 1919-1920 was on the down-dropped or hanging wall side of the Montezuma Fault, which is unquestionably post-ore. This was mined from the 1st level from the Bay City interior Shaft to the above fault which intercepted it. It is reasonable to assume that the equivalent beds on the same ore zone in the "up" block could contain similar ore.

I thoroughly enjoyed visiting with you on the telephone today and hope that you will forgive the delay in our response. It is certainly our intention to proceed with the utmost speed in this matter, and I assure you a prompt response in the future.

We shall certainly be looking forward to hearing from you.

Very truly yours,

Jack N. McCrary
Secretary
ALTA UNITED MINES COMPANY

JNMcC:jj

Office of Minerals Exploration
Building 53 Room 200

OFFICIAL COPY
O. M. E.
RECEIVED
MAR 24 1969

INITIALS	CODE
bal	120
HK	120
	120

March 19, 1969

Mr. Jack N. McCrary
Secretary
Alta United Mines Company
620 Commercial Bank Tower
Midland, Texas 79701

Subject: OME-6745 (Silver)
Alta United Mines Company
Emma Unit
Salt Lake County, Utah

Dear Mr. McCrary:

Your letter received in this office on March 10, 1969 concerning the subject docket should have been submitted in duplicate, as well as with the copy of the cross section showing proposed projects A and B.

Everything submitted by you to the Office of Minerals Exploration concerning OME Docket 6745 should be supplied in duplicate. This allows for Washington as well as the field office to maintain a complete file of geologic and related material.

Would you please submit another copy of your letter dated March 10, 1969 and another copy of the cross section.

Sincerely yours,

J. William Hasler

J. William Hasler,
Field Officer, Region III
Office of Minerals Exploration

cc: Acting Chief, OME
cc: OME--6745
OME chron
Mr. Hasler

Although the application is well prepared and documented, evidence of mineralization occurring in many of the areas proposed for exploration has not been furnished. Perhaps some exploration is warranted, but it is doubtful that the overall potential of the deposit can support the total estimated cost of the project.

If a contract is recommended, the Applicant should be requested to furnish copies of his letters to the banks, and the necessary bids to support the cost estimates.

FRANK E. JOHNSON

Frank E. Johnson

cc: Director's Reading File
Economic Geology File
OME Docket
OME Reading File
Mr. Peterson
130

ECPeterson/bsl 7/30/68

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
7/30/68	Peters	120
7/30/68	Kirkham	120
		110
		220
		120M

JUL 31 1968

AIRMAIL

Alta United Mines Company
900 American Oil Building
Salt Lake City, Utah 84111

Re: OME-6745 (Silver)
Alta United Mines Company
Emma Mine
Salt Lake County, Utah

Gentlemen:

The subject application for exploration assistance has been reviewed in our Washington office. Although additional information is required, including submittal of copies of your letters to the banks requesting an exploration loan, and the furnishing of bids from three independent contractors for each type of work, if possible, to support the cost estimates, we are, nevertheless, referring the application to Mr. J. William Hasler, Field Officer, Region III, Office of Minerals Exploration, Room 203, Building 53, Denver Federal Center, Denver, Colorado 80225.

Mr. Hasler will notify you if he requires other information and possibly to make arrangements for an on-site examination of the property.

Sincerely yours,

FRANK E. JOHNSON

Frank E. Johnson
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Economic Geology File
OME Docket
OME Reading File
Region III
Mr. Peterson
130

ECPeterson/bsl 7/30/68

July 25, 1968

Alta United Mines Company
900 American Oil Building
Salt Lake City, Utah 84111

Gentlemen:

Your application for exploration assistance, dated June 22, 1968, submitted to our office at Denver, Colorado, has been assigned Docket No. OME-6745.

Please identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Frank E. Johnson
Chief, Office of
Minerals Exploration

Copy to Region III

Q. Project "B" -- The proposal to drill 16 closely spaced holes (450 foot depth) is considered development drilling. We note in the estimate only 2,000 feet of drilling is indicated for this phase.

A. The maximum depth quoted is for an ore hole required for stratigraphic information. It is necessary to determine the elevation of the Jefferson-Maxfield contact in order to plan intelligently the location and direction of additional holes. We feel that the number of holes is not excessive in that the lateral displacement on the Montezuma Fault is unknown. Several holes will probably be required to discover the location of the ore zone, and one or two others to determine whether its size and grade is commercial.

Q. Project "E" -- The proposal to drill a large number of holes on 20-foot centers is considered development drilling. The upper segment of the Emma ore body in this area has already been explored by the drilling program conducted in 1965.

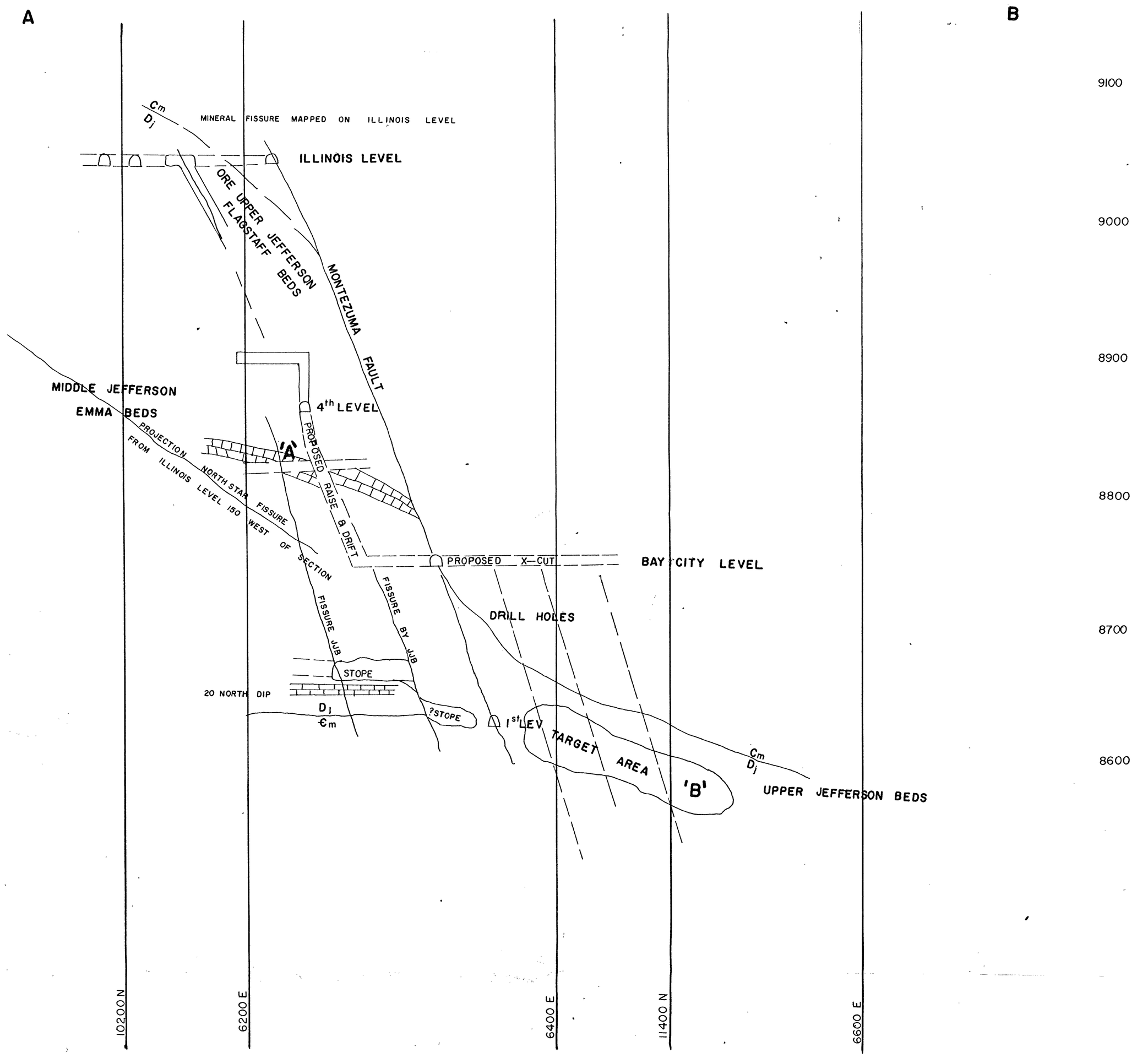
A. In Project E, the large number of holes is thought to be required because of lateral movement on the fault systems. The number could be reduced if discovery was made early in the drilling program and existence of a commercial ore body established. The close spacing is regarded as necessary to avoid straddling the elliptical pipes which are the principal modes of ore occurrence.

Q. Project "F" -- Why not drill from the Bay City level crosscut?

A. The proposed crosscut is needed to establish stratigraphic position in the section prior to drilling, and because the drift to the northwest is on the Montezuma Fault, the fault is also very wet in this area. Further, there are many "caught up" slivers in the fault zone which could give erroneous information and would undoubtedly result in expensive drilling due to lost circulation and hole deviation.

Q. Project "G" -- Drilling many closely spaced holes is considered development. In addition, the proposed underground work would explore the same target as the drilling.

A. It is felt that a minimum of ten holes should be drilled to discover and delineate any ore present in this ground. The raise proposed from the Emma sub-level would permit a much more accurate conclusion as to the commercial character of any



SECTION N 60 E THROUGH PROPOSED PROJECTS 'A'&'B'

1" = 50' APRIL 1969