(109) Item 18-A

APPLICATION FOR O.M.E. LOAN
Cortez Mine Exploration Project, Cortez, Nevada

Part "A" containing application with supporting data and maps

(13 plates in packet)

GENERAL STATEMENT OF THE PROPOSED CORTEZ MINE EXPLORATION PROJECT

On August 18, 1959 the American Exploration & Mining Co., herein referred to as Amex, acquired by long-term lease with option to purchase all of the mineral lands of the old Cortez Silver Mine at Cortez, Nevada. Subsequently, Amex obtained control over most of the mineral lands in an area of about five square miles. During late summer of 1963, a diamond drill hole was drilled to a depth of 1,469 feet to test the existence of favorable stratigraphy for ore deposits below the Cortez Silver Mine. The results of this hole were favorable and an intensive program of geologic mapping and exploration was then undertaken. The Cortez Joint Venture comprised of Amex, Bunker Hill Company, Webb Resources, Inc. and Vernon F. Taylor, Jr. was formed to share the risk of this large project. A Management Committee representing the four coventurers was established to direct the project, which is financed by contributions from the Coventurers in direct proportion to their relative participation.

The Cortez Joint Venture is herein requesting O.M.E. assistance for the exploration of a group of claims leased from Cortez Metals Co. and a group of 15 claims known as the Rossi property. Cortez Joint Venture controls the Cortez Metals claims under a lease and option agreement with Cortez Metals Co. and the Rossi group of claims under a 20-year lease with option to purchase agreement with Rossis dated May 11, 1964. As the work will be done in the general area of the old Cortez Silver Mine, it will be known as the Cortez Mine Exploration Project.

The coventurers are requesting financial assistance for:

1. Rehabilitation of and drifting and crosscutting on the Arctic level of the Cortez Silver Mine.

2. Underground horizontal diamond drilling on the Arctic level.

3. Underground deep diamond drilling on the Arctic level.

4. Surface drilling on the Rossi property.

This is work which the coventurers are unable or unwilling to completely finance at this time and O.M.E. aid is requested in the nature of an exploration loan. The objective of the project is to explore for silver ore similar to that previously mined from the Cortez Silver Mine. The Cortez Metals claims and Rossi claims will be subordinated in favor of the Government's respective interest and the loan would be repaid out of production should an economic discovery be made. In this event the coventurers would invest sufficient money to develop and mine the deposit.

Necessary supporting data included with this application are as follows:

1. A completed application on form MME 40.

2. Information to support O.M.E. application:

   a. Statement of financial eligibility.

   b. Statement of ownership of the lands, specifically the Cortez Metals group of patented and unpatented claims and the Rossi group of unpatented claims.

3. Copies of Amex agreements with Cortez Metals Co. and with the Rossis giving Amex exploration, development and purchase rights on their respective properties.

4. Assignments:

   (a) Amex to Cortez Joint Venture for Cortez Metals Co. property.

   (b) Amex to Cortez Joint Venture for Rossi property.

   (c) Consent given to Amex by Cortez Metals Co. to assign Cortez Metals property.

5. Copies of letters to and from two banks that rejected the Cortez Joint Venture application for an exploration loan.

6. A statement concerning the physical description of the land.

7. A narrative report of the geology of the Cortez Mine Exploration Project, (in application).

8. "Report on Results of Mine Sampling Consolidated Cortez Silver Mines Company, Cortez, Nevada" by H. J. Evans October 20, 1922.

9. Preliminary Report "Economic Geology of the Cortez Mine", Cortez Joint Venture, by John N. Faick, June 20, 1964.

10. Memorandum Report "Notes on Cortez Mine, Nevada" by J. B. Bush, December 28, 1964.

11. Drill log of Hole No. 1.

Of the above reports, Numbers 8, 9, 10 and 11 should be returned after they have served their purpose. Please return them to Cortez Joint Venture, c/o American Exploration & Mining Co., 2300 Russ Building, San Francisco, California 94104.

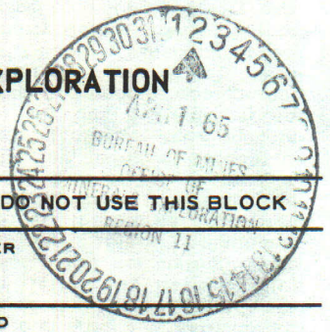
MME Form 40
July 1962

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

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

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.)*

Cortez Joint Venture

2300 Russ Building

San Francisco, Calif. 94104

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER

DATE RECEIVED

REGION

DIVISION CODE

BUSINESS ORGANIZATION *(Check one)*

INDIVIDUAL [ ]
CORPORATION [ ]
PARTNERSHIP [ ]
OTHER *(Specify)* [X] Joint Venture

STATE IN WHICH FIRM IS ORGANIZED

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME ADDRESS TITLE

As explained in the attached item 1b this is a joint venture composed of four associates, as follows;

American Exploration & Mining Co., San Francisco, Calif.
Bunker Hill Company, Kellogg, Idaho
Vernon F. Taylor, Jr. Denver, Colorado
Webb Resources, Inc. Denver, Colorado

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE
Silver

ESTIMATED COST OF PROJECT
$ 326,034.52

PROPERTY NAME: Cortez Mine

LOCATION COUNTY: Eureka and Lander

STATE: Nevada

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.*

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.

March 30, 1965
DATED

The Cortez Joint Venture
by American Exploration & Mining Co.
Managing Coventurer

BY *(Signature)*
A. L. Gundy

TITLE
Vice President

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 mining or exploration operations which you know have been or are being conducted upon the land. Include existing mine workings and all production facilities.

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

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

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

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

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

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

4. Accessibility of Property:

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

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

5. Exploration Work:

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

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

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

6. Experience:

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

7. Estimate of Costs:

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

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

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

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

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

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

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

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

INT.-DUP. SEC., WASH., D.C. 11879

INFORMATION TO SUPPORT O.M.E. APPLICATION

(Refer to Form MME 40)

ITEM 1. FINANCIAL ELIGIBILITY

(a) Exploration at Cortez, Nevada, is being conducted as a four-way Joint Venture with three companies and one individual participating. The Joint Venture has no income except as is paid in by the associated coventurers. The entire exploration venture is of such a large magnitude and so expensive that the associates are unable or unwilling to bear the entire exploration cost; therefore O.M.E. funds are being sought to help pay exploration costs on part of the area being explored.

Amex, acting for the Cortez Joint Venture, applied to its own bank and to one other bank for financial assistance in the form of a loan to be used for rehabilitation, drifting, crosscutting, horizontal diamond drilling, and deep diamond drilling on the Cortez Metals property and for diamond drilling on the Rossi property all in the area of proposed exploration. The applications for loans to the following two banks were denied:

1. The Canadian Bank of Commerce
   344 Pine Street,
   San Francisco, California

2. Nevada Bank of Commerce
   Elko Branch
   Elko, Nevada

Copies of letters of application for loans and the replies are attached.

(b) The Cortez Joint Venture is the applicant. Amex is the managing coventurer of the Cortez Joint Venture. The other coventurers are the Bunker Hill Company, Webb Resources, Inc. and Vernon F. Taylor, Jr. Listed below are the names and addresses of representatives and alternate representatives that compose a Management Committee formed to direct the business affairs of the Cortez Joint Venture:

Associate	Fractional Interest	Management Committee Member	Alternate Member
Bunker Hill Co.	2/9th	R. J. McRae P. O. Box 29 Kellogg, Idaho	C.A.R. Lambly P. O. Box 29 Kellogg, Idaho
Vernon F. Taylor, Jr.	2/9th	John A. Wood 133 E. 14th St. North Vancouver, B.C. Canada	V.F. Taylor, Jr. 1670 Denver Club Bldg. Denver 2, Colorado

Associate	Fractional Interest	Management Committee Member	Alternate Member
Webb Resources, Inc.	2/9th	J. H. Cazier 1645 Court Place Denver 2, Colorado	
American Exploration & Mining Co.	3/9th	H. Goudey 2300 Russ Building San Francisco, Calif. 94104	E. A. Scholz 700 Burrard Bldg. Vancouver 5, B.C. Canada

(c) The four associated coventurers mentioned above have mutually agreed to share the risk and responsibility of exploring for ore on the mining properties controlled by the Cortez Joint Venture. Each associate will contribute exploration funds in direct proportion to its fractional interest. The Cortez Joint Venture share of cost of the exploration work for the Cortez Mine Exploration Project will be raised by a call for funds from each participant.

ITEM 2. APPLICANT'S RIGHTS IN LAND

(a) The Cortez Joint Venture controls seven parcels of mineral land in the Cortez Mining District, but exploration is proposed only for the Cortez Metals Co. property and the adjacent Rossi group of claims. The property of Cortez Metals Co., c/o Thomas Cooke, P. O. Box 2229, Reno, Nevada, is controlled by the Cortez Joint Venture through an assignment from American Exploration & Mining Co. dated June 5, 1964. Amex acquired control of the Cortez Metals property by a mining lease and option dated August 18, 1959, amended September 16, 1959.

The Rossi property is controlled by the Cortez Joint Venture through an assignment from American Exploration & Mining Co. dated February 20, 1965. Amex acquired control of the Rossi property by an option and agreement dated May 11, 1964. The address of the owner of the Rossi property is Mr. Louis L. Rossi, P. O. Box 164, Winnemucca, Nevada.

Both properties are shown on the accompanying map. (Plate 1). Patented mining claims of Cortez Metals are as follows:

(b) The tract of land which is being explored lies in both surveyed and unsurveyed areas. It includes areas that lie mostly within the sections listed below:

Sec. 7	T 26 N R 48 E
Sec. 8	T 26 N R 48 E
Sec. 5	T 26 N R 48 E
Sec. 4	T 26 N R 48 E

and adjacent areas in the southwest portion of unsurveyed T 27 N R 48 E.

The Cortez Joint Venture also controls through options and agreements the Pixie group of claims, Boitano group of claims, Russell-Nelson claims, Ward-Fox claim and Ward-Lawrence group of claims all extending west of the Cortez Metals Company property. Only the land belonging to Cortez Metals and the Rossis, and as outlined on the accompanying map, is to be subject to this O.M.E. loan. This is requested because these claims cover a geographically and geologically distinct area.

(c) Lease agreements with Cortez Metals Company and the Rossis convey through American Exploration & Mining Co. to the Cortez Joint Venture all necessary rights to the property. Letters of subordination on MME form 52 have been obtained from Cortez Metals Co. and the Rossis and are enclosed.

ITEM 3. PHYSICAL DESCRIPTION

(a) The area of the Cortez Silver Mine, in which exploration is proposed, was first discovered in 1863. By 1941 the total silver production from the mine had grossed between 10 and 15 million dollars. The area of the Rossi property in which exploration is also proposed has had a minor production from small pockets of ore discovered by prospectors. One long adit called the Rossi tunnel was driven on the No. 8 dike fissure into the Rossi property from the Cortez Metals property. There has been no production from the Rossi tunnel.

The following maps are enclosed in a pocket at the back of this application:

Plate 1	Plan Map of Area of Proposed Cortez Mine Exploration
Plate 2	Plan Map of Arctic Level 1" = 400' scale 1" = 100' scale
Plate 3	Plan Map of No. 1 Level
Plate 4	Plan Map of No. 6 Level
Plate 5	Composite Level Plan Map
Plate 6	Section A-A', Longitudinal Section of Cortez Mine
Plate 7	Section B-B' and Section C-C' Cross Sections of Cortez Mine
Plate 8	Section D-D' and Section E-E' Cross Sections of Cortez Mine
Plate 9	Surface Geologic Map of Rossi Property
Plate 10	Sections of Rossi Property
Plate 11	Section F-F' and Section G-G' Sections showing Stage II Drilling

Following is a brief summary of the history of the Cortez Silver Mine to 1941:

1863	Discovery of St. Louis lode at west end of Cortez ore zone.
1864	Eight-stamp mill built in Mill Canyon; subsequently enlarged to 16 stamps.
1864	Discovery of ore near present Garrison shaft.

1867	Wenben mill started operating in July.
1886	New mill built near Garrison mine.
1886-1892	New mill operated continuously using chloridizing roast with sodium hyposulfate leaching to recover 85-90 percent of values.
1892-1896	Operation apparently idle.
1896-1903	Mill operated continuously at capacity of 25 tons per day. Total production to 1903 about $10,000.00 according to Emmons.
1903-1908	Apparently idle.
1908-1920	Geiger cyanided 120,000 tons of tailings but little or no work was done in the mine.
1920-1923	Consolidated Cortez Silver Mines Co. purchased property in 1920 and initiated exploration, and in 1923 built a 100-150 ton per day cyanide plant.
1923-1927	Consolidated Cortez Silver Mines mined and milled 100-150 tons of ore per day. About 140,000 tons of ore was mined and milled between 1923 and 1927, of which 60 percent was obtained from old filled stopes.
1927	Mill was converted to 150-ton flotation plant.
1929	Last full year of major production. Ore mined and milled amounted to 43,808 tons averaging 13.96 oz. silver per ton recovered with recoveries of 75 percent.
1930	The Consolidated Cortez Silver Mines Co. employed about 60 men to mine and mill 125 tons of silver-lead ore daily for a short period. Date of resuming operations unknown. Total production about 1600 tons. Mine went into receivership July 5, 1930.
1931-1936	Essentially no activity.
1937	Small amounts of ore shipped.
1938	Four small mines in Cortez and Mill Canyon district yielded 6354 tons of lode ore containing 64,683 ounces of silver.
1940	Cortez Metals Company shipped 1468 tons of silver ore containing 98 ounces of gold and 51,011 ounces of silver.

Minor exploration may have been carried on from 1941 to 1959 but there is no record of such activity. From 1959 to date, Amex and the Cortez Joint Venture have reopened many of the workings and have partly rehabilitated the No. 1 level. Many of the old working levels have been mapped; several samples of mineralization have been taken to determine the possible value of various zones; and a 1469-foot diamond drill hole has been drilled near the No. 1 level portal to test for the existence of favorable stratigraphy for ore deposition below the Arctic level.

The mine has been explored through a vertical distance in excess of 1,000 feet from the top of No. 7 level extending downward through the No. 6, No. 5, No. 4, No. 3, No. 2, No. 1, 1,000, 1,100, and the 1,200 level, the deepest level in the mine. Main working levels are the No. 6, No. 1, and 1,000 (Arctic) level. In addition and at various levels are numerous minor sub-levels. Many working mine levels are shown on the attached composite plan map (Plate 5). It has been reported that there are 25-30 miles of workings in the mine.

All mine buildings and mill facilities have either been torn down or are in such a condition of decay that they are considered unfit for use.

(b) Geologic information gained from the mine workings has been used to project mineralization and structure for the proposed exploration program. Several of the workings will be used for mine ventilation and possible escape exits as required. Should the exploration program be successful in discovering new orebodies then it will be justified to rehabilitate many of the other old levels and stoped areas in the search for extensions of ore shoots.

(c) The tables on pages 11, 12 and 13 show production of the Cortez Silver Mine and the Cortez Mining District of which the Cortez Silver Mine was the main producer.

Since 1941, the only known production from the property has been a shipment of several carloads of tailings as silver-bearing smelter flux to Selby, California. From 1959 to date, there has been no production from the property.

It should be noted that the above listed tables indicate only the minimum value produced. As explained by Dr. J. N. Faick in the attached report, "Economic Geology of the Cortez Mine", June 30, 1964, other sources of information give a greater value to the mine's production.

(d) There are no developed ore reserves in the mine or on the Rossi property. Several narrow faces in pillars and remnants have been sampled which show good assay values and are indicative of a grade previously mined and to be expected in new discoveries, but are not presently mineable.

Attached is a "Report on Results of Mine Sampling, Consolidated Cortez Silver Mines Company, Cortez, Nevada", by H. J. Evans dated

I.C. 7022

TABLE I

Table 1. - Gold, silver, copper, and lead production from Cortez district, Eureka and Lander Counties, Nevada, 1902-1936, in terms of recovered metal.

(Compiled by Charles White Merrill, Mineral Production and Economics Division, Bureau of Mines.)

Year	No. of mines	Lode				
		Ore, short tons	Gold		Silver	
			Fine ounces	Value	Fine ounces	Value
1902	1	6,749	289.28	$5,980	214,094	$113,470
1903	4	9,709	858.46	17,746	149,343	80,645
1904	3	5,561	439.60	10,121	115,902	67,242
1905	2	1,837	96.75	2,000	37,540	22,674
1906	2	144	66.81	1,381	8,792	5,891
1907	1	125	42.33	875	5,000	3,300
1908	2	1,173	73.00	1,509	18,700	9,911
1909	3	898	283.62	5,863	40,459	21,039
1910	-	-	-	-	-	-
1911	5	135	26.99	558	7,712	4,087
1912	2	13,433	294.97	6,098	52,429	32,244
1913	6	12,968	282.36	5,837	54,196	32,734
1914	3	2,946	192.13	3,972	44,185	24,434
1915	6	15,692	816.84	16,886	67,873	34,412
1916	4	5,534	268.42	5,549	42,139	27,727
1917	10	647	161.50	3,339	26,950	22,207
1918	12	456	101.52	2,098	31,578	31,578
1919	2	133	.78	16	11,387	12,753
1920	5	140	21.98	454	7,872	8,580
1921	2	85	11.70	242	8,416	8,416
1922	3	209	35.09	725	39,386	39,386
1923	1	9,250	272.45	5,632	172,466	141,422
1924	1	32,434	713.78	14,755	423,163	283,519
1925	2	40,315	671.68	13,885	366,350	254,247
1926	2	44,482	742.02	15,339	345,381	215,518
1927	2	37,864	304.25	6,289	544,646	308,814
1928	1	51,167	443.22	9,162	785,980	459,798
1929	4	44,322	515.19	10,650	493,766	263,177
1930	2	1,623	39.55	818	44,423	17,103
1931	3	13	13.53	280	618	179
1932	1	2/	2/	2/	2/	2/
1933	3	371	74.42	1,538	18,424	6,448
1934	2	7	6.72	235	341	220
1935	1	44	2.97	104	3,829	2,752
1936	2	2/	2/	2/	2/	2/
Total	-	340,720	8,267.07	171,786	4,195,128	2,564,972

1/ Not to be confused with average assay value of ore.
2/ Bureau of Mines not at liberty to publish figures, but concealed figures included in totals.

TABLE II

TABLE V. - Gold, silver, copper, and lead production from Cortez district, Eureka and Lander Counties, Nevada, 1902-1936, in terms of recovered metal - Continued.

(Compiled by Charles White Merrill, Mineral Production and Economics Division, Bureau of Mines.)

Year	Lode					
	Copper		Lead			
	Pounds	Value	Pounds	Value	Total value	Average recoverable value of ore per ton[1]
1902	5,907	$721	12,564	$515	$120,686	$17.88
1903	3,100	391	20,489	550	99,332	10.23
1904	13,963	1,380	16,726	577	79,330	14.26
1905	64	10	56,827	2,670	27,354	14.89
1906	-	-	21,315	1,215	8,487	58.94
1907	-	-	-	-	4,175	33.40
1908	7,773	1,026	9,095	382	12,828	10.94
1909	1,000	130	10,721	461	27,493	30.62
1910	-	-	-	-	-	-
1911	2,022	253	31,970	1,439	6,337	46.94
1912	803	132	46,893	2,110	40,584	3.02
1913	1,581	245	83,791	3,687	42,503	3.28
1914	402	53	179,599	7,004	35,463	12.04
1915	2,543	444	84,068	3,950	55,692	3.55
1916	1,373	338	36,922	2,548	36,162	6.53
1917	7,434	2,029	148,741	12,792	40,367	62.39
1918	4,614	1,140	160,030	11,362	46,178	101.27
1919	730	145	63,358	3,358	16,272	122.35
1920	1,084	199	45,945	3,675	12,908	92.20
1921	368	48	24,959	1,123	9,829	115.64
1922	2,764	373	26,625	1,464	41,948	200.71
1923	2,216	326	30,705	2,149	149,529	161.65
1924	5,021	658	67,041	5,363	304,295	9.38
1925	2,419	344	46,417	4,038	272,514	6.76
1926	3,308	463	38,580	3,086	234,406	5.27
1927	13,770	1,804	176,959	11,148	328,055	8.66
1928	25,031	3,605	364,617	21,148	493,713	9.65
1929	17,990	3,166	435,990	27,467	304,460	6.87
1930	1,768	230	37,252	1,863	20,014	12.33
1931	-	-	1,636	60	519	39.92
1932	2/	2/	2/	2/	2/	2/
1933	1,368	87	25,640	949	9,022	24.32
1934	-	-	240	9	464	66.29
1935	142	12	1,268	51	2,919	66.34
1936	2/	2/	2/	2/	2/	2/
Total	131,828	19,841	2,311,093	138,364	2,894,963	8.50

1/ Not to be confused with average assay value of ore.
2/ Bureau of Mines not at liberty to publish figures, but concealed figures included in totals.

TABLE III

Nevada's Metal and Mineral Production

Eureka County

DISTRICT PRODUCTION BY YEARS

CORTEZ
Silver, Lead, Gold, Copper, Zinc

Year	*Tons*	*Gross yield*
1865	6	$1,028
1866	483	45,394
1867	80	15,891
1868	72	37,404
1869	234	33,057
1870	80	10,888
1871	340	30,776
1872	334	43,371
1873	373	75,674
1874	591	65,000
1875	557	27,124
1877	853	56,950
1878	655	85,218
1879	1,037	87,419
1880	481	$62,842
1881	983	121,609
1882	988	61,162
1883	1,384	85,976
1884	1,839	118,068
1885	1,652	100,389
1886	5,813	187,251
1887	6,320	325,827
1888	7,543	363,819
1889	8,080	376,110
1890	9,521	378,333
1891	8,534	381,231
1892	1,908	136,420
1893	36	7,600
1897	5,922	165,481
1898	7,229	185,432
1899	6,242	116,442
1900	8,214	152,829
1901	6,358	125,731
1902	6,777	113,602
1903	4,807	75,225
1904	4,088	61,625
1905	280	18,810
1906	136	6,990
1907	117	3,998
1908	.....	21,962
1909	.....	23,335
1911	.....	26,405
1912	361	37,475
1913	706	37,171
1914	2,334	20,811
1915	717	11,293
1916	283	8,970
1917	54	4,670
1924	32,358	280,371
1925	18,589	144,476
1926	44,030	244,902
1927	30,149	270,094
1928	26,502	$254,165
1933	60	1,520
1934	613	7,559
1936	4,067	29,449
1937	11,701	86,366
1938	13,510	158,766
1939	21,497	265,566
	325,554	$6,375,839

BUCKHORN (Mill Canyon)
Gold, Silver, Lead

1910	19	$3,991
1914	72,627	327,535
1915	103,524	345,553
1916	.....	28,368
1931	196	3,093
1932	42	462
1936	3,133	27,222
1937	22,917	282,740
1938	34	276
1939	896	10,265
1940	10,394	11,700
	213,782	$1,041,205

Totals 60,777 $3,321,831
= $54.66
@ 129/oz = 42.37 oz

October 20, 1922, reporting on an extensive sampling program at the mine in 1922. Since that time, some ore, pillars and fill have been mined from the examined area, although many of the sample locations that are mentioned in the report are still identifiable by their numbers which can be found to this day on various stopes and drift walls.

Also attached are copies of assay certificates of samples taken by the staff of Amex.

(e) Narrative Report on the Geology of the Cortez Mine Exploration Project.

Introduction

The Cortez Silver Mine occurs within a thick section of moderatelydipping Paleozic formations which crop out in bold relief along the western front of Mount Tenabo. The orebodies occur mostly in fissure veins and manto-type replacements within the upper 400 feet of the Cambrian Hamburg dolomite and as fissure veins in the overlying Eureka quartzite. Some ore was also mined from replacement deposits in the basal section of the Hansen Creek dolomite which overlies the Eureka quartzite.

Maps and references to accompany this narrative report and the proposed exploration program are attached.

Sedimentary Rocks

Only sedimentary rocks of Devonian age or older are found in the immediate area of the Cortez Silver Mine. The oldest and deepest formation known in the area is the Eldorado dolomite, of middle Cambrian age, which is also the major host rock for ore in the Eureka district, Eureka, Nevada. This formation does not outcrop at Cortez but has been located by diamond drill Hole No. 1 (Plate 6). Either the Geddes Limestone or Clarks Spring member of the Secret Canyon shale overlies the Eldorado dolomite and like the Eldorado, has only been found by diamond drilling.

The most productive host rock to date at Cortez is the Hamburg dolomite which unconformably overlies the Geddes limestone and is exposed on the west side of Mount Tenabo. The Hamburg is a massive, thick-bedded, white to gray dolomite, approximately 1,700 feet thick. The upper 400 feet seems to be the most favorable horizon for manto ore bodies; a situation which is also true at Eureka, Nevada.

About 350 feet of Eureka quartzite unconformably overlies the Hamburg. The Hansen Creek formation of dolomite and limestone overlies the Eureka quartzite and is about 600 feet thick. Dolomite is mapped at the top and bottom of this formation and is separated by a gray, siliceous member consisting of nodular chert and quartzite interbedded with limey-dolomite. Silver ore has been produced from both the Eureka quartzite and Hansen Creek dolomite.

The Roberts Mountain formation overlying the Hansen Creek dolomite varies in thickness from less than 1000 feet above the Cortez mine to about 1500 feet on the Rossi property. It consists of thin-bedded, blue-black pyritized limestone. The Wenben limestone overlying the Roberts Mountain (mostly on the Rossi property) is from 150 to 300 feet thick and is composed of thin-bedded, black to brown, red-stained and pyritized shaley limestone.

Of all the sedimentary rocks, the Hamburg and Eldorado dolomites are considered to be the most favorable host rocks for ore.

Igneous Rocks

Igneous rocks exposed in the immediate mine area consist of altered dike rocks which may vary in composition from diorite to rhyolite. Generally, the dikes are from 2 to 15 feet wide, are highly oxidized and are so highly altered in areas, that the original igneous features are completely obliterated. It is believed that the dikes fill pre-existing fault structures and are pre-ore. However, these structures may also be channels for the migration of the ore solutions.

About 1 mile north of the mine is a quartz monzonite stock. Welded tuffs are located about 2 miles to the west of the mine area. The age of mineralization is not accurately known, but it is later than the intrusion of the dikes and quartz monzonite and could be either younger or older than the welded tuffs.

Structure

Regionally the Cortez mine lies within the Cortez window or fenster. Cambrian to Devonian rocks have been positioned by localized doming and then exposed by basin and range faulting (Crescent Valley and Cortez Faults). Either prior to, or contemporaneous with, the movement along the Cortez fault, a series of northeast- and southeast-striking and north- to east-dipping faults were developed. These northeast- and southeast-striking

structures probably have been cut and displaced by the Cortez north-south striking fault which in turn has been displaced by the east-west striking Crescent Valley Fault.

Locally in the Cortez Mine, the predominating structures are northeasterly-trending fault systems and southeasterly-trending fault and/or dike systems. Ore in fissure veins is associated with some of the southeast-striking structures and has been localized by the intersection of the northeast structures or by the formation of "cymoid loops" in the southeasterly-trending vein systems. In addition to the fissure veins, manto orebodies have been localized closely under or above the Eureka quartzite where it is intersected by the No. 1 dike fissure zone. Pipe-like high-grade orebodies are also known to occur near the No. 1 dike-fissure zone but the structural reason for the formation of this type of orebody is not yet clear.

Recent mapping of the surface of the Rossi property indicates that the structural pattern of southeast-striking structures filled with dike material and intersected with northeast-striking faults occurs as at the Cortez Silver Mine.

Alteration and Mineralization

Most of the dikes observed in the mine have been altered to a degree where most of the mafic minerals have been destroyed and many of the feldspar minerals have been decomposed to clay. Quartz grains and clay are often the only recognizable minerals remaining in some of the dikes. The dolomite host rock alteration in the vicinity of ore seems to consist of very slight bleaching and recrystallization of the dolomite associated with some introduced quartz, calcite and dolomite veinlets. In places the introduced quartz and carbonate form small blotches or blebs thus imparting a mottled appearance to the dark dolomite. The host rock is often criss-crossed with innumerable quartz-carbonate veinlets and in a few places it is brecciated. This alteration, although only a few feet wide, seems to be related to ore or mineralization, and may provide a guide for exploration in the dark dolomite. Dolomite found at some distance from orebodies shows no apparent alteration.

Mineralization in the old Cortez mine consists of fine-grained light gray or milky white quartz which in some places contains galena, sphalerite and tetrahedrite with silver values. Minerals derived from oxidation of the sulphides have been observed. Calcite is common

but its relationship to ore is doubtful. Zinkenite, bournonite, poylbasite and boulangerite were reported at greater depth in core from No. 1 diamond drill hole.

Silicification with silver, lead and copper mineralization has been found above the Eureka quartzite on the Rossi property. Dump samples from old workings contain as much as 20 ounces of silver per ton.

Conclusions

Our study of the Cortez Silver Mine indicates that there is an excellent chance of finding ore on the Arctic level along the strike of the No. 1 dike fissure, on the Hamburg-Eureka quartzite contact near the intersection with the No. 1 dike fissure; and along the No. 1 dike fissure at depth in the Eldorado dolomite. In addition, sufficient mineralization and structure has been found on the Rossi property to warrant a search for ore at the Hamburg-Eureka quartzite contact. A thorough exploration program should be conducted in these areas.

(f) Reasons for expecting to find ore by the proposed exploration project

1. Cortez Mine Arctic Level, Target 1-A and 1-C (Plate 2)

The No. 1 dike-fissure can be projected as a mappable unit to the Eureka quartzite. At all levels above the Arctic Level, this quartzite-fissure intersection has resulted in manto orebodies located under the quartzite. No evidence has been found to indicate that this will not recur at the Arctic level. The intersection of the Coleman fault with the No. 1 dike fissure may form an ore body which would be found while extending the Arctic level to the quartzite contact. The hanging wall side of the "cymoid loop" will be explored almost upon the start of drifting. This hanging wall may contain ore of grade and size equal to that found on the footwall leg. In addition, chances are good that another "cymoid loop" will be found between the present drift face and the Eureka quartzite. Past production records indicate an expected ore grade of at least 20 oz/T.Ag.

2. Cortez Mine - Target 1-B (Plate 6)

During 1963, a 1469-foot diamond drill hole was drilled near the portal of the No. 1 level to obtain stratigraphic information on the mine area. This hole showed the existence of favorable dolomite and limestone over its entire depth and, although no fossil evidence was found, stratigraphic correlation indicates that the hole penetrated the Hamburg dolomite, the Geddes limestone and bottomed in the Eldorado dolomite. This hole also indicated silver mineralization

in depth even though the values were not of ore grade.

The Eldorado dolomite was the most productive formation at Eureka, Nevada, and it may also prove to be an excellent host rock at Cortez. In this program it is proposed to drill a deep hole from an underground station to test the Eldorado on the down rake of favorable structures which apparently localized the Cortez orebodies. Should this drill hole yield encouraging results then two additional deep holes are proposed under a Stage II program.

3. Rossi Property, Target No. 2 (Plate 10)

Minor amounts of galena and oxidized copper minerals are found along the contact of the Eureka quartzite and Hansen Creek dolomite. This mineralization may be leakage through the quartzite from manto-type orebodies underlying the quartzite. The most likely place to locate these orebodies would be at the intersection of northeast-striking and southeast-striking structures. Three drill holes are programmed to penetrate through the quartzite to search for manto-type orebodies in the underlying Hamburg dolomite.

Sample locations and values taken by the Cortez Joint Venture are posted on the accompanying maps and assay certificates are enclosed. Also enclosed is a report written in 1922 with many sample values. Samples taken by the Cortez Joint Venture are chip samples.

(g) Engineering and Geologic Reports

The following engineering and geologic reports are attached:

Faick, J.N. - Preliminary Report "Economic Geology of the Cortez Mine" Cortez Joint Venture, June 30, 1964.

Bush, J.B. - Notes on Cortez Mine, Nevada, December 28, 1964.

Evans, H.J. - "Report on Results of Mine Sampling, Consolidated Cortez Silver Mines Company, Cortez, Nevada", October 20,1922.

ITEM 4. ACCESSIBILITY OF PROPERTY

(a) The person most likely to meet the O.M.E. representative is Robert G. Garwood. During the week he is stationed at Crescent Valley, Nevada, P.O.Box 73, phone Crescent Valley, No. 1, and on week ends at Elko, Nevada, 975 Panorama Drive, phone 738-5400. Crescent Valley, Nevada is located about 14 miles southwest of Beowawe, Nevada on a paved highway. The property is at Cortez about 24 miles southwest of Crescent Valley.

(b) The nearest rail shipping point is at Beowawe, Nevada, about 40 miles north of the property. Elko, the largest city in north-eastern Nevada, is about 80 miles distant by road.

ITEM 5. EXPLORATION WORK

(a) The Cortez Joint Venture proposes to test four exploration target areas in or near the old Cortez Silver Mine. These target areas, as indicated on the enclosed plans and sections (Plates 2, 6 and 10), are listed as follows:-

Exploration Target	Objective
1. Target 1-A	To test the easterly extension of the No. 1 dike-fissure zone and its intersection with the Eureka quartzite by drifting, crosscutting and short-hole diamond drilling on the Arctic level.
2. Target 1-B	To test the favorable Eldorado dolomite at the down-rake projection of the No. 1 dike-fissure zone and the known Cortez orebodies by deep down drilling from the Arctic level.
3. Target 1-C	To test the westerly extension of the No. 1 dike-fissure zone and its intersection with the Premium fault by drifting and short hole drilling on the Arctic level.
4. Target 2	To test for manto-type orebodies under the quartzite by surface drilling on the Rossi property.

One of these four target areas, Target 1-B, will be tested in two stages. The results of Stage I drilling for this target area will dictate the decision whether or not to proceed with Stage II.

Enclosed are the following maps, plans and sections showing location and extent of proposed work and target areas in addition to old workings and known geology:

Map		Purpose
Plate 1	Plan Map of Area of Proposed Cortez Mine Exploration	Shows extent of claims, location of adits, roads and general property status.
Plate 2	Plan Map of Arctic Level 2 scales: 1" = 400' 1" = 100'	Shows workings and geology on Arctic level, target areas, necessary rehabilitation, proposed drifting and crosscutting, proposed horizontal and deep diamond drilling.

	Map	Purpose
Plate 3	Plan Map of No. 1 Level	Shows geology and quartzite-dolomite contact. Used to project structure and geology.
Plate 4	Plan Map of No. 6 Level	Same as above.
Plate 5	Composite Level Plan Map	Composite of almost all Cortez Mine levels.
Plate 6	Section A-A', Long Section of Cortez Mine	Shows stoped out orebodies, proposed drifting, deep drilling and target areas.
Plate 7	Section B-B', Cross Section through Cage Shaft. Section C-C', Cross Section through Arctic Raise.	Shows general dip of structures and location of Eldorado target area and deep drilling.
Plate 8	Section D-D', Cross Section through 2215 Shaft Section E-E', Cross Section through No. 1 Incline and Fitzgerald Region	Shows stoped out orebodies and general dip of structures.
Plate 9	Surface Geologic Map of Rossi Property	Shows surface geology, existing roads and proposed drill sites.
Plate 10	Sections of Rossi Property	Shows proposed surface drilling and target area.
Plate 11	Section F-F', Cross Section through Proposed Workings and Deep Drill Hole CU-13. Section G-G', Cross Section through Proposed Workings and Deep Drill Hole CU-14.	Shows proposed Stage II deep diamond drilling and target area.

The proposed exploratory work necessary to adequately test each one of the four above described target areas is discussed under the following work categories:

1. Mobilization, Rehabilitation, Drifting, Crosscutting and Raising:

   Upon the mobilization of all necessary men, equipment and materials the first step in the underground exploration program is to rehabilitate the Arctic level. This will consist of: (a) laying 300 feet of track on the mine dump to provide for dump room and access to facilities; (b) a minor amount of

clean up and re-timbering of the Arctic level portal; and (c) laying 3,590 feet of mine track, water line and air line to the new working faces and to the proposed deep hole drill site. A minor amount of vent tubing may have to be installed but the major ventilation fans can be installed underground near the Arctic raise or a raise to the Fitzgerald area, both of which are open and are a source of good air.

After completion of the rehabilitation work drifting will start on the north branch of the No. 1 dike-fissure zone near coordinates N 21,680, E 39,590 as shown on the Arctic level map (Plate 2). It proposed to drift easterly along the No. 1 dike fissure and into the Eureka quartzite, a distance of approximately 1700 feet. It is intended to follow the bearing as indicated on the Arctic level map as closely as possible. However, in order to follow mineralized structures, it is requested that minor changes (up to 15°) in drift direction be allowed so long as the drift progresses to its final objective and terminates within the area outlined as Target 1-A on the level plan (Plate 2). Drill stations, consisting of stub drifts about 15 feet long on each side of the drift, will be cut every 400 feet along the length of the drift as indicated on the level plan. Starting at a point in the drift near the quartzite contact it is proposed to crosscut northerly and southerly for a total distance of 500 feet to explore for manto-type orebodies under the quartzite hanging wall.

In the west end of the mine it is proposed to test Target 1-C by 300 feet of drifting along the westerly extension of the No. 1 dike-fissure zone to its intersection with the Premium fault offset. Two 15-foot drill station stub drifts will be cut at the end of this drift.

In preparation for the Stage I underground deep hole drilling a 40-foot raise is required to provide a drill station. If Stage II deep drilling is warranted then a 240-foot crosscut and two 40-foot raises will be required for additional drill stations.

The cross sectional dimensions of the existing horizontal headings vary in size from 5' x 7' to 7' x 8'. All new headings will be driven with a minimum cross section of 6' x 8'. All raises will be driven with 6' x 6' dimensions.

2. Underground Short Hole Diamond Drilling

The possibility for the occurrence of paralleling ore structures will be tested by horizontal diamond drilling from stations spaced at 400-foot intervals along the No. 1 dike-fissure zone on the Arctic level. These holes will range from 200 to 450 feet in length. In the Target 1-A area it is also planned to extend the drift out into the quartzite for purposes of

establishing a drilling location from which to test, by down holes, for the down-dip extension of manto-type ore at the base of the quartzite. One inclined up hole is planned to test for up-dip extensions of ore at the base of the quartzite.

The short-hole drilling program entails a total of 11 holes with an aggregate footage of 2700 feet. Most of these will be started and completed in Bx size.

3. Underground Deep-Hole Diamond Drilling

Deep-hole down drilling from an underground station on the Arctic level is proposed to test for mineralization in the favorable underlying Eldorado dolomite at its projected intersection with favorable ore-controlling structures which are known in the mine area. The one and only Stage I deep hole is located so that it will penetrate the Eldorado - No. 1 dike-fissure intersection at a depth of 1800 feet. This hole can be drilled concurrently with the drifting program.

Contingent upon favorable results encountered in the first hole it is proposed to drill two additional deep holes (totalling 4400 feet) under a Stage II program. The locations of all proposed drill holes are plotted on the enclosed plan and section (Plates 2 and 6).

Stage I and II deep hole drilling will entail a total footage of 6200 feet. These holes will be started NXWL size and probably be bottomed in BXWL size.

4. Surface Diamond Drilling

A surface diamond drilling program consisting of three vertical holes is proposed to test the Rossi property for manto-type orebodies below the Eureka quartzite. Hole RS-1 would be drilled to a depth of 1100 feet to intersect a southeast structure projected to the underlying Hamburg dolomite. Hole RS-2, located south of the first hole, would be drilled to a depth of 900 feet to test the same target. At the south end of the property Hole RS-3 would be drilled to a depth of 1050 feet to test another structural intersection under the Eureka quartzite. Total proposed surface drilling is 3050 feet. All holes to be drilled in NXWL size with a reduction to BXWL if necessary. Drill hole locations are shown on the enclosed map and sections of the Rossi property (Plates 9 and 10).

The following tables summarize the proposed Stage I and Stage II exploration work:

STAGE I

Item	Total Footage	Bearing	Size
Dump rehabilitation	300		
Arctic level rehabilitation	3590		
Drift West of Arctic Rs.	300	N80W	6' x 8'
Drift East into Quartzite	1700	S65E	6' x 8'
Crosscut along Quartzite	500	N7E-S7W	6' x 8'
Horizontal Drill Stations	100	N23E-S23W	6' x 8'
Raise at drill station for Hole No. 12	40	Vertical	6' x 6'
DH Cu-1 (Horizontal)	200	S9W	BX to AX
DH Cu-2 "	200	N9E	BX to AX
DH Cu-3 "	450	North	BX to AX
DH Cu-4 "	300	N15E	BX to AX
DH Cu-5 "	200	S14W	BX to AX
DH Cu-6 "	250	N14E	BX to AX
DH Cu-7 "	200	S15W	BX to AX
DH Cu-8 "	200	N15E	BX to AX
DH Cu-9 + 45°	200	S65E	BX to AX
DH Cu-10 - 45°	250	N65W	BX to AX
DH Cu-11 Vertical down	250	Vertical	BX to AX
DH Cu-12 Vertical	1800	Vertical	NXWL to BXWL
DH RS-1 (Rossi)	1100	Vertical	" "
DH RS-2 (Rossi)	900	"	" "
DH RS-3 (Rossi)	1050	"	" "

NB: Cu - Cortez Underground
Rs Rossi Surface

STAGE II

DH	Cu-13	Vertical	2,000	Vertical	NXWL to BXWL
DH	Cu-14	Vertical	2,400	Vertical	NXWL to BXWL
Crosscut for drill station		N15E	240	N15E	6' x 8'
2 raises for drill station			80	Vertical	6' x 6'

Expected progress is as follows:

Project	Stage I Advance	Total Time
Mobilization and rehabilitation		10 weeks
Drifting - crosscutting	6' per shift	35 weeks
Drill stations	4' per shift	3 weeks
Raising	5' per shift	1 week
Horizontal drilling	30' per shift	9 weeks
Deep drilling	30' per shift	5 weeks
Rossi drilling	20' per shift	13 weeks

As some of the above listed work will overlap in time, the estimate of one year is felt to be adequate.

Project	Stage II Advance	Total Time
Crosscut	5' per shift	3 weeks
Raising	5' per shift	2 weeks
Deep drilling	30' per shift	13 weeks

Total additional time to complete Stage II - 18 weeks.

(b) No access road are required. However, an allowance for road maintenance of $2880 is requested.

(c) If and when an O.M.E. contract is executed, work would commence immediately mobilizing contractors and equipment. During the program, a minimum of 2 shifts per day, 6 days a week should be worked (barring serious breakdown or severe weather conditions). It is anticipated that the Stage I program would be completed within one year's elapsed time from the date the contract is executed.

Part of Stage II, if warranted, could be done at the same time as Stage I. Probably both Stage I and Stage II programs can be completed in 15 months from the date the contract is executed.

ITEM 6 EXPERIENCE

The Management Committee and the Amex technical staff available or actually working on this exploration project represent about three hundred man years of experience in all phases of exploration and mining. R. G. Garwood, who will probably be project supervisor, graduated from Montana School of Mines with a B.S. in Geological Engineering and has had experience as mine geologist for Umont Mining, Inc., at Butte, Montana, has worked three years for a consultant evaluating underground mines in north-central Montana; and in four years with Amex has had experience in operating underground mines, evaluating underground and pit mines and has been connected with, or in charge of, four rotary or diamond drilling programs.

ITEM 7 ESTIMATE OF COSTS

The Cortez Joint Venture intends to use independent contractors for the underground work and for all drilling. To this end, bids for the underground work and for the drilling were requested and the following firms submitted bids:

Mining

Ponderosa Development Company, Ltd.,
Boyles Bros. Drilling Co.
Centennial Development Co.

Drilling

E. J. Longyear Company
Sprague & Henwood, Inc.
Boyles Bros. Drilling Co.
Joy Manufacturing Company
Justice Core Drilling Co.

A copy of each bid is enclosed.

Supervision, geologic mapping, surveying, core logging and sampling will be performed by personnel of the Cortez Joint Venture.

Upon approval of this O.M.E. application, it is our intention to award the underground work to Ponderosa Development Company, Ltd. because they are the lowest bidder and it is believed that they can adequately complete the job to meet all standards and within a reasonable time. It is also our intention to award the drilling bid to E. J. Longyear Co. because our calculations show it to be the lowest bid submitted, that the work will be completed to the standards set forth and that the job will be completed without undue delay.

(a) Independent Contracts

Using the best bids, the following attached tables have been prepared showing total cost and cost per unit of the various contract items:

Table IV - Estimated Cost of Mobilization, Rehabilitation and Heading Advances.

Table V - Estimated Cost of Underground Short Hole Diamond Drilling.

Table VI - Estimated Cost of Underground Deep Hole Diamond Drilling.

Table VII - Estimated Cost of Surface Diamond Drilling.

Some of the items listed in the above tables are more fully explained as follows:

1. Moving Diamond Drill

It is estimated that it will require six hours to move the underground diamond drill from one drill station to another and complete a drill set up. With Longyear's cost of $5.80 per man hour and two men moving the drill, this cost is $69.00 per move.

2. Lost Casing

It is assumed that lost casing will average 10 feet per hole on the short holes and 150 feet on the deep holes. An average price of $2.00 per foot of casing is expected.

3. Cementing

It is estimated that cementing and drilling out cement will average one hour plus one sack of cement for each 50 feet of diamond drill hole. Therefore, cost per foot =

One hour @ $11.60
One sack @ $7.50
Cost per 50 feet = $19.10
Cost per foot = $0.38

TABLE IV

ESTIMATED COST OF MOBILIZATION, REHABILITATION AND HEADING ADVANCES

(based on Ponderosa Development bid)

ITEM	STAGE I Footage	STAGE I Cost/Ft.	STAGE I Total Cost	STAGE II Footage	STAGE II Cost/Ft.	STAGE II Total Cost
Mobilization			5,489.58			
Laying Dump Track	300	3.97	1,191.00			
Underground Rehabilitation	3,590	5.80	20,822.00			
Drifting West	300	43.50	13,050.00			
Drifting East	1,700	43.50	73,950.00			
Crosscutting	500	43.50	21,750.00	240	43.50	10,440.00
Raising	40	32.90	1,316.00	80	32.90	2,632.00
Drill Stations	100	42.60	4,260.00			
Timber Cost (Boyles bid est.)	125	22.50	2,812.50	10	22.50	225.00
Rock Bolt Cost (Boyles bid est.)	100	7.50	750.00	5	7.50	37.50
Demobilization			1,800.00			
TOTAL COST:			147,191.08			13,334.50

96,622.50

TABLE V

ESTIMATED COST OF UNDERGROUND SHORT-HOLE DIAMOND DRILLING

(based on E.J. Longyear Co. bid)

Hole No.	Cost/Ft.		CU-1	CU-2	CU-3	CU-4	CU-5	CU-6	CU-7	CU-8	Quartzite CU-9	Quartzite CU-10	Quartzite CU-11	TOTAL
Total Depth of Hole			200	200	450	300	200	250	200	200	200	250	250	2700'
Footage Rates:	Dolomite	Quartzite												
0-200'	5.25	6.25	1050.00	1050.00	1050.00	1050.00	1050.00	1050.00	1050.00	1050.00	525.00 625.00	1320.00	1320.00	12190.00
200-400'	5.50	6.60			1100.00	550.00		275.00				330.00	330.00	2585.00
400-600'	5.75	7.10			287.50									287.50
Mobilization		.099	19.80	19.80	44.50	29.70	19.80	24.75	19.80	19.80	19.80	24.75	24.75	267.50
Demobilization		.099	19.80	19.80	44.50	29.70	19.80	24.75	19.80	19.80	19.80	24.75	24.75	267.50
Moving onto Hole 6 hrs./hole @ $11.60/hr.				69.60	69.60	69.60	69.60	69.60	69.60	69.60	69.60	69.60	69.60	696.00
Lost Casing - 10ft./hole @ $2.00/ft.			20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	220.00
Cementing		.38	76.00	76.00	171.00	114.00	76.00	95.00	76.00	76.00	76.00	95.00	95.00	1026.00
Compressed Air		.60	120.00	120.00	270.00	180.00	120.00	150.00	120.00	120.00	120.00	150.00	150.00	1620.00
Total Cost			1305.60	1375.20	3057.10	2043.00	1375.20	1709.10	1375.20	1375.20	1475.20	2034.10	2034.10	19159.50

TABLE VI

ESTIMATED COST OF UNDERGROUND DEEP-HOLE DIAMOND DRILLING

(based on E.J. Longyear Co. bid)

Hole No.	Cost/Ft.	Stage I Cu-12	Stage II Cu-13	Stage II Cu-14	Total
Total Depth of Hole		1800'	2000	2400	4400
Footage Rates:					
NXWL: 0-250	5.50	1375.00	1375.00	1375.00	2750.00
250-500	5.75	1437.50	1437.50	1437.50	2875.00
500-750	6.35	1587.50	1587.50	1587.50	3175.00
750-1000	7.10	1775.00	1775.00	1775.00	3550.00
BXWL: 1000-1250	6.35	1587.50	1587.50	1587.50	3175.00
1250-1500	6.85	1712.50	1712.50	1712.50	3425.00
1500-1750	7.60	1900.00	1900.00	1900.00	3800.00
1750-2000	8.60	430.00	2150.00	2150.00	4300.00
2000-2250	9.70			2425.00	2425.00
2250-2500	10.90			1635.00	1635.00
Mobilization		415.00			
Demobilization		415.00			
Moving onto hole -12 hrs/hole @ $11.60/hr,			139.20	139.20	278.40
Lost Casing - 150 ft/hole @ $2.00/ft		300.00	300.00	300.00	600.00
Cementing	.38	684.00	760.00	912.00	1672.00
Mud and Lost Circulation Materials	.44	792.00	880.00	1056.00	1936.00
Compressed Air	.60	1080.00	1200.00	1440.00	2640.00
TOTAL COST		15491.00	16804.20	21432.20	38236.40

TABLE VII

ESTIMATED COST OF SURFACE DIAMOND DRILLING

(based on E.J. Longyear Co. bid)

Hole No.			RS-1	RS-2	RS-3	TOTAL
Total Depth of Hole			1,100'	900	1,050	3,050
Footage Rates:	Dolomite*	Quartzite*				
NXWL 0-250'	5.75	7.45	1,437.50	1,650.00	1,437.50	4,525.00
250-500	6.00	7.95	1,792.50	1,987.50	1,890.00	5,670.00
500-750	6.35	8.60	2,150.00	2,037.50	2,150.00	6,337.50
750-1000	6.85	9.60	2,125.00	1,027.50	1,987.50	5,140.00
1000-1250	7.35	10.60	735.00		367.50	1,102.50
Mobilization		.21	234.00	191.00	222.50	647.50
Demobilization		.21	234.00	191.00	222.50	647.50
Moving onto Hole - 4 hrs/hole @ $11.60/hr.				46.40	46.40	92.80
Lost Casing - 150 ft/hole @ $2.00/ft.			300.00	300.00	300.00	900.00
Cementing		.38	418.00	342.00	399.00	1,159.00
Mud and Lost Circulation Materials		.44	484.00	396.00	462.00	1,342.00
Water Cost		.42	462.00	378.00	441.00	1,281.00
TOTAL COST			10,372.00	8,546.90	9,925.90	28,844.80

* RS-1 : 0-350' (dolomite); 350'-900'(quartzite); 900'-1100' (dolomite)

RS-2 : 0-125' (dolomite); 125'-700' (quartzite); 700'-900' (dolomite)

RS-3 : 0-300' (dolomite); 300'-850' (quartzite); 850'-1050' (dolomite)

4. Mud and Lost Circulation Materials

It is expected that no mud or lost circulation materials will be used on the short horizontal drill holes. It is expected that mud will be used on the deep drill hole at a comparable cost as experienced on the No. 1 drill hole which was 44¢ per foot of hole drilled.

5. Compressed Air Supply

Based on E. J. Longyear's bid the cost of compressed air for underground drilling is calculated thus:

Rental on air compressor for 8 months @ $600 = $4800
Mobilization and Demobilization of compressor= 200
Total compressed air cost = $5000

Cost/foot of underground drilling = $\frac{\$5000}{7900'}$ = $0.60/ft

6. Water Supply

For surface drilling the Contractor is responsible for supplying his own water at the following charge:

Truck Rental @ $250/month = $4.80/shift
Mileage: 24 miles/shift (2 loads) @ 15¢/mile = 3.60/shift
Total = $8.40/shift

Cost/foot (@ 20'/shift) = $0.42

(b) Personal Services

The Managing Coventurer of the Cortez Joint Venture has an amply qualified technical staff. Therefore, Amex will provide all the supervisory, technical and non-technical personnel (excluding Contractor's personnel) to manage this exploration project. It is not expected to hire any outside consultants for this project.

The following Amex personnel will be required on this project:

1. One Supervisor - Geologist-Engineer

Duties - Managing and coordinating the entire program and assisting in geologic mapping surveying and logging drill core.

Cost - Stage I = 11 months @ $800/month = $8800
Stage II = 2 months @ $800/month = $1600

2. One Geologist-Engineer

Duties - Geologic mapping, surveying, logging drill core and assisting supervisor.

Cost - Stage I : 11 months @ $625/month = $6875
Stage II: 2 months @ $625/month = $1250

(Should the program be accelerated to three shifts per day, it may be necessary to have two men with either engineering or geological training to assist the supervisor.)

3. One Sampler

Duties - Sampling underground headings and assisting with drill core sampling.

Cost - Stage I = 228 days @ $21.66/day = $4938.48

4. One Sampler-Core Splitter

Duties - Sampling and splitting drill cores.

Cost - Stage I =90 days @ $21.66/day = $1949.40
Stage II=52 days @ $21.66/day = $1126.32

(c) Operating Materials and Supplies

1. Water

The Cortez Joint Venture intends to supply water for the underground drilling and mining program. It is assumed that one water haul per day will supply all mining requirements until underground drilling begins. Then, from past experience of high water loss, it will be necessary to make at least three water truck hauls per shift to keep the drill supplied with water. It is assumed that men working on other jobs can drive the water truck until the drilling starts. After that, a water truck driver will be required for each shift. One round trip from the mine to the water source is about ten miles. For surface drilling the drill contractor will supply his own water.

Mining Water Cost: Assume one load per day, six days per week for project life of 40 weeks;
Amex water truck rental @ 25¢/mile

∴ 10 miles x 25¢ x 6 days x 40 weeks = $600 for total mining water cost.

Underground Drilling Water Cost: Assume one water truck driver per shift (3 men in triple shift) and three hauls per drill shift:

∴ Mileage 30 x 25¢ = $ 7.50
Driver's Wages (include P.T.& I.) 23.40
Total - $30.90

Cost per foot (@ 30' per shift) = $ 1.03

Total: Stage I - 4500 ft. @ $1.03/ft = $4,635.00
Stage II - 4400 ft. @ $1.03/ft = $4,532.00

(d) Operating Equipment

Major items of equipment will be furnished by the independent contractors as per the enclosed mining and drilling bids.

Amex will supply a G.M.C. 6x6 truck for hauling water rented to the Cortez Joint Venture at 25¢ per mile; one 1957 Jeep wagon and one 1964 Jeep wagon, both rented at 15¢ per mile, and one 1964 Chevrolet ½-ton pick-up rented at 10¢ per mile.

1. Transportation of Personnel & Supplies

Stage I

Mileage per vehicle day = 70 miles
Total Mileage = 70x240 days = 16,800 miles
2 Jeeps @ 15¢/mile=2x16,800x0.15 = $5,040.00
1 Pick-up @ 10¢/mile = 16,800x0.10=$1,680.00

Total Transportation Cost $6,720.00

Stage II

Mileage per vehicle day = 70 miles
Total Mileage = 70x29 days = 2,030 miles
2 Jeeps @ 15¢/mile=2x2030x0.15 = $ 609.00
1 Pick-up @ 10¢/mile=2030x0.10 = 203.00
$ 812.00

(e) Initial Rehabilitation of Existing Buildings, etc.

There is no initial rehabilitation or repairs of existing buildings, fixtures or installations. Mine and dump rehabilitation is covered under (a) Independent Contracts.

(f) New Buildings, Fixtures or Installations, etc.

No new buildings, fixtures or installations or improvements to existing structures are to be provided for this project.

(g) Miscellaneous:

The cost of repairs and maintenance of the vehicles listed in 7 (d) is included in the mileage rates of 25¢/mile for the G.M.C. 6 x 6 truck, 15¢/mile for the two Jeeps and 10¢/mile for the ½-ton pickup.

The costs of assaying, sample sacks, freight on samples, core boxes, accounting, reproductions, road maintenance, supervisor's expenses, geologist's expenses, payroll taxes and employees' liability insurance (excluding Contractor's personnel) are itemized as follows:

1. Assaying:

Samples for assay will be taken from all diamond drill cores and new heading faces. All samples will be assayed for gold and silver at a cost of $2.50 per sample. Samples will be sent to Union Assay Office in Salt Lake City, Utah.

From the drill holes it is expected that samples will be cut every 10 feet. From the new underground headings it is expected that one chip face sample and one car sample will be taken for each 6-foot drift round. If a heading or a drill hole is being driven or drilled through barren ground then the amount of samples taken for assay would obviously be reduced.

The maximum number of samples that may be taken for assay is calculated as follows:

Stage I:

$$\text{Drill Core Samples} = \frac{7550 \text{ ft.}}{10} = 755 \text{ assays}$$

Cost of drill core assays = 755 x $2.50 = $1,887.50

$$\text{Face and Car Samples} = \frac{2640 \text{ ft.}}{6} \times 2 = 880 \text{ assays}$$

Cost of heading assays = 880 x $2.50 = $2,200.00

Stage II:

$$\text{Drill Core Samples} = \frac{4400 \text{ ft.}}{10} = 440 \text{ assays}$$

Cost of drill core assays = 440 x $2.50 = $1,100.00

$$\text{Face and Car Samples} = \frac{320 \text{ ft.}}{6} \times 2 = 106 \text{ assays}$$

Cost of heading assays = 106 x $2.50 = $265.00

2. Sample Sacks

Plastic sample sacks cost 3¢ per sack.

Stage I:

Cost of sample sacks = 1635 samples x 3¢ = $49.05

Stage II:

Cost of sample sacks = 546 samples x 3¢ = $16.38

3. Freight on Samples

Shipping charges on samples sent to Salt Lake City are based on postal rates of 10¢ per pound with each sample weighing approximately ½ pound.

Stage I:

Cost of freight on samples = 1635 x 5¢ = $81.75

Stage II:

Cost of freight on samples = 546 x 5¢ = $27.30

4. Core Boxes

Cardboard core boxes cost $1.00 per box. Each box will hold 10 feet of core.

Stage I:

$$\text{Cost of core boxes} = \frac{7550 \text{ ft.}}{10} \times \$1.00 = \$755.00$$

Stage II:

$$\text{Cost of core boxes} = \frac{4400 \text{ ft.}}{10} \times \$1.00 = \$440.00$$

5. Accounting

The cost of accounting applicable to this project is based on an estimate of $70.00 per month.

Stage I:

Cost of accounting: 11 months @ $70.00 = $770.00

Stage II:

Cost of accounting: 2 months @ 70.00 = $140.00

6. Prints, Reproductions and Reports

The costs of prints, etc. applicable to this project are based on an estimate of $50.00 per month.

Stage I:

Cost of prints etc.: 11 months @ $50.00 = $550.00

Stage II:

Cost of prints etc.: 2 months @ $50.00 = $100.00

7. Road Maintenance

Access roads to the property will require some maintenance including snow removal during winter months. An estimate of 180 hrs. of bulldozer operations is included herein.

Stage I:

Bulldozer operations: 180 hrs.@ $16.00/hr.= $2,880.00

8. Supervisor's Expenses

The supervisor's and geologist's expenses, including communications costs, are based on an average of such field expenses incurred on other similar projects.

Stage I:

Supervisor's Expenses: 11 mos. @ $200/mo. = $2,220.00
Geologist's Expenses: 11 mos. @ $100/mo. = $1,100.00

Stage II:

Supervisor's Expenses: 2 mos. @ $200/mo. = $ 400.00
Geologist's Expenses: 2 mos. @ $100/mo. = $ 200.00

9. Payroll Taxes and Liability Insurance

The cost of payroll taxes etc. on salaries and wages and liability insurance (excluding Contractors' personnel) is based on 18% of total earnings.

Stage I:

Total Earnings of Amex Personnel = $22,562.88
Payroll Taxes & Insurance = 18% of $22,562.88 = $4,061.32

Stage II:

Total Earnings of Amex Personnel = $3,976.32
Payroll Taxes & Insurance = 18% of $3,976.32 = $715.74

SUMMARY OF ESTIMATE OF COSTS

Stage I:

(a) Independent Contracts

1. Mining Contract: (Table IV)

Mobilization and Demobilization (Lump Sum)	=	$7,289.58
Laying 300 ft. of dump tract @ $3.97/ft.	=	1,191.00
Rehabilitation of 3590 ft. of workings @ $5.80/ft.	=	20,822.00
Drifting 2,000 ft. @ $43.50/ft.	=	87,000.00
Crosscutting 500 ft. @ $43.50/ft.	=	21,750.00
Raising 40 ft. @ $32.90/ft.	=	1,316.00
Drill Stations 100 ft. @ $42.60/ft.	=	4,260.00
Timber Costs: 125 ft. @ $22.50/ft.	=	2,812.50
Rock Bolt Costs: 100 ft. @ $7.50/ft.	=	750.00
Total Mining Contract Cost	=	$147,191.08

2. Drilling Contract:

Underground Short-Hole Diamond Drilling: (Table V)

Mobilization and Demobilization, 1 drill		$ 535.00
2700 ft. of core drilling		15,062.50
Moving Drill:		
6 hrs/drill move @ $11.60/hr=$69.60		
10 drill moves @ $69.60/move	=	696.00
Lost Casing:		
10 ft/hole @ $2.00/ft. =$20.00		
11 holes @ $20.00/hole	=	220.00
Cementing:		
2700 feet @ 38¢/ft.	=	1,026.00
Compressed Air:		
2700 feet @ 60¢/ft.	=	1,620.00
Total Underground Short-Hole Drilling	=	$19,159.50

Underground Deep-Hole Diamond Drilling: (Table VI)

Mobilization and Demobilization, 1 drill		$ 830.00
1800 feet of core drilling		11,805.00
Lost Casing:		
150 ft. @ $2.00/ft.	=	300.00
Cementing:		
1800 feet @ 38¢/ft.	=	684.00
Mud and Lost Circulation Materials:		
1800 ft. @ 44¢/ft.	=	792.00
Compressed Air:		
1800 ft. @ 60¢/ft.	=	1,080.00
Total Underground Deep-Hole Drilling	=	$15,491.00

Surface Diamond Drilling: (Table VII)

Mobilization and Demobilization, 1 drill		$1,295.00
3050 feet of core drilling		22,775.00
Moving Drill:		
4 hrs/drill move @ $11.60/hr.=$46.40		
2 drill moves @ $46.40/move	=	92.80
Lost Casing:		
150 ft./hole @ $2.00/ft. =$300.00		
3 holes @ $300/hole	=	900.00
Cementing:		
3050 feet @ 38¢/ft.	=	1,159.00
Mud and Lost Circulation Materials:		
3050 feet @ 44¢/ft.	=	1,342.00
Water Supply:		
3050 feet @ 42¢/ft.	=	1,281.00
Total Surface Diamond Drilling	=$28,844.80	
Total Drilling Contract Cost	=	$63,495.30

(b) Personal Services

1. One Supervisor-Geologist-Engineer:		
11 months @ $800/month		$8,800.00
2. One Geologist-Engineer:		
11 months @ $625/month		6,875.00
3. One Sampler		
228 days @ $21.66/day		4,938.48
4. One Sampler-Core Splitter		
90 days @ $21.66/day		1,949.40
Total Personal Services Costs		$22.562.88

(c) Operating Materials and Supplies

1. Water:		
Mining Water Cost		$ 600.00
Underground Drilling Water Cost		
4500 feet @ $1.03		4,635.00
Total Operating Materials and Supplies Cost		$ 5,235.00

(d) Operating Equipment

1. Transportation of Personnel and Supplies		
Two Jeeps: 33,600 miles @ 15¢/mile	=	5,040.00
One Pick-up: 16,800 miles @ 10¢/mile	=	1,680.00
Total Operating Equipment Cost		$ 6,720.00

(g) Miscellaneous

1. Assaying:
   Drill Core Assays: 755 @ $2.50/assay= $1,887.50
   Mine Assays: 880 @ $2.50/assay= 2,200.00

2. Sample Sacks: 1635 @ 3¢/sack = 49.05

3. Freight on Samples: 1635 @ 5¢/sample = 81.75

4. Core Boxes: 755 @ $1.00/box = 755.00

5. Accounting: 11 months @ $70.00/mo. = 770.00

6. Prints, Reproductions, Reports:
   11 months @ $50.00/mo. = 550.00

7. Road Maintenance:
   180 hrs. @ $16.00/hr. = 2,880.00

8. Supervisor's and Geologist's Expenses:
   Supervisor-11 months @ $200.00/mo. = 2,200.00
   Geologist -11 months @ $100.00/mo. = 1,100.00

9. Payroll Taxes and Liability Insurance:
   Total Earnings (see (b)):$22,562.88 @ 18% = 4,061.32

Total Miscellaneous Costs $16,534.62

Total Stage I Cost:- $261,738.88

Stage II

(a) Independent Contracts

1. Mining Contract: (Table IV)

Crosscutting - 240 ft. @ $43.50/ft.	=	$10,440.00
Raising - 80 feet @ $32.90/ft.	=	2,632.00
Timber Costs - 10 feet @ $22.50/ft	=	225.00
Rock Bolt Costs - 5 feet @ $7.50/ft.	=	37.50
Total Mining Contract Cost	=	$13,334.50

2. Drilling Contract:

Underground Deep-Hole Diamond Drilling: (Table VI)

4400 ft. of core drilling	=	$31,110.00
Moving Drill:		
12 hrs./ drill move @ $11.60/hr. = $139.20		
2 drill moves @ $139.20/move	=	278.40
Lost Casing:		
150 ft./hole @ $2.00/ft. =$300.00		
2 holes @ $300.00/hole	=	600.00
Cementing:		
4400 feet @ 38¢/ft.	=	1,672.00
Mud and Lost Circulation Materials:		
4400 feet @ 44¢/ft.		1,936.00
Compressed Air:		
4400 ft. @ 60¢/ft.		2,640.00
Total Underground Deep Hole Drilling		$38,236.40
Total Drilling Contract Cost		$38,236.40

(b) Personal Services

1. One Supervisor-Geologist Engineer: 2 months @ $800/month	=	$ 1,600.00
2. One Geologist-Engineer: 2 months @ $625/month	=	1,250.00
3. One Sampler-Core Splitter 52 days @ $21.66/day	=	1,126.32
Total Personal Services Cost		$ 3,976.32

(c) Operating Materials and Supplies

1. Underground Drilling Water Cost 4400 feet @ $1.03/ft.	= $ 4,532.00	
Total Operating Materials and Supplies	=	$4,532.00

(d) Operating Equipment

1. Transporation of Personnel and Supplies		
Two Jeeps: 4,060 miles @ 15¢/mile	= $ 609.00	
One Pick-up: 2,030 miles @ 10¢/mile	= 203.00	
Total Operating Equipment Cost		$ 812.00

(g) Miscellaneous

1. Assaying:		
Drill Core Assays: 440 @ $2.50/assay	= $ 1,100.00	
Mine Assays: 106 @ $2.50/assay	= 265.00	
2. Sample Sacks: 546 @ 3¢/sack	= 16.38	
3. Freight on Samples: 546 @ 5¢/sample	= 27.30	
4. Core Boxes: 440 @ $1.00/box	= 440.00	
5. Accounting: 2 months @ $70.00/mo.	= 140.00	
6. Prints, Reproductions and Reports: 2 months @ $50.00/mo.	= 100.00	
7. Road Maintenance - None.		
8. Supervisor's and Geologist's Expenses:		
Supervisor - 2 months @ $200.00/mo.	= 400.00	
Geologist - 2 months @ $100.00/mo.	= 200.00	
9. Payroll Taxes and Liability Insurance: Total Earnings (see (b)): $3,976.32 @ 18%	= 715.74	
Total Miscellaneous Costs	=	$3,404.42
Total Stage II Cost	=	$64,295.64

The application consists of two stages with Stage II in sequence but contingent on the results of Stage I. The total amount of the application is thus:

Stage I	-	$261,738.88
Stage II	-	64,295.64
TOTAL:	-	$326,034.52

The Cortez Joint Venture, by

American Exploration & Mining Co.

Managing Coventurer

R. G. Garwood pp J. Burdwell

R. G. Garwood, Geological Engineer

J. B. Bush, Chief Geologist

RGG,JBB:jb,gf

(109)
Item 18-A

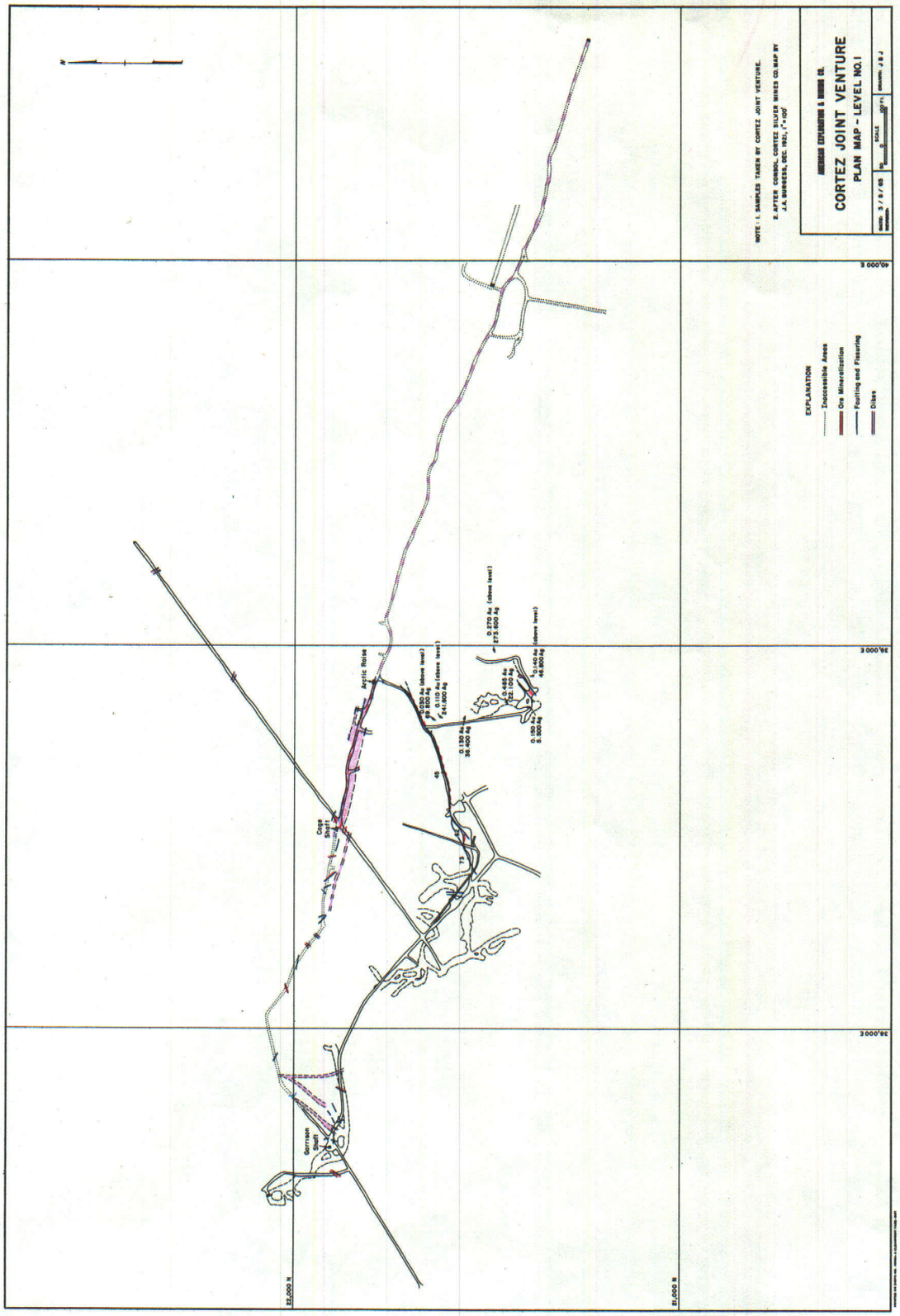


PLATE 3

(109)

Item 18-A

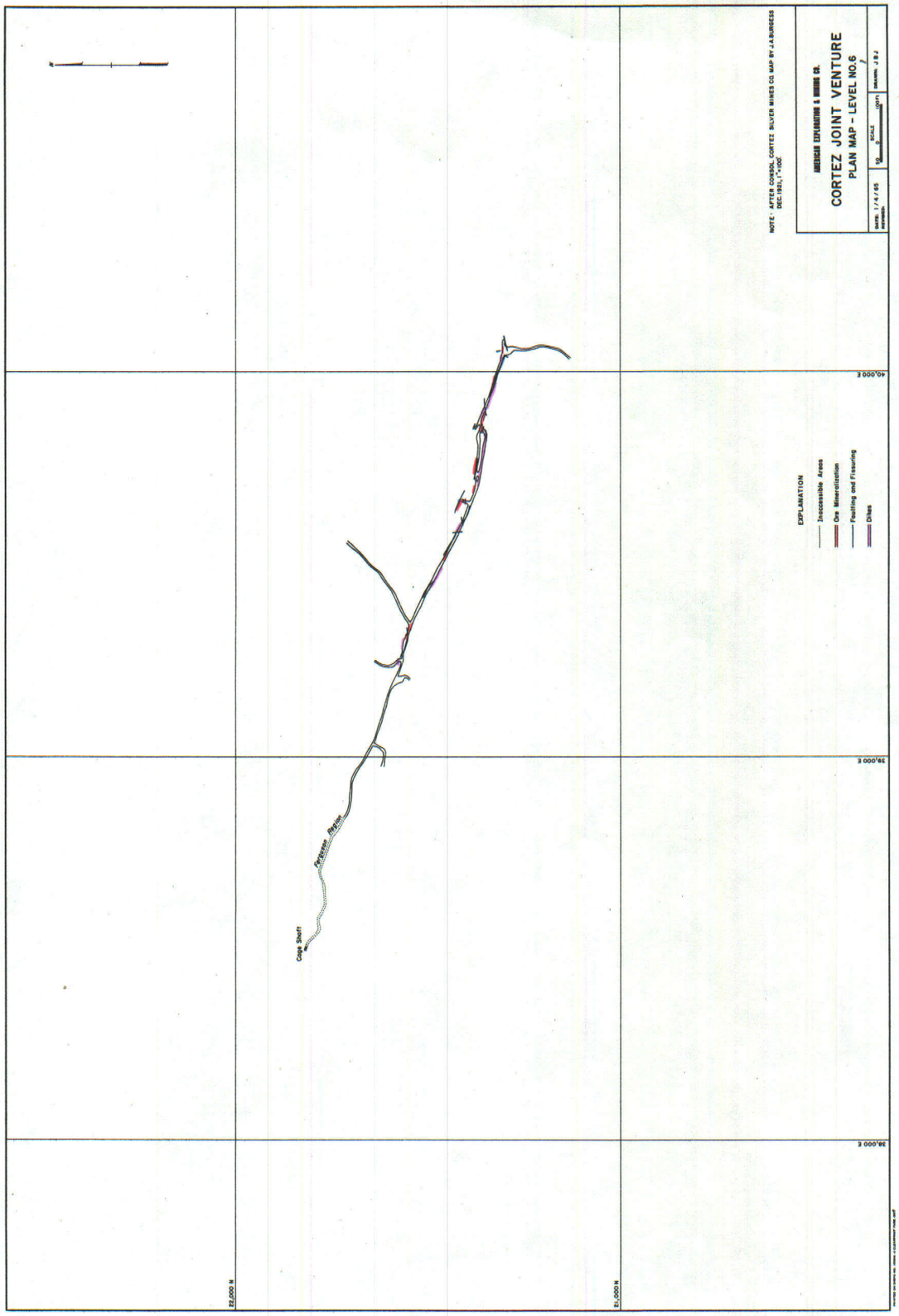


PLATE 4

(109)
Item 18-A

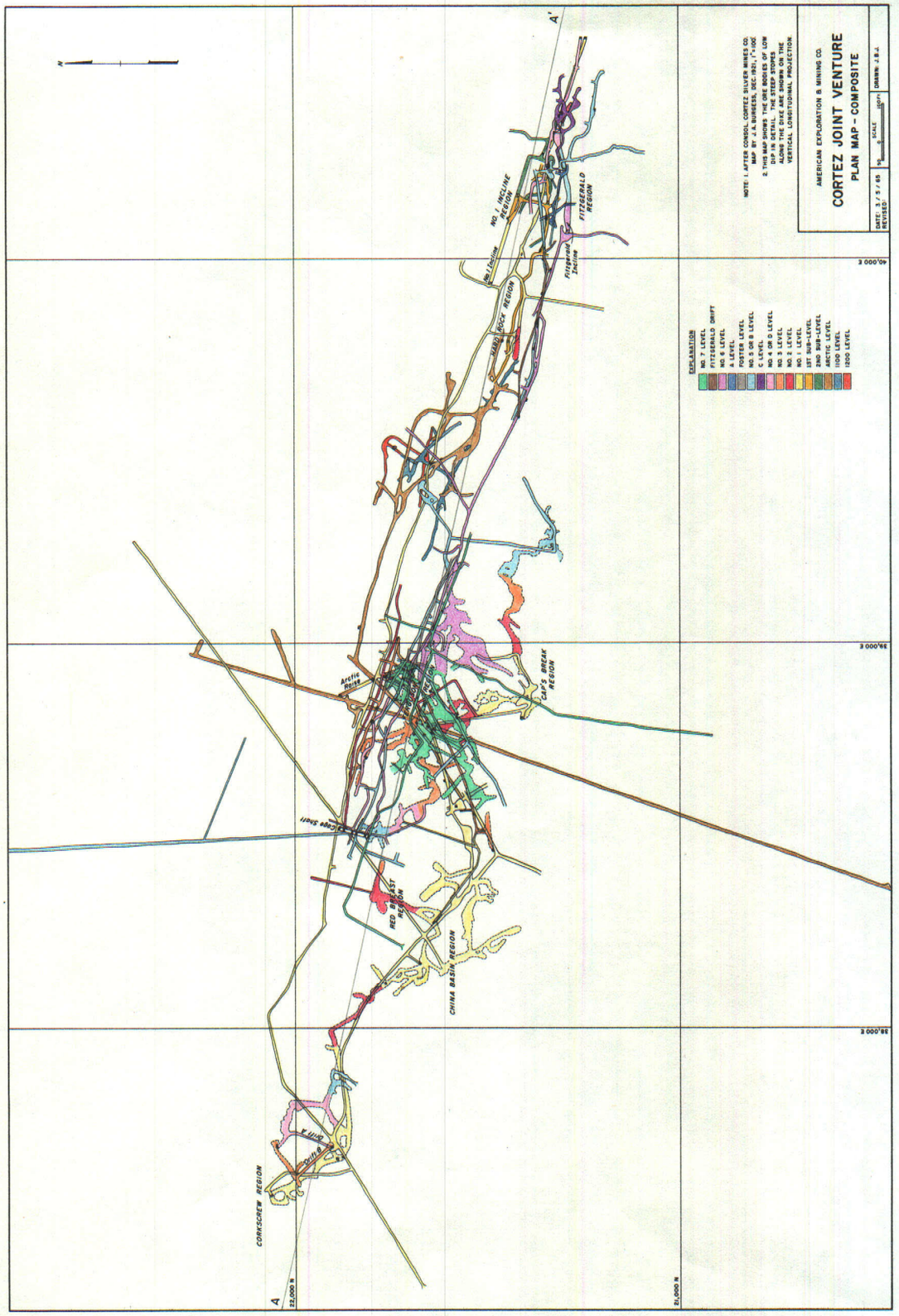
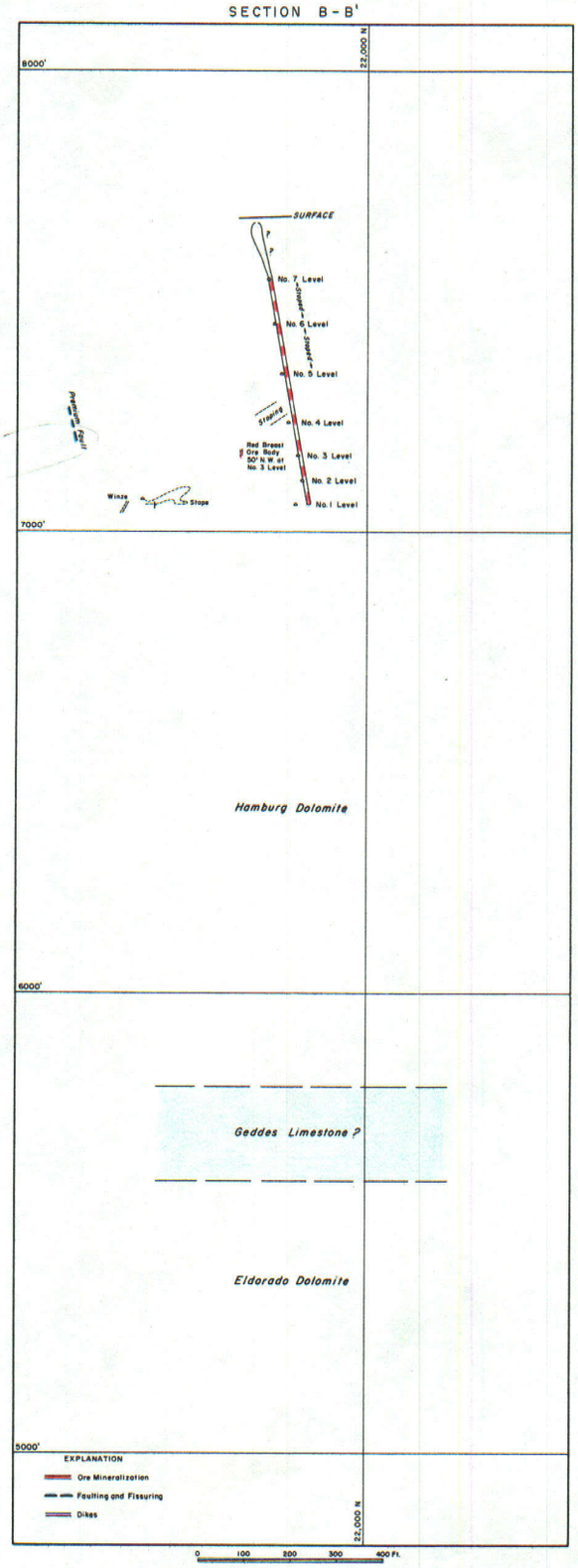


PLATE 5

109
Item 18-A

SECTION B-B'

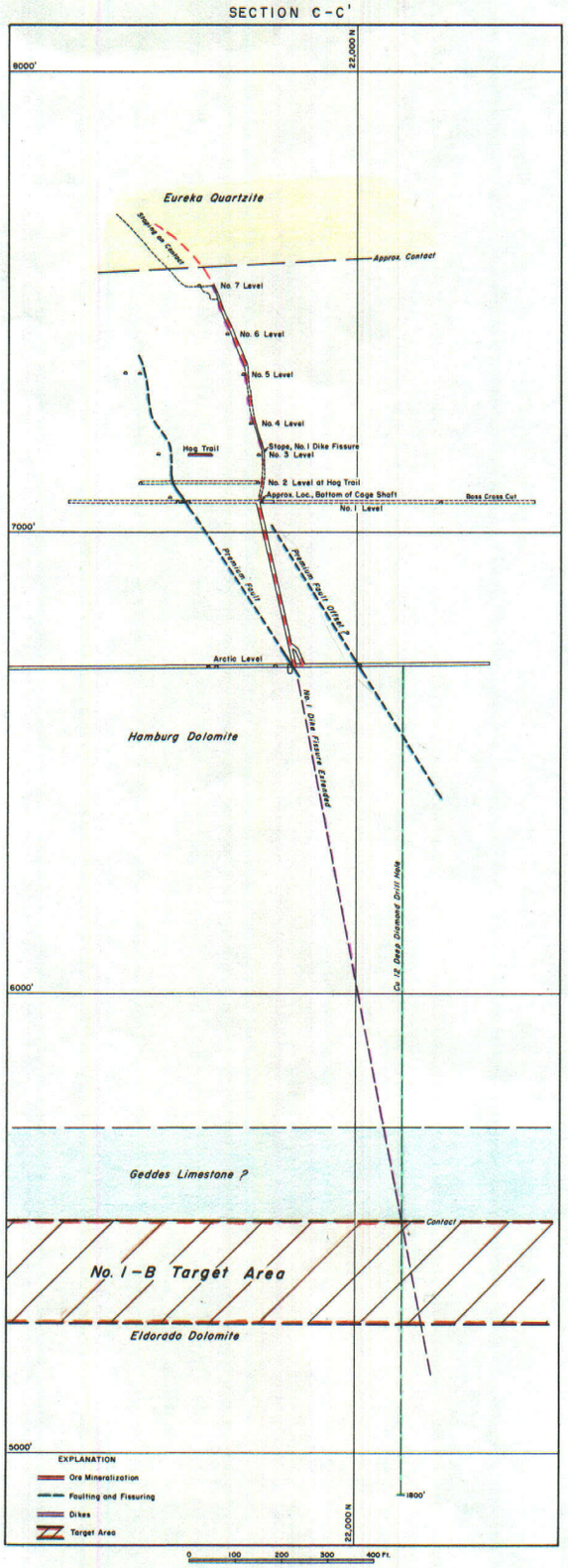


CORTEZ JOINT VENTURE

CROSS SECTION THROUGH CAGE SHAFT

N 18° E, Looking Northwest

SECTION C-C'



CORTEZ JOINT VENTURE

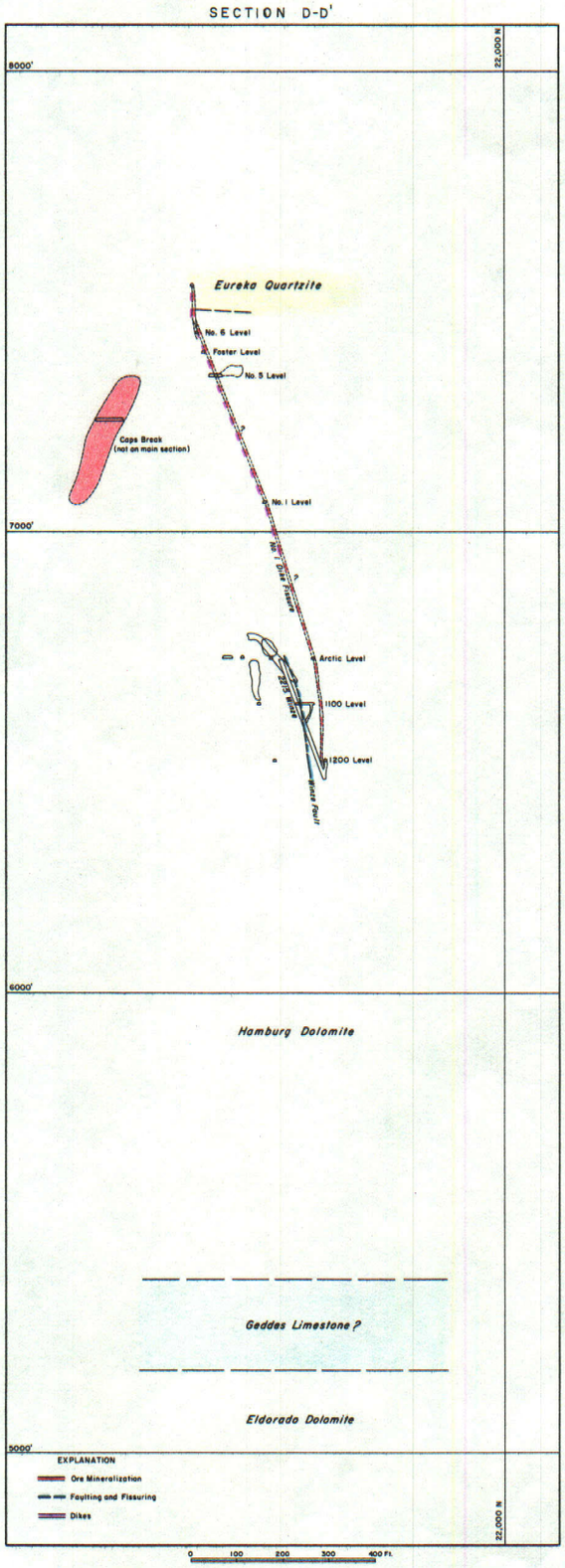
CROSS SECTION THROUGH ARCTIC RAISE

N 17° E, Looking Northwest

PLATE 7

(109)
I from 18-A

SECTION D-D'

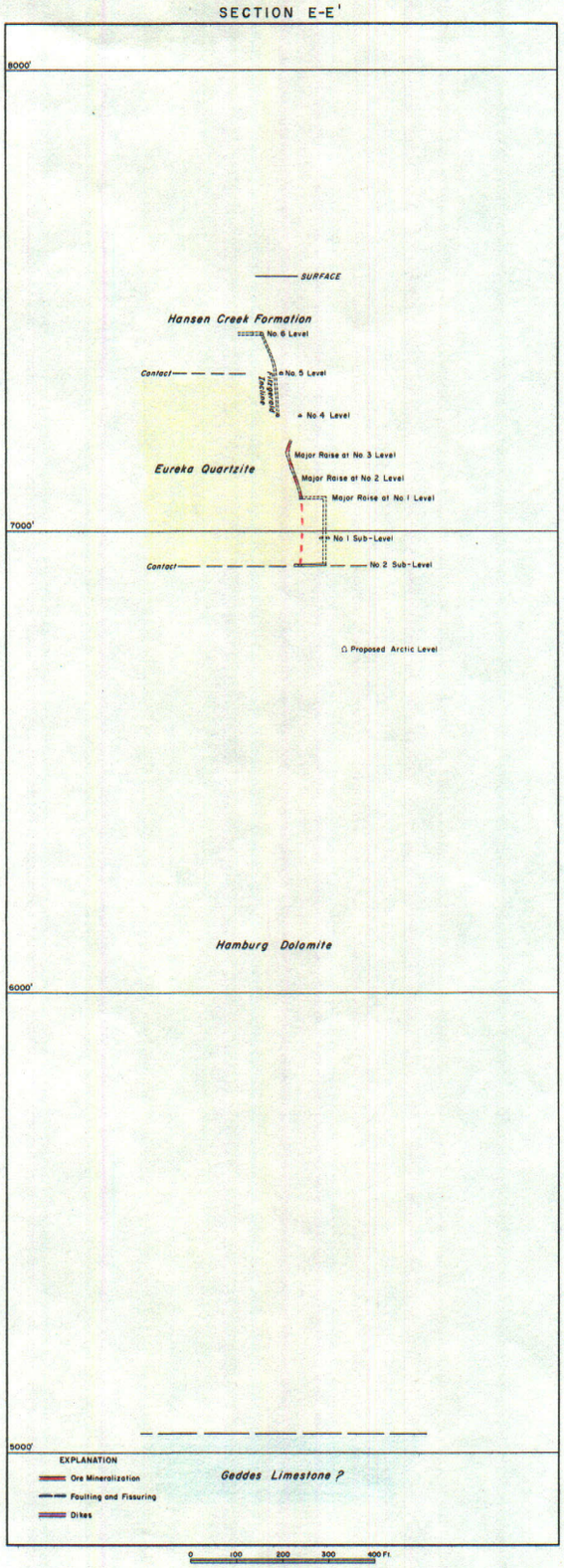


CORTEZ JOINT VENTURE

CROSS SECTION THROUGH 2215 SHAFT

N 43° E, Looking Northwest

SECTION E-E'



CORTEZ JOINT VENTURE

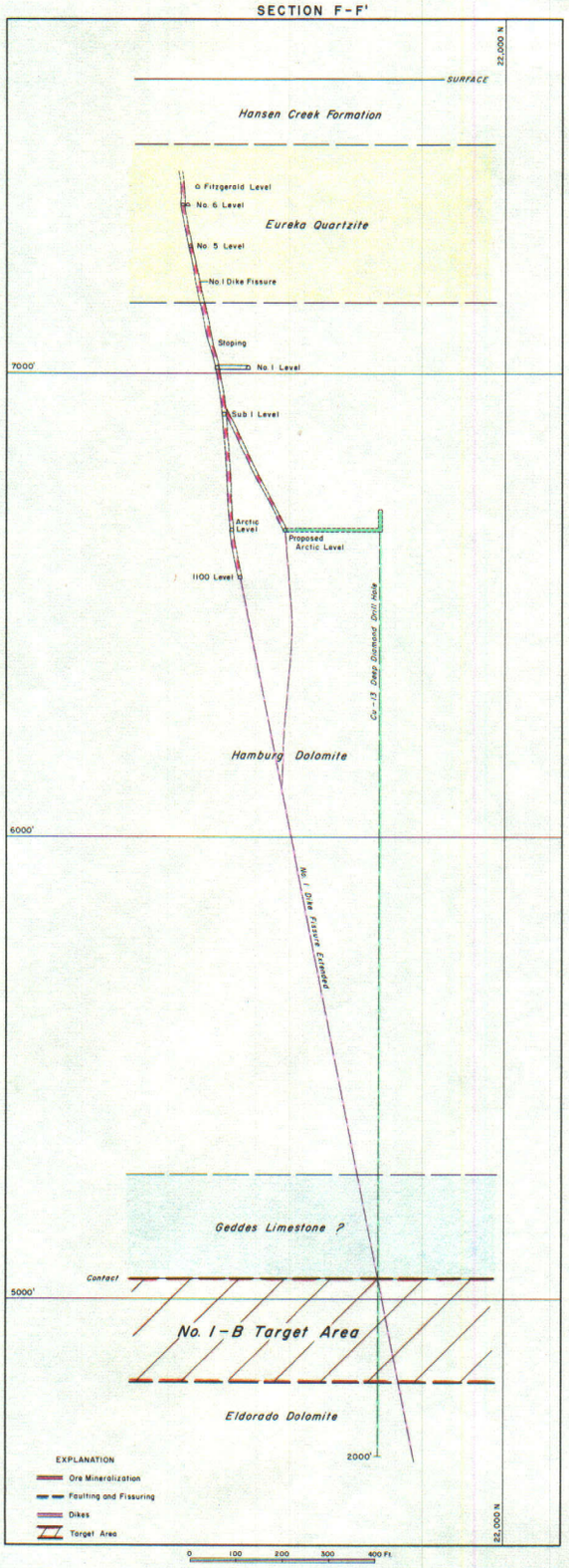
CROSS SECTION THROUGH NO. 1 INCLINE REGION AND FITZGERALD REGION

N 15° E, Looking Northwest

PLATE 8

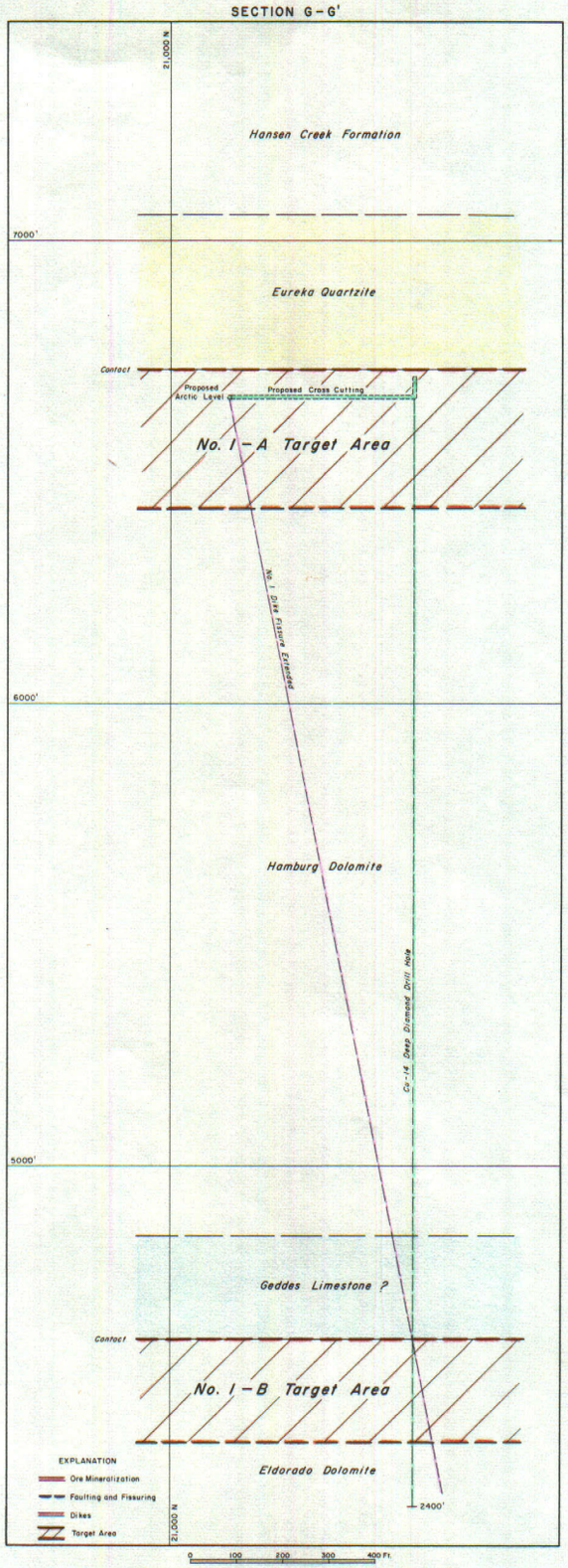
(109)
Item 18-A

SECTION F-F'



CORTEZ JOINT VENTURE
CROSS SECTION THROUGH PROPOSED
DEEP DIAMOND DRILL HOLE Cu-13 (Stage II)
N 24° E, Looking Northwest

SECTION G-G'



CORTEZ JOINT VENTURE
CROSS SECTION THROUGH PROPOSED
DEEP DIAMOND DRILL HOLE Cu-14 (Stage II)
N 7° E, Looking Northwest

PLATE II

109
Item 18-A

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

APR 23 1965

AIRMAIL

Memorandum

To: Acting Field Officer, Region II

From: Chief, Division of Exploration Operations

Subject: OME-6436 (Silver)
Cortez Joint Venture
Cortez Mine and Rossi Property
Eureka and Lander Counties, Nevada

In reply to your memorandum of April 2, 1965, transmitting the subject application and indicating a favorable recommendation, we wish to raise the following questions for consideration in your report of examination.

Lien and Subordination Agreements. We are returning two sets of agreements for the Mockingbird, et al., claims, one set of which also includes the Alert, et al., Claims. Both sets are signed by Cortez Joint Venture, but we do not require Lien and Subordination Agreements from the Applicant. Missing from the application is one set of agreements for the Arctic, et al., claims signed by Amex. If a contract is granted, they will be required.

Rehabilitation. Although the cost per foot is reasonable, the number of units is so large that we cannot justify it as a cost of exploration. While rehabilitation is often a necessary prerequisite to exploration, we must draw the line somewhere short of total rehabilitation. Our policy in this matter cannot be reduced to a formula, but in this instance we consider the distance to be excessive. If the Applicant wishes to provide access to the area of exploration, we could participate in the exploratory work itself.

Drifting. From the present information we conclude that the proposed drifting meets OME requirements. If you consider it to be warranted on a geologic basis, we would go along with this part of the proposed project, and also with the proposed short drill holes on both sides of the drifts. The size of the 15-foot drill stations should be specified.

720 cu ft

Underground Drilling, Target Area 1-A. Although the upper strata of the Hamburg dolomite have yielded most of the ore, there were also significant ore bodies in the lower strata of the Hanson Creek formation just above the Eureka quartzite. Since the proposed drift into this

target area would extend into the quartzite to a point about 200 feet below the Hanson Creek, would it be advisable to drill one or two up-holes to test the Hanson Creek? These holes would be in addition to those in the walls and to the inclined holes in the 1-A target area.

Crosscutting, Raising, Deep Drilling. Our review indicates that there is not enough evidence of a significant target in the 1-B target area to justify the Government's participation. Unless the Applicant has additional evidence, or wishes to obtain it by drilling the first hole at its own expense, we would not be inclined to consider the deep drilling favorably at this time. It appears to us that the work proposed here borders on prospecting. The "low-grade mineralization" at this horizon in DDH.No. 1 proves little, and the projections of the Premium and Coleman faults is conjectural. On the other hand, the best sample from DDH.No. 1 is from the lower strata of the Hamburg which in theory should be at least as favorable as the upper Eldorado.

Rossi Property, Surface Drilling, Target Area 2. From the data contained in the application, this project is prospecting. However, the Applicant may have additional information to indicate the existence of a target, but the geologic map of the Rossi property does not indicate that the alleged target area is any more favorable than the surface exposure of the upper Hamburg, which is unmineralized. (See Sec. R-1, 2, 3). Perhaps the Applicant should drill the first hole at its own expense to prove that there is a target to explore, or perhaps it can submit a more detailed map which indicates that specific intersections of favorable structures can be projected into the target area.

open ? for data

Personal Services. There appears to be one more Sampler than needed. Please clarify. Is all the core to be split and assayed?

Operating Materials and Supplies. The sizes of rail, airline, and waterline should be specified so that salvage can be estimated. For roof bolting, the cost per bolt should be specified. Do three trips with the water truck require a full shift?

Operating Equipment. Are three vehicles really necessary for transportation?

Miscellaneous. The owner, make, and size of the bulldozer should be specified. Supervisor's expenses on a job this long are considered to be overhead in which we may not participate.

George C. Selfridge

Enclosures

(109)
Item 18-A

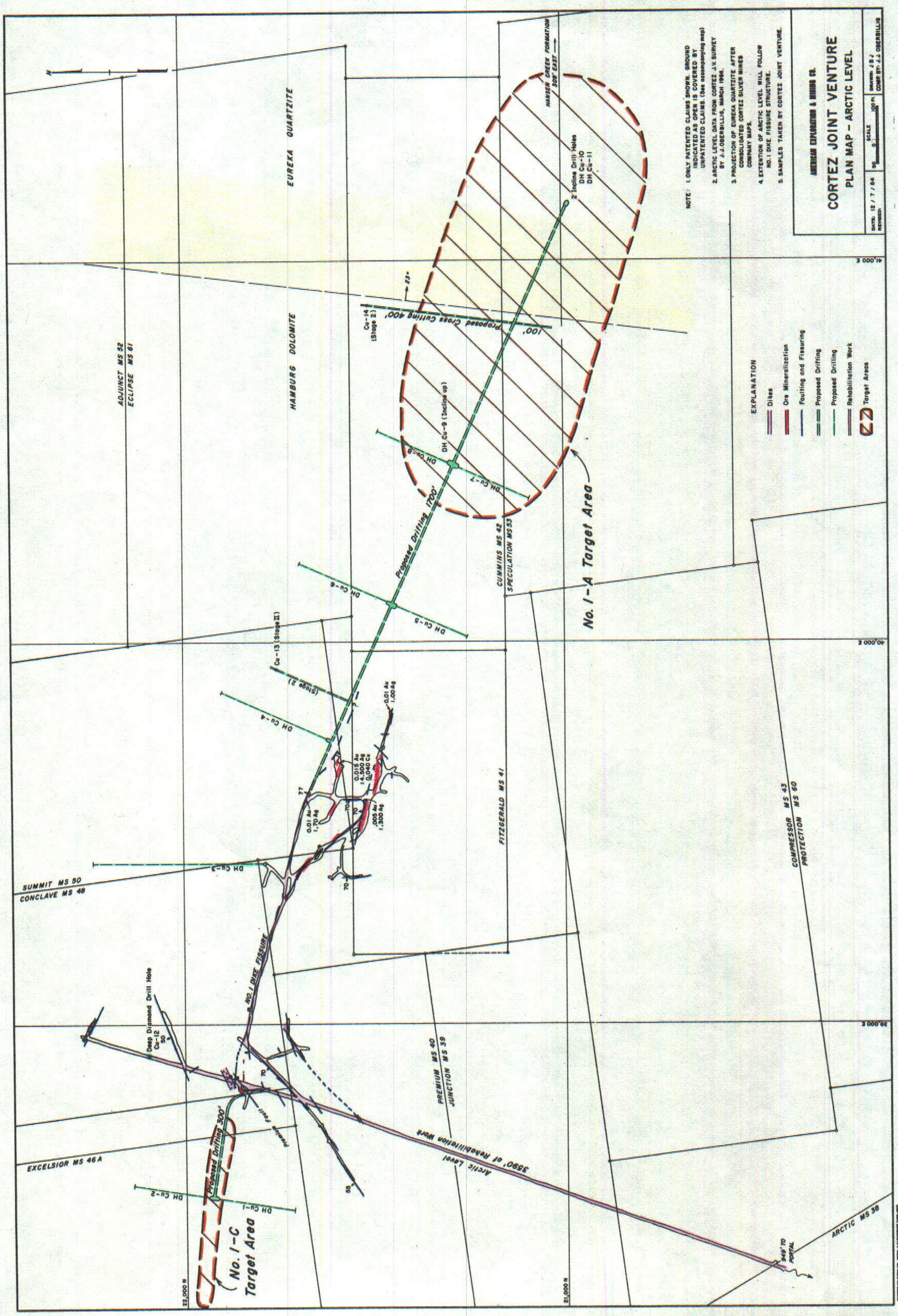


PLATE 2

EXCELSIOR MS 46A

SUMMIT MS 50
CONCLAVE MS 48

ADJUNCT MS 52
ECLIPSE MS 61

HAMBURG DOLOMITE

EUREKA QUARTZITE

PREMIUM MS 40
JUNCTION MS 39

FITZGERALD MS 41

CUMMINS MS 42
SPECULATION MS 53

COMPRESSOR MS 43
PROTECTION MS 60

ARCTIC MS 38

22,000 N

21,000 N

39,000 E

40,000 E

41,000 E

N

Deep Diamond Drill Hole
Cu-12
50

DDH-2

DDH-1

DH-3

DH-4

DDH Cu-5

DDH Cu-6

DDH Cu-8

DDH Cu-7

DDH Cu-14
(Stage 2)

DH Cu-9 (Incline up)

Cu-13 (Stage II)

(Stage 2)

Proposed Drifting 300'

No. 1-C
Target Area

5606

NO. 1 DIKE FISSURE

Premium Fault

70

55

5607
77
0.01 Au
1.70 Ag

5608
70
70
0.015 Au
14.500 Ag
0.040 Cu

.005 Au
1.300 Ag

5609
0.01 Au
1.00 Ag

Proposed Drifting 1700'

Proposed Cross Cutting 400'

100'

23°

HANSEN CREEK FORMATION
309' EAST →

2 Incline Drill Holes
DDH Cu-10
DDH Cu-11

No. 1-A Target Area

Arctic Level
3590' of Rehabilitation Work

949' TO
PORTAL

NOTE: 1. ONLY PATENTED CLAIMS SHOWN. GROUND INDICATED AS OPEN IS COVERED BY UNPATENTED CLAIMS. (See accompanying map)

2. ARCTIC LEVEL DATA FROM CORTEZ J.V. SURVEY BY J. J. OBERBILLIG, MARCH 1964.

3. PROJECTION OF EUREKA QUARTZITE AFTER CONSOLIDATED CORTEZ SILVER MINES COMPANY MAPS.

4. EXTENTION OF ARCTIC LEVEL WILL FOLLOW NO. 1 DIKE FISSURE STRUCTURE.

5. SAMPLES TAKEN BY CORTEZ JOINT VENTURE.

EXPLANATION

5606 OME Sampling

Dikes

Ore Mineralization

Faulting and Fissuring

Proposed Drifting

Proposed Drilling

Rehabilitation Work

Target Areas

Cu = Cortez underground

OMF-6436 (Silver)

AMERICAN EXPLORATION & MINING CO.

CORTEZ JOINT VENTURE

PLAN MAP – ARCTIC LEVEL

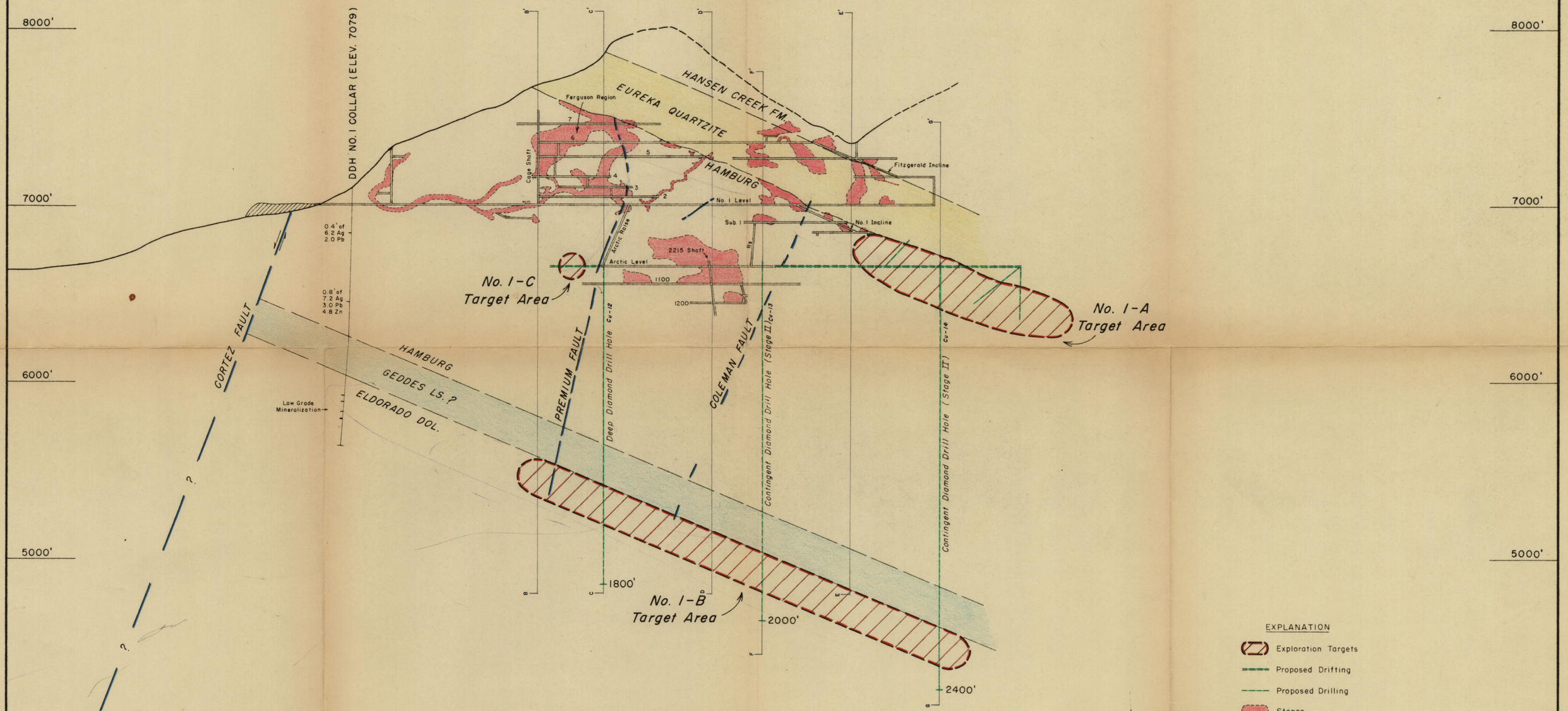
DATE: 12 / 7 / 64
REVISED:

SCALE 50 0 100 Ft

DRAWN: J B J
COMP. BY: J. J. OBERBILLIG

1280 0017 (109) Item 18-A

Figure PLATE 2



SECTION A-A'

AMERICAN EXPLORATION & MINING CO.

CORTEZ JOINT VENTURE

LONGITUDINAL SECTION OF CORTEZ MINE LOOKING NORTHEAST

DATE: 12 / 5 / 64 REVISED:	SCALE: 1" = 400'	DRAWN: JBJ

COMPRESSOR MS 43

SPECULATION MS 53

PROTECTION MS60

ARCTIC MS 38

Arctic Level
Compressor

CORTEZ MS 4506

Fitzgerald Canyon

Rossi Tunnel

CHANCE MS4591

LEAD MS 4591

ROSEBUSH MS4591

Hamburg Dolomite

MOCKING BIRD 5

MOCKING BIRD 1

MOCKING BIRD 2

MOCKING BIRD 6

MOCKING BIRD 3

MOCKING BIRD 4

QUARTZITE MS 4591

Hansen Creek Formation

Eureka Quartzite

JUNIPER 6

JUNIPER 4

JUNIPER 2

JUNIPER 1

JUNIPER 3

JUNIPER 5

JUNIPER 8

JUNIPER 9

Approx. Contact
Roberts Mountain Formation

R-1

R-2

R-3

Rs-1

Rs-2

Rs-3

20,000 N

18,000 N

16,000 N

14,000 N

12,000 N

37,000 E

39,000 E

41,000 E

43,000 E

EXPLANATION

- Dikes
- Faults
- Mineralization
- Cortez Metals Patented Claims
- Rossi Unpatented Claims

AMERICAN EXPLORATION & MINING CO.

CORTEZ JOINT VENTURE

SURFACE GEOLOGIC MAP OF ROSSI PROPERTY

Base: Aerial Photo, Uncorrected

0 400 800 1200 Feet

Compiled by R Mahfoud, R Garwood, March, 1965 Drafted by J.B.J

1280 0017

(109) Item 18-A

PLATE 9

8000'

7000'

6000'

5000'

4000'

DDH NO. I COLLAR (ELEV. 7079)

HANSEN CREEK FM.

EUREKA QUARTZITE

HAMBURG

Ferguson Region

Cage Shaft

Fitzgerald Incline

No. I Level

Sub I

No. I Incline

Arctic Raise

2215 Shaft

Arctic Level

1100

1200

DDH-9

DDH-13

DDH-12

DDH-10

DDH-11

No. I-A Target Area

No. I-C Target Area

0.4' of 6.2 Ag 2.0 Pb

0.8' of 7.2 Ag 3.0 Pb 4.8 Zn

CORTEZ FAULT

HAMBURG

GEDDES LS.?

ELDORADO DOL.

Low Grade Mineralization

PREMIUM FAULT

COLEMAN FAULT

Deep Diamond Drill Hole

Contingent Diamond Drill Hole (Stage II)

Contingent Diamond Drill Hole (Stage II)

1800'

2000'

2400'

No. I-B Target Area

?

?

EXPLANATION

- Exploration Targets
- Proposed Drifting
- Proposed Drilling
- Stopes

AMERICAN EXPLORATION & MINING CO.

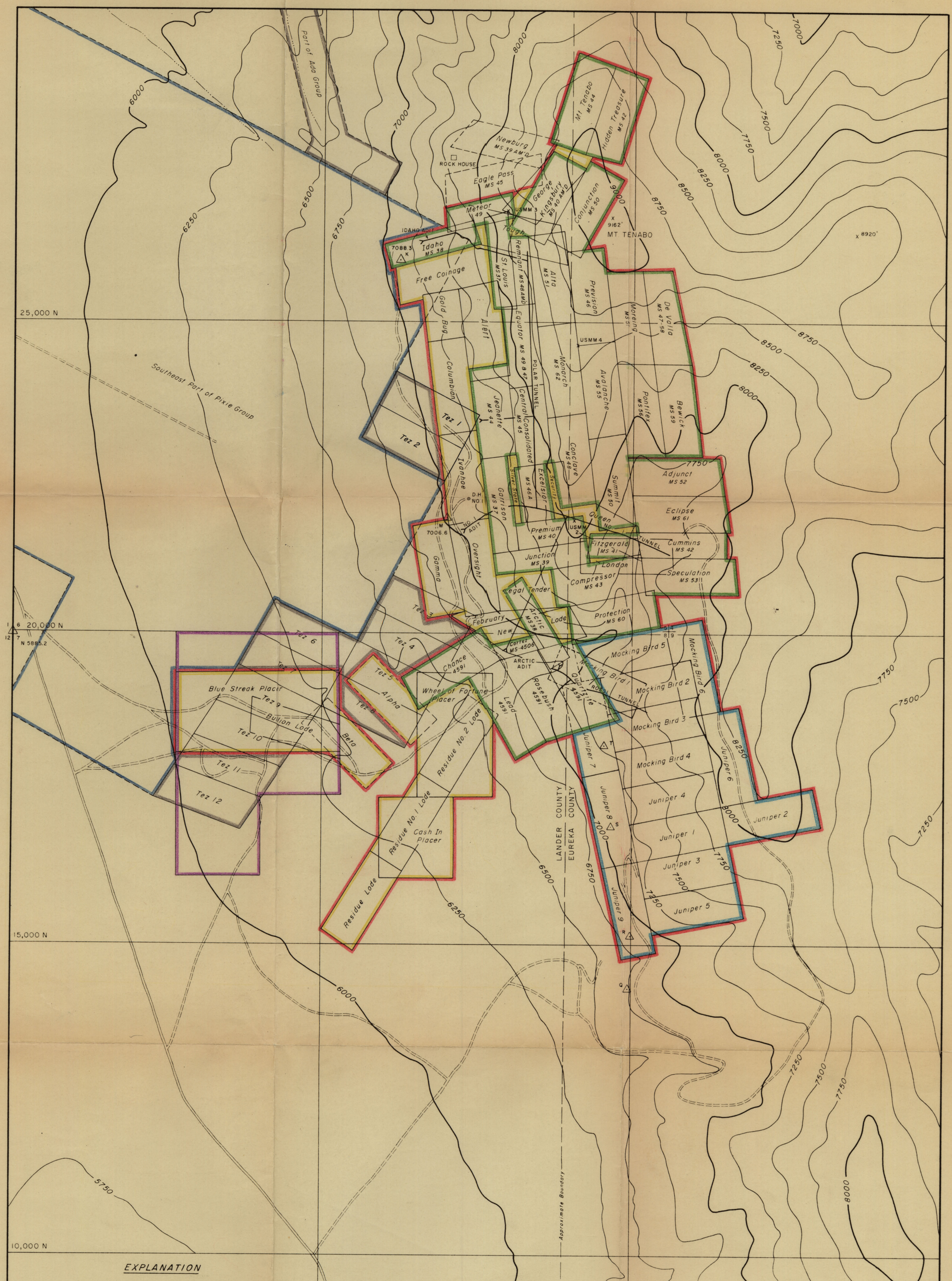
CORTEZ JOINT VENTURE

LONGITUDINAL SECTION OF CORTEZ MINE LOOKING NORTHEAST

DATE: 12 / 5 / 64 REVISED:	SCALE: 1" = 400'	DRAWN: JBJ

(109) Item 18-A

Figure ~~PLATE~~ Plate 2



EXPLANATION

PROPERTY OWNERSHIP

- Cortez Metals Patented Claims
- Cortez Metals Unpatented Claims
- Idaho Mining Co. (Pixie Group)
- AMEX Claims located in Cortez Metals' Name
- Patented Grazing Land
- Rossi Unpatented Claims
- Outline of Area for OME Loan

Note: 1. Topography after USGS
2. Triangulation and control of stations A to N by Settelmeyer and Chilton; stations O to T by Cortez J.V.
3. Claims and drill hole locations by Cortez J.V. Surveys

AMERICAN EXPLORATION & MINING CO.

CORTEZ JOINT VENTURE

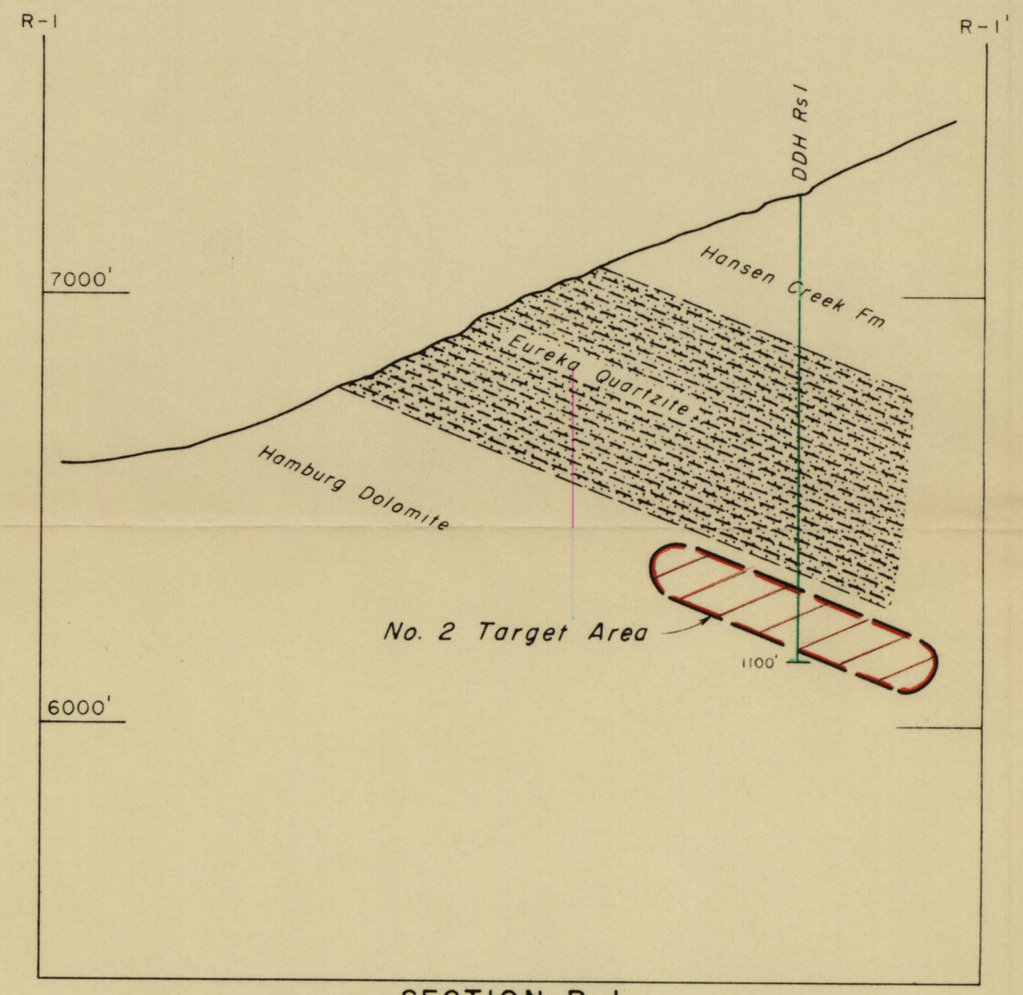
Cortez, Nevada

AREA OF PROPOSED CORTEZ MINE EXPLORATION

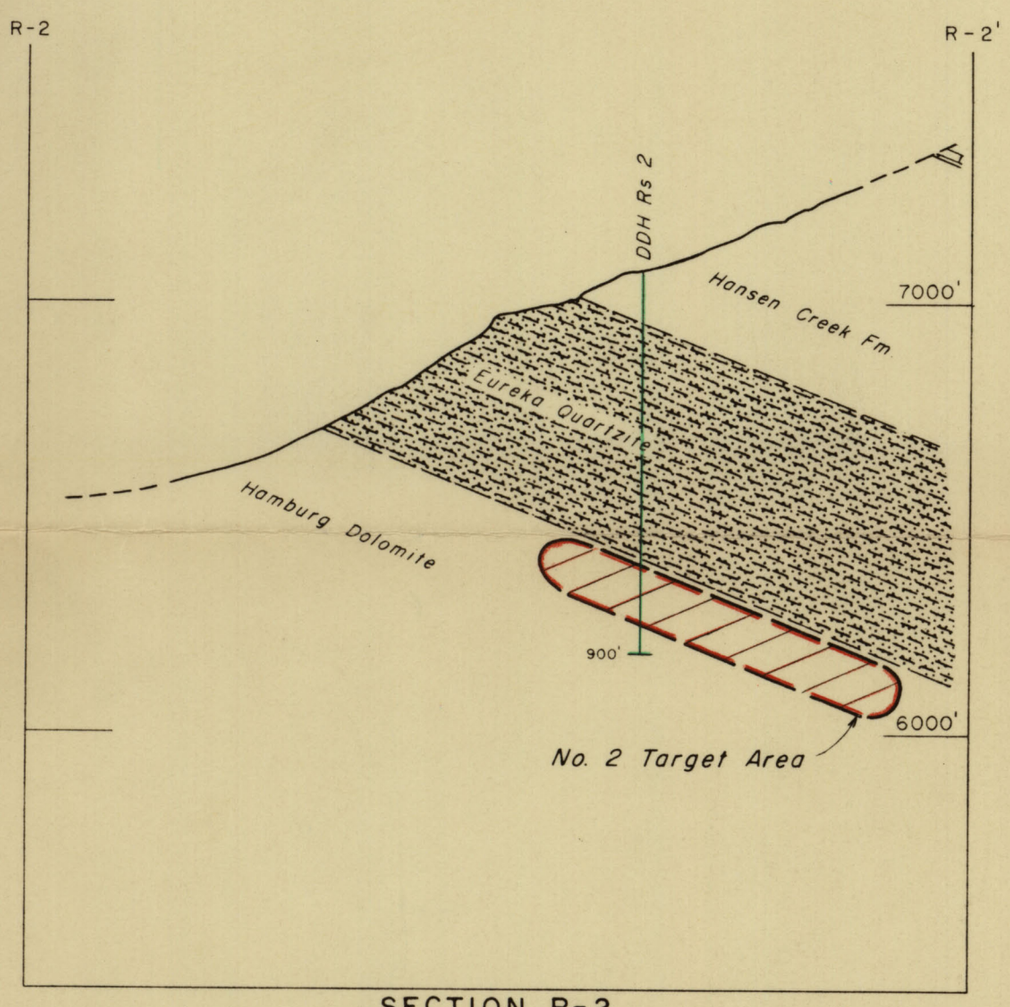
0 1000 2000 3000 Feet

Compiled by: R G Garwood, J J. Oberbillig, Jan. 1965 Drafted by: J.B.J

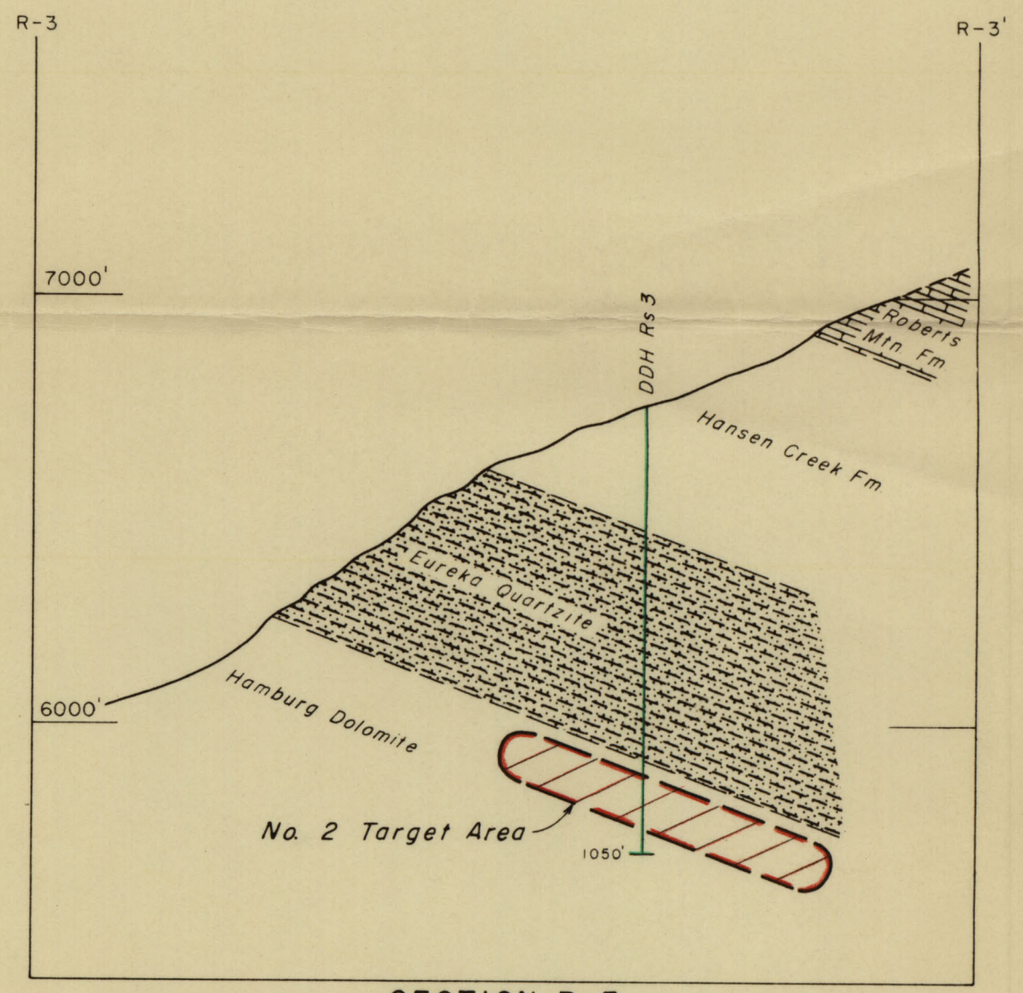
PLATE I.



SECTION R-1



SECTION R-2



SECTION R-3

AMERICAN EXPLORATION & MINING CO.

CORTEZ JOINT VENTURE

SECTIONS OF PROPOSED ROSSI DRILLING

Strike of Section N 70°W

Looking North

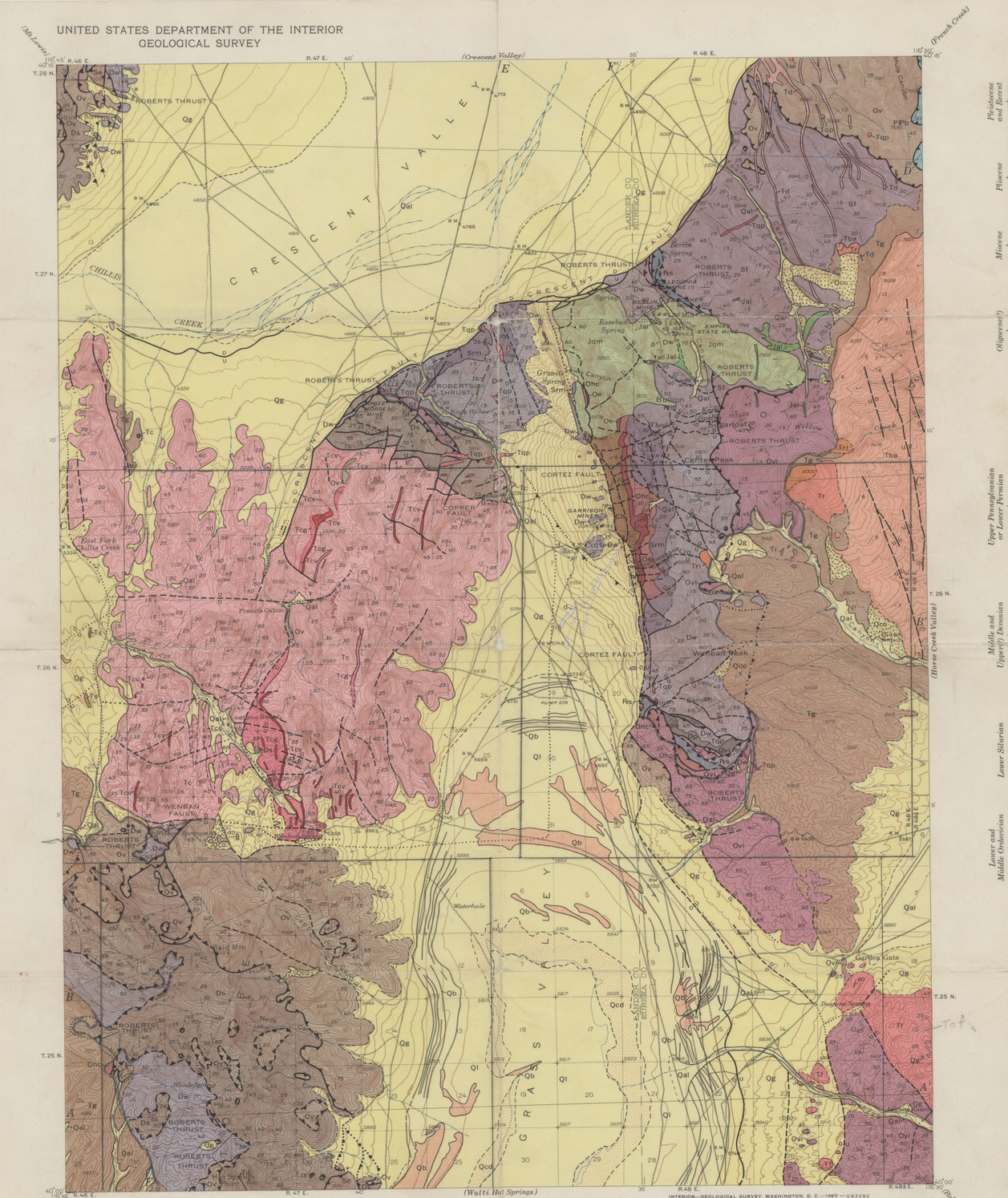
0 400 800 1200 Feet

Compiled by: R Garwood, March, 1965

Drafted by: J.B.J.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

BULLETIN 1175
PLATE 1



Base map by Topographic Division U.S. Geological Survey, 1938
Base modified by J. Gilluly and H. Masursky, 1959

SCALE 1:62 500

1 ½ 0 1 2 3 MILES

1 5 0 1 2 3 KILOMETERS

CONTOUR INTERVAL 50 FEET
DATUM IS MEAN SEA LEVEL

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1965—G63292

Geology by James Gilluly and Harold Masursky, assisted by Richard Alvord, Peter Birkeland, William Hays, Wesley LeMasurier and L. J. P. Muffler

EXPLANATION

QUATERNARY

- Qg — Terrace and pediment deposits
- Qal — Alluvium
- Qco — Colluvium and landslide deposits
- Qb — Beach and bar deposits
- Ql — Lacustrine deposits. *Silt and clay*
- Qcd — Clay dunes
- Ts — Sediments and tuff

TERTIARY

- Tri, Tr — Rhyolite flows and plugs. Tr, *rhyolite flows*; Tri, *rhyolite plugs*
- Tba — Basaltic andesite flows
- Td — Dolerite dikes
- Tg — Gravel

UNCONFORMITY

- Tqp — Quartz porphyry dikes
- Tf — Volcanics of Fye Canyon
- Tcv, Tcg, Tc, Tcs — Caetano Tuff. Tc, *welded rhyolitic tuff*; Tcv, *vitrophyre layers*; Tcs, *air- and water-laid tuffs, nonwelded*; Tcg, *sandstone and conglomerate*

JURASSIC

- Jal — Alaskite
- Js — Augite syenite
- Jqm — Quartz monzonite

UNCONFORMITY

OVERLAP FACIES

PENNSYLVANIAN OR PERMIAN

- PPb — Brock Canyon Formation

UNCONFORMITY—FAULT

UPPER PLATE OF ROBERTS THRUST (WESTERN FACIES)	LOWER PLATE OF ROBERTS THRUST (EASTERN FACIES)
	DEVONIAN
	Upper Devonian: Dp — Pilot Shale
	Dw — Wenban Limestone
Middle and (Upper?) Devonian: Ds — Slaven Chert	
FAULT CONTACT	
Se — Elder Sandstone	Srm — Roberts Mountains Limestone
FAULT CONTACT	**SILURIAN**
Lower Silurian: Sf — Fourmile Canyon Formation	Pzs — Sedimentary rocks, undifferentiated
FAULT CONTACT	**PALEOZOIC**
Lower and Middle Ordovician: Ov — Valmy Formation; Ovi — Vinini Formation	Middle(?) and Upper Ordovician: Onc — Hanson Creek Formation
FAULT CONTACT	**ORDOVICIAN**
	Middle Ordovician: Oe — Eureka Quartzite
	DISCONFORMITY
	Middle and Upper Cambrian: Ch — Hamburg Dolomite
	CAMBRIAN

Contact
Dashed where approximately located; dotted where concealed

Normal fault, showing dip
Dashed where approximately located; dotted where concealed. U, upthrown side; D, downthrown side

Thrust fault
Dashed where approximately located; dotted where concealed. Saw teeth on upper plate

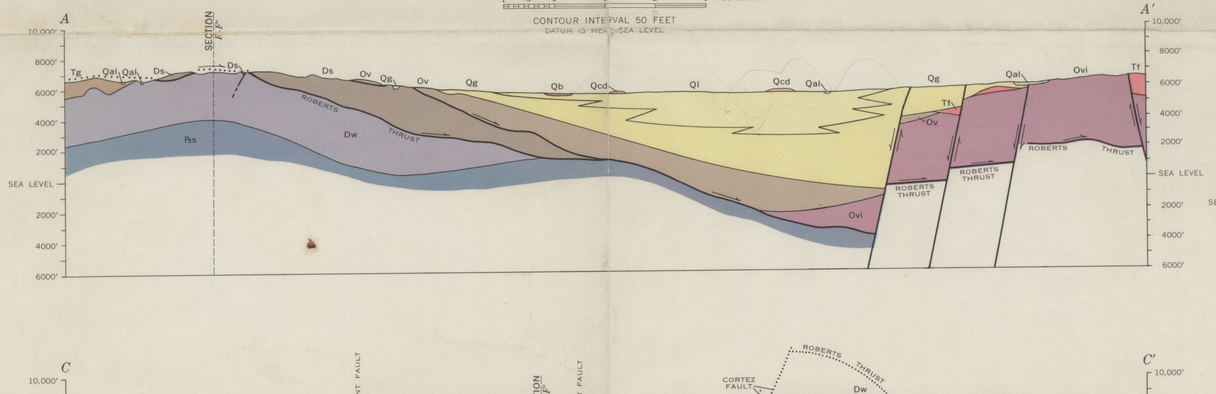
Strike and dip of beds

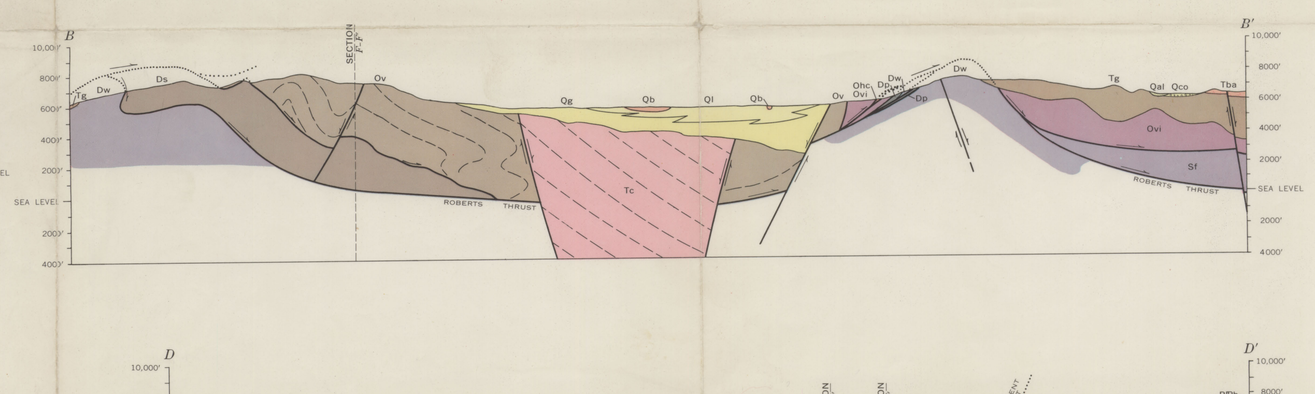
Strike of vertical beds

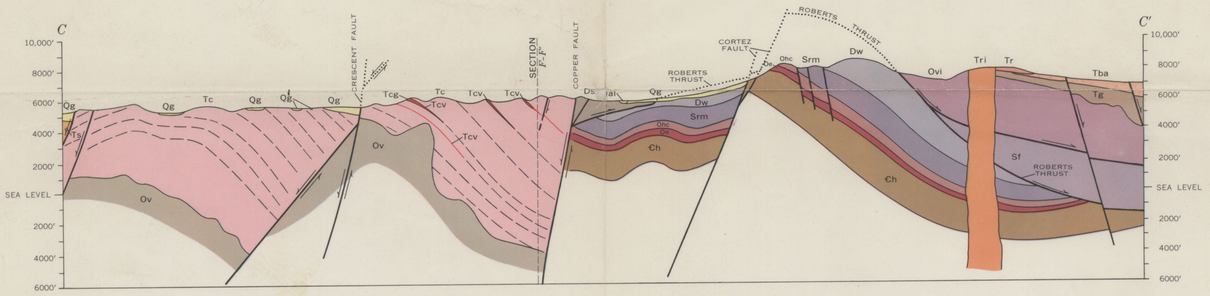
Strike and dip of foliation

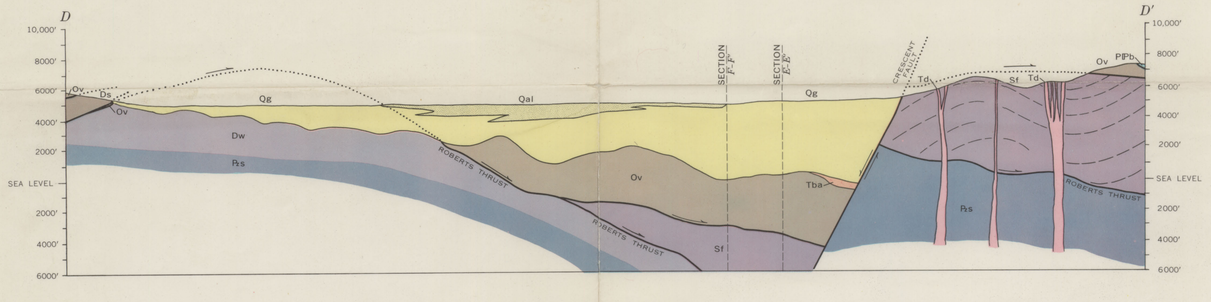
Dump

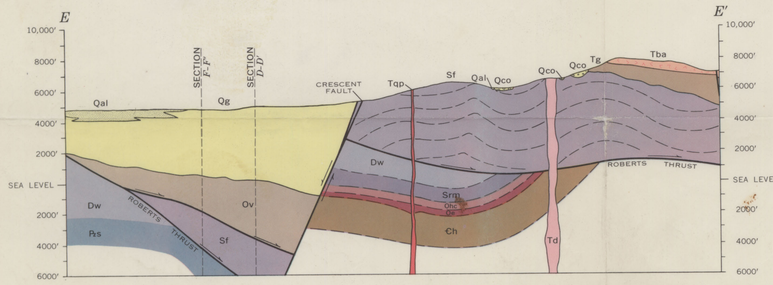
17½° TRUE NORTH / MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1965

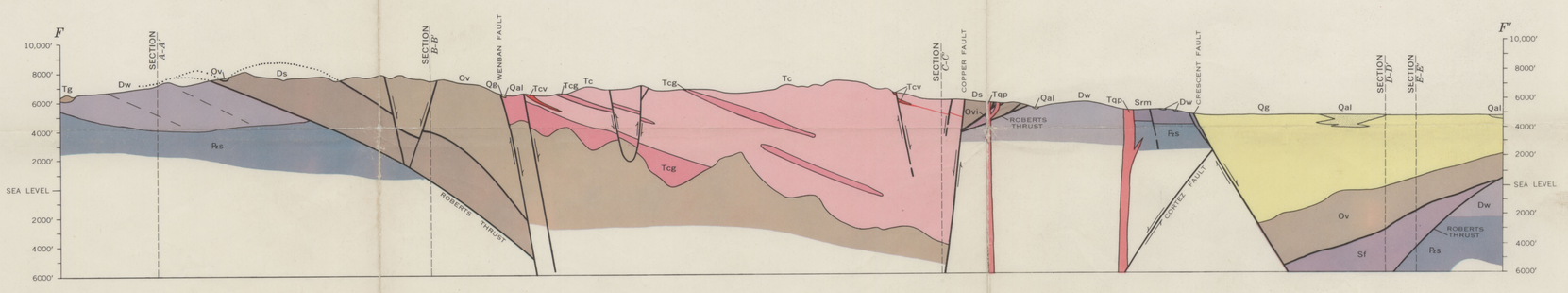






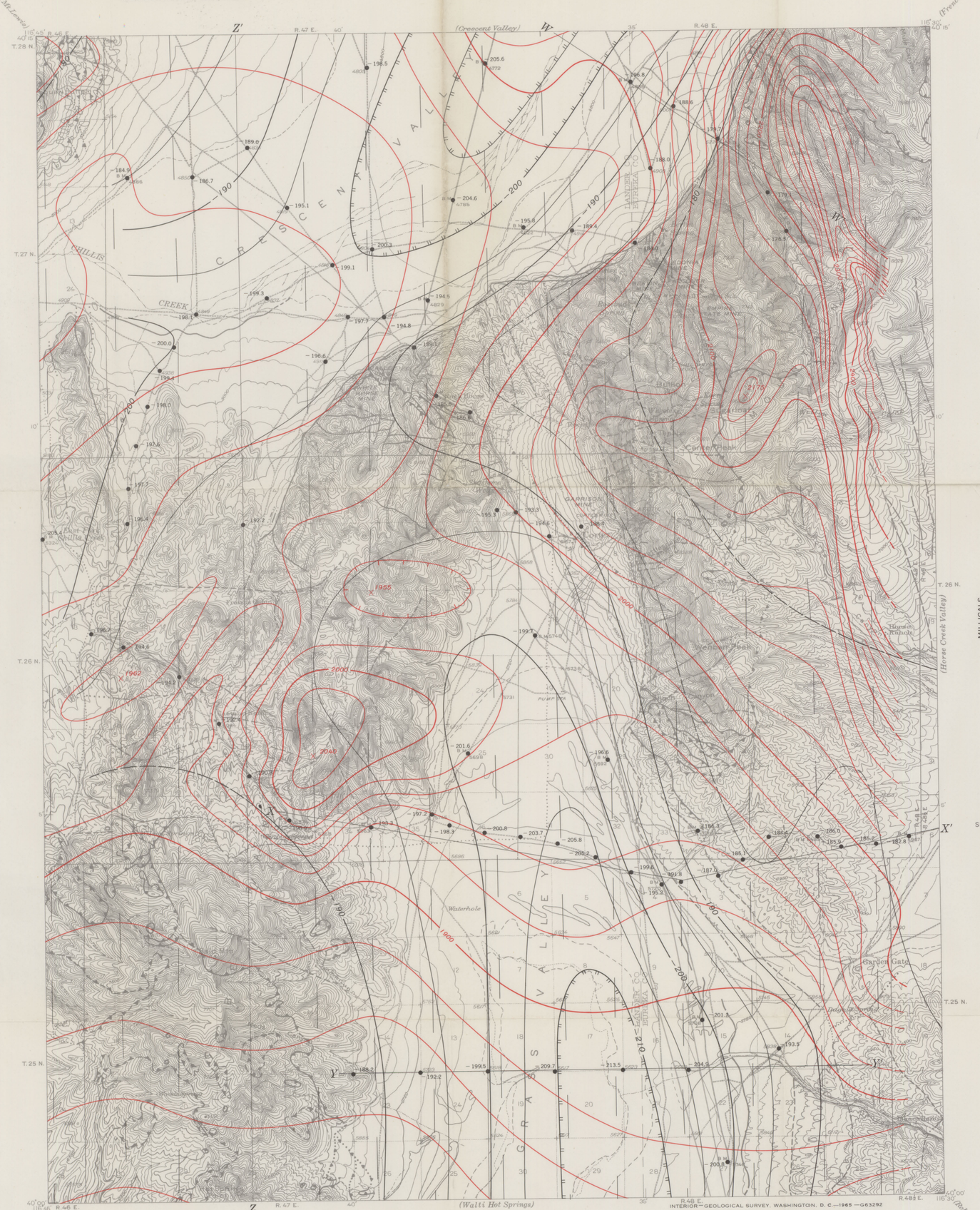






GEOLOGIC MAP AND SECTIONS OF THE CORTEZ QUADRANGLE, NEVADA

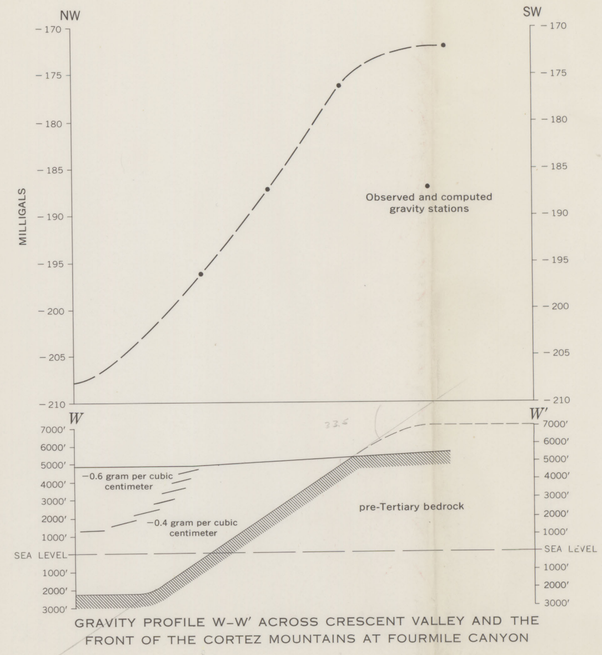
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



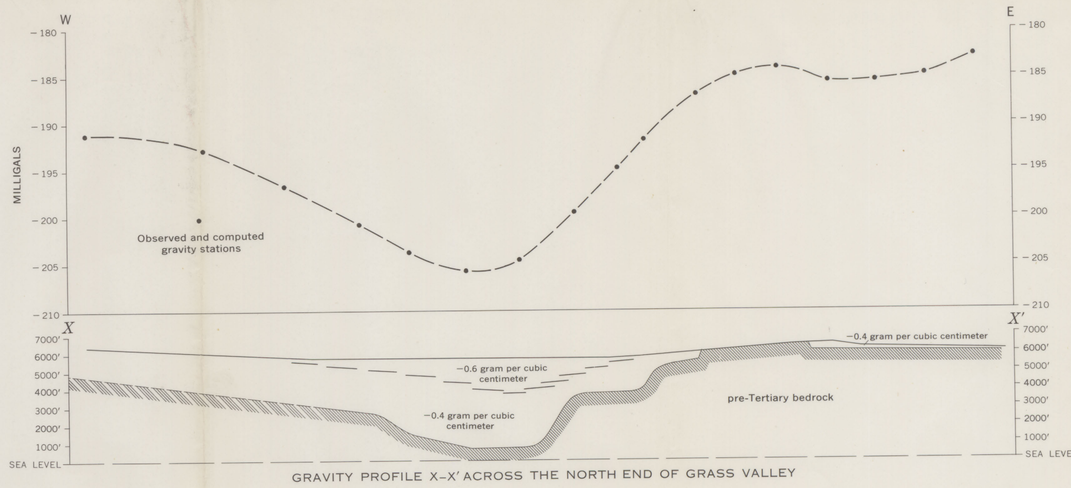
Base map by Topographic Division U.S. Geological Survey, 1938
Base modified by J. Gilluly and H. Masursky, 1959

Aeromagnetic map by J. L. Meuschke and others
Gravity map by D. R. Mabey

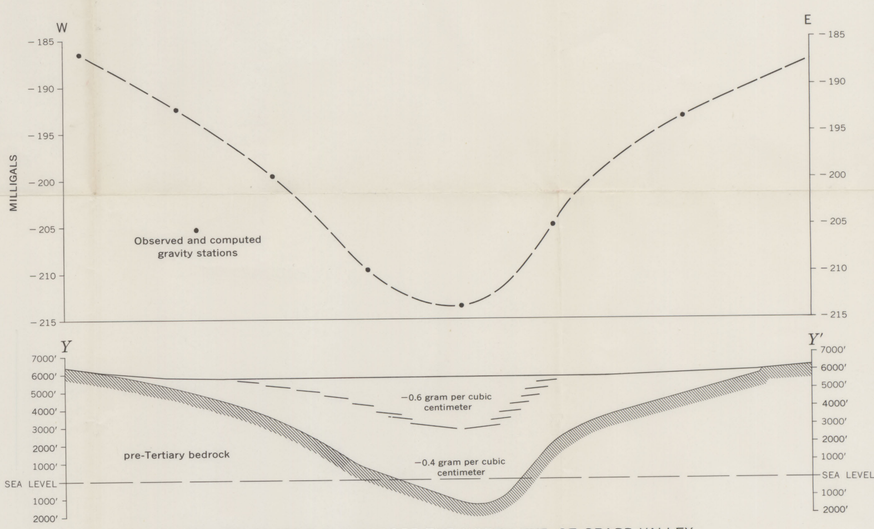
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1965—G63292



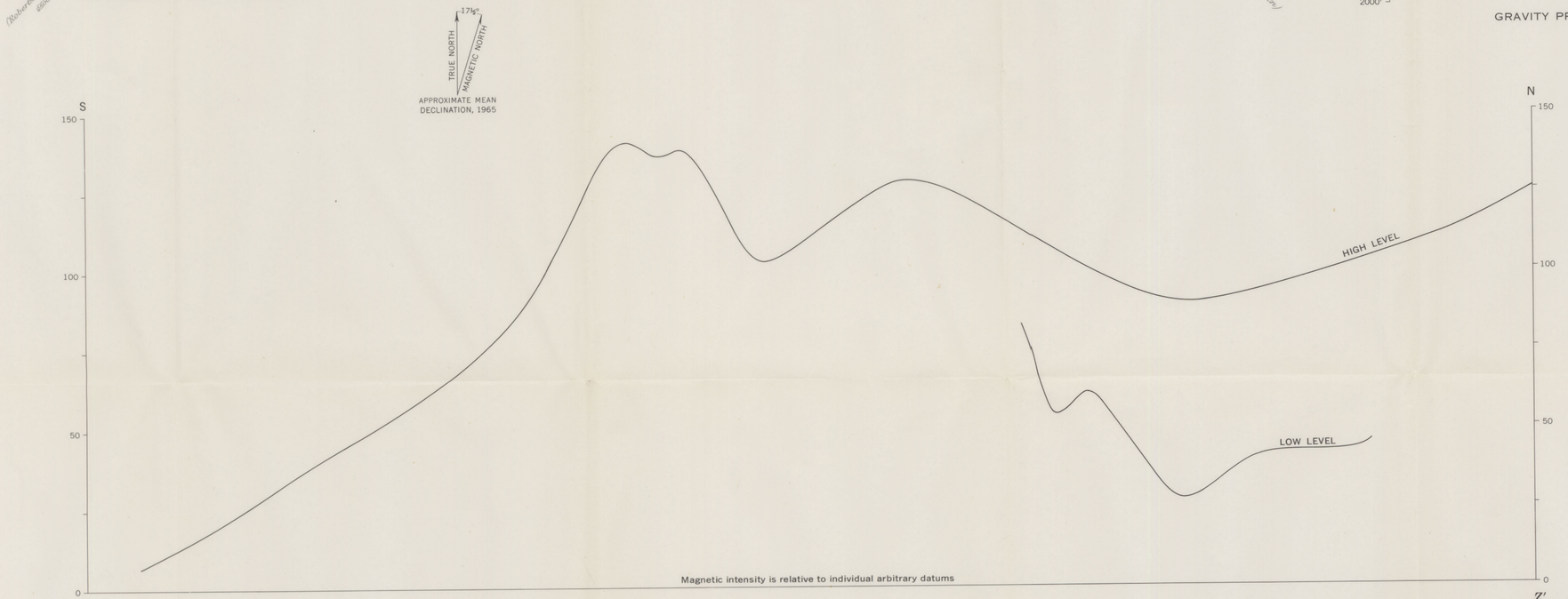
GRAVITY PROFILE W–W′ ACROSS CRESCENT VALLEY AND THE FRONT OF THE CORTEZ MOUNTAINS AT FOURMILE CANYON

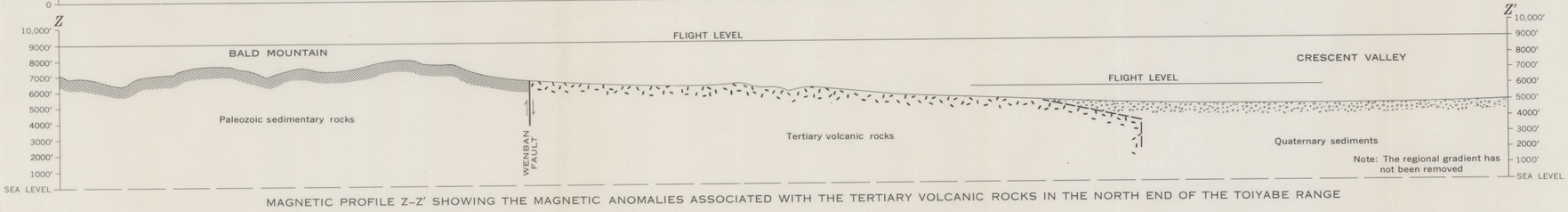


GRAVITY PROFILE X–X′ ACROSS THE NORTH END OF GRASS VALLEY



GRAVITY PROFILE Y–Y′ ACROSS THE NORTH END OF GRASS VALLEY





MAGNETIC PROFILE Z–Z′ SHOWING THE MAGNETIC ANOMALIES ASSOCIATED WITH THE TERTIARY VOLCANIC ROCKS IN THE NORTH END OF THE TOIYABE RANGE

EXPLANATION

- Gravity station — *Bouguer anomaly in milligals*
- Bouguer gravity contours — *Contour interval 5 milligals. Dashed where control inadequate*
- Gravity contour enclosing area of lower Bouguer anomaly values
- Magnetic contours — *Contour interval is 20 gammas. Contours show total intensity relative to an arbitrary datum. Dashed where control inadequate*
- Magnetic contour enclosing area of lower magnetic intensity
- Measured maximum or minimum intensity within closed high or closed low
- Flight lines at 9000 foot barometric

Note: Magnetic data were obtained on north-south lines flown 1 mile apart at 9000 feet (barometric) above sea level

SIMPLE BOUGUER GRAVITY AND TOTAL INTENSITY AEROMAGNETIC CONTOUR MAP AND PROFILES OF THE CORTEZ QUADRANGLE, NEVADA

SCALE 1:62 500

1 ½ 0 1 2 3 MILES

1 .5 0 1 2 3 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

BULLETIN 1175
PLATE 2

MAP SHOWING LOCATION OF FOSSIL COLLECTIONS FROM THE CORTEZ QUADRANGLE, NEVADA

Base map by Topographic Division U.S. Geological Survey, 1938
Base modified by J. Gilluly and H. Masursky, 1959

Geology by James Gilluly and Harold Masursky, assisted by Richard Alvord, Peter Birkeland, William Hays, Wesley LeMasurier and L. J. P. Muffler

Note: Collection numbers not consecutive, as some collections proved unidentifiable

APPROXIMATE MEAN DECLINATION, 1965
17½° TRUE NORTH MAGNETIC NORTH

SCALE 1:62 500
1 ½ 0 1 2 3 MILES
1 .5 0 1 2 3 KILOMETERS
CONTOUR INTERVAL 50 FEET
DATUM IS MEAN SEA LEVEL

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1965—G63292