3724

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

C O P Y

1605 Evans Avenue
Reno, Nevada

April 23, 1958

Memorandum

To: Operating Committee, DMEA, Interior Building
Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-3724 (Mercury)
The Castella Corporation, Successors
L. A. Smith and B. C. Austin
Altoona Mine, Trinity County, Calif.
Contract No. Idm-E826

Enclosed are three copies of our final report on subject contract by J. D. Warne, mining engineer, and H. K. Stager, geologist, Geological Survey.

Roscoe Smith and I concur in the recommendation that a certification is in order.

/s/ S. RICKER
S. Ricker

Attachments

Reviewed by
DMEA OPERATING COMMITTEE

(date)

EXTRA COPY
DMEA
RECEIVED APR 25
DATE | INITIALS | CODE

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION II

FINAL REPORT

DMEA-3724, Contract Idm-E826 (Mercury)
The Castella Corporation, assignee of
L. A. Smith and B. C. Austin
Altoona mine, Trinity County, California

by

J. D. Warne
U. S. Bureau of Mines

H. K. Stager
U. S. Geological Survey

April 22, 1958

Reviewed by
DMEA OPERATING COMMITTEE

(date)

CONTENTS

	Page
Introduction	1
Summary	2
Conclusions and Recommendations	3
Location, Accessibility, and Local Facilities	4
The Property	5
History and Ownership	5
Claims	6
Development	7
Production	7
The DMEA Project	9
Geology	13
Geologic Setting	13
Ore Deposits	15
Sampling	17
Ore Reserves	18

ILLUSTRATIONS

Figure 1 . . . . . Index map

2 . . . . . Claim map

3 . . . . Geologic map of 500- and 600-foot levels

4 . . . . . Assay map

INTRODUCTION

The Altoona mine, Trinity County, California, was explored by L. A. Smith and B. C. Austin, 983 Mills Building, 220 Montgomery Street, San Francisco 4, California, in cooperation with the Defense Minerals Exploration Administration, docket DMEA-3724, contract Idm-E826 dated June 27, 1955. Work was started on August 1, 1955 and was terminated on November 1, 1957. The total cost of the project, according to the operator's final report, was about $400,000. The Government participated in parts of the project that cost a total of $92,668.00 of which the Government's share at 75 percent was $69,501.00. The operator repaid $8,685.00 for the Government's equity in equipment purchased under the contract and paid royalties of $734.17 on production made during the contract period. The net amount still to be paid to the Government as royalties on future production is $60,081.83.

An examination of the property to evaluate the completed program was made on November 6, 1957 by H. K. Stager, U. S. Geological Survey, and J. D. Warne, U.S. Bureau of Mines, accompanied by Mr. Howard Adams, mine foreman.

The geology of the Altoona mine was studied in considerable detail by the U. S. Geological Survey in 1943 and the results of this work were published in 1950. Parts of this report are taken from the published report[1/].

1/ Swinney, C. Melvin, 1950, the Altoona Quicksilver Mine, Trinity County, California: Calif. Jour. Mines and Geol., Vol. 46, No. 3.

A previous contract, DMA-1258X (Mercury) Idm-E91, was granted to explore the property in 1951 but was rescinded in April 1952 because of legal difficulties with the adjacent property owners that prevented the operators from proceeding with the contract work.

SUMMARY

The purpose of the project was to explore the possible downward continuation of cinnabar-bearing shear zones in altered diorite that had been mined in the upper levels of the mine. The project was justified by past production of about 34,000 flasks of mercury by old mine records that indicated minable ore left in the lower levels, and by a favorable geologic setting.

The 450-foot shaft, 150-foot winze, and about 780 feet of old workings were rehabilitated and the mine was dewatered under Stage I. A total of 928 feet of new drifts and crosscuts were driven and nine diamond-drill holes totaling 954 feet were drilled under Stage II. A large ore shoot was discovered in the locations where ore had been inferred and about 1,500 tons of ore that averages about 10 pounds of mercury per ton was recovered from the DMEA exploratory workings and stockpiled at the mine. In addition to this ore, 26 flasks of mercury was recovered from high-grade ore mined from the ore shoot and retorted at the property. The reserves resulting from the DMEA exploration total 55,000 tons of ore that averages about 20 pounds of mercury per ton.

The operator's final report, dated November 7, 1957, was received by the Region II Executive Officer, and transmitted to the DMEA Operating Committee on November 15, 1957.

CONCLUSIONS AND RECOMMENDATIONS

A significant ore discovery was made by the DMEA work and the deposit is now being developed in preparation for full-scale mining starting in the early summer of 1958 or as soon as an adequate reduction plant can be constructed at the property. All

royalties due the Government on the sale of production made during the contract period have been paid. Sufficient reserves are measured and indicated to assure the repayment of the DMEA loan.

The project area was adequately explored and the present operator is continuing the exploration and development of the deposit. Additional targets that warrant exploration exist below the bottom, or 600-foot level, of the mine and if Government participation in further exploration is requested it should be given favorable consideration.

Certification of discovery is warranted for the ore body found on the 500- and 600-foot levels and is recommended.

LOCATION, ACCESSIBILITY, AND LOCAL FACILITIES

The Altoona mine is in sec. 22, T. 38 N., R. 6 W., M.D.B. & M., Trinity County, California (fig. 1). It is on the east fork of the Trinity River in the Trinity Mountains at an altitude of 4,500 feet.

From Castella, California, the mine is reached by traveling 0.1 mile north on U.S. Highway 99 to the Trinity Center road turnoff, turn left (west) and stay on the main traveled road for 21.6 miles to the mine. Highway 99 is an all-weather road and the Trinity Center road is a graded dirt road that is passable

by ordinary passenger car during dry weather but closed by heavy snows to all travel, except snow-cats, during the winter months.

Mine labor, supplies, and equipment are obtainable in Redding. Mine timber is obtained from nearby sawmills. Electric power is purchased from a nearby California-Oregon Power Co. transmission line and there is radio-telephone service to the mine from Redding. Mail, truck, and railroad service are available in Castella. The operators do their own assaying at the mine. Water for domestic use is piped from springs on the mine property and ample water is available in the mine for mine and reduction plant use.

THE PROPERTY

History and Ownership:

Cinnabar was first discovered on the property in 1871 near the site of the present shaft. Early mining consisted of placer workings, shallow open-cuts and short adits. The Altoona Quicksilver Mining Company acquired the property in 1875 and is the present owner. The mine was operated until 1880 when litigation among the stockholders resulted in a shutdown of the mine. It was re-opened in 1894 and was active until 1901. During

this period it was developed to the 600-foot level. The mine was closed until 1929 although a little mercury was produced during this period by lessees who worked the old dumps. The workings above the 132-foot level were re-opened in 1929 and intermittent mining was done by the Marsman Company of San Francisco (lessee) until 1945 when the mine was again shut down. An attempt was made to re-open the mine in 1951 but legal difficulties prevented the operation. The property was leased by Austin and Smith in 1955 and the DMEA contract was started. The lease was assigned to the Castella Corporation on August 8, 1957, without changing the management of the project, and was sold to the Rare Metals Corporation of America on November 1, 1957. This company is a subsidiary of the El Paso Natural Gas Company and is the present operator.

Claims:

The property consists of the patented Altoona and Trinity claims, totaling 40 acres, and the unpatented Blockade fractional claim, containing 14 acres (fig. 2). All of the DMEA work was on the Trinity claim although the entire property is included in the contract.

Development:

The mine is developed by a 450-foot vertical two-compartment shaft with levels at 45-, 90-, 150-, 230-, 290-, 350-, 410-, and 450 feet. From the 450-foot level a vertical winze extends down to the 600-foot level with an intermediate level at 500 feet. Thousands of feet of drifts and crosscuts were driven in developing the mine but most of the old upper levels are now caved and inaccessible. The most extensive stoping was done in the southwest part of the mine above the 600-foot level.

The mine has a complete surface plant consisting of a hoist house, blacksmith shop, timber-framing shed, modern compressors, hoists, blowers, pumps, and other equipment. A furnace plant is under construction.

The camp consists of a boarding house, a combination office and bunk house, and several small houses permitting accommodations for about 20 men.

Production:

Total production for the property is about 34,000 flasks of mercury. About 7,000 flasks was produced during the period 1871-1880. A production of about 240 flasks in 1890 was probably obtained from placer workings and mine dumps. A total of 19,673

flasks was produced during the period 1895-1901 and about 7,000 flasks during the period 1929-1945.

During the DMEA contract period about 32 flasks of mercury was produced from surface workings by Mr. Philip Munks of Castella, California, who had a verbal agreement with the operators. The Government was paid royalty on this production and also on 26 flasks of mercury produced from ore mined on the 500-foot level and retorted at the property. A total of $734.17 in royalties was paid to the Government on the sale of 58.25 flasks of mercury that had a sale value of $14,683.55.

During the DMEA project the operator recovered from drifting operations, and stockpiled on the surface, about 1,500 tons of ore that is estimated to average about 10 pounds of mercury per ton. This ore has a potential value, at present prices, of about $45,000. The Rare Metals Corporation of America, the present operator, is erecting a furnace plant on the property and plans to start mercury production during the spring of 1958. All production from the property is subject to royalty until June 27, 1967, or until the amount of Government participation is repaid, whichever occurs first.

THE DMEA PROJECT

The contract provided for a two-stage program. Stage I consisted of rehabilitation of the camp and surface facilities; dewatering of the mine; rehabilitation of the 450-foot shaft and 150-foot winze; rehabilitation of 780 feet of drifts and crosscuts on the 450-, 500-, and 600-foot levels. Stage II consisted of driving a maximum of 1,200 feet of drifts, crosscuts, and raises on the 500- and 600-foot levels. The work to be done under Stage II was changed by Amendment No. 1, dated October 17, 1956, to provide for 1,750 feet of diamond drilling on the 600-foot level in lieu of 350 feet of drifting, crosscutting, and raising. The time for completion of the work was extended from October 1, 1956 to July 1, 1957. The time was further extended to October 1, 1957 by Amendment No. 2, dated June 28, 1957. Stage II was further changed by Amendment No. 3, dated October 9, 1957, to limit the diamond drilling to 954 feet and the drifting, crosscutting, and raising to 1,020.57 feet. The time for completion of the work was extended from October 1, 1957 to December 1, 1957.

The work under Stage I was completed as specified in the contract and the old workings and timber were found to be in better condition than had been anticipated. Sampling showed that there was minable ore left in many of the old workings but the large ore body

that had been rumored to be exposed on the lower levels was not found. Stage II of the contract was started by the attempted drilling of nine diamond-drill holes on the 600-foot level in an effort to test the downward extent of the No. 1 and No. 2 veins. A total of 954 feet of hole was drilled but was not satisfactory because of extremely poor drilling conditions that prevented reaching the desired targets and resulted in poor core and sludge recovery. A total of 500 feet of crosscuts and drifts was driven on the 500-foot level and the No. 1 vein was found where it had been inferred to be. It contained an ore shoot that was drifted on for a strike length of about 270 feet (fig. 3). A total of 428 feet of crosscuts, drifts, and raise was driven on the 600-foot level and the No. 1 vein was found. The ore shoot on this level was drifted on for about 210 feet. Over 500 feet of the drifts and crosscuts was in ground that required support. After dewatering the old workings an average flow of about 250 gallons per minute was pumped from the lower levels during the period of the DMEA work.

The DMEA work was done in a satisfactory manner although the supervision and coordination of the project were weak. The costs to the operators for many phases of the work were excessive.

The Government was protected from sharing in these excessive costs by contract limitations. Because of these contract limitations the Government's participation was only about 15 percent of the total cost of the project instead of the anticipated 75 percent.

Expenditures

Total approved cost $95,260.00

Actual costs, unit costs, and total expenditures

Stage I (actual costs)

Supervision	$3,000.00	
Operating materials and supplies	500.00	
Operating equipment	19,300.00	
Initial rehabilitation and repairs	3,500.00	
New buildings, fixtures, and installations	5,990.00	
Miscellaneous	2,750.00	
Underground rehabilitation	22,420.00	
Total cost of Stage I		57,460.00

Stage II (fixed unit costs)

Drifting, crosscutting, and raising, 923 ft. @ $28.00/ft.	$25,984.00	
Timbering, 500 ft. @ $7.00/ft.	3,500.00	
Diamond drilling 954 ft. @ $6.00/ft.	5,724.00	
Total cost of Stage II		35,208.00

Total cost of the DMEA project	$92,668.00
Government's share of costs at 75 percent	69,501.00
Government's share unexpended	1,936.00
Repaid to Government for equity in equipment	8,685.00
Value of production during contract period	14,683.55
Royalty paid to Government on production	734.17
Net amount due the Government as royalties on future production	60,081.83

Equipment

The following list of equipment purchased under Stage 1 of the contract was used as a basis for disposition by sale to the operator:

Description	Date purchased	Actual cost
1 heavy-duty truck	August 1955	$2,524.05
1 electric hoist	September 1955	2,887.08
2 deep well pumps	September 1955	11,975.00
1 blower, with motor	December 1955	517.58
200 ft. cable (lead covered)	December 1955	254.20
1,000 ft. cable (electric)	February 1956	1,398.50

Total cost to operator	$19,548.41
Less amount not claimed by operator	248.41
Net amount claimed by operator	$19,300.00
Less depreciation at 20 percent (2 years).	7,720.00
Depreciated value	$11,580.00
Government's equity at 75 percent (sold to operator). .	8,685.00

GEOLOGY

Geologic Setting:

The Altoona mine is in an area of moderate relief on the east fork of the Trinity River in the Trinity Mountains, a part of the Klamath Mountains of northern California.

The rocks exposed in the mine area and in the underground workings are chiefly porphyritic diorite and serpentinized peridotite of probable Upper Jurassic age that have been sheared and intensely altered.

The serpentinized peridotite is exposed underground and locally crops out at the surface but is not abundant. It is a massive, light-gray-green to dark-green rock and is locally veined with a white carbonate, probably ankerite, and contains scattered grains of magnetite. It is probably older than the diorite, with which it is in fault contact.

The diorite is of two varieties; a porphyritic hornblende variety and a porphyritic feldspathic variety. Texturally and mineralogically the two varieties are closely related and they differ chiefly in that one has phenocrysts of green hornblende, whereas the other has prominent phenocrysts of feldspar with minor hornblende.

Both varieties of diorite and the serpentine are locally intensely altered and replaced by quartz and carbonates. The resulting rock is a dense, fine-grained, gray-green rock that somewhat resembles

the silica-carbonate rock of the Coast Range mercury deposits.

Except for the faces at each end of the 600-foot level drift, that are in serpentine, all of the DMEA drifts and crosscuts are in hornblende diorite that has been intensely altered and replaced.

The rocks are cut by three major steeply-dipping shear zones that strike about N. 50° E. These zones are from a few feet to as much as 30 feet wide. Displacement along the faults in these shear zones has not been determined but the gouge is commonly several feet thick, indicative of considerable movement. Numerous faults of random orientation, with nearly flat to vertical dips, and minor displacement, cut the rocks throughout the mine area. The major shear zones served as channelways for the mineralizing solutions and the ore bodies are confined to the shear zones where they cut the diorite.

Numerous solution cavities and channelways exist in the shear zones and these contain large quantities of water that is highly charged with CO_2 and H_2S gases that escape into the mine workings and pose a serious ventilation hazard.

Ore Deposits:

The ore bodies are steeply-dipping tabular lenses that average about 5 feet thick and extend several hundred feet along the strike and down the dip. They are confined to the shear zones (called "veins" by the miners) in altered diorite.

The ore minerals are cinnabar and native mercury. The cinnabar occurs as small crystals disseminated in the sheared and altered diorite and as thin veinlets and fracture coatings in the altered diorite and in carbonate veins. Native mercury is common and occurs in vugs and cinnabar-lined cavities in the rock. Vugs containing as much as several pounds of native mercury have been found.

Gangue minerals are ankerite, pyrite, barite, quartz, and several unidentified clay minerals. Two principal types of ore have been mined: an altered diorite type and a carbonate type. The altered diorite type has yielded most of the production and consists of cinnabar and native mercury in altered, decomposed, ocherous, porphyritic hornblende and feldspathic diorite. The carbonate type ore consists of cinnabar and native mercury in veins of ankerite and other carbonates. Both types of ore are found in the same shear zone. The DMEA drift on the 500-foot level of the No. 1 vein (fig. 3) is in ore of the altered diorite type and the drift on the 600-foot level, in the same ore body, is in ore of the carbonate type.

The ore shoots are 1 to 20 feet wide and average about 5 feet; they are as much as 270 feet long and extend down dip as much as 300 feet. The average grade is about 20 pounds of mercury per ton. The ore shoots that have yielded the major part of the production are confined to the shear zones known locally as Veins Nos. 1, 2, and 3, but not all of the material in these shears is of ore grade. In many places the mineralized zone may be 20 or 30 feet wide but only about 5 feet is of ore grade. The balance of the mineralized rock consists of material that contains scattered crystals and veinlets of cinnabar and averages one or two pounds of mercury per ton.

Vein No. 1 (fig. 3) has been mined above the 450-foot level and yielded ore shoots 75 to 150 feet long. The downward extension of this ore body was the principal target of the DMEA exploration. It was found to be ore-bearing for a strike length of about 270 feet on the 500-foot level and 210 feet on the 600-foot level.

A secondary exploration target was the downward extension of Vein No. 2. Most of Vein No. 2 has been mined out above the 600-foot level and the attempt to test the downward extension below this level by diamond-drilling was unsuccessful because

of poor drilling conditions. Except for a few feet of carbonate vein material all of the drilling was in intensely altered porphyritic hornblende diorite. The rocks drilled are highly fractured and many of the fractures contain water and gas under pressure. Core and sludge recovery was about ten percent, and even less in the critical intervals, resulting in an almost total lack of useful information.

SAMPLING

Most of the samples taken from the No. 1 vein, on the 500- and 600-foot levels, were grab samples taken from mine cars as the DMEA drifts on these levels progressed. The locations and weighted assays of these car samples are shown on figure 4. Analyses of 3 samples taken by the operator and 5 samples taken by the DMEA engineer during inspections of the project are listed below.

Operator's Samples

Type of sample	Grade in Lbs. Hg/ton	Description
cuttings	30.6	From 5-ft. drill hole 300 ft. from winze, 500-foot level.
4-ft. cut	28.0	Cut sample from 310 ft. from winze, 500-foot level.
cuttings	22.0	From 5-ft. drill hole 318 ft. from winze, 500-foot level.

DMEA Samples

USBM Sample No.	Grade in Lbs.Hg/ton	Description
1	14.0	2.4-ft.chip sample across mineralized zone, 600-ft. level, north drift, 270 ft. north of winze.
2	1.1	2.5-ft. chip sample across gouge zone, adjacent to sample No. 1, 600-ft.level.
3	39.2	Specimen sample of high-grade zone, 185 ft. northwest of winze, 600-ft.level.
4	14.3	Grab sample from upper part of 1,000-ton ore stockpile (fines).
5	4.5	Grab sample from lower part of 1,000-ton ore stockpile (coarse).

ORE RESERVES

About 1,500 tons of ore that averages about 10 pounds of mercury per ton was stockpiled from material removed from the DMEA drifts on the 500- and 600-foot levels. Little effort was made during the exploration work to mine the ore clean or to prevent dilution by low-grade or barren material and the average grade of the stockpiled ore is therefore much lower than the probable average grade of about 20 pounds of mercury per ton that will be maintained when actual mining starts.

The operator estimates that the total ore reserves of the mine are about 35,000 tons of ore that averages about 20 pounds of mercury per ton, or a total of about 14,000 flasks of mercury. These reserves are summarized as follows:

Class	Tons	Grade (Lbs.Hg/ton)
Measured (positive)	19,000	20
Indicated (probable)	15,000	20
Inferred (possible)	21,000	20
Total:	55,000	20

All of these reserves were found, or were made accessible, by the DMEA work and are subject to royalty when mined and the mercury sold.

Most of these reserves (39,000 tons) are contained in Vein No. 1 and consist of 13,000 tons of measured ore in a block about 200 feet long, 5 feet thick, and extending 150 feet down the dip between the 450- and 600-foot levels. 10,000 tons of indicated reserves in a similar block extending 50 feet above the 450-foot level and 50 feet below the 600-foot level, and 16,000 tons of inferred ore extending 100 feet above the 400-foot level and 100 feet below the 650-foot level. The balance of the reserves (16,000 tons) are contained in Vein Nos. 2 and 3, and consist of 6,000 tons of measured reserves in stope pillars and unmined blocks of ore above the 600-foot level; 5,000 tons of indicated reserves in Vein No. 2 in a block about 250 feet long, 5 feet thick, and extending 50 feet below the 600-foot level, and 5,000 tons of

inferred reserves in a similar block extending 50 feet below the 650-foot level. A review of production records and the grade and habits of the ore shoots that have been mined and that are not exposed indicates that this estimate of reserves is reasonable.

The most favorable targets for future exploration are the downward continuations of Vein Nos. 1 and 2 below the 600-foot level. The present operators plan to attempt another drilling program, at their own expense, using a larger drill and core size to test the No. 1 vein below the 600-foot level. This Vein and Vein No. 2 can best be tested by deepening the shaft to the 700- and 800-foot levels and crosscutting to and drifting along the shear zones on these levels.

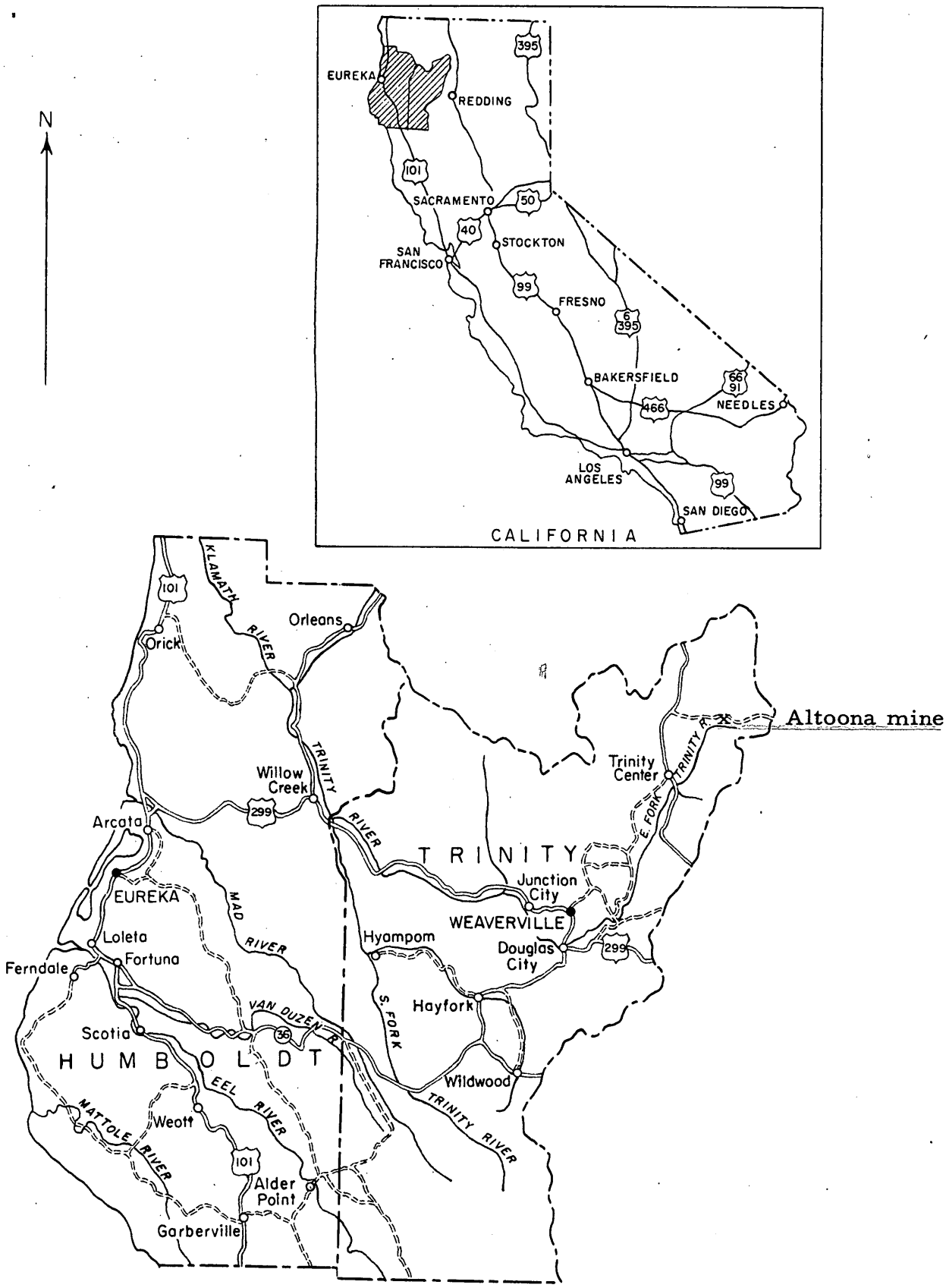


Figure 1. INDEX MAP OF HUMBOLDT AND TRINITY COUNTIES, CALIFORNIA

0 20 40 60 Miles

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA-3724
Idm E-826
(MERCURY)

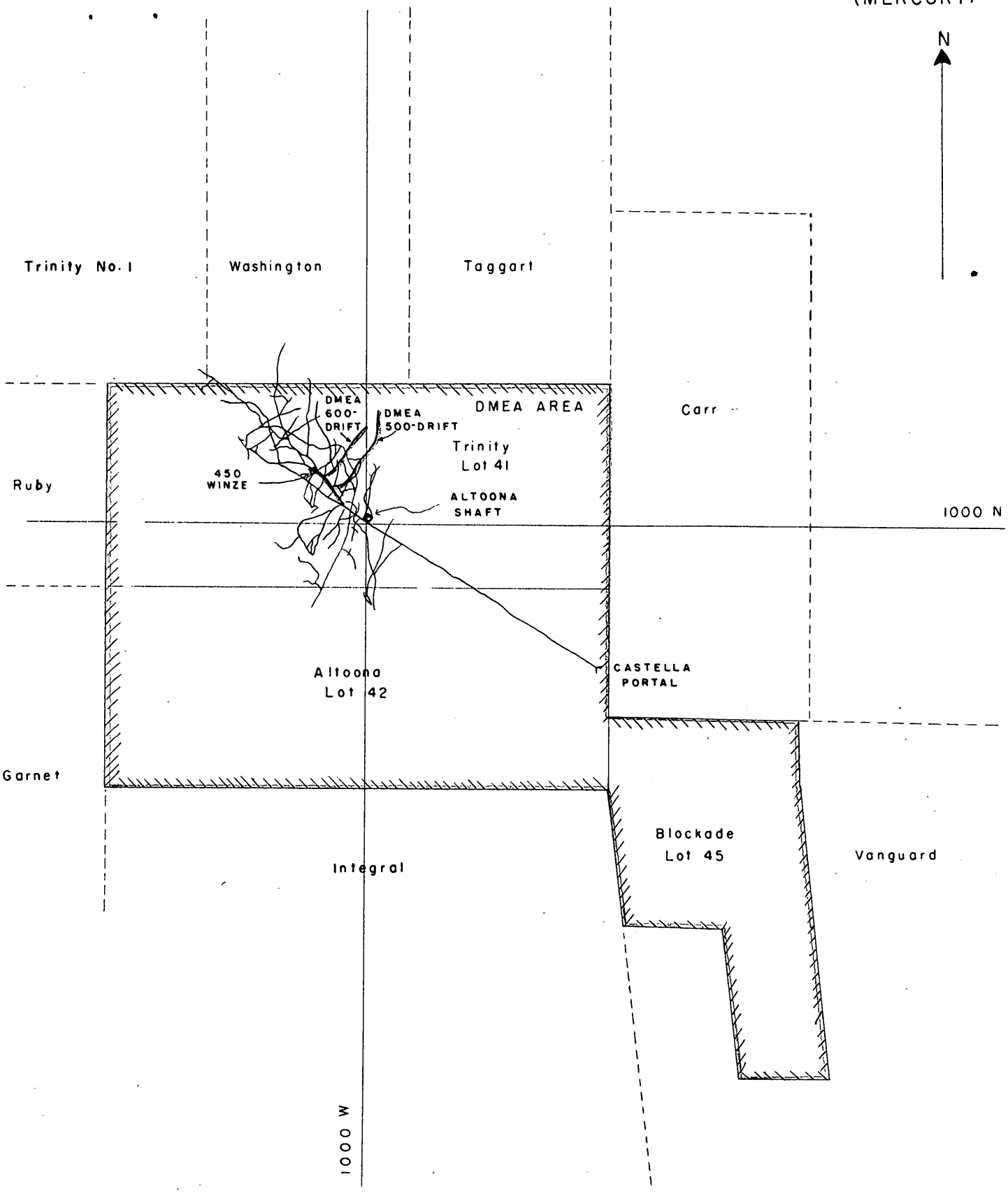


FIGURE 2. CLAIM MAP, ALTOONA MINE, TRINITY COUNTY, CALIFORNIA

0 400 800 1200 1600 feet

EXTRA COPY
D M E A
RECEIVED APR 25 1958

DATE	INITIALS	CODE

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA-3724
Idm E-826
(MERCURY)

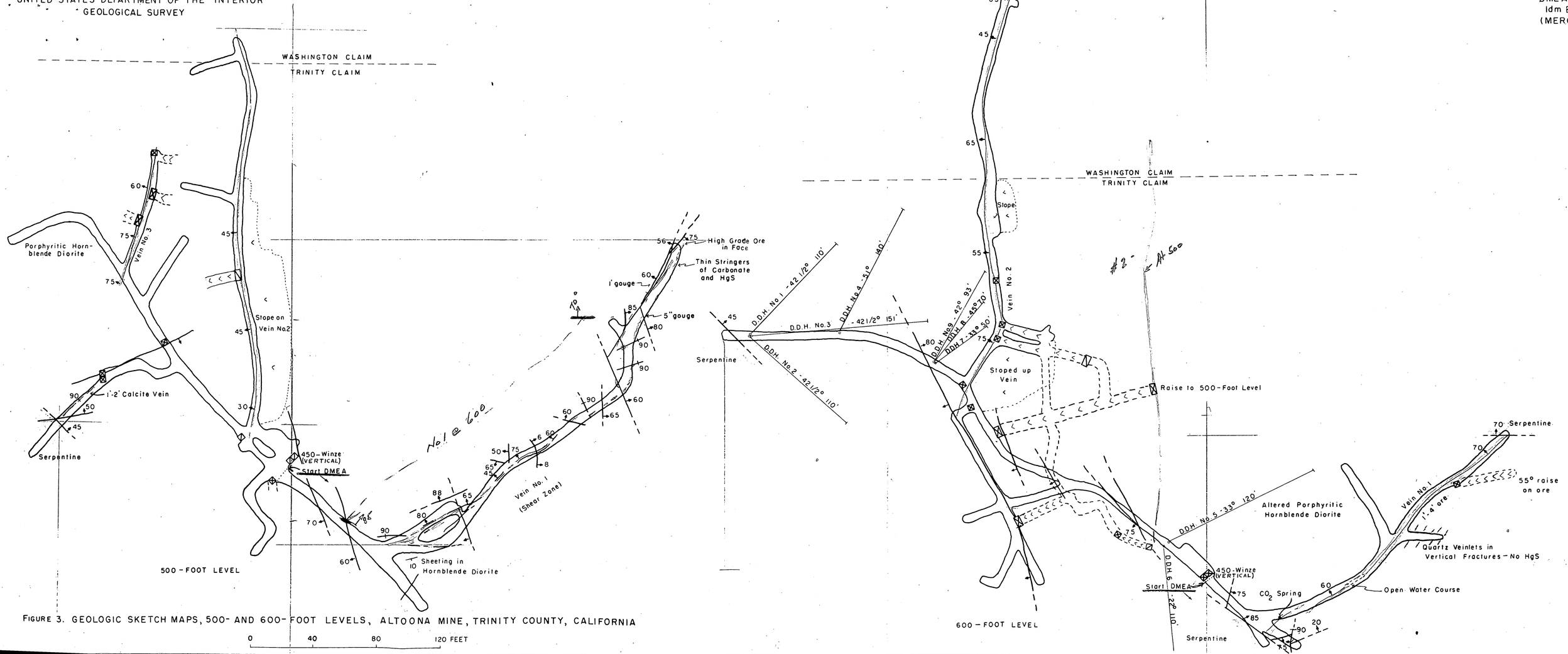


FIGURE 3. GEOLOGIC SKETCH MAPS, 500- AND 600-FOOT LEVELS, ALTOONA MINE, TRINITY COUNTY, CALIFORNIA

EXTRA COPY
D M E A
RECEIVED APR 25 1958

DATE	INITIALS	CODE

EXTRA COPY
D M E A
RECEIVED APR 25 1958

DATE	INITIALS	CODE

EXTRA COPY
D M E A
RECEIVED APR 25 1958

DATE	INITIALS	CODE

EXTRA COPY
D M E A
RECEIVED APR 25 1958

DATE	INITIALS	CODE

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA-3724
Idm E-826
(MERCURY)

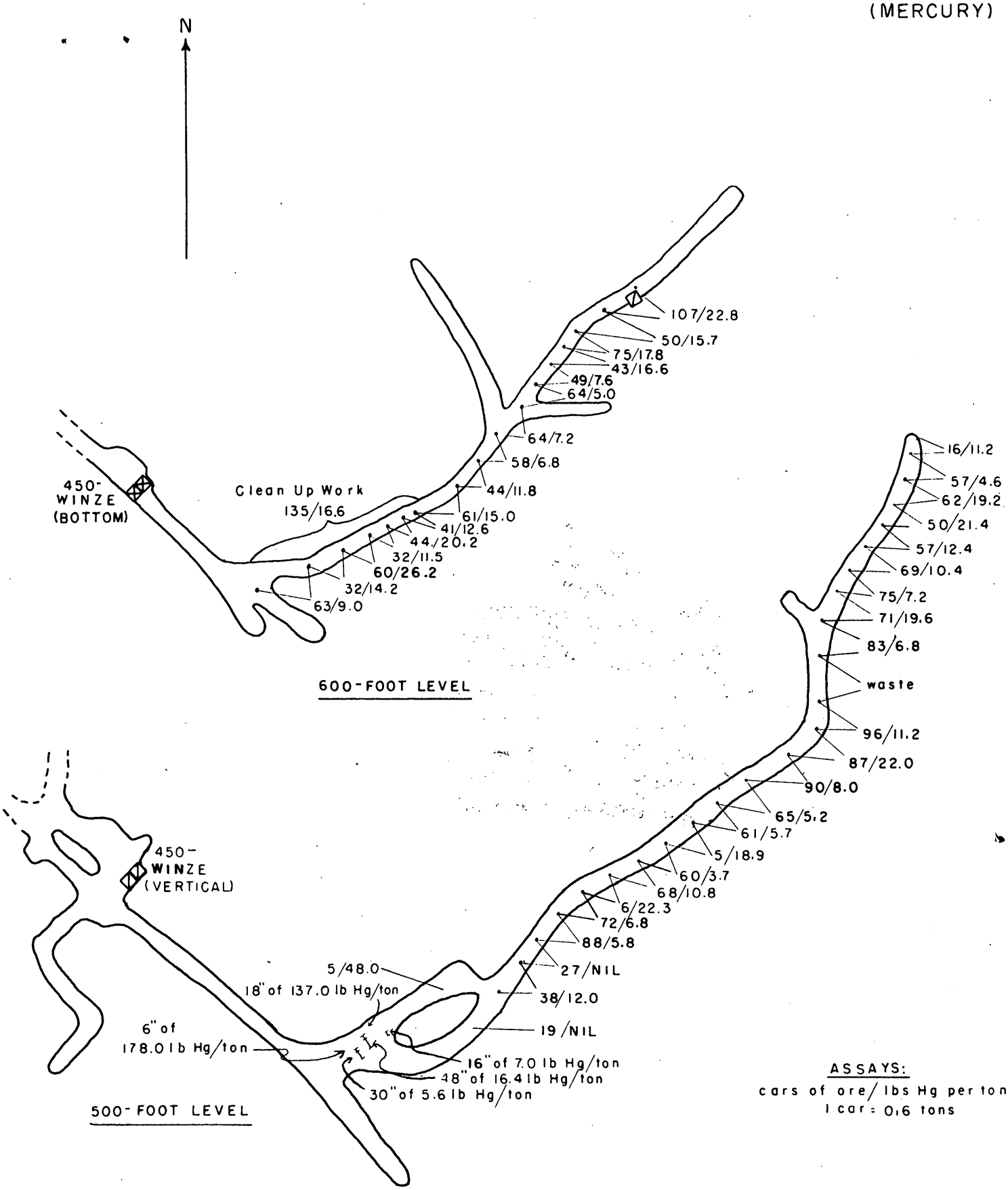


FIGURE 4. ASSAY MAP, DMEA WORKINGS, ALTOONA MINE, TRINITY COUNTY, CALIFORNIA

0 40 80 120 FEET

EXTRA COPY
DMEA
RECEIVED APR 25 1958

DATE	INITIALS	CODE

OFFICIAL FILE COPY
O M E
RECEIVED SEP 19 1960

OME Form 64
Aug. 60

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

ANNUAL REPORT OF CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

From: Field Officer
Region II

Signature: /s/ Glenn B. Gentry (HS)

Date: September 16, 1960

To: Director, Office of Minerals Exploration

Concerning:
Docket No. DMEA-3724
Commodity Mercury
Operator The Castella Corporation
Property Altoona Mine
Location Trinity County, California

Period Covered by this Report: 6/30/59 - 6/30/60

ORE ESTIMATES	Original DMEA or OME (From Final Report)	Revised DMEA or OME	Found by Operator after DMEA-OME work
Analysis	20 lbs. Hg/T		
Tons Found	55,000		
Tons Produced (Ore or Concentrate)			
Previously Reported			
This Period			
Tons Remaining	55,000		

Source of Information - Visit [x] Date of Examination June 30, 1960 Correspondence [ ]
Other (specify)

Current status of property - Operating [ ] Closed [x] Abandoned [ ]

Changes in ownership (describe and attach pertinent documents if not submitted before).

Remarks: (Include information on stockpiled ore and delinquent royalties.)

The operator reports intermittent, small scale activity by sublessees at the mine and mill. However, we have not received further details or royalty payments.

The mine was closed down about November 1, 1959 and operations through the Altoona Shaft have not been resumed. Prospecting by sublessees during recent months has disclosed cinnabar and mine the surface and near the collar of the shaft. When sufficient ore is accumulated, the mill is operated for short periods.

Submit this form (original only) to report data each year. No report is required for projects inactive during the entire year.

79363-60

Mr. Kirkemo

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

MAR 15 1960

The Castella Corporation
933 Mills Building
San Francisco 4, California

Re: Docket No. OME-6075 (Mercury)
The Castella Corporation
Altoona Mine
Trinity County, California

Gentlemen:

Your application for financial assistance in minerals exploration has been reviewed by us with other information available concerning your property.

Under the Office of Minerals Exploration program, assistance is provided for financing exploration for new or unexplored mineral deposits; but the work shall not be conducted primarily for mining or preparation for mining. Also, in passing upon applications, the criteria set forth in the regulations must be met.

Our review of your application indicates that the primary purpose of the proposed work would be to improve mining operations and reduce the cost of mining, and that the estimated cost of this work is excessive in relation to the size and grade of the potential deposit expected to be encountered.

Under the circumstances we regret to inform you that your application for exploration assistance is denied.

Sincerely yours,

Frank E. Johnson

Acting Director

FEJohnson:bih:kb - March 14, 1960
cc to: Director's reading file
Operating Committee
J. W. Pennington, USBM
Harold Kirkemo, USGS
OME Field Team, Region II (2) w/3 cys on USGS memo 3/8/60, USBM memo 3/9/60, and 1 cy application

Docket
Mr. Holt, Code 500
Chron.

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

MAR 1 3 1960

Hon. Clair Engle
United States Senate
Washington 25, D. C.

Re: Docket No. OME-6076 (Mercury)
The Castella Corporation
Altoona Mine
Trinity County, California

Dear Senator Engle:

Reference is made to your memorandum of March 14, 1960, transmitting a letter of March 9, 1960, from The Castella Corporation concerning its application for assistance in financing exploration for mercury at the Altoona Mine in Trinity County, California.

Based on a study of the information relating to a previous contract (Docket No. DMEA-3734), which was certified as a discovery or development under the Defense Minerals Exploration Administration program, the previous applications (Docket Nos. DMEA-5041 and OME-6056) for further exploration assistance at the Altoona Mine, and a fairly recent inspection of the property by our field examiners, we were able to reach a decision concerning the above-referenced application without further field examination.

All of the information available to us indicated that the purpose of the proposed work was primarily in the nature of improving mine operations and lowering costs. As the Office of Minerals Exploration grants are to aid exploration and cannot be used for projects that are chiefly for the purpose of improving mine operations, we had no choice except to deny the application. A copy of our denial letter of March 15, 1960, to The Castella Corporation is enclosed.

The letter of March 9, 1960, from The Castella Corporation is returned in accordance with your request.

RPHolt/gla 3-16-60 Sincerely yours,
cc to: Director's Reading File
J. W. Pennington, USBM (signed) FRANK E. JOHNSON
Harold Kirkham, USGS
OME Field Team, Region II (2)
w/2 cys incoming letter to Director
Code 500

Enclosures
Docket
Chron

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

March 9, 1960

Memorandum

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

From: Assistant Chief, Branch of Base Metals

Subject: Review of Application, Docket No. OME-6076 (Mercury), The Castella Corporation, Altoona mine, Trinity County, California. $278,083.30.

The proposed exploration program consists of an exploratory tunnel about 5,000 feet in length and a 200-foot 2-compartment raise from the tunnel level to the 600-foot level at an estimated total cost of $278,083.30.

Despite the applicant's contention that the tunnel would be for exploration purposes, it seems to be more of a development operation. Besides there is insufficient supporting evidence that mercury mineralization will be encountered by the tunnel.

Also, there are insufficient data to support the applicant's claim that ore containing about 12,000 flasks of mercury will be found as a result of the work. Perhaps the 12,000-flask figure was proposed as that quantity would just about repay the Government's share of the program.

Undoubtedly, there is a mercury reserve below the 600-foot level, but its presence could and should be confirmed by a more modest and less expensive project such as drilling. It is probable that, if a sufficient mercury reserve is determined below the 600-foot level, commercial loans would be available for driving the proposed tunnel, if it is necessary.

Consequently, I recommend that the application for exploration of the Altoona mine be denied in its present form.

J. W. Pennington

J. W. Pennington

Attachment

Copy to: Division of Minerals (2)
Branch of Base Metals (2)
Harold Kirkemo, U.S.G.S.
F i l e s

March 8, 1960
Re: OME 1076 (Mercury)
The Castelia Corporation
Altoona Mine
Trinity County, Calif.

Memorandum

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

From: Harold Kirkemo, U. S. Geological Survey

Subject: Review of application for exploration assistance

The Applicant proposes driving an exploratory adit a distance of 5,000 feet at a level 200 feet below the bottom or 1000-foot level of the Altoona mine. A two-compartment raise to the 1000-foot level from the new adit is proposed, also. Total cost of this project is estimated to be about $278,000.

The geologic targets are no better defined and no more attractive for this proposal than they were for a previously proposed project (Docket No. OME 1056) which was estimated to cost less than half the amount proposed in the new application. In reviewing the previous proposal, Nelson, Geological Survey, noted there is a possibility that unfavorable wall rock in the lower levels of the Altoona mine may reduce the size of the target area.

The target area on the Applicant's property becomes smaller at depth because some of the veins strike and dip toward the boundary line. The Applicant has stated that he could lease the adjoining property but he has submitted no record of having done so. The proposed adit would cross ground not presently owned or leased by the Applicant. The Applicant's estimates of the quantity of mercury recoverable from the reserves expected above the proposed adit are not supported by information gained from the Applicant's record of operations. Also, estimates of reserves and expected royalty on mercury production therefrom would not repay the loan requested.

The Applicant estimates that about 12,000 flasks of mercury could be produced from an estimated reserve of 6,000 tons of ore between

the proposed adit level and the 600-foot level. If mill recovery continues to average only 10 pounds of mercury per ton of ore as reported from production to date, the yield from mining and milling the Applicant's reserve would be about 800 flasks instead of 18,000 flasks. Return to the Operator on 800 flasks of mercury would be about $160,000 and maximum royalty payments on an OME loan would be about $8,000.

According to the Final Field Team report on the DMEA project (Docket No. 3784) at the Altoona mine, indicated and inferred reserves on No. 1 and No. 2 veins below the 600-foot level total about 23,000 tons. Average grade of ore is estimated to be 20 pounds of mercury per ton. Total mercury content of the reserve would be about 4,000 flasks, but owing to the poor recovery rate in the Applicant's mill, 3,000 flasks would be recovered which, at $200 per flask, would be worth about $600,000. Maximum repayment to the Government on an OME loan would be about $30,000 or about 10 percent of the loan.

We have no information either published or in the files to evaluate the Applicant's contention that the geology for at least 1,500 feet (along the line of the proposed adit) before entering Altoona ground is favorable. I would expect the Applicant to submit maps, assays, or other information to support his contention. Also, he has not submitted data on recent exploration he reports has been done below the 600-foot level. The advantages of the proposed adit from the standpoint of mining, transportation, and water drainage are obvious. The ore reserve possibilities, however, do not seem to justify the expense of driving the adit.

I recommend that the application be denied without another field examination. Information on hand shows that royalty on production from reserves expected would not repay the amount of the loan. The probability of discovering significantly larger reserves appears remote.

Harold Kirkham

cc: OME (3)
J. W. Pennington, 3623
Director's reading
Branch reading
Chron. file
Docket file

HKirkham/mm
6-MD-3-8-60

Prev. applications

DMEA-3724
OME-6056
filed under 6056

6076

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
555 Battery Street
San Francisco 11, California

February 29, 1960

Memorandum

To: Operating Committee, OME, Washington, D. C.

From: Executive Officer, OME Field Team, Region II

Subject: Loan Application (Mercury)
The Castella Corporation
983 Mills Building, San Francisco 4, California
The Altoona mine
Trinity County, California

Enclosed are three sets of MME Form 40, Application for Financial Assistance in Minerals Exploration, relative to the above subject. The fourth set has been retained in our files.

W. F. Dietrich

Enclosures 3

Copy to: H. K. Stager, U.S.G.S.
OME File

EXTRA COPY
O. M. E
RECEIVED MAR 2 960

DATE	INITIALS	CODE

MME Form 40
Dec. 1958

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

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

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

THE CASTELLA CORPORATION
983 MILLS BUILDING
SAN FRANCISCO 4, CALIF.

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER: 6076

DATE RECEIVED: 3-2-60

REGION: II

DIVISION CODE: 500

BUSINESS ORGANIZATION *(Check one)*

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

STATE IN WHICH FIRM IS ORGANIZED: Nevada

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
AUSTIN, B.C.	300 Buchanan St. San Francisco, Calif.	President
SMITH, L.A.	426 Lowell Palo Alto, Calif.	Vice-President

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE: MERCURY

ESTIMATED COST OF PROJECT: $ 278,083.30

PROPERTY NAME	LOCATION COUNTY	STATE
ALTOONA	TRINITY	CALIFORNIA

GENERAL INSTRUCTIONS

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

CERTIFICATION

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

Feb. 23, 1960
DATED

BY *(Signature)*

Vice-President
TITLE

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

INFORMATION REQUIRED WITH THIS APPLICATION

1. Financial Eligibility:

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

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

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

2. Applicant's Rights in Land:

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

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

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

3. Physical Description:

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

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

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

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

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

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

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

4. Accessibility of Property:

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

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

5. Exploration Work:

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

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

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

6. Experience:

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

7. Estimate of Costs:

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

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

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

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

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

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

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

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

INT.-DUP. SEC., WASH., D.C. 50399

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

THE CASTELLA CORPORATION

1. FINANCIAL ELIGIBILITY

   (a) We attach letters from the Bank of America National Trust & Savings Assn. and the Crocker Anglo National Bank, San Francisco, as evidence of refusal of commercial loan.

   (b) We have no affiliated companies.

   (c) We will furnish our 50% of expenditures from company funds and from new stock sales.

2. APPLICANT'S RIGHTS IN LAND

   (a) Copy of mine lease on file with O.M.E.

   (b) Description on file with O.M.E.

   (c) Lien and Subordination Agreement on file under O.M.E. Docket #6056.

3. PHYSICAL DESCRIPTION

   (a) Mine maps on file with O.M.E. The mill, completed in October 1958, is new, modern, all electric, 35 ton capacity, and has been in satisfactory operation for thirteen months.

   (b) We own mill and all other equipment.

   (c) Past production on file with O.M.E.

   (d) Ore reserves estimated at 6,000 tons above the 600' level, and 6,000 tons below the 600' level. Ore above the 600' level developed. Ore below the 600' level diamond drilled only. Complete mine maps on file with O.M.E.

   (e) Geological data on file with O.M.E.

   (f) On file with O.M.E.

   (g) On file with O.M.E.

4. ACCESSIBILITY OF PROPERTY

(a) On file with O.M.E.

(b) On file with O.M.E.

5. EXPLORATION WORK

(a) See attached description of exploration work.

(b) No road required.

(c) Work can start in July 1960.

6. EXPERIENCE

Refer to O.M.E.

7. ESTIMATE OF COSTS

See attached cost estimate of proposed exploration work.

(a) Tunnel bids attached.

(b) Supervision costs included in footage estimates.

(c) Supplies, powder, etc. included in footage estimates.

(d) Tunnel driving equipment, see list attached.

(e) Moving compressors from Altoona shaft and constructing portal.

(f) No buildings included, we furnish.

(g) No miscellaneous costs other than included in footage estimates.

5. EXPLORATORY WORK

We propose driving an exploratory tunnel about 5,000 feet long from a point near the South Fork of the Trinity River. This tunnel is shown in profile and plan on attached maps. The tunnel would be run on a .5% grade, 7' x 9' in section, with drainage ditch 1' x 2' in section on one side.

We also propose driving a two compartment raise 4' x 8' inside timbers from the tunnel level to the 600 ft. level.

5 (a) DESCRIPTION OF PROPOSED EXPLORATORY WORK

Rehabilitation and exploratory work done by our Company since starti ng work on the Altoona Mine in the spring of 1955 has proved the existance of an extensive mineralized zone.

We developed an ore body containing approx. 20,000 tons of mercury ore. We mined out 9,000 tons of this ore from which we recovered approx. 10 lbs. of mercury per ton of ore. Our working conditions (double pumping, double hoisting and difficult ventilation) were such that we could not make much profit from the operation.

We did some diamond drilling from the 600' level that proved ore goes down to the 700' level. ? no maps or records

Production from the 600' level to the surface is recorded at approximately 37,000 flasks of mercury.

If we can open up the country by tunnel to a depth 200 ft. below the present 600 ft. level we believe it reasonable to expect to find ore in proportion to that mined above the 600 ft. level. This would work out to 1/3rd of the recorded production or about 12,000 additional flasks. It would, of course, be possible that development of more ore below the tunnel level would follow. The development of two levels below the tunnel could produce another 12,000 flasks.

Another possibility is finding new ore along the course of the tunnel before reaching the Altoona

5 (a) DESCRIPTION OF PROPOSED EXPLORATORY WORK (cont'd.)

ground. The geology for at least 1,500 ft. before entering Altoona ground is favorable.

While the primary purpose of this tunnel is to explore the Altoona at depth and the country along the course of the tunnel, it should be noted that the tunnel will drain the entire district and make exploration as the integral and other properties possible. These properties have had some exploration in the past but excessive water was always a problem and probably contributed to their shutting down.

Mining through the tunnel, by eliminating hoisting and pumping, should reduce mining costs by about $5.00 per ton and enable us to increase the mill capacity to 70 tons per day. The mill will be moved to a new location near the tunnel portal and another kiln added. The rest of the plant is of sufficient size to take care of the added capacity. This mill addition would contribute to reducing overall costs.

7. EXPLORATION COSTS - BY STAGES

STAGE 1 - PURCHASE OF EQUIPMENT		Per Ft.
3 - D.H. 30 I.R. auto drifters	$ 3,000.	
1 - 3 boom hydraulic jumbo	3,500.	
1 - 3 ton battery trammer (used)	10,000.	
15 - 1½ ton side dump cars (used)	3,750.	
1 - 12B Eimco mucker (new)	4,500.	
150 - Pcs. 7' drill steel carbide inserts	3,750.	
1 - Cherry picker or car switch	1,500.	
	$30,000.	
Sales Tax (4%)	1,200.	
	$31,200.	$ 6.24
STAGE 1b -		
Power line extension	7,200.	
Compressor installation, grading and portal construction	5,000.	
	$12,200.	$ 2.44

7. EXPLORATION COSTS (cont'd)

STAGE 2 - TUNNEL 5,000 ft.		Per Ft.
Supervision ($1,600. per mo. 8 to 12 months) Labor, insurance, taxes etc.	$121,000.	$24.20

STAGE 2b - MATERIALS

50 tons 30 lb. rail $210. per ton	10,500.
5,000 4" air line @ $1.10 per ft.	5,500.
250 Dresser couplings ¼ $2.50 ea.	625.
5,000' ventilating pipe @ $2.35 ft.	11,750.
10,000' 1½" water line @ 25¢ ft.	2,500.
50 tons 40% dynamite @ $480.	24,000.
35,000 Electric detonators @ .30 ea.	10,500.
2,000 4" x 6" x 3' track ties @ .50 ea.	1,000.
	$ 66,375.
Sales Tax (4%)	2,655.
	$ 69,030.

$ 69,030.	$13.80
Estimated Cost (untimbered) per ft.	$46.68

TIMBER TUNNEL 5' sets 7' x 9' inside

Posts	2 - 6" x 6" x 8'	48 B.M.
Caps	1 - 6" x 8" x 9'	36 B.M.
Blocking	1 - 6" x 6" x 4'	12 B.M.
Lagging	22 - 2" x 12" x 5'	220 B.M.
		316 B.M.

316 B.M. @ $100.	$ 31.60
Labor - 3 men 1 shift	75.00
Sales Tax (4%)	1.26
	$107.86

Cost per lineal foot $21.57

7. EXPLORATION COSTS (cont'd)

RECAPITULATION OF COSTS

		Per Ft.
Stage 1	$ 31,200.	$ 6.24
Stage 1b	12,200.	2.44
Stage 2	121,000.	24.20
Stage 2b	69,030.	13.80
Cost of tunnel untimbered	$233,430.	$46.68

Cost of timbering

(1/3rd of length 1670 ft.)
@ $21.57 per lineal ft. $ 36,453.30

Raise and station

Cutting and timbering station $ 1,200.00

Raise from tunnel to 600'level

200' @ $35.00 per ft. $ 7,000.00

Total cost of project $278,083.30

February 23, 1960

Office of Minerals Exploration,
Department of the Interior,
4 Homewood Place,
Menlo Park, Calif.

Gentlemen:

Herewith a list of our five principal stockholders and the amount of their respective holdings:

B.C. Austin	83,500 shares
L.A. Smith	83,500 shares
Oliver Estate Co.	30,000 shares
Dr. Robt. Dunn	50,000 shares
Jonathan Cykman	30,000 shares

Total capitalization 295,000 shares
Total shares issued 292,500

Very truly yours,
THE CASTELLA CORPORATION

LAS: L.A. Smith, Vice-President
fd

February 23, 1960

LIEN AND SUBORDINATION AGREEMENTS

Lien and Subordination Agreements will be furnished later covering other ground through which tunnel would be driven, namely:

The REMCO Claim owned by
The Castella Corporation

and

The fee land owned by
Ralph Smith Lumber Company

from whom we have secured a right-of-way.

COPY

February 23, 1960

LIEN AND SUBORDINATION AGREEMENTS

Lien and Subordination Agreements, as per copy attached to original of this application, are presently in your files under Docket # OME-6056

COPY

JACOB B. PORTER
MINING CONSULTANT
127 MONTGOMERY STREET, ROOM 601
SAN FRANCISCO 4, CALIFORNIA

February 12, 1960

The Castella Corporation,
983 Mills Building,
San Francisco 4, Calif.

Gentlemen:

Herewith I submit a proposal to furnish the equipment, materials, supplies and labor necessary for the construction of a tunnel near your Altoona Mine in Trinity County, Calif.

The dimension of said tunnel in its untimbered and otherwise unlined section will be approximately 7' high, 9' wide and 4,700' long.

Tunnel excavation @ $80. per linear ft. $376,000.

The $376,000. includes the cost to you of timbering 1,700 linear feet or less of the tunnel on 5 ft. centers using posts 6" x 6" or larger; caps 6" x 8" or larger; and 2" lagging where needed. If more than 1,700 linear feet of the tunnel should require timbering the cost to you will be $25. per linear foot if timbered on 5 foot centers using posts, caps and lagging of the above-mentioned sizes.

If timbering should be necessary on less than 5 foot centers and/or with larger timber than noted above, the cost to you will be the actual cost plus 12½%.

It is understood that all equipment, materials and supplies left over at the end of the job will be removed by me, excepting only approximately 5,000 linear feet of track. This track shall be laid with 30 lb. rail.

No completion bond is included in this bid, nor do I contemplate furnishing one at the above price. I would expect the job to require not less than 10 months to complete and not more than 12 months.

Very truly yours,

JBPorter

JAP:fd

Morrison-Knudsen Company, Inc.

CONTRACTORS AND ENGINEERS

EXECUTIVE OFFICE
319 BROADWAY, BOISE, IDAHO

J. H. WELLS
VICE PRESIDENT

411 WEST FIFTH STREET
LOS ANGELES 13, CALIF.

January 25, 1960

The Castella Corporation
983 Mills Building
San Francisco 4, California

Gentlemen:

We propose to furnish all labor, equipment and supplies for the construction of your proposed Altoona Tunnel near Dunsmuir, California, for the following prices:

Tunnel excavation - approximately 4600 L.F. @ $95.00 per L.F.	$ 437,000.00

It is assumed this tunnel will be horseshoe shaped, 8 feet wide and 8 feet high.

Where it is necessary to place supports in the tunnel, we will place square sets consisting of 6" x 6" posts, 6" x 8" caps and 2" lagging on centers as required for . . .	350.00 per M.B.M. with sets on 5 ft. centers.

(This will amount to approximately $24.15 per L.F. of tunnel)

Since the portal for this tunnel has not been definitely located and the excavation quantities are unknown, we propose to do the portal excavation for actual cost plus 15%.

It is understood that after the tunnel is completed, you will purchase from us certain plant items which will be used during the construction period. We will therefore leave in place the following items at prices as stated below:

Approximately 4800' - 4" airline	$ 4500
" 5500' - 2" Waterline	1550
All trackage inside & outside tunnel	10,315
3 - Joy 22" Ventilator Fans	2,500
Approximately 4600' - 22" vent pipe	5,750
	$ 24,615

2.
The Castella Corporation
January 25, 1960

We do not propose to furnish a bond for this job. If you require a completion bond, approximately 1% must be added to the prices quoted.

Yours very truly,

MORRISON-KNUDSEN COMPANY, INC.

J. W. WELLS
Vice President

JWW:L

7 months to complete.

February 23, 1960

Crocker Anglo National Bank,
No. 1 Montgomery Street,
San Francisco, California.

Gentlemen: Attention - Mr. W.H. Brady

As you know we are operati ng the ALTOONA Mercury Mine in Trinity County, Calif. The mine is completely equipped for mining and processing the ore. We have about two years of positive ore blocked out and we are presently operating. We believe it to be good mining practice to explore for additional ore at this time in order to maintain our ore reserves. We, therefore, request a loan as follows:

> We contemplate driving an exploratory tunnel to explore the Altoona mine property. This tunnel to be approximately 5,000 ft. in length. We further contemplate cutting a station in the tunnel and driving a raise 200 ft. in length.
>
> This work will cost approximately $278,000. and take approximately 10 months to do after the work is started.

Our request, therefore, is for the loan of approximately $150,000. to defray part of the expense of this work.

This company would raise the rest of the required funds, partly from company funds and partly from sale of company stock.

We would appreciate an early reply.

Very truly yours,
THE CASTELLA CORPORATION

L.A. Smith, Vice-President

LAS:fd

CROCKER-ANGLO NATIONAL BANK

1 MONTGOMERY STREET OFFICE • SAN FRANCISCO 20

February 24, 1960

The Castella Corporation
983 Mills Building
San Francisco 4, California

Attention: Mr. L. A. Smith
Vice President

Gentlemen:

This will acknowledge your letter of February 23, 1960 wherein you asked that we give consideration to a loan for the purpose of exploring for mercury ore.

It is noted that you are presently operating the Altoona mercury mine in Trinity County, California where you have approximately two years of positive ore blocked out and are presently operating at a profit.

According to your letter, a loan of approximately $150,000 will be required to defray part of the expense involved in driving an exploratory tunnel in the Altoona Mine property. The balance of the required funds will be raised partly from the company's working capital and partly from the sale of company stock.

Your request was referred to our Loan Committee and, after due consideration, it was decided that this application does not meet our requirements.

We regret that we are unable to be of assistance to you at this time.

Yours very truly,

W. M. Brady

W. M. BRADY
Assistant Vice President

ac

N-83-A (12-58)

February 23, 1960

Bank of America Nat'l Trust
and Savings Assn.,
300 Montgomery Street,
San Francisco 4, California.

Gentlemen:

As you know we are operating the ALTOONA Mercury Mine in Trinity County, Calif. The mine is completely equipped for mining and processing the ore. We have about two years of positive ore blocked out and we are presently operating. We believe it to be good mining practice to explore for additional ore at this time in order to maintain our ore reserves. We, therefore, request a loan as follows:

> We contemplate driving an exploratory tunnel to explore the Altoona mine property. This tunnel to be approximately 5,000 ft. in length. We further contemplate cutting a station in the tunnel and driving a raise 200 ft. in length.
>
> This work will cost approximately $278,000. and take approximately 10 months to do after the work is started.

Our request, therefore, is for the loan of approximately $150,000. to defray part of the expense of this work.

This company would raise the rest of the required funds partly from company funds and partly from the sale of company stock.

We would appreciate an early reply.

Very truly yours,
THE CASTELLA CORPORATION

B.C. Austin, President

BCA:fd

Bank of America
NATIONAL TRUST AND SAVINGS ASSOCIATION

CABLE ADDRESS
"BANKAMERICA"

February 24, 1960

Mr. B. C. Austin, President
The Castella Corporation
983 Mills Building
San Francisco 4, California

Dear Mr. Austin:

Thank you for your letter of February 23, requesting our consideration of a loan of approximately $150,000 for use in driving an exploratory tunnel in the Altoona mine property.

Upon reviewing the June 30, 1959, financial statement of your corporation, we find we could not possibly justify such a loan on an unsecured basis which would be entirely dependent for repayment upon the success of the exploration. Obviously, such a loan would necessarily have bo be adequately secured and programmed before it could be considered as a satisfactory loan for a bank to make, and we must, therefore, decline your application on the basis submitted.

Yours sincerely,

E. W. Wakefield
Vice President

EWW:bbb

DUPLICATE

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

COPY

October 30, 1959

Memorandum

To: Executive Officer, OME Field Team, Region II

From: Chairman, Operating Committee, OME

Subject: Docket No. OME-6056 (Mercury)
The Castella Corporation
Altoona Mine
Trinity County, California

In accordance with your memorandum of October 26, 1959, transmitting the Applicant's letter of October 21, 1959, we have stopped processing the subject application, and consider it as withdrawn.

However, it is unlikely that we can approve Government aid for driving 4,200 feet of adit at $35.00 per foot, total cost $147,000 (not $127,000), where the proposed adit would gain only 200 feet of backs, and, although it could be used to explore the possible downward extensions of mineralization found on upper levels, the chief purpose of the adit would be to improve mining operations and to lower costs of ore transmportation and pumping water. The purpose of OME loans is to aid exploration, and they cannot be used for projects that are chiefly for the purpose of improving mine operations.

Referring to your memorandum of September 1, 1959, it will be appreciated if you will check on delinquent royalty payments of the same Operator under the previous contract, No. Idm-E826 (Docket No. DMEA-3724), which payments the Operator stated in its letter of August 31, 1959, would be paid to date within 60 days.

/s/ George C. Selfridge

APPROVED:

/s/ Frank D. Lamb
Member, Bureau of Mines

/s/ Harold Kirkemo
Member, Geological Survey

SPHolt/gla 10-29-59
cc: Director's Reading File
Operating Committee
J. W. Pennington, USBM
J. L. Hofflund, Rm. 6554
Docket OME-6056
Docket DMEA-3724
Code 500
Chron.
Harold Kirkemo, USGS

(Note: Stamped copy attached. J SB

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

OCT 30 1959

Memorandum

To: Executive Officer, OME Field Team, Region II

From: Chairman, Operating Committee, OME

Subject: Contract No. OME-6054 (Amendment)
The Cinnabar Corporation
Abbotts Mine
Trinity County, California

In accordance with your memorandum of October 26, 1959, transmitting the Applicant's letter of October 21, 1959, we have stopped processing the subject application, and consider it as withdrawn.

However, it is unlikely that we can approve Government aid for driving 4,200 feet of adit at $13.00 per foot, total cost $167,000 (not $127,000), where the proposed adit would gain only 200 feet of backs, and, although it could be used to explore the possible downward extensions of mineralization found on upper levels, the chief purpose of the adit would be to improve mining operations and to lower costs of ore transportation and pumping water. The purpose of OME loans is to aid exploration, and they cannot be used for projects that are chiefly for the purpose of improving mine operations.

Referring to your memorandum of September 1, 1959, it will be appreciated if you will check on delinquent royalty payments of the same Operator under the previous contract, No. [illegible] (Contract No. [illegible]), which payments the Operator stated in its letter of August 31, 1959, would be paid to date within 60 days.

George C. Selfridge

[illegible]lt/gla 10-29-59
cc to: Director's Reading File
Operating Committee
J. W. Pennington, [illegible]
Harold Kirkemo, [illegible]
J. L. Redfield, Rm. 6354
Contract [illegible]
Contract [illegible]
Code 300
Chron

APPROVED:

Frank D. Lamb
Director, Bureau of Mines

Harold Kirkemo
Director, Geological Survey

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

AUG 21 1959

Memorandum

To: Executive Officer, OME Field Team, Region II

From: Chairman, Operating Committee, OME

Subject: Docket No. OMR-6056 (Mercury)
The Castella Corporation
Altoona Mine
Trinity County, California

The Applicant's proposal for an exploration project on the above-referenced property has been reviewed.

Although we are for the most part in agreement with the recommendation of the Field Team, the full program proposed, even with the exclusion of the work on the 132-foot level, appears to be larger than OME can undertake under present circumstances.

In response to the questions in your memorandum of June 15: The proposed new exploration project under OME would be on ground covered by Article 2 and Annex I of Contract No. Idm-E826 (Docket No. DMEA-3724), so production therefrom is liable for royalty payments under the provisions of that contract and the certification until the entire amount of the Government's participation is repaid. Tentatively, it appears that the Operator would have to pay royalty concurrently under both contracts in accordance with their respective terms until the obligation under each is satisfied.

It will be appreciated, however, if you will advise the Applicant that a new exploration contract cannot be considered by the Government until royalty payments, now in arrears on the certified contract (Docket No. DMEA-3724), are brought to date, or an acceptable plan for paying same is presented to and approved by the Government.

Copies of memoranda, dated June 19 and July 14, 1959, by J. W. Pennington, Bureau of Mines, and Harold Kirkemo, Geological Survey, respectively, are enclosed for your consideration.

Enclosures

George C. Selfridge

APPROVED:

Frank D. Lamb
Member, Bureau of Mines

"Noted" by Harold Kirkemo
Member, Geological Survey

SFHolt/gla 8-20-59
cc to: Director's Reading File
Operating Committee
Mr. Kirkemo, USGS
Mr. Pennington, USBM
Docket OMR-6056
Docket DMEA-3724

Contract Adm. & Audit Div. (DMEA-3724, Idm-E826)

July 14, 1959
Re: OME 6056 (Mercury)
The Castella Corp.
Altoona Mine
Trinity Co., Calif.

Memorandum

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

From: Harold Kirkham, U. S. Geological Survey

Subject: Review of referenced OME application

The applicant requests OME assistance on a 3-stage underground exploration program estimated to cost $127,500. The Field Team considers this a maximum program and recommends the applicant's proposal with the possible exception of work on one level.

A minimum program costing $32,490 was proposed in June, 1958, by DMEA examiners in response to the applicant's request for DMEA assistance on a project estimated to total $30,000. The DMEA program terminated before a contract could be written on this proposal. The first stage of the subject OME application is essentially the same as that proposed by the examiners in their report of June 30, 1958. This includes work on a vein discovered on a DMEA project.

The proposed OME program poses questions that cast doubt on the advisability of some of the work from the standpoint of Government participation. Crosscuts and drifts instead of drill holes seem to be more logical means of testing some of the veins. Some drill holes will be near the applicant's property boundary lines. There is a possibility that unfavorable wall rock in some areas may restrict the size of the target area.

Since its discovery on the 600-foot level by exploration on the DMEA project, 1 E vein between the 500 and 600-foot levels has yielded ore. A raise to the 410-foot level was driven from the 500-foot level on the fracture zone associated with 1 E vein. Only sparse showings of cinnabar were encountered in the raise. Proposed drill hole 350-2 on the 350-foot level is intended to

explore for a new ore shoot on the 1 E vein. The projected position of the vein at this level is only 50 feet from the proposed drill station. Considering that much work has been done on 1 E vein on the lower levels, projection of the vein to the 350-foot level can be made with considerable accuracy. It seems, therefore, that a more satisfactory test would be to crosscut to the vein and explore for ore shoots with drifts.

Three of the proposed diamond drill holes (500-3, 350-1, and 600-1) would be drilled to within about 45, 65, and 75 feet, respectively, of the applicant's property boundary line. Intersections of the drill holes with 2 E vein are expected at about 70, 120, and 130 feet, respectively, from the subject boundary line. The vein strikes and dips toward the adjoining ground. It is understood that this ground can be leased by the applicant. A policy decision by OME as to allowable limits regarding exploration near property lines is required.

It is likely that 2 E vein, also involved in the property line question, was cut in DD 60-10 on the 600-foot level. Considering that 100% core recovery was obtained in this hole, it would be to the applicant's best interests to crosscut to the projected vein and to explore the structure with a drift. The same method of testing 2 E vein on the 500-and 350-foot levels could be undertaken instead of diamond drilling.

M. E. Nelson points out in his review (July 1, 1958) of the Field Team Report (DMEA 5041) that the holes proposed to test 1 W and 2 W veins will be in serpentine, an unfavorable wall rock for ore bodies at the Altoona mine. The map of the 600-foot level shows the faces of all westerly and southwesterly-trending crosscuts are in serpentine. The Field Team's Final Report on the DMEA project at the Altoona mine (DMEA 3724) points out that the ore bodies at the mine are confined to shear zones within altered hornblende diorite. It is noted in the examiners' report on the OME application that serpentine exposed in the underground workings is in small blocks and wedges from a few feet to several tens of feet across. However, the increasing abundance of serpentine exposed on the 600-foot level may be indicative of larger masses of unfavorable rock at this depth. The target area along 1 W and 2 W veins on this level may be less than is known in the upper levels.

If exploration for 1 W and 2 W veins is undertaken on the 600-foot levels despite the possibility of unfavorable wall rock, a more practical operating site for the drill station seems

to be in the short, hook-shaped crescent located between the two proposed drill stations. Holes could be drilled to the northwest and southwest from this crescent without costly ($900(?)) drill site preparation.

The question of total royalty (5 or 10%) on output from the mine if an OME contract is written was asked by the Field Team, presumably at the request of the applicant. A certification of discovery was issued May 1, 1958, as a result of exploration on Contract No. I4s-2886, Docket No. DMEA-3724.

In summary, crosscutting and drifting instead of the proposed exploration drilling for 1 E and 2 E veins would be more advantageous to the applicant. Extension of 2 E vein into ground not in control of the applicant seems likely. There is a possibility that an increasing area of unfavorable host rock exists in the area where exploration is proposed to test for extensions of veins 1 W and 2 W.

Perhaps renewal of the proposed exploration outlined in the Final Report on the DMEA project at the Altoona mine is warranted in place of the applicant's program. Downward extensions of the veins below the 600-foot level were considered favorable targets for exploration. The property line problem and the possibility of large masses of serpentine are questions that would apply even below the 600-foot level but a few holes might be justified to explore for veins 1 E, 1 W, and 2 W.

I recommend that the applicant's request for OME assistance on the program proposed June 10, 1959, be denied.

Harold Kirkemo

cc: OME (3)
James W. Pennington, 3623
Director's reading
Branch reading
Chron. file
Docket file

HKirkemo/mm
G-MD-7-14-59

June 30, 1959

Memorandum

To: W. E. Martin, Office of Minerals Exploration

From: Assistant Chief, Branch of Base Metals

Subject: Review of application, Project No. [illegible] (Survey), The Sheridan Corp., Alleghany mine, Trinity County, California.

The applicant proposes to explore for mercury mineralization at the Alleghany mine by diamond drilling, crosscutting, drifting and raising in 3 stages at an estimated total cost of $[illegible].

Areas to be explored include the east side of the Alleghany fault on the 300 foot level, and 50 foot-depth, the upper levels; the west side of the Alleghany fault on the 300 and 600 foot levels; and above the 300 foot level.

The Field Team considers that the work proposed by the applicant is reasonable and the proposed costs are reasonable.

I concur with the recommendation of the Field Team that the applicant's proposal for exploration be approved with the possible exception of the work above the 300 foot level.

J. E. Pennington

Copy to: Division of Minerals
Branch of Base Metals (2)
Oliver Hillegeist, U. S. G. S.
F. S. Lamb
Files

Mr. Kirkemo, USGS

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

SEP 9 1959

Memorandum

To: Executive Officer, OME Field Team, Region II

From: Chairman, Operating Committee, OME

Subject: Docket No. OME-6056 (Mercury)
The Castalia Corporation
Altoona Mine
Trinity County, California

As stated in our phone conversation September 1, we are proceeding to process the above-subject application, and are considering preparation of a contract authorizing work about as follows:

STAGE I

350 Level

Vein 1-E, diamond drill 100 feet, size NX
Vein 2-E, " " 150 " " "

500 Level

Vein 1-W, " " 150 " " "
Vein 2-W, " " 150 " " "

600 Level

Vein 2-E, " " 150 " " "
Vein 1-W, " " 200 " " "
Vein 2-W, " " 150 " " "

Total drilling 1,950 feet, size NX, @ $8.00/ft. $ 8,400.00

Allowance in lieu of Categories 2 - 7, (except items listed below), $1.00/ft. for 1,950 feet 1,950.00

Core boxes, 104 @ $1.25/each 130.00

Assay 40 check samples for mercury @ $3.00/each 120.00

Total Estimated Cost Stage I 9,700.00

STAGE II

350 Level

Vein 1-E, crosscut 40 feet, drift 100 feet, total 140 feet
Vein 2-E, drift 70 "

300 Level

Vein 1-W, crosscut and drift 100 "
Vein 2-W, drift 100 "

400 Level

Vein 2-E, crosscut 30 feet, drift 100 feet 130 "

620 feet

Total, 620 feet drifting and crosscutting @ $36.50/ft.	$22,630.00	
Timber drifts and crosscuts, 310 feet @ $8.00/ft.	2,480.00	
Assay 50 check samples for mercury @ $3.00/ea.	90.00	
Total Estimated Cost Stage II		$25,200.00
Total Estimated Cost of the Project		$34,900.00
Government Participation @ 50%		$17,450.00

Based on our present information, we believe a program such as this is in keeping with the potential of the property.

At your earliest convenience please let us have your reaction to the above. You should also check with the operator to make sure that the proposal would be mutually satisfactory. We shall await your advice.

George C. Selfridge

APPROVED:

Frank D. Lamb
Director, Bureau of Mines

"Noted" by Harold Kirkemo
Director, Geological Survey

cc: Docket
Director's Reading File
Operating Committee
Mr. Pennington, USBM
Mr. Kirkemo, USGS
Chron.

SPHolt/GMeC
September 9, 1959

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

JUN 16 1958

The Castella Corporation
983 Mills Building
San Francisco, California

Re: Docket No. DMEA 5041 - Mercury
Altoona Mine
Trinity County, California

Gentlemen:

Reference is made to your application dated May 26, 1958, requesting additional exploration assistance at the above-noted mine. The proposed work would be an extension of the exploration accomplished under Contract No. Idm-1826 Docket No. DMEA 3724. This earlier project was terminated on December 4, 1957, and a Certification of Discovery or Development was issued on May 1, 1958.

Under the new policy announced on June 6, 1958, copy enclosed, we are unable to increase the Government's financial commitment in any existing contract where results to date have progressed to a point at which a certification of discovery or development can be issued.

Since a Certification of Discovery or Development has been issued on Contract No. Idm-1826, it seems to us that within the intent of the newly announced policy your case must be included in the restricted category; therefore, I regret to advise you that additional funds cannot be approved.

Sincerely yours,

C. O. Mittendorf

Administrator

TLCHAPMAN/dlm 6-13-58
cc to: Code 400
Admr. R. File
Oper. Comm.
FT. REG. II
Messrs. J. W. Pennington, USBM
T. H. Kiilsgaard, USGS

July 1, 1958
Re: DMEA 5041
The Castella Corporation
Altoona Mine
Trinity County, Calif.
$30,000 Appl. Est.
$32,490 Rec'd Est.
Mercury

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of Field Team Report

The applicant requested assistance in searching by drifting and crosscutting on 2 levels (500 and 600) for the possible faulted parts of one vein and crosscutting to and raising on a second vein. The first vein, now 1-E, was found by assisted work under contract Idm-2826, DMEA 3724. The existence of the second vein, No. 3, is less certain at the elevation of the proposed work and the proposed work is not recommended by the examiners.

The examiners do recommend a 2-stage work program consisting of 1250 feet of diamond drilling on 3 levels as Stage I and drifting and crosscutting as Stage II. Drilling on the 350 or Trinity level would look for the upward extension of the 1-E vein (1-A of the application) and a possible lateral extension northeast of the Altoona fault of No. 2 W vein, formerly the No. 2 vein, which was taken to swing into alignment with the Altoona fault. The fault vein, No. 2, has produced much ore from the 600 to above the 500 level but probably is not well mineralized at the 350 level. Drilling on the 500 and 600 levels would look for the same extension whose existence is largely inferred, unless a vein was cut in diamond drill hole 60-10 drilled by Rare Metals Company on the 600 level.

The drill holes on the 500 and 600 levels would search for possible extensions in the hanging wall of the Altoona fault of the 1 E and 2 E veins. No near complete geologic map has been afforded us but from piecemeal information noted on several maps, it appears likely the holes will be in serpentine and the projections of 1 E and 2 E veins probably are not there. A surface geologic map and notes on the rock found in the faces of the many short southwesterly headed drifts should tend to answer the question.

As noted by the Executive Officer, the proposed project does not conform to current Government requirements but the exploration project recommended by the examiners is warranted. I concur with the recommendations.

MEA (3) Director's reading Docket file
W.Pennington Branch reading Chron. file E. Nelson
on/mm G-MD-7-1-58

Diamond Drill Log

Sheet No. 1 of Sheets 2

Project Altoona Sumpter	Core Recovery %
Coord. Loc.	Type Core Barrel Rigid
Drilling Begun	Feet Casing
Drilling Finished	Hole No. 1
Type of Drill	Depth 110 ft
Core Size AX	Angle 90° Bearing S 90° E

Description of Materials

10

20

30

40

soft. Light colored porphyritic diorite
Rust color water & sludge
Broken and weathered

50

60

70

80

85'

Light gray porphyritic diorite
Rusty water

Core Box No. 1

Depth

3% core recovery

No Core

5% core

No core

10% core

20% core

10% core

Driller

Engineer

EXTRA COPY
O. M. E.
RECEIVED JUN 18 1959

DATE	INITIALS	CODE

Diamond Drill Log Sheet No. 2 of 2 Sheets

Project: Altoona Surface	Core Recovery %
Coord. Loc.	Type Core Barrel: Rigid
Drilling Begun	Feet Casing: 80
Drilling Finished	
Type of Drill: Jay 12B	
Core Size: A.X.	

Core Box No. 1

Depth

Description of Materials

Dark gray porphyritic diorite

Core Rec. 15%

Bottom of Hole

100'

110'

Driller

Engineer

EXTRA COPY
O. M. E.
RECEIVED JUN 18 1959

DATE	INITIALS	CODE

Diamond Drill Log Sheet No. 1 of 2 Sheets

Project Altoona Surface	Core Recovery do
Coord. Loc.	Type Core Barrel
Drilling Begun	Feet Casing
Drilling Finished	Hole # 4
Type of Drill	Bearing S 38 E Depth 140'
Core Size	Angle 65°

Description of Materials	Depth	Core Box No. 3
		10 do
	10	No Core
	20	8 do
Weathered + Broken porphyritic diorite Rusty Water	30	No Core
	40	10 do
	50	10 do
	60	No Core
	70	No Core
Fine grain hard rock. blue gray with brown iron stain streaks	80	12 do
	90	
	100	

Driller

Engineer C. J. A.

Sept 30, 1956

EXTRA COPY
O. M. E.
RECEIVED JUN 18 1959

DATE	INITIALS	CODE

Diamond Drill Log Sheet No. 2 of 2 Sheets

Project: Altoona Surface
Coord. Loc.:
Drilling Begun:
Drilling Finished:
Type of Drill: Joy 12B
Core size: AX

Core Recovery do:
Type Core Barrel: M Series
Feet Casing:
Hole No. 4

Description of Materials	Depth	Core Box No. 4
	100	5'0"
	110	10'0"
Blue gray Porphyritic diorite with brown streaks		19'0"
	120	8'0"
	130	
Bottom of Hole.	140	

Driller:

Engineer: C.J. Ayres.
Sept 30, 1956

EXTRA COPY,
O. M. E.
RECEIVED JUN 18 1959

DATE	INITIALS	CODE

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
555 Battery Street
San Francisco 11, California

EXTRA COPY O. M. E. RECEIVED SEP 28 1959		
DATE	INITIALS	CODE
September 25, 1959		

Memorandum

To: Operating Committee, OME, Washington, D. C.

From: Executive Officer, OME Field Team, Region II

Subject: Interim Report

Attached are three copies of an interim report on:

Docket No. ~~OME-6056~~ OMEa-3724 (Mercury)
The Castella Corporation
Altoona Mine
Trinity County, California

The other copies have been distributed as usual.

W. F. Dietrich

Attachments

Copy to: H. K. Stager, U.S.G.S.
Finance Officer, Region II
OME File

EXTRA COPY
O. M. E.
RECEIVED SEP 28 1959
DATE | INITIALS | CODE

September 25, 1959

Docket No. OME-6056 (Mercury)
The Castella Corporation
Altoona Mine
Trinity County, California

As the Field Team were in the general vicinity of the Altoona mine the property was visited on August 26, 1959 to obtain additional information relative to the operator's proposed exploration, production of mercury and data for collection of royalties due the Government.

The visit included inspection of the mine and mill, escorted by Mr. Charles J. Ayres, representing the operator.

The Mine:

The crew consists of 9 miners and 2 hoist operators working two shifts per day and six days per week. Daily production varies from 25 to 30 tons of ore averaging 10 lbs ± Hg. per ton. Wage rates are $2.25 per hour. Due to the isolated area it is difficult to retain experienced miners, the labor turnover is high and additional men are needed for both exploration and mining. Ore reserves above the 600 level are estimated to be about 4000 tons.

The Mill:

The crude ore, at times, contains excessive moisture and in that case it is stockpiled on the ground and allowed to dry out before furnacing. Presently this stockpile contains about 250 tons.

Four men are employed in the mill which is operated three shifts per day, six days per week, and the monthly operating period varies between 90% and 95%.

The crude ore is crushed to minus 3/4" mesh and the furnace capacity varies from 25 to 30 tons per day depending upon the moisture content.

From three to five flasks of mercury are produced each day and recovery averages about 90%.

Shipments of mercury are currently consigned to: Goldsmith Bros. Smelting & Refining Co., 1300 West 59th Street, Chicago, Ill.

Royalties:

Due the Government for production during April through July, 1959	$3999.18
Less Royalty paid for April & May production	2141.01
Balance due, to be paid within 60 days	$1858.17

Costs:

Mr. Ayres estimated that production costs averaged about $22.00 per ton of ore mined and furnaced.

Glenn G. Gentry
Mining Engineer

Copy to: H. K. Stager, U.S.G.S.
Finance Officer, Region II
GME Files

6056

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Memorandum June 30, 1959

To: Harold Kirkemo

From: H. K. Stager

Subject: Docket OME-6056, Altoona Quicksilver Mine, Trinity County, California

The following comments are in reply to your questions asked during our telephone conversation yesterday morning. I have referred to our mine maps and the previous DMEA reports and can see where additional explanations are necessary before you can make your appraisal of the proposed OME project. The hasty treatment given this application was an attempt to rush it through for consideration before the end of the fiscal year.

While it is true that DMEA explored the 1E vein on the 500- and 600-foot levels and Rare Metals Corp. put up a raise in the fractured zone to the 410-foot level there are only sparse showings of cinnabar above the 450-foot level and I do not feel that the zone has been adequately explored above the 500-foot level. The target on the 350-foot level is not the fracture zone, which we are confident extends to that level, but rather a new ore shoot inasmuch as there was good ore in the 1W vein at this horizon.

Our knowledge of the 2E vein is limited to the possible intersection in the single Rare Metals hole drilled on the 600-foot level. Several other holes to test this vein, on the 600-foot and higher levels, are necessary to determine if ore shoots are present and if so what is the most favorable horizon at which to drive an exploratory drift.

As to your question on the choice of three drill sites for the two holes to test veins 1W and 2W on the 600-foot level I do not believe it would materially effect the cost or efficiency of the drilling to drill both holes from any one of the three sites or single holes from any two sites. Geologically it does not matter as essentially the same ground will be tested in either case. Perhaps the choice of site or sites could best be left to the discretion of the Operator.

I hate to see the old DMEA arbitrary limit of 200 feet from a property line set as a rigid limit for OME exploration. Such a limit should be determined individually for each project depending upon the type of deposit and geologic habits of the ore bodies. In this case where the ore shoots have a relatively short strike length (50 to 200 feet) I think a limit of say 50 feet would be more appropriate. However, the Operator has stated that it can obtain a lease on the adjoining ground if necessary although they prefer not to do so.

Of greater concern to the Operator is the possibility that an OME contract will result in a 10 percent royalty on the mine production. Inasmuch as they are now paying 5 percent to DMEA and 10 percent to the property owner an additional royalty charge would require that they mine only the highest grade ore and thereby reduce the life and production of the mine. We would appreciate an early clarification of this problem as it is possible the Operator will withdraw the OME application if a 10 percent royalty to the Government will result from an OME contract regardless of new discoveries.

You had one other question about one of my reports and gave me a reference to page, paragraph, and sentence but the telephone connection was poor and I must have misunderstood because I can not find it. I thought you said the Final report on DMEA-3724, page 11, last sentence of the third paragraph but this page is a list of expenditures and I think you meant something else??? If it is something that needs clarification or correcting please write me a memo and I'll take care of it.

Thank you for your concern over my clerical needs, etc., but I think we are set up here to handle everything satisfactorily. If I run into any real problems I'll let you and Charley Herbert know. I hope you will soon have an opportunity to visit this region so that you can see our setup and we can discuss OME problems.

6056

Office of Minerals Exploration
U. S. Geological Survey
4 Homewood Place
Menlo Park, California

June 15, 1959

EXTRA COPY O. M. E. RECEIVED JUN 18 1959		
DATE	INITIALS	CODE

Memorandum

To: Operating Committee, OME
Interior Building
Washington 25, D. C.

From: Acting Executive Officer
OME Field Team, Region II

Subject: OME Application (Mercury)
The Castella Corporation
Altoona Mine
Trinity County, California

Attached are the original and two copies of an application from the subject corporation received in Menlo Park June 11, 1959. One copy has been retained for the Executive Office file. Also attached are three sets each of maps for the 132, 235, and 450 levels to supplement the application report of June 20, 1958, BMEA 5041.

A field examination of this property will not be necessary as we have all of the data needed from inspections under BMEA 3724, Idm-R826 and application report BMEA 5041.

The applicant has been requested to send us copies of his letters to the banks, a financial statement of the corporation, the percentage interest of the five principal stock holders, and three bids for diamond drilling.

The applicant's costs are slightly higher than those estimated in our report of June 20, 1958, but they are compiled from his records and reflect the actual cost of operating at this mine. We recommend that they be allowed in the contract.

The program recommended in our report of June 20 is a minimum program; the one in the current application a maximum program. All of the work proposed by the applicant is warranted

In our application report we recommended against the work on the 132 level because it has more value as a second exit than for exploration. A second exit will be required soon by State regulations and may well be a proper item of work for OME. If so, we recommend that it be included.

We are unable to give the applicant positive information on the terms under which an OME loan will be repayable. The EMEA project is certified, the mine is operating and is expected to continue. Will the certification extend to the OME contract, and if so, will royalties be five or ten percent?

Mr. Dietrich and I recommend that the applicant's proposal be approved as submitted, with the possible exception of the work above the 132 foot level.

Reese M. Smith
Acting Executive Officer
OME Field Team, Region II

Attachments

cc: Op. Com. (3 cys)

MME Form 40
Dec. 1958

JUN 18 1959
M.E.

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.)*

THE CASTELLA CORPORATION
983 MILLS BUILDING
SAN FRANCISCO 4, CALIF.

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER: OME-6056

DATE RECEIVED: 6-18-59

REGION: II

DIVISION CODE: 400

BUSINESS ORGANIZATION *(Check one)*

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

STATE IN WHICH FIRM IS ORGANIZED: Nevada

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
AUSTIN, B.C.	300 Buchanan St. San Francisco, Calif.	President
SMITH, L.A.	426 Lowell Palo Alto, Calif.	Vice-President

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE: MERCURY

ESTIMATED COST OF PROJECT: $ 127,500.00

PROPERTY NAME	LOCATION COUNTY	STATE
ALTOONA	TRINITY	CALIFORNIA

GENERAL INSTRUCTIONS

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

CERTIFICATION

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

6/10/59
DATED

BY *(Signature)*
Vice-President
TITLE

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

INFORMATION REQUIRED WITH THIS APPLICATION

1. Financial Eligibility:

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

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

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

2. Applicant's Rights in Land:

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

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

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

3. Physical Description:

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

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

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

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

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

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

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

4. Accessibility of Property:

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

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

5. Exploration Work:

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

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

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

6. Experience:

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

7. Estimate of Costs:

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

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

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

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

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

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

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

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

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

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

THE CASTELLA CORPORATION

1. **FINANCIAL ELIGIBILITY**

   (a) We attach letters from the Pacific National Bank and the Crocker-Angle National Bank, San Francisco, as evidence of refusal of commercial loan.

   (b) We have no affiliated companies.

   (c) We will furnish our 50% of expenditures from company fu nds.

2. **APPLICANT'S RIGHTS IN LAND**

   (a) Copy of mine lease on file with D.M.E.A.

   (b) Description on file with D.M.E.A.

   (c) Lien and subordination agreements attached.

3. **PHYSICAL DESCRIPTION**

   (a) Mine maps on file with D.M.E.A. The mill, completed in October 1958, is new, modern, all electric, 35 ton capacity, and has been in satisfactory operation for eight months.

   (b) We own mill and all other equipment.

   (c) Past production on file with D.M.E.A.
   Current production at average rate of 112 flasks of mercury per month since October 1, 1958.

   (d) Ore reserves estimated at 12,000 tons above the 600' level, and 6,000 tons below the 600' level. Ore above the 600' level developed. Ore below the 600' level diamond drilled only. Complete mine maps on file with D.M.E.A.

   (e) Geological data on file with D.M.E.A.

   (f) On file with D.M.E.A.

   (g) On file with D.M.E.A.

4. ACCESSIBILITY OF PROPERTY

(a) On file with D.M.E.A.

(b) On file with D.M.E.A.

5. EXPLORATION WORK

(a) See attached description of exploration work.

(b) No road required.

(c) Work can start at once.

6. EXPERIENCE

Refer to D.M.E.A.

7. ESTIMATE OF COSTS

See attached cost estimate of proposed exploration work.

(a) Diamond drilling to be contracted. Bids attached.

(b) Supervision costs included in footage estimates.

(c) Supplies, powder, timber, etc. included in footage estimates.

(d) No equipment purchases or rentals included, we furnish.

(e) Rehabilitation drifts and crosscuts @ $7.00 per foot.

(f) No buildings included, we furnish.

(g) No miscellaneous costs other than included in footage estimates.

7. ESTIMATE OF COSTS (cont.)

EXPLORATION COSTS - BY STAGES

		Station	Rehabil-itation	Drifting & Crosscutting	Raise	Diamond Drill	Timbering
1.	132 level	$ -	$ -	$ 2,932.80	$3,301.20	-	$ 1,383.60
1.	350 level	1,200.	1,050.	D 14,672.00 CC 11,004.00 25,676.00	-	$ 2,800.	2,306.00 (200 ft.)
2.	235 level	1,200.	560.	5,868.80	-	2,800.	-
2.	410 level	1,000.	-	D 8,420.00 CC 5,502.00 13,922.00	-	2,800.	2,306.00 (200 ft.)
2.	450 level	1,200.	1,400.	D 9,670.00	-	2,100.	
3.	500 level	1,200.	525.	D 6,602.40 CC 6,188.80 12,791.20	-	2,800.	2,306.00 (200 ft.)
3.	600 level	1,200.	700.	D 9,670.00 CC 5,802.00 15,472.00	-	2,800.	2,306.00 (200 ft.)
		$7,000.	$4,235.	$86,332.80	$3,301.20	$16,100.	$10,607.60

STAGE 1	132' level	$ 7,617.60	
	350' level	33,032.00	$40,649.60
STAGE 2	235' level	$10,428.80	
	410' level	20,028.00	
	450' level	14,370.00	$44,826.80
STAGE 3	500' level	$19,622.20	
	600' level	22,478.00	$42,100.20

7. ESTIMATE OF COSTS

COSTS COMPILED FROM OUR RECORDS

Drifts and crosscuts 4½' x 6½' in clear.
Raises 4' x 6' in clear.

2 miners $2.25 hourly		$36.00
1 trammer $2.00 hourly		16.00
1 hoistman-compressor operator $2.25 hourly		18.00
Compensation insurance		5.60
Powder, caps, fuse		7.10
Misc., power, etc.		1.50
Supervision		7.50
Average footage 2½'	2.5	$91.70
Cost per lineal foot		$36.68

Timbering compiled from our records

Drifts and crosscuts 8" x 10" posts, 10" x 10" caps, 2" x 12" lagging

Raises 10" x 10" sets, 2" x 12" lagging

1 timberman @ $2.25 hourly	$18.00
1 helper @ $2.00 hourly	16.00
1 hoistman (half-time) $2.25 hourly	9.00
Timber @ $70.00 per bd. ft.	11.00
Compensation insurance	3.65
Footage timbered 5'	$57.65
Cost per lineal foot	$11.53

Excavating and timbering diamond drill stations - per cu. ft.	$ 1.00

5. EXPLORATION WORK

(a) Description of proposed exploratory work.

Exploratory work done by us since we unwatered and rehabilitated the Altoona Mine disclosed the existence of a strong fault striking slightly west of north through all of the levels in the mine. This fault was not known of, or at any rate was never mentioned in any of the old reports describing work done in the Altoona previous to our taking over in 1955.

This fault has now been named the Altoona, and is the important key to finding additional ore.

Our exploration, done with the assistance of the D.N.R.A., found ore on the 500' and 600' levels on the east side of the Altoona fault. A study of the mine maps will show much old work on all the upper levels on the west side of the Altoona fault. It is apparent from a study of the upper level maps that the old time operators did not explore to any extent on the east side of the fault but mined extensively on the west side. Many of the level maps show the old drifts on the various veins stoping at the fault or, in some cases, turning and following the fault. In some cases they found ore in the fault itself, as on the 500' level, but it apparently did not occur to them to cross the fault and then explore for ore as we did in the 500' and 600' levels.

Our proposal, therefore, is to explore for ore on the east side of the Altoona fault on the 350' level and, if successful there, on all the upper leve ls. This work would entail exploratory diamond drilling, crosscutting and drifting.

On the 500' and 600' levels where we found, developed, and are now mining ore on the east side of the Altoona fault, we propose to explore to the west of the Altoona fault in an effort to find the west extension of the vein we are presently mining. This would entail exploratory diamond drilling, crosscutting and drifting.

In 1955 we found surface ore at point indicated on surface map A. This ore lies almost directly over the end of the northwest crosscut on the 132' level. We propose extending this crosscut 80' and by raising hope to find a considerable ore body above the 132' level. This would entail crosscutting and raising.

5. EXPLORATION WORK

(a) Description of proposed exploratory work (cont.)

132' LEVEL

To start at once.

We have rehabilitated the north 60° west crosscut on this level 400' to the face. We want to crosscut approximately 80' north 15° west to connect with usable raise coming up from the 350' level and extending approximately 40' above the 132' level. We want to extend this raise approximately 90' to the surface to explore for ore bodies indicated by diamond drill holes (logs attached).

Crosscutting 80' Raising 90' Timbering 120'

350' LEVEL

To start at once.

Cut drilling station approximately 190' north 5° west of shaft in end of the short drift. Diamond drill to northwest and southeast and crosscut to ore if found. Drift on ore.

Approximately 150' drift rehabilitation.
Approximately 1200 cu. ft. station excavation.
Approximately 400' of diamond drilling.
Approximately 300' of crosscutting.
Approximately 400' of drifting if ore is found in crosscuts of commercial grade and quantity.

235' LEVEL

To start if ore is found on the 350' level.

Crosscut north 60° west from point 80' north 5° west of shaft for approximately 160', or until Altoona fault is crossed; then cut drilling station. Diamond drill to the northwest and southeast approximately parallel to fault.

5. EXPLORATION WORK

(a) Description of proposed exploratory work (cont.)

235' LEVEL (cont.)

Approximately 80' drift rehabilitation.
Approximately 160' of crosscutting.
Approximately 1200 cu.ft. station excavation.
Approximately 400' of diamond drilling.

450' LEVEL

Cut drilling station in end of crosscut 200' north 5° west of winze station. Diamond drill approximately 300' to southeast. If ore is found drift on it starting from main south crosscut.
Crosscut rehabilitation 200'.
Drilling station excavation approximately 1200 cu.ft.
Diamond drilling approximately 300'.
Approximately 250' of drifting if ore of commercial grade.

500' LEVEL

Rehabilitate crooked drift and crosscut to face, approximately 50' south 15° west of winze station. Cut drilling station. Diamond drill 400' to northwest and southeast. Crosscut if ore is found.
Drift if ore is commercial.
Drift rehabilitation 75'.
Drilling station excavation 1200 cu. ft.
Diamond drilling 400'.
Crosscut approximately 160'.
Drift approximately 180'.

600' LEVEL

Rehabilitate drift and crosscut to a point approximately 130' west of winze station. Cut drilling station. Drill 400' to northwest and southeast.
Rehabilitate approximately 100' of drift.
Drill station excavation 1200 cu. ft.
Diamond drilling 400'.
If ore found crosscut approximately 150'.
If commercial grade drift approximately 250'.

CROCKER-ANGLO NATIONAL BANK

CHARTERED 1870

1 MONTGOMERY STREET OFFICE · SAN FRANCISCO 20

February 27, 1959

EXTRA COPY O. M. E. RECEIVED JUN 18 1959		
DATE	INITIALS	CODE

The Castella Corporation
983 Mills Building
San Francisco 4, California

Attention: Mr. L. A. Smith
Vice President

Gentlemen:

This will acknowledge your letter of February 26, 1959 wherein you asked that we give consideration to a loan for the purpose of exploring for mercury ore.

It is noted that you are presently operating the Altoona mercury mine in Trinity County, California where you have approximately two years of positive ore blocked out and are presently operating at a profit.

According to your letter, this would be a three stage exploration program and would require an initial loan of $40,000, with subsequent advances in the amounts of $45,000 and $42,000, respectively, which would create a total outstanding of $127,000.

Your request was referred to our Loan Committee and, after due consideration, it was decided that this application does not meet our requirements.

We regret that we are unable to be of assistance to you at this time.

Yours very truly,

W. M. Brady

W. M. BRADY
Assistant Vice President

br

PACIFIC NATIONAL BANK OF SAN FRANCISCO

March 2, 1959

EXTRA COPY
O. M. E.
RECEIVED JUN 16 1959

DATE	INITIALS	CODE

The Castella Corporation
983 Mills Building
San Francisco 4, California

Attention: Mr. L. A. Smith

Gentlemen:

This refers to your letter of February 26th in which you requested a loan of $127,000.00 to be advanced in three stages. The purpose of this loan, we understand, is for the exploration for ore.

After review by our Loan Committee we regret that we are unable to go forward with your request at the present time. We thank you, however, for this opportunity.

Yours very truly,

Andrew C. Gaither
Vice President and Cashier

ACG/al

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
1605 Evans Avenue
Reno, Nevada

RECEIVED JUN 27 1958

DATE	INITIALS	CODE

June 24, 1958

Memorandum

To: Operating Committee, DMEA, Interior Building
Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-5041 (Mercury)
The Castella Corporation
Altoona Mine
Trinity County, California

Enclosed are three copies of a report by J. D. Warne, Bureau of Mines, and H. K. Stager, Geological Survey.

I agree with the report that under our recent program an exploration project is warranted but that under our new policy announced on June 6, 1958 it does not conform to Government requirements.

The report will, however, complete your files on the subject.

S. Ricker

Attachments

Reviewed by
DMEA OPERATING COMMITTEE

(Date)

5041

RECEIVED JUN 27 1958

DATE	INITIALS	CODE

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION II

APPLICATION REPORT

DMEA-5041 (Mercury)
The Castella Corporation
Altoona mine
Trinity County, California

by

J. D. Warne
U. S. Bureau of Mines

H. K. Stager
R. M. Smith
U.S. Geological Survey

June 20, 1958

CONTENTS

Page

Introduction 1

Summary 2

Recommendations 2

Location, Accessibility, and Local Facilities 3

The Property 3

History and Production 3
Ownership 6
Development 6

Geology 7

Geologic Setting. 7
Ore Deposits 9
Sampling 11
Ore Reserves 12

Exploration 13

Applicant's Proposal. 13
Examiners' Proposal 14

Exploration Costs 16

Summary of Estimated Unit Costs..19

ILLUSTRATIONS

Figure 1 . . . . . Index map
2 . . . . . .Claim map
3 . . . . . Geologic map of 350-foot level
4 . . . . . Geologic map of 500-foot level
5 . . . . . Geologic map of 600-foot level

APPENDIX I . . . . . .Drill log for hole 60-10
APPENDIX II . . . . . .Assignment Agreement

INTRODUCTION

The Castella Corporation, 983 Mills Building, San Francisco 4, California, applied on May 26, 1958 for additional Government assistance in a $32,490 program under the Defense Minerals Exploration Administration, docket DMEA-5041, to explore for mercury at the Altoona mine, Trinity County, California. The applicant wishes to explore for faulted continuations of known ore bodies and ore-bearing structures. All of the exploration work will be done underground.

Parts of the mine were explored under contract Idm-E826 dated June 27, 1955, docket DMEA-3724, and a discovery was certified.

A field examination was made by H. K. Stager and R. M. Smith, U. S. Geological Survey, and J. D. Warne, U.S. Bureau of Mines, on June 4-6, 1958, accompanied by Mr. C. J. Ayers, mine superintendent. The geology of all accessible mine workings was mapped in detail and several samples were taken to check the accuracy of the applicant's assay maps. New 40-scale mine maps were compiled from USGS and company maps for the 10 levels of the mine.

Much of the information contained in this report is taken from the DMEA Final Report by Stager and Warne dated April 22, 1958.

SUMMARY

The Altoona mine contains ore shoots along three northeast-striking veins and one ore shoot along a north-striking fault which cuts the veins. Ore bodies have been mined from the veins as deep as the 600-foot level, but only on the west side of the fault in the upper levels and only along and east of the fault on the lower levels. About 150,000 tons has been produced, which yielded 34,000 flasks of mercury.

Inferred reserves in the unexplored segments of the veins to a depth of 700 feet are estimated to be 50,000 tons containing 15 pounds of quicksilver per ton. Measured, indicated, and inferred reserves in the segments of the veins already explored, partly by DMEA and partly by the Rare Metals Corporation of America, are estimated to be 42,000 tons averaging 15 pounds of mercury per ton.

RECOMMENDATIONS

We recommend that DMEA participate in the exploration of the untested segments of veins 1 and 2 by a two-stage program. Stage I should consist of 1,250 feet of diamond drilling; Stage II should consist of 500 feet of crosscutting and drifting to delineate the ore bodies discovered in Stage I.

LOCATION, ACCESSIBILITY, AND LOCAL FACILITIES

The Altoona mine is in sec. 22, T. 38 N., R. 6 W., M.D.B.&M., Trinity County, California (fig. 1). It is on the east fork of the Trinity River in the Trinity Mountains at an altitude of 4,500 feet.

From Castella, California, the mine is reached by traveling 0.1 mile north on U.S. Highway 99 to the Trinity Center road turnoff, turn left (west) and stay on the main traveled road for 21.6 miles to the mine. Highway 99 is an all-weather road and the Trinity Center road is a graded dirt road that is passable by ordinary passenger car during dry weather but closed by heavy snows to all travel, except snow-cats, during the winter months.

Mine labor, supplies, and equipment are obtainable in Redding. Mine timber is obtained from nearby sawmills. Electric power is purchased from a nearby California-Oregon Power Co. transmission line and there is radio-telephone service to the mine from Redding, California. Mail, truck, and railroad services are available in Castella. The operators do their own assaying at the mine. Water for domestic use is piped from springs on the mine property and ample water is available in the mine for mine and reduction plant use.

THE PROPERTY

History and Production

Cinnabar was first discovered on the property in 1871 near the site of the present shaft. Early mining consisted of placer workings,

shallow open-cuts and short adits. The Altoona Quicksilver Mining Company acquired the property in 1875 and is the present owner. The mine was operated until 1880 when litigation among the stockholders resulted in a shutdown of the mine. It was reopened in 1894 and was active until 1901. During this period it was developed to the 600-foot level. The mine was closed until 1929 although a little mercury was produced during this period by lessees who worked the old dumps. The workings above the 132-foot level were reopened in 1929 and intermittent mining was done by the Marsman Company of San Francisco (lessee) until 1945 when the mine was again shut down. An attempt was made to reopen the mine in 1951 but legal difficulties prevented the operation. The property was leased by Austin and Smith in 1955 and the DMEA contract was started. The lease was assigned to the Castella Corporation on August 8, 1957, without changing the managment of the project. The lease was optioned to the Rare Metals Corporation of America on November 1, 1957 but after some additional exploration work, sampling, and surveying, the Rare Metals Corporation decided not to exercise the option to purchase the lease and it reverted to the Castella Corporation.

Total production for the property is about 34,000 flasks of mercury. About 7,000 flasks was produced during the period 1871-1880. A production of about 240 flasks in 1890 was probably obtained from placer workings and mine dumps. A total of 19,673 flasks was produced during the period 1895-1901 and about 7,000 flasks during the period 1929-1945.

During the DMEA contract period about 32 flasks of mercury was produced from surface workings by Mr. Philip Munko of Castella, California, who had a verbal agreement with the operators. The Government was paid royalty on this production and also on 26 flasks of mercury produced from ore mined on the 500-foot level and retorted at the property. A total of $734.17 in royalties was paid to the Government on the sale of 58.25 flasks of mercury that had a sale value of $14,683.55.

During the DMEA project the Castella Corporation mined from exploratory drifts, and stockpiled on the surface, about 1,500 tons of ore that is estimated to average about 10 pounds of mercury per ton. During the period that the mine was under option to the Rare Metals Corporation an additional 500 tons of ore of about the same average grade was recovered from drifting and raising operations and was added to the stockpile.

As a result of the ore discovered by DMEA work the property was certified on May 1, 1958 and all production from the property is

subject to royalty until June 27, 1967, or until the amount of Government participation is repaid, whichever occurs first.

Ownership:

The property consists of the patented Altoona (Lot 42) and Trinity (Lot 41) claims, totaling 40 acres, and the unpatented Blockade fractional claim, containing 14 acres (fig. 2). All of the previous DMEA work was done on the Trinity claim and all of the proposed new work will be confined to the Trinity claim although the entire property is included in the contract.

The property is owned by the Altoona Quicksilver Mining Company and is leased by the Castella Corporation. Consent-to-Lien forms were signed by the owner previous to the date of the DMEA contract. Documents in evidence of Castella's present interest in the land are attached.

Development:

The mine is developed by a 450-foot vertical two-compartment shaft with levels at 50-, 90-, 132-, 235-, 290-, 350-, 410-, and 450 feet. From the 450-foot level a vertical winze extends down to the 600-foot level with an intermediate level at 500 feet. Over two miles of drifts and crosscuts were driven in developing the mine but many of the old upper levels are partly caved and inaccessible. The most extensive stoping was done in the southwest part of the mine above the

600-foot level. Only a small amount of additional exploration, consisting of 350 feet of drifting on the 410-foot level, 90 feet of raising between the 500- and 410-foot levels, and 1,775 feet of diamond drilling in 12 holes from the 600-foot level, was done by the Rare Metals Corporation since November 1957 when the DMEA project was terminated.

GEOLOGY

Geologic Setting:

The Altoona mine is in an area of moderate relief on the east fork of the Trinity River in the Trinity Mountains, a part of the Klamath Mountains of northern California.

The rocks exposed in the mine area and in the underground workings are chiefly porphyritic diorite and serpentinized peridotite of probable Upper Jurassic age that have been sheared and intensely altered.

The serpentinized peridotite is exposed underground and locally crops out at the surface but is not abundant. It is a massive, light-gray-green to dark-green rock and is locally veined with a white carbonate, probably ankerite, and contains scattered grains of magnetite. The serpentine exposed underground is in small blocks and wedges from a few feet to several tens of feet across. It is probably older than the diorite, with which it is in fault contact.

The diorite is of two varieties; a porphyritic hornblende variety and a porphyritic feldspathic variety. Texturally and mineralogically the two varieties are closely related and they differ chiefly in that one has phenocrysts of green hornblende, whereas the other has prominent phenocrysts of feldspar with minor hornblende.

Both varieties of diorite and the serpentine are locally intensely altered and replaced by quartz and carbonates. The resulting rock is a dense, fine-grained, gray-green rock that somewhat resembles the silica-carbonate rock of the Coast Range mercury deposits. Where the alteration is less intense it is possible to distinguish one rock type from the others but in most of the workings the alteration is so intense that they cannot be distinguished megascopically.

The rocks are cut by three major steeply-dipping shear zones that strike about N. 50° E. Two of these dip northwest and the third dips southeast. These zones are from a few feet to as much as 30 feet wide. They in turn are cut by a major northwest-striking fault, herein called the "Altoona fault", that dips 40°-60° SW (figs. 3, 4, and 5). Displacement along the Altoona fault and the major shear zones has not been determined but along the fault the gouge is commonly several feet thick, indicative of considerable movement.

The Altoona fault and the shear zones are all premineral although there has been some movement along the fault since the ore bodies were emplaced.

Ore Deposits:

The ore bodies are carbonate-quartz veins along shear zones and along the Altoona fault.

The principal ore mineral is cinnabar which, in a few places, contains drops of native quicksilver. It occurs disseminated and in thin veinlets in fractures in the carbonate-quartz veins and also in fractures in altered wall rock adjoining the veins. Almost all of the carbonate-quartz contains at least a little cinnabar.

The ore shoots, in general, coincide with the carbonate-quartz veins and cinnabar is found most abundantly both in the veins and in the wall rock where the veins are widest. The ore shoots are from 50 to 200 feet long, attain a maximum width of 30 feet but average about 6 feet in width, and have been mined down the dip for as much as 500 feet. They average about 15 pounds of mercury per ton. In the upper levels the carbonate has been largely leached from the veins and the resulting openings have been closed by shifting of the wall rock. On the lower levels a few open cavities in places along the otherwise tightly cemented veins suggest partial leaching, and on the bottom level water emerging from the floor of the drift contains H_2S and CO_2 gasses

which suggest that leaching is still in progress below the mine workings. On some of the middle and lower workings solution cavities filled with silt and mud contain specks of cinnabar and in places are high grade. This suggests mechanical enrichment of cinnabar in veins which have been leached but there is no data available on the difference in grade of the leached veins and the unleached ones.

The veins along the shear zones have been named "Veins 1, 2, and 3" (figs. 3, 4, and 5). In the upper levels these veins have been mined west of the Altoona fault and on the lower levels they have been explored east of the fault. The ore shoot along the Altoona fault was formerly called "Vein 2" and was mined only in the lower levels, along a segment of the fault which has a flatter than average dip. Here the ore shoot appears to rake down to the north. Ore shoots along the veins appear to rake down to the northeast on the hanging-wall side of the fault but their rake on the footwall side of the fault is not evident. Near the intersection of the veins with the Altoona fault the veins commonly dissipate in shattered rock for distances up to a few tens of feet, although in a few places short, flat veins link the major veins with the fault in the intersection area. In some places, notably on the 410-foot level, the veins encounter the fault at an acute angle and follow along it for distances up to 100 feet.

Sampling:

Most of the samples of the No. 1 vein on the 500- and 600-foot levels by the Castella Corporation were grab samples taken from mine cars as the DMEA drifts progressed. The locations and weighted assays of these car samples are shown on figure 4 in the Final Report of the project, dated April 22, 1958. The No. 1 vein was again completely sampled by the Rare Metals Corporation of America by channel samples taken across the vein at five-foot intervals along the 500- and 600-foot levels. Analyses of seven check samples taken by the DMEA engineer are listed below. These samples were taken from vein 1-E to check some of the higher grade assays obtained by the Rare Metals Corporation and in general are in agreement with, or show higher values than, the earlier assays.

Sample No.	Grade, Lbs.Hg/ton	Description
1a	69.4	1.5-ft. channel, 600-foot level.
2b	32.4	5.0-ft. channel, 600-foot level.
3b	24.0	0.9-ft. channel, 600-foot level.
4b	39.7	1.0-ft. chip sample across cinnabar mineralized zone, 500-foot level.
5b	28.3	4.0-ft. channel across soft gouge, ore zone, 500-foot level.
6b	34.5	2.5-ft. channel across soft gouge ore zone, 500-foot level.
7b	12.8	2.0-ft. specimen sample of a portion of mineralized zone exposed above supports.

Ore Reserves:

About 2,000 tons of ore that averages about 10 pounds of mercury per ton is stockpiled at the mine. Reserves of ore-in-the-ground are summarized as follows:

Class	Tons	Grade (lbs. Hg/ton)
Measured	19,000	15
Indicated	10,000	15
Inferred	63,000	15
Total:	92,000	15

Some revisions have been made in the tonnage and grade of reserves estimated at the close of the DMEA contract, based on additional exploratory drifting, raising, and diamond-drilling done by the Rare Metals Corporation of America and as a result of the better picture of the ore bodies obtained as a result of detailed mapping.

Estimates of tonnages for ore reserve blocks made by the Rare Metals Corporation are in close agreement with estimates for the same blocks made at the close of the DMEA project. The average grade is somewhat lower (15 pounds per ton instead of 20 pounds per ton) as a result of a much greater number and closer spacing of sample points.

The measured and indicated reserves are along veins 1e, 3w, and the Altoona fault between the 450-foot level and 100 feet below the 600-foot level. Of the 63,000 tons of inferred ore 13,000 tons is in vein 1e and the Altoona fault from 100 to 150 feet below the 600-foot level. New inferred reserves that are the target of the proposed exploration total 50,000 tons of ore of which 25,000 tons is in vein 2e between the 400- and 700-foot depths, 5,000 tons is in vein 1e between the 300- and 400-foot depths, 10,000 tons is in vein 1w, and 10,000 tons is in vein 2w between the 500- and 700-foot depths.

In addition, we infer that reserves as large as those already mined may ultimately be discovered below the 600-foot level.

EXPLORATION

Applicant's Proposal:

The applicant proposed to explore by crosscutting and raising on the 132-foot level, and by crosscutting and drifting on the 350-, 500-, and 600-foot levels.

The proposed exploration on the 132-foot level does not appear to be warranted because the crosscut would intersect No. 3 vein which has already been stoped above this level. There is no indication of vein No. 3 on the surface except by inference at the Washington shaft which is on the adjoining property, and ore that is reported on the surface is not on No. 3 vein.

Examiners' Proposal:

Exploration on the 350-, 500-, and 600-foot levels is warranted but we suggest that crosscutting and drifting be preceeded by diamond drilling. Because the veins are somewhat irregular on their dip and because the pitch of the ore shoots may not be uniform, the projections should first be tested. After the exact location and character of the veins are determined by drilling, crosscuts and drifts can be planned more effectively.

Although the drilling done under the former DMEA contract was completely unsatisfactory more recent drilling by Boyles Bros. Drilling Company for Rare Metals Corporation of America was highly successful. An average of about 90 percent core recovery was obtained for 12 holes. This success is attributed to three factors: the use of NX core barrels only, the experience of the driller, and the system of payment by the day rather than by the foot. Because of the proven success of this combination, and because the diamond drill is still stored at the property, we recommend that the contract specify the same combination of drill size, method of payment, and if possible the same driller, in lieu of the customary procedure of requesting three bids. The justification for this procedure is that any other bids should be rejected in favor of the one from the company with the only successful experience in this particular mine. It is clearly in the

National interest to obtain satisfactory results even at a slight increase in cost, and it is unlikely that other bids will be more than a few cents per foot less.

The applicant concurs in the following two-stage program:

STAGE I

350-foot level:

One 100-foot hole to explore for vein 1e.

One 150-foot hole to explore for vein 2e.

500-foot level:

One 150-foot hole to explore for vein 1w.

One 150-foot hole to explore for vein 2w.

One 200-foot hole to explore for vein 2e.

600-foot level:

One 150-foot hole to explore for vein 2w.

One 200-foot hole to explore for vein 1w.

One 150-foot hole to explore for vein 2e.

STAGE II

500 feet of crosscutting and drifting in unspecified locations, to be approved by the Government in advance, to delineate any ore bodies discovered in Stage I.

EXPLORATION COSTS

Stage I--Diamond drilling 1,250 feet:

Estimated costs are for drilling NX size holes. This size of drilling was recently done in the Altoona mine by the Boyles Bros. Drilling Company for Rare Metals Corporation of America under an arrangement where the drilling company charged rental of their drill with two operators at $115 per day, plus diamond costs, resulting in an overall cost of about $8.00 per foot. Entirely satisfactory results were accomplished by this method, and over 90 percent of the core was recovered. Therefore, a similar method of drilling is recommended; especially as the Boyles Bros. Drilling Company's drilling equipment is still at the Altoona mine, and the estimated cost for drilling of this large size (NX) is less than has been charged for smaller size holes under a standard type contract by other drilling companies at other DMEA projects in this area. A similar arrangement will preclude payment of mobilization charges to move equipment into this isolated mine area, and will allow drilling operations to begin during this summer season while the mine is accessible. Estimated costs for drilling NX size holes (contract cost, including extras) are listed below:

1. Independent Contracts

1,250 ft. of NX size drilling @ $8.00/ft.	$10,000.00

2. Labor and Supervision

Engineer-supervisor, part-time, 4 mos. @ $250.00/mo.	1,000.00

3. Operating Materials and Supplies

125 core boxes @ $1.00/ea.	125.00

4. Operating Equipment

Mine operating equipment and power to be furnished by operator	0.00

5. Miscellaneous

Assaying 40 check samples for Hg @ $3.00/ea., other analyses to be made by operator	120.00
Total estimated cost of Stage I	$11,245.00
Cost per foot (rounded figure) of diamond drilling . .	$9.00

Stage II -- Drifting and/or crosscutting 500 feet:

Drifts and crosscuts to be 5 feet by 7 feet inside of timber. Allow 125 shifts, 375 man shifts, 6 months (part-time) supervisory time.

1. Independent Contracts

None	$ 0.00

2. Labor and Supervision

1 Supervisor, part-time, 6 mos. @ $300.00/mo.	$1,800.00	
3 Miners, including lead man and part-time hoistman @ $18.00/shift, 125 shifts @ $54.00/shift	6,750.00	
Total labor and supervision		$8,550.00

3. Operating Materials and Supplies

500 ft. of 2-inch and 1-inch pipe @ $1.00/ft.	$ 500.00	
Explosives, 500 ft. @ $3.60/ft.	1,800.00	
Fuel, 500 ft. @ $0.70/ft.	350.00	
Drill steel and bits 500 ft. @ $1.00/ft.	500.00	
Rail and ties 500 ft. @ $1.25/ft.	625.00	
Vent pipe 500 ft. @ $1.25/ft.	625.00	
Misc. hand tools and supplies	250.00	
Total operating materials and supplies.		4,650.00

4. Operating Equipment

To be furnished by the operator on a rental basis, 6 mos. @ $212.00/mo.		1,272.00

5. Miscellaneous

40 samples to be analyzed for Hg @ $3.00/ea.	$ 120.00	
Electric power, 6 mos. @ $300.00/mo.	1,800.00	
Payroll taxes, insurance, etc. 12.5 percent of $6,750.00	843.75	

Timbering drifts and crosscuts, as required, 500 ft. @ $8.00/ft.	$4,000.00	
Total misc. costs		$6,763.75
Total estimated cost of Stage II		$21,235.75
Cost per foot (rounded figure) of drifting and/or crosscutting		$ 42.50

Summary of Estimated Unit Costs (rounded)

Stage I -- Underground diamond drilling:	
1,250 ft. diamond drilling @ $8.90/ft.	$11,125.00
40 samples to be analyzed for Hg @ $3.00/ea.	120.00
Total, Stage I	$11,245.00
Stage II -- Drifting and crosscutting:	
500 ft. drifting and crosscutting @ $34.25/ft.	$17,125.00
500 ft. timbering drifts and crosscuts, as required, @ $8.00/ft.	4,000.00
40 samples to be analyzed for Hg @ $3.00/ea.	120.00
Total, Stage II	$21,245.00
Total estimated cost of the project	$32,490.00
Government participation at 50 percent.	$16,245.00

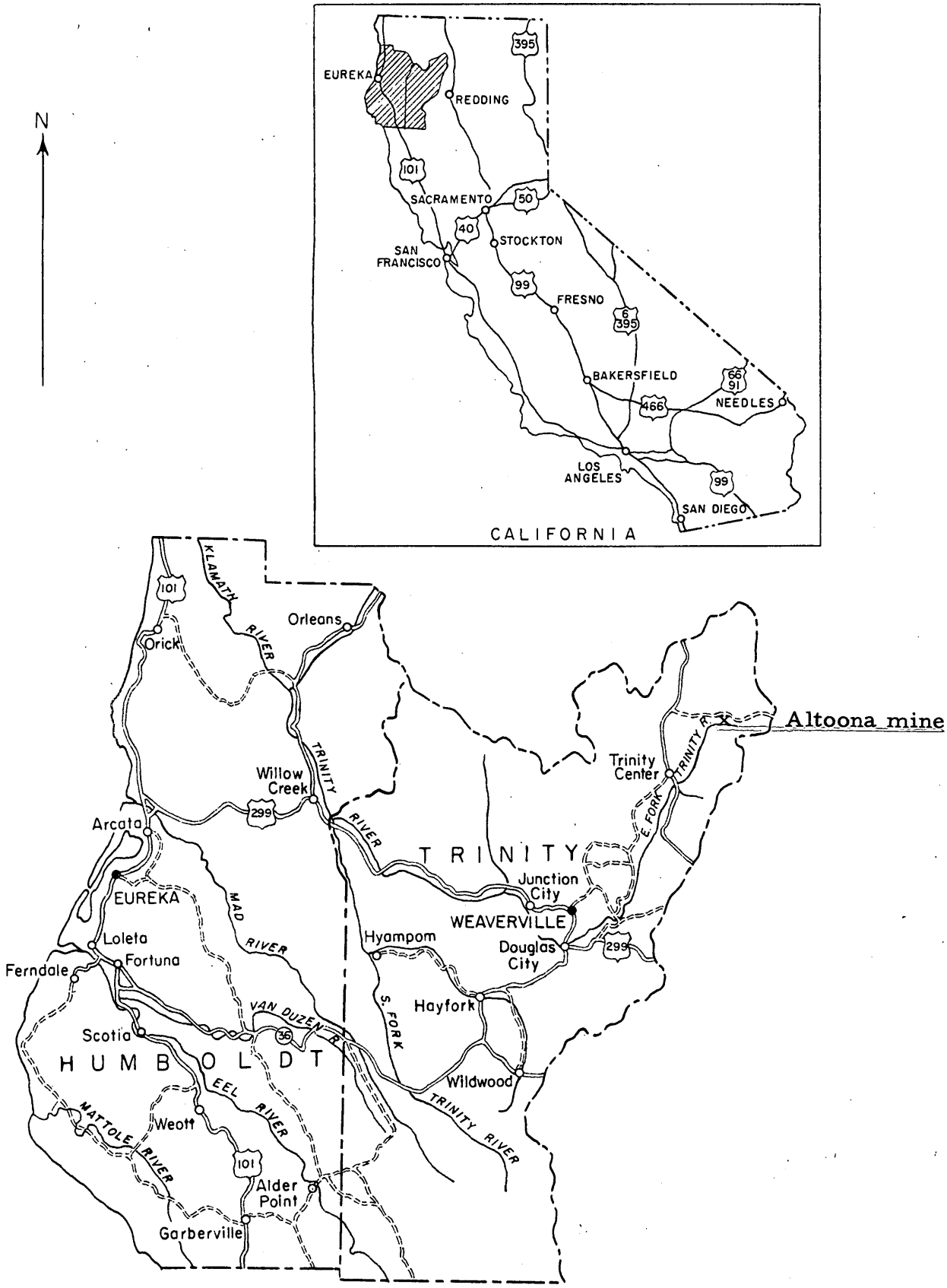


Figure 1. INDEX MAP OF HUMBOLDT AND TRINITY COUNTIES, CALIFORNIA

0 20 40 60 Miles

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA-5041
~~XXXXXXX~~
(MERCURY)

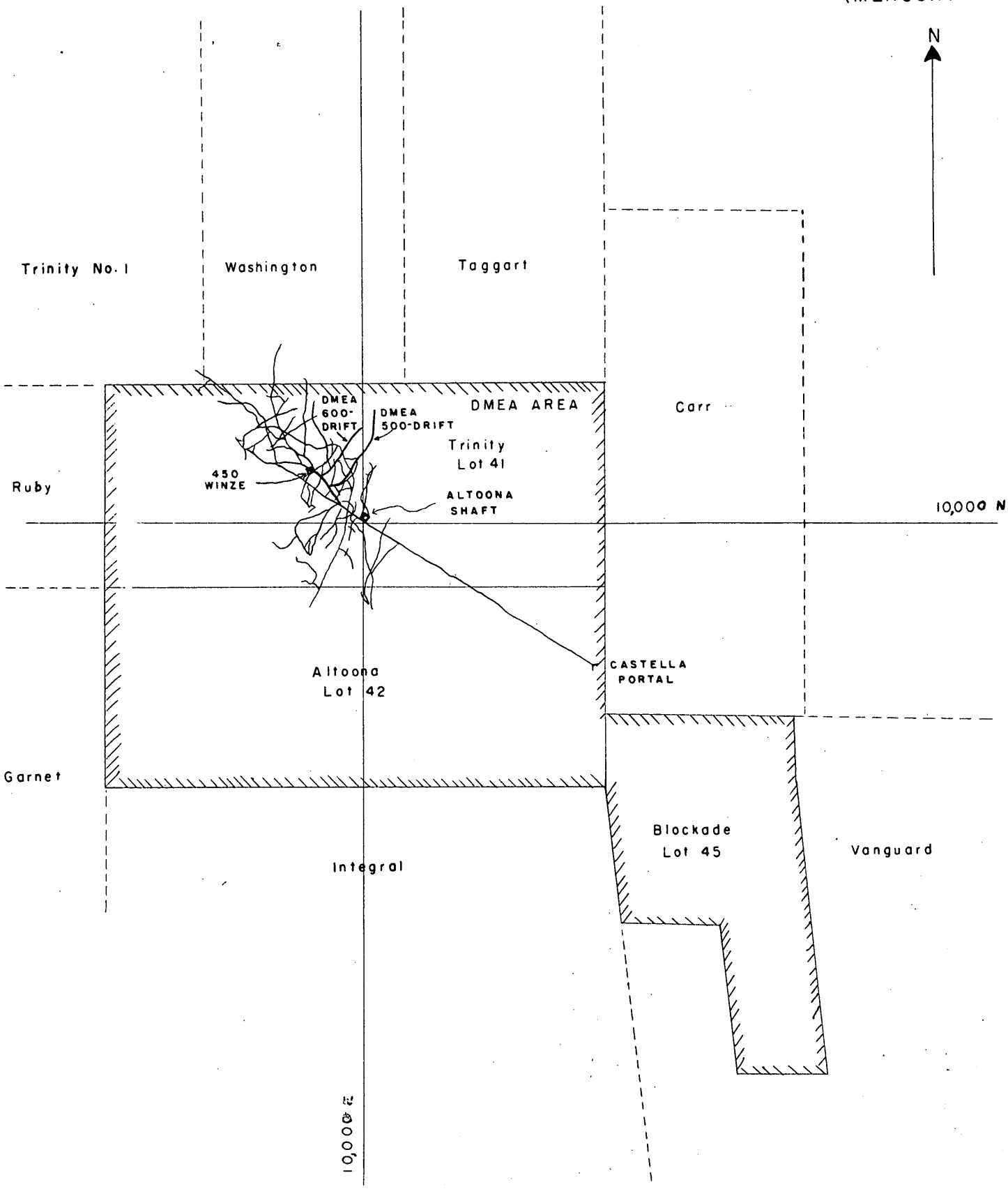


FIGURE 2. CLAIM MAP, ALTOONA MINE, TRINITY COUNTY, CALIFORNIA

0 400 800 1200 1600 feet

EXTRA COPY
DMEA
RECEIVED JUN 27 1958

DATE	INITIALS	CODE

APPENDIX II

EXTRA COPY
DMEA
RECEIVED JUN 27 1958
DATE | INITIALS | CODE

ASSIGNMENT AGREEMENT

THIS AGREEMENT, made and entered into this 27 day of May, 1958, by and between RARE METALS CORPORATION OF AMERICA, a corporation, (hereinafter referred to as "Rare Metals") and THE CASTELLA CORPORATION, a corporation, (hereinafter referred to as "Castella");

W I T N E S S E T H :

WHEREAS, on the 17th day of September, 1957 the parties hereto entered into that certain Purchase Agreement providing for the assignment by Castella to Rare Metals of the hereinafter mentioned lease covering certain mining properties; and

WHEREAS, the parties hereto entered into that certain Assignment Agreement of October 31, 1957, with Altoona Quicksilver Mining Company, a corporation, (hereinafter referred to as "Altoona"); and

WHEREAS, pursuant to the provisions of the foregoing Purchase Agreement and Assignment Agreement and also that certain Agreement between the parties hereto dated May 7, 1958, Rare Metals desires to reassign and Castella desires to accept such reassignment of the aforesaid lease,

NOW, THEREFORE, in consideration of the premises Rare Metals hereby assigns to Castella all of its right, title and interest in and to that certain mining lease agreement dated February 10, 1955 executed by Altoona as Lessor to L. A. Smith and B. C. Austin as Lessees, assigned by said Smith and Austin to Castella and assigned by Castella to Rare Metals pursuant to the foregoing Assignment Agreement of October 31, 1957 covering the patented mining claims known as the Trinity and Altoona claims and the unpatented claim known as the Blockade

claim, all located in Sections 22 and 23, Township 38 North, Range 6 West, Mount Diablo Base and Meridian, Trinity County, California, together with all of the right, title and interest of Rare Metals in and to the above described mining claims; subject however, to the terms and provisions of said mining lease, as amended by the Assignment Agreement of October 31, 1957, and subject also to a contract with and the obligation to repay advances not exceeding $95,000.00 to Defense Minerals Exploration Administration, payable out of 5% of ore and minerals produced from said mining claims.

IN WITNESS WHEREOF, Rare Metals has executed this Agreement the day and year first above written.

RARE METALS CORPORATION OF AMERICA

By _____
President

_____
Assistant Secretary

The foregoing accepted this

29 day of May, 1958.

THE CASTELLA CORPORATION

By _____
President

_____
Secretary

STATE OF TEXAS)
SS.
COUNTY OF EL PASO)

On this 27th day of May, 1958, personally appeared before me, a Notary Public in and for said County and State, C L Perkins and L C Martch, known to me to be the Vice President and Assistant Secretary, respectively of RARE METALS CORPORATION OF AMERICA, the corporation that executed the annexed Assignment Agreement, and upon oath, did depose that they are the officers of said corporation as above designated; that they are acquainted with the seal of said corporation and that the seal affixed to said instrument is the corporate seal of said corporation; that the signatures of said instrument were made by the officers of said corporation as indicated after said signatures; and that the said corporation executed the said instrument freely and voluntarily and for the uses and purposes therein mentioned.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal at my office in the County and State aforesaid, the day and year in this Certificate first above written.

Virginia O. Jameson
Notary Public
VIRGINIA O. JAMESON
Notary Public in and for El Paso County, Texas
My Commission Expires June 1, 1959

My Commission expires: June 1, 1959

APPENDIX I

RARE METALS CORPORATION OF AMERICA

DIAMOND DRILL HOLE LOG

Hole 60-10 Started 3/16/58 Finished 3/29/58 Inclination -3°

From	To	Feet drilled	Feet core	Percent core	Remarks
0.0	8.5	8.5	8.5	100	Diorite, medium to dark gray, silicified in part with abundant calcite stringers throughout. Small quartz veins also prominent. Pyrite abundant, 6" ankerite vein at 2 ft. with good cinnabar mineralization.
8.5	20.5	12.5	12.5	100	Diorite, dark gray, brecciated and highly altered. Much chlorite and some serpentine. A bright green clay(?) mineral scattered throughout. Some pyrite, several quartz stringers present, also some calcite.
20.5	29.5	9.0	9.0	100	Diorite, medium gray- to gray, mostly silicified. Some brecciation and alteration. Quartz and calcite veinlets abundant. Some chlorite and serpentine also present. Pyrite abundant.
29.5	46.5	17.0	17.0	100	Diorite, dark gray and light gray mottled, badly brecciated and altered. Chlorite and serpentine abundant. Many quartz and calcite veinlets throughout.
46.5	69.0	22.5	22.5	100	Diorite, light gray, silicified, massive and hard. Some calcite stringers. Bright green clay(?) mineral scattered throughout.
69.0	75.0	8.0	8.0	100	Diorite, dark gray, badly altered, somewhat soft, pyrite abundant, 3" ankerite vein at 70 ft. with small cinnabar veinlets abundant. Quartz and calcite stringers present throughout zone. Gouge from 74 ft. to 75 ft. (Fault)

(Hole No. 60-10, continued)

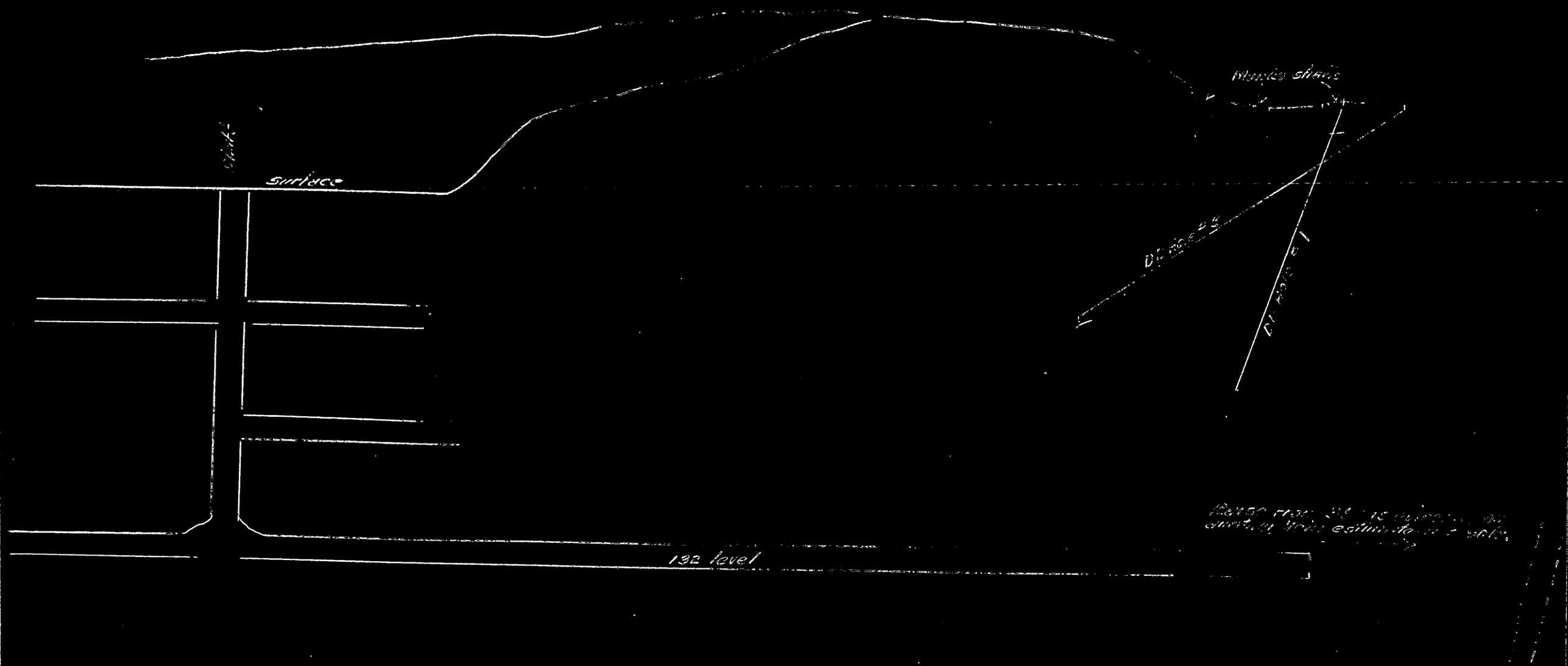
From	To	Feet drilled	Feet core	Percent core	Remarks
75	92	17.0	17.0	100	Diorite, medium gray, hard and massive, partly silicified, some chlorite. Quartz and calcite veinlets abundant. Bright green clay( ) mineral scattered throughout.
92	102.7	10.7	10.7	100	Diorite, dark gray, badly altered and somewhat brecciated. Abundant chlorite and pyrite. Quartz and calcite veinlets prominent.
102.7	160	57.3	57.3	100	Diorite, medium to light gray, massive and hard, mottled with green in part. Some brecciation, some chlorite and serpentine, silicified throughout. Small ankerite veinlet at 104.4 and 107 ft. Some spotty cinnabar mineralization. Numerous quartz and calcite veinlets. Bright green clay( ) mineral present in varying amounts. Some pyrite.
160	182	22.0	22.0	100	Diorite, dark gray to gray, brecciated and badly altered, gougey in part. Some calcite and quartz stringers. Bright green clay mineral scattered throughout (Fault zone) - at 10'-15'.
182	199.5	17.5	17.5	100	Diorite, as from 102 to 160.

Altoona Mine

Map showing 132 level
and surface in area of diamond
drill holes. Scale 1" = 40 feet
C.J.A. 4-28-59

EXTRA COPY
O. M. E.
RECEIVED JUN 18 1959

DATE	INITIALS	CODE



Mine
Cross section of 132 level & surface
Scale 1" = 40 feet
C.J.A. 2-20-99

EXTRA COPY
O. M. E.
RECEIVED JUN 18 1959

DATE	INITIALS	CODE

Assays Surface Diamond Drill Holes

No. 1 Hole

Sample No.	Hole Interval	% Hg.	Pounds per Ton
No. 1	20 - 30	0.42	8.4
No. 2	30 - 40	0.29	5.8
No. 3	40 - 50	0.32	6.4
No. 4	50 - 60	0.48	9.6
No. 5	60 - 70	0.28	5.6
No. 6	70 - 80	0.30	6.0
No. 7	80 - 90	0.09	1.8
No. 8	90 - 100	0.11	2.2
No. 9	100-110	0.08	1.6

No. 2 Hole - No values

No. 3 Hole - No values

No. 4 Hole

No. 1	20 - 30	0.015	Trace
No. 2	30 - 40	0.03	.6
No. 3	40 - 50	0.05	1.00
No. 4	50 - 60	0.07	1.4
No. 5	60 - 70	0.09	1.8
No. 6	70 - 80	0.09	1.8
No. 7	80 - 90	0.09	1.8
No. 8	90 - 100	0.12	2.4
No. 9	100- 110	0.13	2.6
No. 10	110- 120	0.07	1.4
No. 11	120- 130	0.10	2.0
No. 12	130- 140	Trace	---

EXTRA COPY
O. M. E.
RECEIVED JUN 18 1959

DATE	INITIALS	CODE

Form MF-103
Revised Oct. 1957

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1035.3
Approval expires June 30, 1958

APPLICATION FOR AID IN AN EXPLORATION PROJECT

PURSUANT TO DMEA ORDER I, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

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

THE CASTELLA CORPORATION
983 Mills Building
San Francisco, California

RECEIVED JUN 3 1958 D.M.E.A.

APPLICANT NOT TO USE THIS BLOCK

Docket Number: DMEA-5041
Date Received: 6-3-58
Government Participation %:
Region: II
Division Code: 400

BUSINESS ORGANIZATION (Check one)

- Individual [ ]
- Corporation [X]
- Partnership [ ]
- Other (Specify) [ ]

State in which firm is organized: Nevada

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

Name	Address	Title
B. C. Austin	983 Mills Bldg. San Francisco, Calif.	President
L. A. Smith	" " "	Vice President
Lawrence Preston	" " "	Sec. & Treas.

Mineral(s) for which you wish to explore: Mercury

Estimated Cost of Project: $ 30,000.00

LOCATION OF PROPERTY

Name	County	State
Altoona	Trinity	California

GENERAL INSTRUCTIONS

Before filling out this application, please read DMEA Order-I, Revised, "Government Aid in Defense Exploration Projects." To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit four copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 1, existing mine workings and geology in item 2, and the proposed exploration project in item 4. 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 2(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 Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest DMEA 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.

May 26, 1958
Dated

THE CASTELLA CORPORATION
BY *(Signature)*
L. A. Smith
Vice President
Title

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

INFORMATION REQUIRED WITH THIS APPLICATION

1. *Applicant's Property Rights:*

(a) 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 land adjacent to the proposed project area which you own or control. Describe any part of the project land or workings which should not be subject to Government lien for royalty payments. If the land consists of unpatented claims, state the book and page number for each recorded location notice, including amended locations, and the place where recorded (courthouse, recorder's office, county, and state).

(b) State all the names by which you know the property.

(c) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise. If you are not the owner, submit with this application one exact copy of the lease, contract, or other document (with address of owner) under which you control the property.

(d) Describe all liens, mortgages, or other encumbrances on the property.

2. *Physical Description:*

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

(b) State your interest, if any, in operations stated in 2*(a)*.

(c) State, as far as 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 on the property giving quantities and grades and sampling methods used, supporting 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 may have, indicating on each whether you require its return to you.

3. *Accessibility of Project:*

(a) To aid DMEA representatives who may be required to examine the property, state the name and address of the person who will meet the DMEA representative; give directions for reaching the property; and describe accessibility of the property including the mine workings.

(b) Name the shipping and supply points and places where employees reside and state the distances between them and the property.

4. *The Exploration Project:*

(a) Describe fully the proposed exploration project giving individual footages and sizes of openings *for each item of work.* Use narrative, maps, plans, and longitudinal and cross sections as necessary. Show the 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 *property boundaries* or to the closest identifiable corner.

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

(c) In the event that an exploration contract with DMEA is executed, how soon will the work start and how many months will be required to complete it? State your anticipated average daily or monthly rate of progress for each type of work.

5. *Experience:*

State your operating experience and background with relation to your ability to carry out this exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of Costs:*

Furnish detailed estimates of the costs *for each item of the work proposed in 4(a)* under the headings listed below with a total for each heading and the estimated total cost of the project. Costs for any work to be performed by an independent contractor should be shown separately under category *(a)* below. Costs for any work that is not to be performed by an independent contractor should be given in detail under categories *(b)* through *(g)*.

(a) Independent contracts. State the cost of any proposed independent contract for the performance of all or any part of the work, expressed in units of work, such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, 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. For necessary supervision, engineering and geological services, and labor, include an itemized schedule of numbers, classes, rates of wages, salaries or fees, and periods of employment. State whether these technicians and employees are available.

(c) Operating materials and supplies. List items of material and supplies with their cost. 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 operating equipment to be used giving specifications and indicating how each item is to be acquired – i.e., rented, purchased, or provided by the applicant. If it is rented or purchased, state the estimated rental or purchase price. If it is to be furnished by the applicant, give its present fair market value.

(e) Initial rehabilitation and repairs. Describe the type and the cost of necessary *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 on the exploration project.

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

(g) Miscellaneous. For the operating equipment listed in 6*(d)*, describe the type and estimate the cost of repairs and maintenance expected during project operations. Do not repeat initial repairs listed in 6*(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 – No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. *(a)* State whether you are prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation stated in Sec. 7 of DMEA Order–I, Revised.

(b) Explain to what extent you propose to furnish your share of the costs by providing money, by use of equipment owned by you, or otherwise.

* * * * *

INT.-DUP. SEC., WASH., D.C. 25960

EXTRA COPY
RECEIVED
DATE

ESTIMATED COST OF THE PROJECT

On the 600' Level

Crosscut and drift in the Hanging Wall (southwest) of the Altoona or "A" fault in the attempt to find faulted segments of vein 1A developed by us on this 600' level northeast of the fault.

Probable footage of standard size (5'x7') drifts and crosscuts 200'.

Fixed cost $35.00 per foot for drifts and crosscuts.
Fixed cost $9.00 per foot for timbering.

On the 500' Level

Crosscut and drift in the Hanging Wall (southwest) of the Altoona "A" fault in the attempt to find faulted segments of Vein 1A developed by us on this 500' level northeast of the fault.

Probable footage of standard size (5'x7') drifts and crosscuts 200'.

Fixed cost $35.00 per foot for drifts and crosscuts.
Fixed cost $9.00 per foot for timbering.

On the 350' Level

Crosscut and drift in the Foot Wall of the northeast striking faults which presently limit the ore bodies.

Probable footage of standard size (5'x7') drifts and crosscuts 200'.

Fixed cost $35.00 per foot for drifts and crosscuts.
Fixed cost $9.00 per foot for timbering.

On and Above the 132' Level

Continue the crosscut, that now extends northeast of the main shaft, approximately 60' to intersect the long raise that reaches from the 350' level to a point about 30' above the 132' level. Continue this raise to attempt to find ore indicated on the surface and in two diamond drill holes drilled from the surface.

Probable footage of standard size (5'x7') crosscut 60'.

Probable footage of 5'x9' raise 70'.

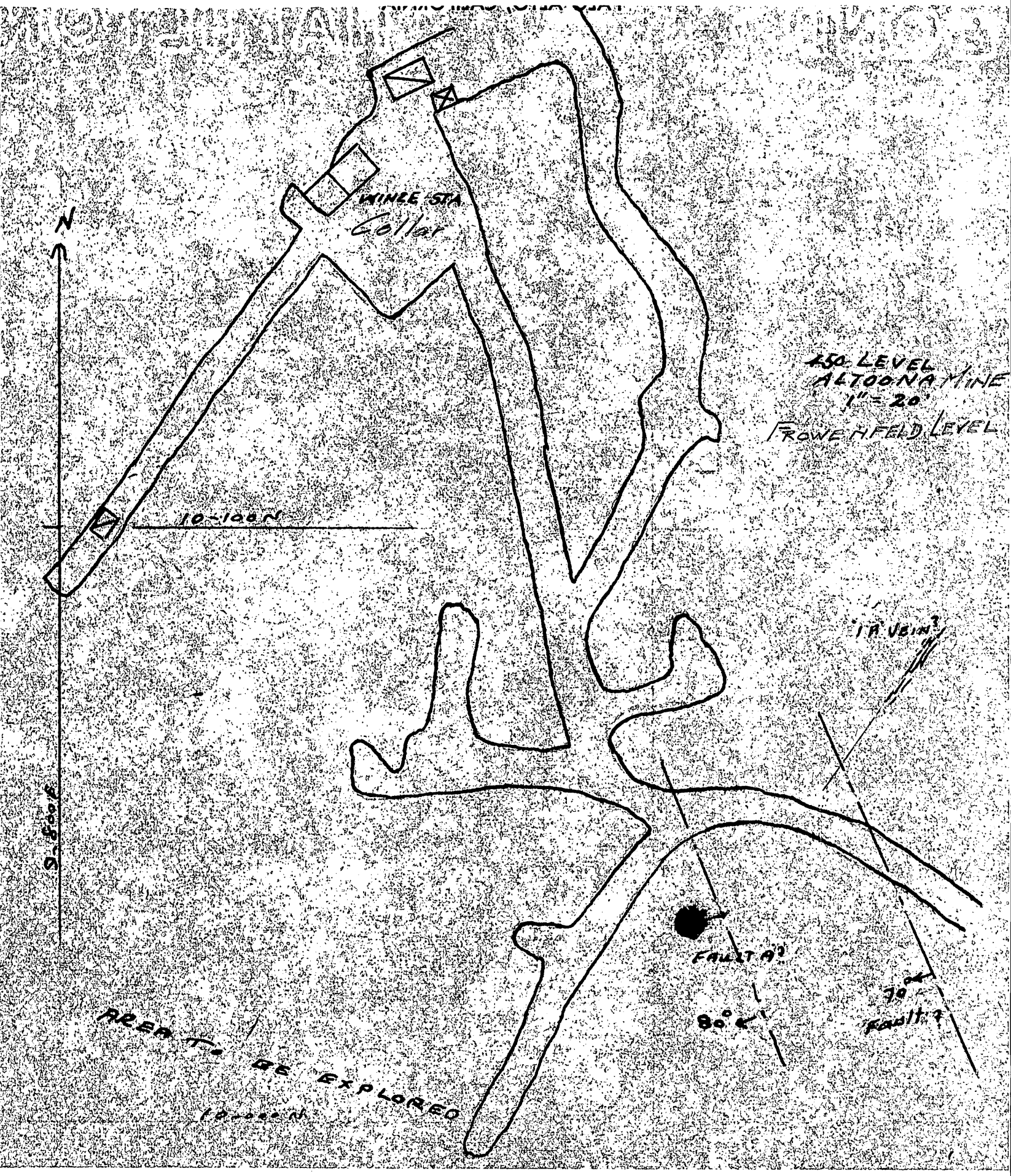
Fixed cost $35.00 per foot for crosscut
Fixed cost $9.00 per foot for timbering
Fixed cost $35.00 per foot for raise
Fixed cost $12.00 per foot for timbering raise

The exploration program outlined above is, of course, subject to modification after further examination by D.M.E.A. engineers.

We are prepared to furnish our share of the cost of this work in accordance with regulations stated in Sec. 7 of D.M.E.A. Order 1, Revised.

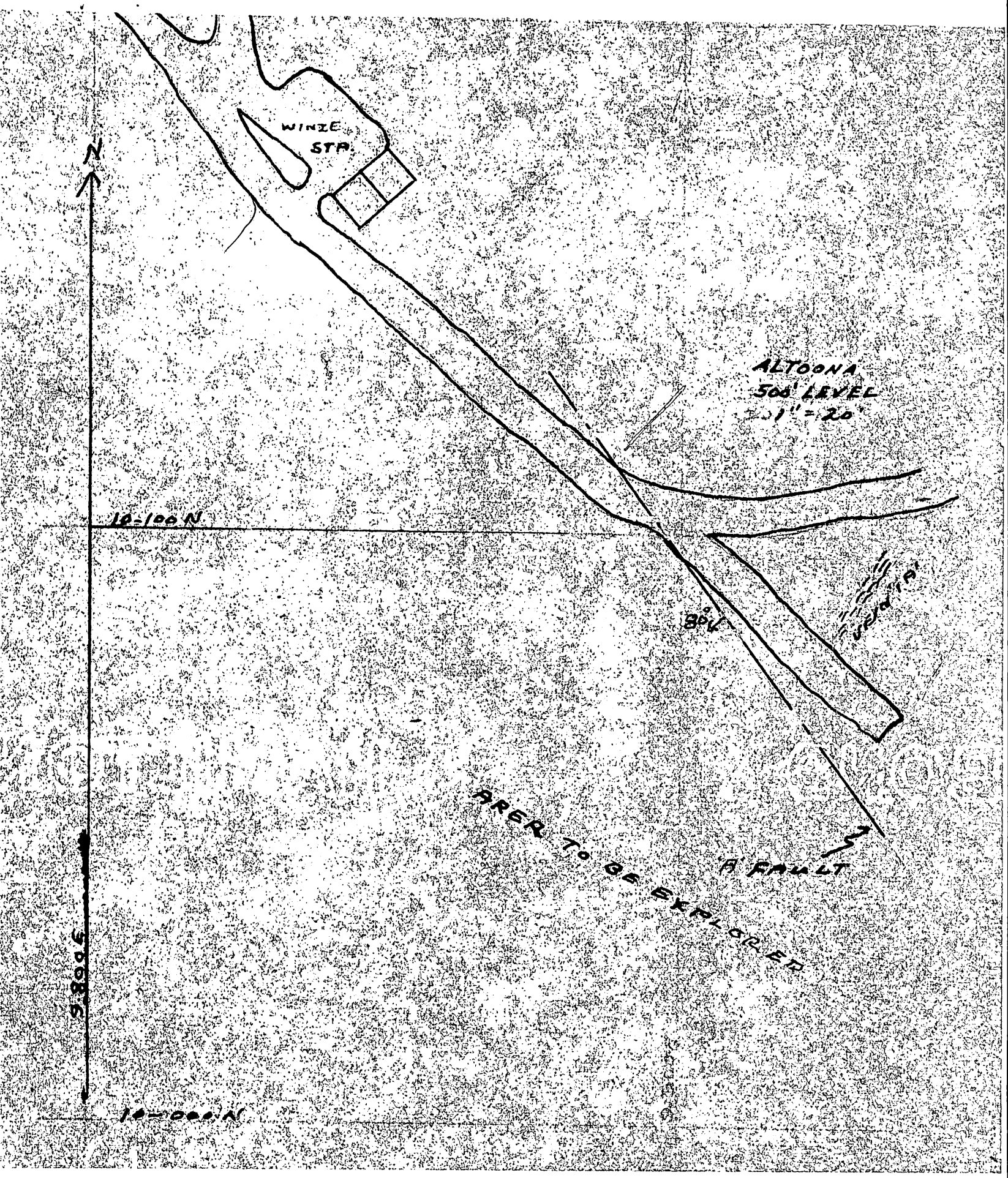
THE CASTELLA CORPORATION

By _____
Vice President


N
MINCE STA
Collar
10-100 N
9600 S
450 LEVEL
ALTOONA MINE
1" = 20'
FROWE MFELD LEVEL
1A VEIN?
FAULT A?
80° ↙
70°
fault?
AREA TO BE EXPLORED

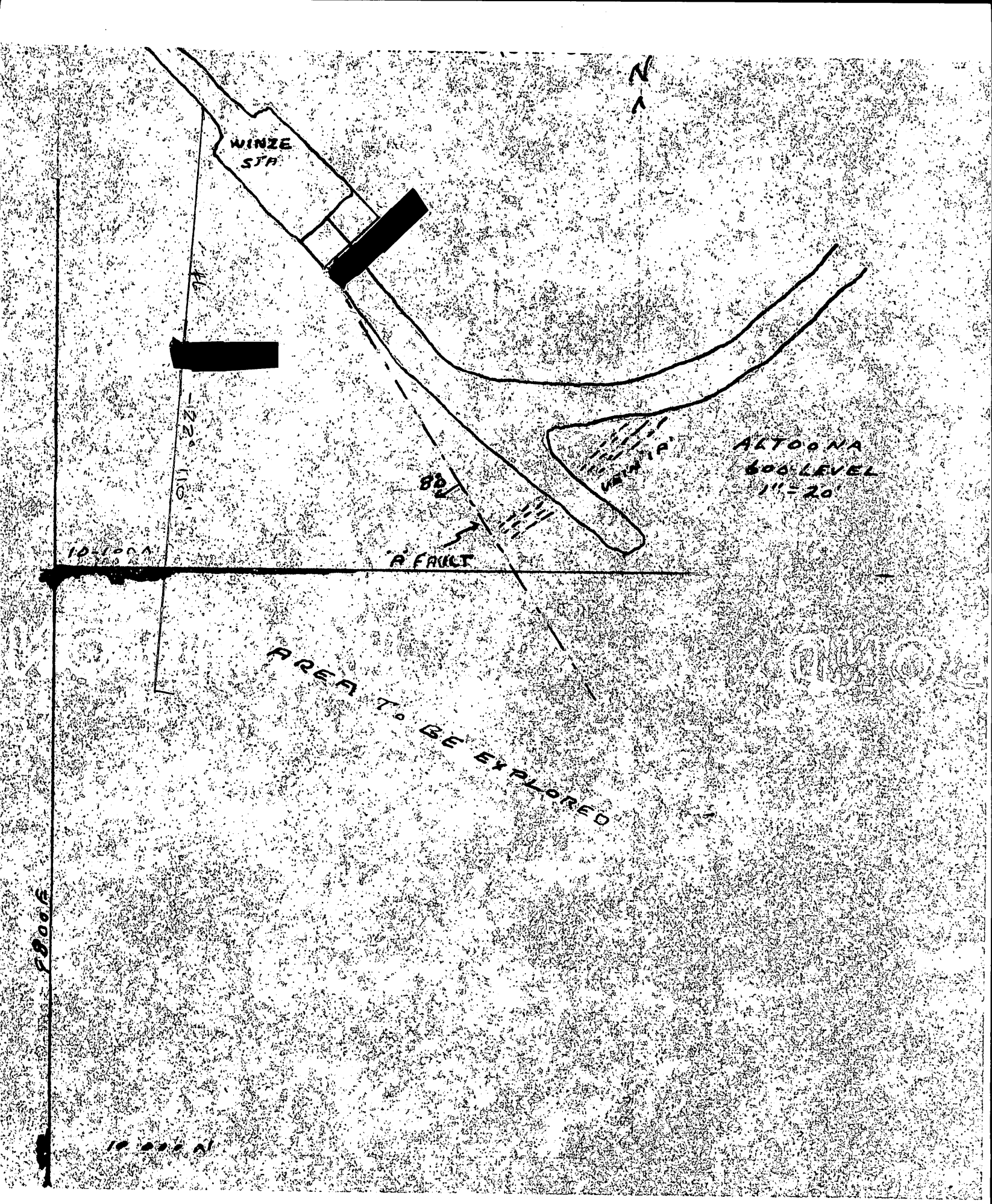
EXTRA COPY
DMEA
RECEIVED 3 1050

DATE	INITIALS	CODE


WINZE
STA.
N
ALTOONA
500' LEVEL
1" = 20'
10-100 N
80°
'A' FAULT
AREA TO BE EXPLORED
9.800 S
10-000 N

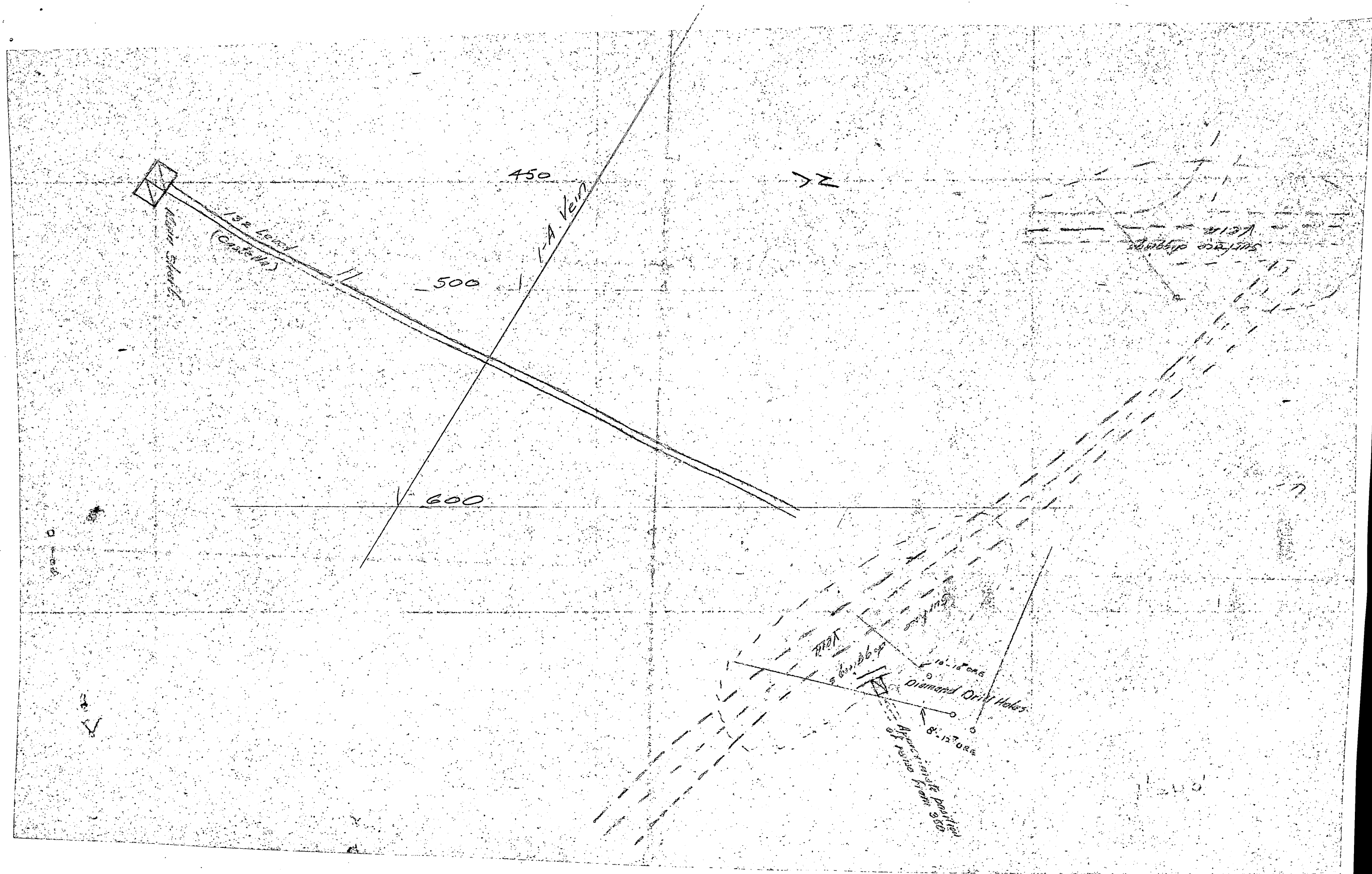
EXTRA COPY
D M E A
RECEIVED JUN 3 1958

DATE	INITIALS	CODE


N
WINZE
STA
ALTOONA
600 LEVEL
1" = 20'
'A' FAULT
AREA TO BE EXPLORED

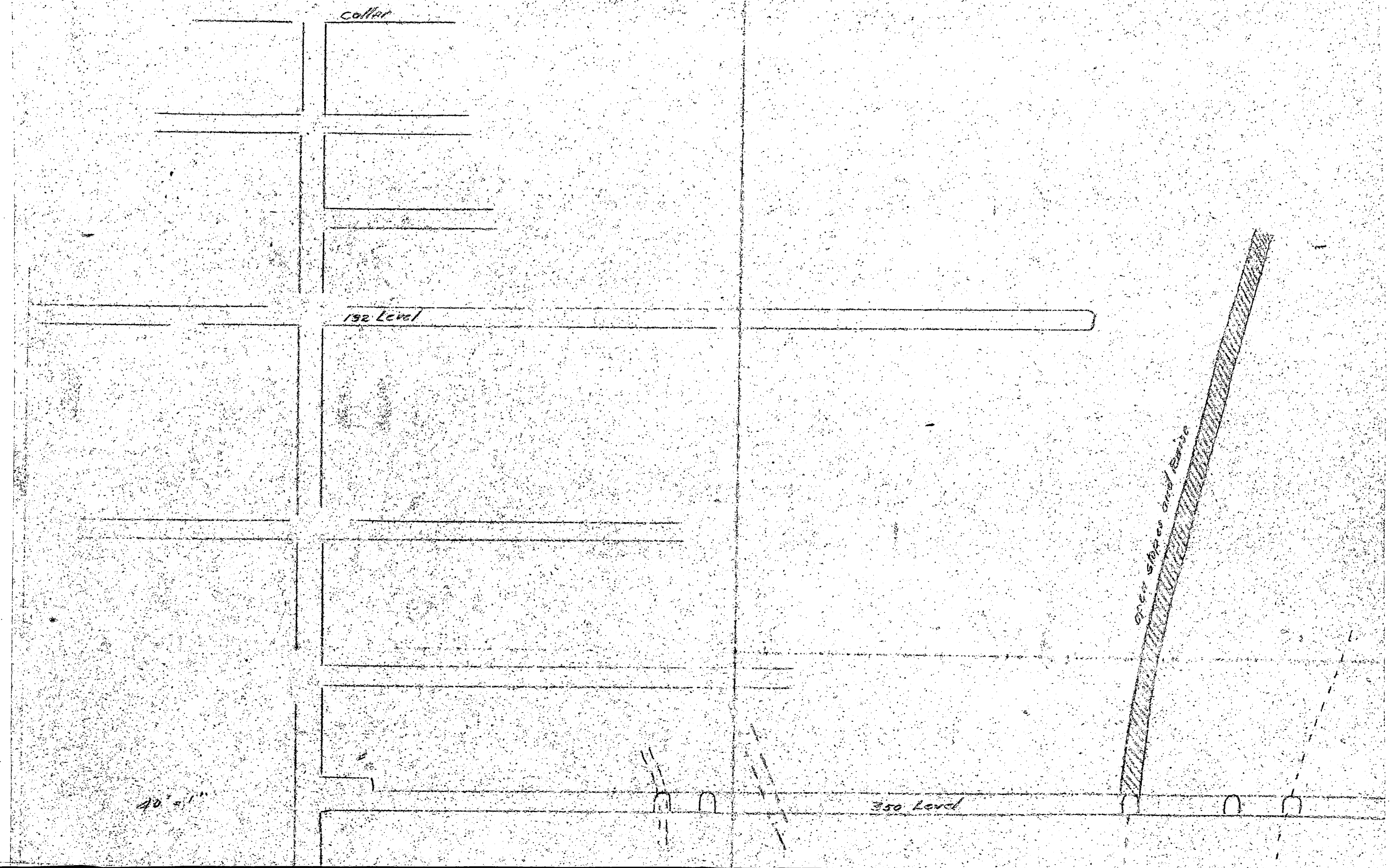
EXTRA COPY
DMEA
RECEIVED JUN 3 1953

DATE	INITIALS	CODE


450
500
600
1-A Vein
132 Level
(Cardolin)
Main Shaft
Surface outcrop
Vein
Diamond Drill Holes
10'-15' ORE
8'-12' ORE
Approximate position
of point from 360

EXTRA COPY
D M E A
RECEIVED MAY 3 1958

DATE	[illegible]	CODE


Collar
192 Level
open space and ramp
350 Level
40'

EXTRA COPY
D M E A
RECEIVED JUN 8 1958

DATE	INITIALS	CODE

EXTRA COPY
D M E A
RECEIVED

DATE	INITIALS

6056

SEMI-ANNUAL REPORTS OF CERTIFIED PROJECTS

Reporting Period [illegible] - [illegible] Date of Examination [illegible]

Operator [illegible]

Mine Name [illegible]

County and State [illegible]

Docket Number and Commodity [illegible]

Contract Number [illegible]

Date of Contract [illegible]

Date of Certification [illegible]

Expiration Date of Royalty Payments [illegible]

Total Amount of Contract [illegible]

Total Expenditures-under Contract [illegible]

Amount of Government Participation at [illegible] % [illegible]

Royalty Payments this Period [illegible]

Previous Royalty Payments [illegible]

Total Royalty Payments to Date [illegible]

Percent Government Participation Repaid [illegible]

Royalty Due on Production to Date

Royalty Remarks: [illegible]

	Tons	Analysis
Original Estimate of DMEA Reserves (Field Team Final Report) Mines [ ] Survey [ ] Joint [ ]	[illegible]	[illegible]
Revised Estimate of DMEA Reserves (Field Team) Mines [ ] Survey [ ] Joint [ ]		
Increase of Reserves by work performed subsequent to DMEA project work		
Production DMEA ore (This period)		
(Previous)		
(To date)		
Operator's ore found subsequent to DMEA work (This period)		
(Previous)		
(To date)		

Percent Revised Reserves mined _____

Investment Data

Shafts			Winzes			Drifts & Crosscuts		
Size	Feet	Cost	Size	Feet	Cost	Size	Feet	Cost

Raises			Drilling			Rehabilitation	
Size	Feet	Cost	Type & Size	Feet	Cost	Description	Cost

Facilities

Mine Plant		Mill		Roads	
Description	Cost	Description	Cost	Description	Cost

Remarks

In May 1957, production was at rate of 4 flasks per day and total since completion of DMEA project was about 60 flasks of mercury

Signed [illegible] (Engineer)

UNITED STATES
DEPARTMENT OF THE INTERIOR

COPY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

WASHINGTON 25, D. C.
AIR MAIL

1605 Evans Avenue
Reno, Nevada

April 27, 1955

Memorandum

To: Operating Committee, DMEA, Interior Building
Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-3724 (Mercury)
L. A. Smith and B. C. Austin
Altoona Mine
Trinity County, California

In response to your letter of April 14, 1955 concerning the above subject docket, we are attaching four copies of the following data and maps:

1. Letter of February 16, 1955 from L. A. Smith to Tax Collector of Trinity County; the Tax Collector's reply with attached sketch of Altoona claim.

2. Claim map, Altoona Quicksilver Mine.

3. Map of Mine Area Showing Vein Outcrops.

4. Map of Underground Workings.

The legal difficulties referred to in your letter were imaginary rather than real and arose owing to an erroneous map which showed a 40 scale map of the underground workings superimposed on a 100 scale map of the claims. It appeared, therefore, that the principal workings crossed the side line of Lot 41. The proposed work is entirely within Lot 41, as shown on the cross-

Reviewed by
DMEA OPERATING COMMITTEE

_____
(date)

ched block on accompanying map. Eventually, the adjoining shington claim may benefit from the proposed work, but the round to be explored is entirely within the Altoona area and we cannot see the possibility of an apex suit relative to applicants proposed targets.

The mine area is entirely within Section 22, but there may be timber areas included in the lease in the adjoining Section 23.

After careful analysis of costs and consultations with Mr. L. A. Smith, the cost estimates were revised downward from $130,525.00 to $114,540.00. The following revised cost estimates are considered reasonable, and it is recommended that they be used as a basis for drawing up the exploration contract:

(1) Work items

a. Drifts, crosscuts, and raises on the 500 and 600 foot levels - 1,200 feet @ $25.00/ft.	$30,000.00
b. Diamond drilling on 500 and 600 foot levels - 1,000 feet @ $8.00/ft.	8,000.00
(Operator to furnish labor and equipment)	
	$38,000.00

(5) Initial rehabilitation and repairs

a. Rehabilitate 3 bunkhouses and 1 cookhouse	$ 4,510.00
b. Repair shaft collar	2,636.00
c. Rehabilitate 450 feet of shaft at $16.00/ft.	7,211.00
d. Rehabilitate 450 foot level to winze - 280 feet @ $19.00/ft.	5,263.00
e. Rehabilitate 150 feet of winze from 500-600 foot levels - 150 feet @ $32.00/ft.	4,800.00

f.	Rehabilitate 500 feet of drifts and crosscuts on 600 foot level - 500 feet @ $15.30/ft.	$ 7,660.00
		$ 32,080.00

(6) New Buildings, Improvements, etc.

a.	Construct headframe	$ 3,500.00
b.	Construct hoist house and shop, including installation of machinery	2,920.00
c.	Connect electric power - installation charge	1,850.00
d.	Install 7,000 feet of 2-inch water line	3,170.00
		$11,440.00

(4) Operating equipment (to be purchased)

1 Truck	$ 2,500.00
14 tons 20# rail, plates, spikes, bolts @ $200.00/ton	2,800.00
1 10-inch blower, with motor and starter	502.00
1 50-horsepower hoist - capacity 4,000 pounds, 400-feet per minute, controller, sheave, and cable	2,150.00
1 Compressor, 440 cfm., Ingersoll Rand, type XB-2, complete with motor, starter, etc.	3,250.00
1 Air hoist, 1,250 pounds, Ingersoll Rand, 300 feet, 1/4-inch cable	450.00
3 Cochise-Thor, #72, jackhammers at $400.00/each	1,200.00
4 50-foot lengths, 3/4-inch air hose at $34.00/each	132.00
4 50-foot lengths, 1/2-inch water hose at $25.00/each	100.00
3 Oilers at $15.00/each	45.00
6 sets, 1-inch drill steel @ $31.00/ea.	186.00
6 Tungsten carbide bits @ $13.50/ea.	81.00

100	Timken bits @ $0.44/ea.	$ 44.00
6	Mine cars @ $200.00 ea.	1,200.00
1	Layne and Bowler deep, well turbine pump, #A-C-20, head 450 feet, 8-inch column, 75 horsepower motor, capacity 500 g.p.m. delivered to Redding, Calif.	8,325.00
1	Layne and Bowler deep well pump #A-C-20, head 200 feet, 6-inch column, 40 horsepower motor, capacity 500 g.p.m.	3,255.00
1,000	feet electric cable @ $1.50/ft.	1,500.00
1	Gardner Denver mucking machine	1,750.00
1	Ingersoll Rand slusher hoist and slusher	850.00
1,000	feet lin. pipe	200.00
	Miscellaneous tools and supplies	2,500.00
		$ 33,020.00
	Total Estimated Cost	$ 114,540.00

The applicants are anxious to get started as soon as possible, and will appreciate any thing that can be done to expedite the processing of their application. It will take considerable time to arrange for assembling of materials, supplies and crews owing to the location of their property.

/s/ S. Ricker

PHONE DAVENPORT 2-1524

L. A. SMITH
MINING ENGINEER

426 LOWELL STREET
PALO ALTO, CALIFORNIA

DEPARTMENT OF THE INTERIOR
Bureau of Mines
FEB 2 3 1955

February 16, 1955

Tax Collector of Trinity County
Weaverville, California

Dear Sir:

I will greatly appreciate your letting me know the names and addresses of the parties owning the mining claims adjacent to the Altoona Mine. These claims would be located in Sections 22, 23 and 15, Township 38 North, Range 6 West.

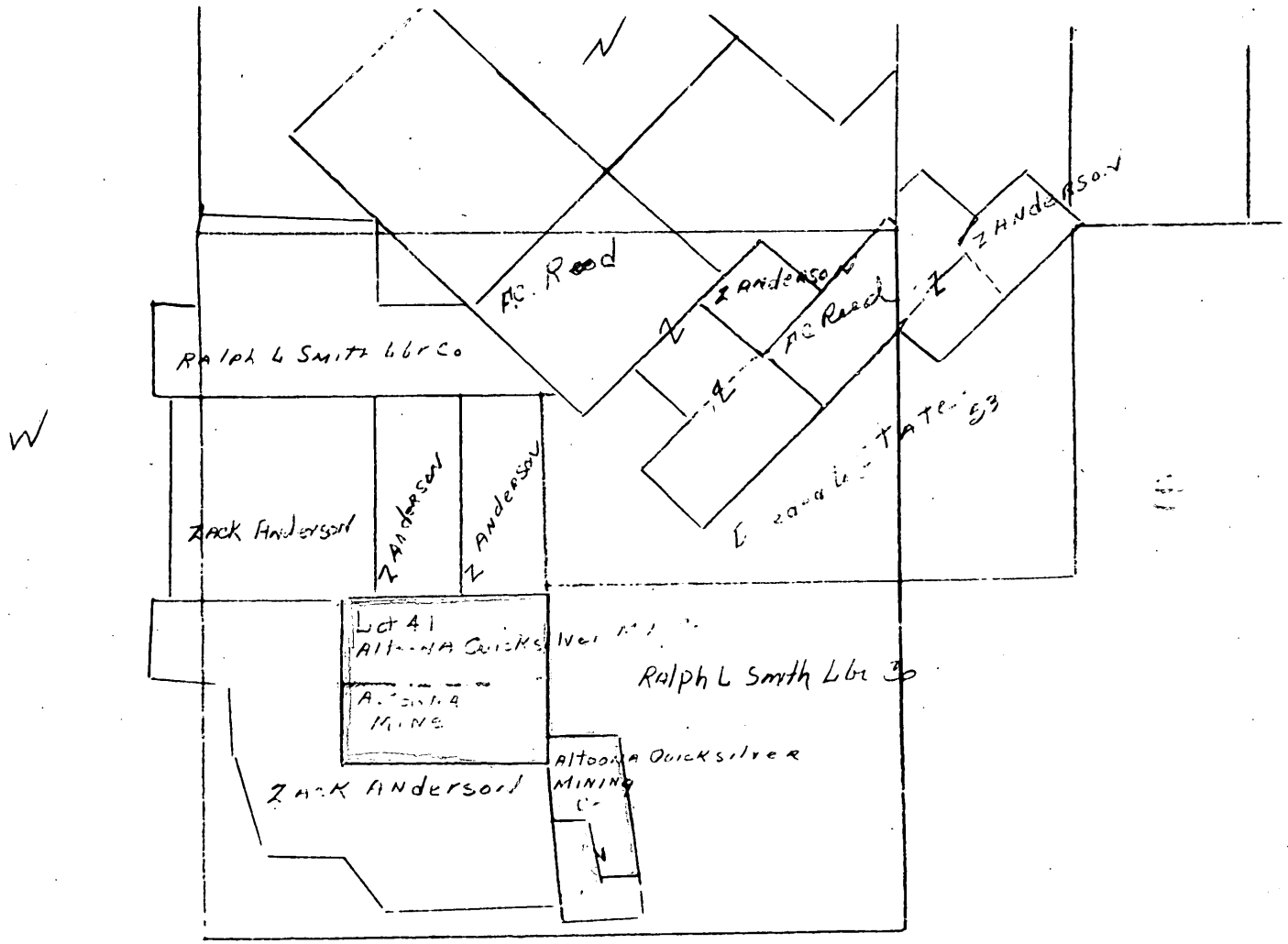
Yours truly,

L. A. Smith

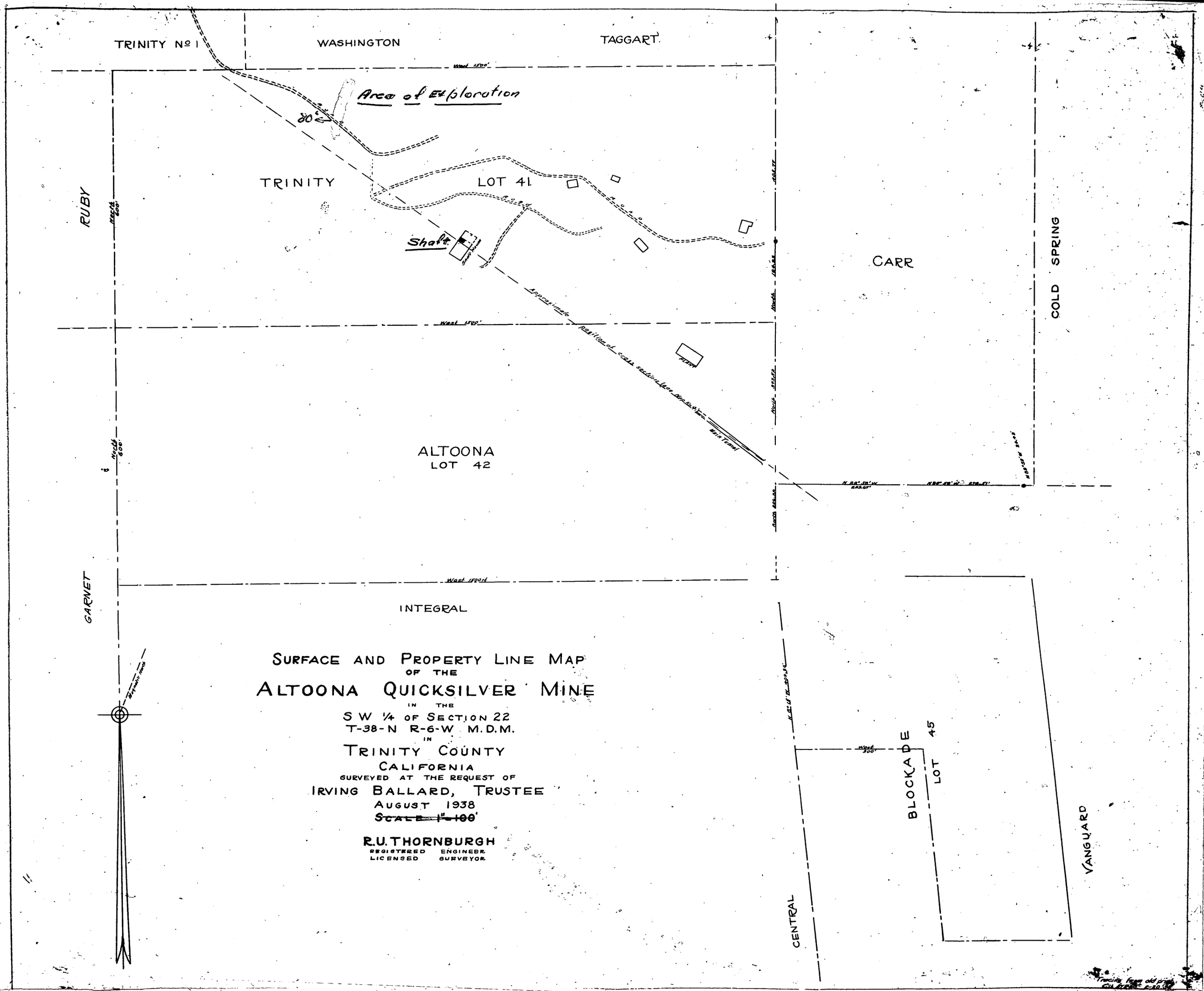
LAS:MK

Am enclosing a plat of the Altoona Mine showing the mines adjacent to the Altoona Mine, and the assessed owners of same.

M. Heaton


N
W
E
S
A.C. Reed
Z Anderson
A.C. Reed
Z Anderson
Ralph L Smith Lbr Co
Zack Anderson
Z Anderson
Z Anderson
Lot 41
Altoona Quicksilver Mining
Altoona Mine
Ralph L Smith Lbr Co
Zack Anderson
Altoona Quicksilver Mining Co

Sec 22 - 38N - 6W


TRINITY Nº 1
WASHINGTON
TAGGART
West 1500'
Area of Exploration
80'
TRINITY
LOT 41
RUBY
North 600'
Shaft
Shaft House
Approximate Position of cross section Face Window
Main Tunnel
CARR
COLD SPRING
West 1500'
North 1800'
North 3000'
North 4200'
ALTOONA
LOT 42
North 600'
GARNET
West 1500'
INTEGRAL
Magnetic North
SURFACE AND PROPERTY LINE MAP
OF THE
ALTOONA QUICKSILVER MINE
IN THE
SW 1/4 OF SECTION 22
T-38-N R-6-W M.D.M.
IN
TRINITY COUNTY
CALIFORNIA
SURVEYED AT THE REQUEST OF
IRVING BALLARD, TRUSTEE
AUGUST 1938
~~SCALE 1" = 100'~~
R.U. THORNBURGH
REGISTERED ENGINEER
LICENSED SURVEYOR
West 300'
BLOCKADE
LOT 45
CENTRAL
VANGUARD

DEPARTMENT OF THE INTERIOR
Bureau of Mines Administration
RECEIVED
APR 29 1955

MAR 14 1955

March 11, 1955

U.S. Department of the Interior
Defense Minerals Exploration Administration
Washington, D.C.

Gentlemen:

Please refer to Docket No. D.M.A. 1258X, Altoona Quicksilver Mining Co., and to a letter written to Mr. R. E. Frowenfeld, President of Altoona Mining Co. on July 31, 1951, by Mr. C. O. Mittendorf.

In the letter referred to, Mr. Mittendorf included Exploration Contract No. I.D.M.-E 91, dated July 1, 1951. The Altoona Mining Co. was unable to proceed with the contract granted as they could not raise the necessary funds because of the low price of mercury prevailing at that time.

Mr. B. C. Austin and the writer, as a partnership, have leased the Altoona Quicksilver Mining Co.'s mine and are now applying for a D.M.E.A. loan per enclosed application. The amount applied for is considerably more than the amount set up in Contract I.D.M.-E91 but we have made a very careful estimate based on 1955 costs and what we believe the job will require and feel that our figures are in line.

Mr. Austin has had over 40 years mining experience in mercury and other metal mines and is one of our best known west coast mining engineers. My experience covers over 30 years in west coast mining, including mercury and other strategic metal mining and consulting work. The work will be done under our direct supervision.

We are prepared to furnish our share of the money required, using our own funds and the funds of friends who wish to join us in the venture.

Electric power from California-Oregon Power Co. is now available on the property. A new road, constructed since the war, makes the property easily accessible throughout the year.

In the application we are including copies of reports by E. E. Erich and C. M. Whinney, both of who made extensive examination of the Altoona and have a thorough knowledge of the mine. Mr. C. M. Shuetti's report is included in Docket D.M.A.-1258X file. We have checked all essential features covered in the Shuetti-Erick and Whinney reports and find them, to the best of our knowledge, reliable.

There has been no change in the mine or the property since it was examined for the contract granted in 1951 and set up in Exploration Project No. I.D.M.-E91. We, therefore, hope that field examination may be waived at this time and a new contract granted promptly.

Yours very truly,

L. A. Smith

LAS:MK

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Form Approved.
Budget Bureau No. 42-R1035.2.

Defense Minerals Administration
RECEIVED
MAR 14 1955

APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

Not to be filled in by applicant

Docket No. 3724
Metal or Mineral Mercury
Date Received 3-14-55
Estimated Cost $130,525
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: L. A. Smith, 426 Lowell St., Palo Alto, Calif. and B. C. Austin, Hills Bldg., San Francisco, Calif., a partnership

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized.

(*c*) If a corporation, add to above statement, titles, names and addresses of officers.

(*d*) If a partnership, add to the above statement the names and addresses of all partners.

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract Lots 41 and 42 (patented) and Lot 45 (patent applied for) in Section 22, T. 38 N., R 6 W., M.D.B. & M., Trinity County, Calif.

(*b*) State any mine name by which the property is known. Altoona

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Lessees

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property.

(*e*) If you own the land, describe any liens or encumbrances on it None

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice.

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades.

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you.

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power.

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Mercury

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc.

(*c*) The work will start within 30 days and be completed within 12 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.). None

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes.

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)?

(*b*) How do you propose to furnish your share of the costs?

[X] Money [ ] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper.

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.

Dated March 11th, 1955

L. A. Smith (Applicant) B. C. Austin

By

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

MAR 14 1955

L. A. SMITH and B. C. AUSTIN

D.M.V.A. DOCKET NO. 1258X

EXHIBIT "A"

MAP ATTACHED:- Section through mine.

At present the mine is closed down, the collar of the shaft has caved, the mine is full of water, and all machinery used in former operations has been removed from the property.

In order to explore and develop this mine, it will be necessary to rehabilitate the camp. There are four houses left on the property, one of which is the cook house. These are in need of repair. A new water line to the camp, roughly one mile long, will have to be installed. A crew of 10 men will be needed to open the mine and do the necessary exploration work. The order in which this work should be done is as follows:

ITEM 1.	Rehabilitate the camp, houses, water system, etc.	$ 7,680.00
ITEM 2.	Repair shaft collar.	2,636.00
ITEM 3.	Construct headframe.	3,500.00
ITEM 4.	Construct machinery foundations and floors of hoist house and shop.	1,755.00
ITEM 5.	Install machinery and erect hoist house and shop.	1,171.00
ITEM 6.	Connect electricity.	3,500.00
	6 mo. power @ $500.00 per month.	3,000.00
ITEM 7.	Repair and retimber shaft to 450' level	7,212.00
ITEM 8.	Retimber 450' level to winz	5,363.00
ITEM 9.	Retimber winz to 600' level	6,498.00
ITEM 10.	Retimber 600' level	9,660.00
ITEM 11.	New development as indicated after inspection	42,000.00
	For details Items 1 to 11 see Exhibit 'B', attached	93,975.00
	Operating Equipment, per Exhibit 'D', attached	36,550.00
		$ 130,525.00

D.M.E.A. DOCKET NO. 1258X

EXHIBIT 'B'

DETAILS OF EXTIMATED COSTS.

ITEM 1.

LABOR:	Rehabilitation of camp and houses.			
	Installing pipeline and tank - 110 man shifts @ $17.00		$ 1,875.00	
	Insurance, supervision and incidentals		400.00	
MATERIALS:	Lumber, hardware, roofing, doors, windows, screens, plumbing and wiring, heating and cook stoves, beds, bedding, furniture, refrigerator and kitchen equipment, gas connection and storage tank.		2,225.00	
	7,000 Ft. 2" waterline and storage tank		3,170.00	7,680.00

ITEM 2.

LABOR:	Repair shaft collar. Pour concrete, surface slab and concrete shaft sets as necessary to solid ground and pour headframe foundations, 94 man shifts @ $16.50		1,551.00	
	Insurance, supervision and incidentals.		350.00	
MATERIALS:	2,000 B.M. timber @ $80.00 per M	$ 160.00		
	2,000 lbs. reinforcing steel @ .10¢	200.00		
	200 sacks cement @ $1.50	300.00		
	20 yds sand @ $1.50	30.00		
	30 yds rock @ $1.50	45.00	735.00	2,636.00

ITEM 3.

LABOR:	Construct headframe, 130 man shifts @ $16.50		2,145.00	
	Insurance, supervision and incidentals.		250.00	2,395.00
MATERIALS:	6,000 B.M. lumber @ $80.00	$ 480.00		
	700 lbs. corrugated iron @ .15¢	105.00		
	1200 lbs. steel plate @ .10¢	120.00		
	Hardware	400.00	1,105.00	1,105.00

SHEET 2 - EXHIBIT 'B' CONTINUED:

ITEM 4.

LABOR:	Construct forms and pour hoist and compressor foundations, and floor and foundations for hoist house, compressor house and shop			
	72 man shift @ $17.50		1,260.00	
	Insurance, supervision and incidentals.		150.00	
MATERIALS:	168 sacks cement @ $ 1.50	252.00		
	15 yds sand @ $ 1.50	22.50		
	27 yds rock @ $1.50	40.50		
	Reinforcing steel, 300 lbs @ .10¢	30.00	495.00	1,755.00

ITEM 5.

LABOR:	Construct hoist house, compressor house and shop. Install hoist and compressor.			
	Machinery installation, 6 man shifts @ $17.	102.00		
	Building construction, 30 man shifts @ $17.	510.00		
	Insurance, supervision and incidentals.	100.00	712.00	
MATERIALS:	1600 lbs. corrugated iron @ .15¢	240.00		
	1800 B.M. lumber @ $80.00	144.00		
	Doors, windows and hardware	75.00	459.00	1,171.00

ITEM 6.	Connect electricity. Payment to power company ($2,500.00 returnable)	3,500.00	
	6 mo. power @ $500.00 per mo.	3,000.00	6,500.00

ITEM 7.

LABOR:	Repairing shaft to 450' level. Hoisting, pumping, pump installation, mucking, retimbering, installation of ventilation, air, and water lines.			
	220 man shifts at $17.00		3,740.00	
	Insurance, supervision and incidentals		700.00	4,440.00
MATERIALS:	15,780 B.M. @ $80.00	1,264.00		
	Hanger rods, pipe supports and misc.	500.00		
	450 ft. 3" air line @ .83¢	373.00		
	450 ft. 2" water line @ .41¢	184.00		
	450 ft. ventilation pipe @ $1.00	450.00	2,771.00	2,771.00

(450 FT. @ $16.00)

SHEET 3 - EXHIBIT 'B' CONTINUED:

ITEM 8.

Open and retimber the 450' level to the winze (280'). Install blower, track, ventilation, air and water lines. Retimber the 450' level station. Includes hoisting, pumping, timber framing.

LABOR:	160 man shifts @ $17.00			3,840.00	
MATERIALS:	Timber, 11,200 B.M.	@ 80.00	896.00		
	280' - 3" Air line	@ .83¢	232.00		
	280' - 2" Water line	@ .41¢	115.00		
	280' Ventilation pipe	@ 1.00	280.00	1,523.00	
	($19.00 per foot)				5,363.00

ITEM 9.

Retimber station at winze on 450' level. Install hoist and pump. Retimber to the 600' level. Muck out sump and retimber station at 600' level. Install ventilation, air and water lines.

LABOR:	180 man shifts @ $17.00		3,060.00		
	Insurance, supervision and incidentals		600.00		
	Pumping, hoisting, tramming		600.00	4,260.00	
MATERIALS:	Timber, 18,320 B.M.	@ 80.00	1,464.00		
	Wedges, hanger rods, hardware		500.00		
	150' - 2" Air line	@ .41¢	62.00		
	150' - 2" Water line	@ .41¢	62.00		
	150' Ventilation pipe	@ 1.00	150.00	2,238.00	
	($43.35 per foot)				6,498.00

ITEM 10.

Open and retimber the 600' level. Install track, air ventilation and water lines. Hoisting to 450' level. Tramming to shaft. Hoisting to surface, pumping.

LABOR:	250 man shifts @ $17.00		6,250.00		
	Insurance, supervision and incidentals		900.00	7,150.00	
MATERIALS:	Timber, 20,000 B.M.	@ 80.00	1,600.00		
	500' - 2" Air line	@ .41¢	205.00		
	500' - 2" Water line	@ .41¢	205.00		
	500' Ventilation pipe	@ 1.00	500.00	2,510.00	
	($19.30 per foot)				9,660.00

SHEET 4 - EXHIBIT 'B' CONTINUED

ITEM 11.

Drifting, crosscutting and raising from 500' and 600' levels as indicated after examination. This development is tentatively planned as shown on EXHIBIT 'C' attached and on cross section of underground workings on cross section attached.

1200' Drifts, crosscuts and raises @ $30.00 per ft.	36,000	
1000' Diamond Drilling @ $6.00 per ft. (Includes timber, track and pipe lines)	6,000	
		42,000.00

ALTOONA QUICKSILVER MINING COMPANY

DMA DOCKET NO. 1258X

EXHIBIT "C"

DRIFTING, CROSSCUTTING, RAISING, AND DIAMOND DRILLINGS:

500 FT. LEVEL: 100 FT. OF CROSSCUT, S 45° E. FROM WINZE TO CUT #1 and #2 VEINS.

200 FT. OF DRIFTING ON #1 and #2 VEINS.

100 FT. OF DRIFTING ON #4 VEIN.

240 FT. OF DIAMOND DRILLING FROM WINZE STATION TO TEST DOWNWARD EXTENSION OF #1 AND #2 VEINS.

150 FT. OF DIAMOND DRILLING FROM 500 FT. LEVEL DOWNWARD TO TEST DOWNWARD EXTENSION OF #3 AND #4 VEINS.

600 FT. LEVEL: 60 FT. OF CROSSCUT, S 45° E. FROM WINZE TO CUT #1 VEIN.

200 FT. OF DRIFTING ON #1 VEIN.

200 FT. OF DRIFTING ON #3 VEIN.

100 FT. OF DRIFTING ON #2 VEIN.

100 FT. OF DRIFTING ON #5 VEIN.

80 FT. OF DIAMOND DRILLING FROM NEAR WINZ STATION TO TEST DOWNWARD EXTENSION OF #1 VEIN.

330 FT. OF DIAMOND DRILLING FROM A POINT ON THE 600 LEVEL BETWEEN #2 AND #3 VEINS TO TEST DOWNWARD EXTENSION OF #2, #3 and #5 VEINS.

200 FT. OF DIAMOND DRILLING FROM THE END OF 200 FT. DRIFT ON #3 VEIN TO TEST DOWNWARD EXTENSION OF VEIN AT THIS POINT.

RAISE FROM 600 TO 500 LEVEL FOR VENTILATION AND TO BE RUN IN #3 VEIN FOR EXPLORATION - 100 FEET.

D.M.E.A. DOCKET NO. 1258X

EXHIBIT 'D'

To be purchased -- Operating equipment:

1	Truck		$ 2,500.00
14	tons 20# Rails, plates, spikes and bolts	@ $ 200.00	2,800.00
1	10" Blower, with motor and starter		502.00
1	50 h.p. Hoist, capacity 4000# @ 400 feet per minute, controller, sheave and cable		2,150.00
1	Compressor, 440 cu.ft. Ingersoll Rand Type XB-2, 15"x19"x12", complete with 75 h.p. motor, starter, etc.		3,250.00
1	1250# Ingersoll Rand Air Hoist and 300' 1/4" cable		450.00
3	Cochise-Thor #72 Jackhammers	400.00	1,200.00
2	Cochise-Thor Jacklegs, complete	215.00	430.00
4	50' lengths 3/4" Air Hose, cpld	34.00	132.00
4	50' lengths 1/2" Water Hose, cpld	25.00	100.00
3	Oilers	15.00	45.00
6	sets 1" Q.O. Drill Steel (shanked)	31.00	186.00
6	Tungsten Carbide Bits	13.50	81.00
100	Timken Bits	.44	44.00
1	Sullivan Diamond Drill mod. HS-15 air. Outfit complete for 300'		2,700.00
8	Mine Cars 16' - 18" gauge roller bearings	200.00	1,600.00
1	Layne and Bowler deep well turbine pump, #A-C-20, head 450', 8" column, 450' 1-11/6" rods, #10 - 14 stage bowls, with 75 h.p. motor with starter, delivered Redding. (capacity 500 g.p.m. @ 450' head)		8,325.00

1	Layne and Bowler deep well pump, #A-C-20, head (6" column, 200') 1-3/16" rods, #10 - 7 stage bowls, 40 h.p. motor, capacity 500 g.p.m. @ 200' head.		3,255.00
1,000	Ft. Electric cable (California specification)	1.50	1,500.00
1	Gardner Denver mucking machine		1,750.00
1	Ingersoll Rand slusher hoist and slucher		850.00
	Misc. Tools and supplies		2,500.00
1,000	ft. 1" Pipe	.20	200.00
			$ 36,550.00

D.M.E.A. DOCKET NO. 1258X
EXHIBIT 'E'

LABOR

Engineering, surveying and consultants			$ 2,375.00
Crew of 10 men as follows: (monthly rate)			
1 - Superintendent	700.00		
1 - Cook	375.00		
1 - Hoistman	437.50		
1 - Electrician and mechanic	437.50		
2 - Miners ($384.00 each)	768.00		
2 - Muckers ($350.00 ")	700.00		
2 - Timbermen ($384.00 each)	768.00		
1 - Utility man (timekeeper, bookkeeper)	400.00		4,586.00
	4,586.00	per year	57,407.00
Compensation Insurance	460.00	" "	5,420.00
	5,046.00		62,827.00

D.H.E.A. DOCKET NO. 1258X
EXHIBIT 'F'

The four houses on the property will require repair and rehabilitation and the water system replaced.

See EXHIBIT 'B' - ITEM 1, for details $ 7,680.00

COPY

STANFORD UNIVERSITY

SCHOOL OF MINERAL SCIENCES

STANFORD UNIVERSITY
CALIFORNIA
JUNE 20, 1949

Mr. R. E. Frowenfeld
124 Presidio Avenue
San Francisco, Calif.

MAR 14 1957

Dear Mr. Frowenfeld:

I am sending you, somewhat belated, a letter containing a few ideas regarding the Altoona Quicksilver mine.

I feel that the Altoona is a promising and important mine as far as quicksilver mines in the United States are concerned. It has yielded a total of about 34,000 flasks of mercury which puts it in a class with the above average mercury mines of the country with the exception, of course, of the few really large ones such as the New Almaden, the New Idria, the Oat Hill, etc.

In an early report written during the war, a future production of over 2,000 flasks was estimated. This was a very cautious and conservative estimate, since at that time it was better to error on the low side rather than over estimate. Actually, I believe the mine capable of producing much more, possibly 12,000 or more flasks. In the report that I recently wrote for the Geological Survey, I suggested a production of 200 flasks per month over a period of several years if the price of quicksilver could be maintained at a fairly high level ($125.00/flasks). My reasons for thinking this are several. First, the early workers did not mine ore running below 10 pounds of mercury per ton. Material of this sort was even used as backfill in the stopes and was mined by the Marsman Company during the War. However, they did not unwater the mine and it seems likely that much ore of this grade remains in the old stopes. Second, if the company maps are to be believed, there is still considerable ground that has not been prospected. The possibility especially of an intersection of Vein No. 4 with Veins No. 1,2, and 3. Third, the old company map indicates low grade ore on the Virginia level. This is probably at least 10 pound (½%) ore. Fourth, the almost right angle bend made by the Virginia level ore body suggests an intersection of two veins. Such intersections elsewhere in the mine would be likely areas for ore deposition.

I do not think it wise to go to any greater depth unless a good vein can be directly followed. Most quicksilver mines are shallow and 600 feet is quite deep. Even some of the larger mines, as the New Almaden, had their greatest ore production above the 800-foot level.

I'm sorry I do not have more factual information available, but much of the interpretions have been made from the old company maps and just how faithfully they picture the underground workings below the Altoona level is not known.

Sincerely yours

C. M. SWINNEY

COPY

PROPERTY OF THE MINERAL INFORMATION SERVICE
MAR 14 1953

C. N. SCHUETTE
CONSULTING MINING ENGINEER
6390 BARNETT VALLEY ROAD W.
SEBASTOPOL, CALIFORNIA

May 18, 1951

Mr. R. E. Frowenfeld
124 Presidio Avenue
San Francisco 15, California

Dear Mr. Frowenfeld:

In accordance with your request to me on April 30th, I have carefully gone over all the data that I have which relates to the Altoona Mine in order to aid you in obtaining government assistance for exploration of said mine thru Mineral Order 5 under the Defence Production Act of 1950 and especially to furnish you the answers to questions 23 and 24 of Form MF-103.

The Altoona Mine has a very good production record and ranks as the 12th largest quicksilver mine in California in point of total production. The grater part of the production was made before 1900. It was idle for many years due to its isolated location. In recent times, new roads, trucks and a power line to the property have largely removed the handicaps of isolation.

The mine was last in operation in 1943-44 when it was equipped with a 25 ton per day reduction plant. This operation was handicapped by inadequate financing and partly by indifferent management. For the first 5 months of 1944 (151 days) of which I have a detailed record and during which time the mine operation was in competent hands, an average of 21.7 tons per day was treated in the plant, producing 739 flasks of quicksilver from ore that had an average content of 17.1 pounds of quicksilver per ton. This gives a fair idea of what the mine can do when properly operated and certainly suggests that it merits exploration and development.

At present the mine is closed down, the collar of the shaft has caved, the mine is full of water and all machinery used in former operations has been removed from the property.

In order to explore and develop the Altoona Mine it will be necessary to rehabilitate the camp. There are four houses left on the property, one of which is the cook house. These are in need of repair. A new water line to the camp, roughly one mile long, will have to be installed. I estimate that a total crew of ten men will be needed to open the mine and do the necessary exploration work.

The order in which this work should be done is as follows:

1. Rehabilitate the camp, houses, water line, power connection.

2. Repair collar of shaft. Erect headframe. Install hoist.

3. Unwater the shaft and repair shaft to the 450 foot level.

4. Open and retimber where necessary the 450 foot Level to the winze. (This was last done in 1945.

5. Unwater the winze and repair timbering to the 600 foot level.

6. Open, and retimber where necessary the 600 foot level.

7. Diamond drilling from the 500 and 600 levels as suggested by E.E.Erich in his report of July 1946, and drifting and crosscutting on the 600 level as will suggest itself after examination of the lower level.

Equipment needed for the work of exploring the mine:

10-tons 16 lb. rail, with plates, bolts & spikes- - - - - - - - -	$ 2,000.00
1000-ft. 10" #22 guage, galv. air pipe, @ $87.10 - - - - - - - - -	871.00
1-10" American Blower, with 5 HP motor and starter - - - - - -	410.00
1-50 HP Single Drum Mine Hoist, capacity 4000# at a rope speed per minute, complete with drum controller, sheave wheel and cable, all reconditioned -	1,750.00
1-440 Ft. Ingersoll-Rand type XB-2 compressor, size 15 - 9 X 12, complete with 75-HP motor, starter, air receiver and necessary piping, all reconditioned -	2,250.00
1-1250# Ingersoll-Rand type EUA single drum air hoist, with 300 ft. 1/4" cable, all reconditioned - - - - - - - - - - - -	400.00
3-Sullivan Jackhammers, 55# late machines (365) - - - - - - - - -	1,095.00
2-Sullivan Jackhammer mountings (160) - - - - - - - - - - - - - -	360.00
2-Sullivan Sets Column Bars, 3" with arm, saddle (150) - - - -	300.00
3-Pcs. 50' Lgths 3/4" Air Hose Cpld (32) - - - - - - - - - - - -	96.00
3-Pcs. 50' Lgths. 1/2" Water Hose Cpld. (23) - - - - - - - - - -	69.00

5 - Sets 1" QO. Drill Steel, Threaded and Shanked:
2' @ $4.75; 42" @ $6.20; 60" @ $7.70; 72" @ $8.50;
Total $27.00 - 135.00

500 - Timkin Bits, three guages @ 44¢ - - - - - - - - - - - - - 220.00

1 - Sullivan Diamond Drill, Model HS-15, Air, outfit complete
(300') -2,100.00

1 - Blacksmith Shop outfit, tools, etc. etc. - - - - - - - - - - 300.00

7000 Ft. 2" Standard Black Pipe, NEW $34.27/100' - - - - - - 2,399.00

8 - Mine cars, 16-Ft. 18" ga. roller bearing (200) - - - - - 1,600.00

1 - "Layne & Bowler" Deep Well Turbine pump #A-C-20 Head
450-Ft. 8" Column, 450-Ft. 1-11/16" Rods, #10 -
14- Stage Bowls, with 75-HP Motor, 1750-r.p.m. with
starter, delivered, Redding, California.
This pump good for 500/gals/min. for 450' Head - - - - - 8,325.00

1 - "Layne & Bowler" Deep Well Pump, Turbine, #A-C-20 Head,
(6" Column, 200-Ft.) 200 Ft. 1-3/16" Rods.
#10 - 7-Stage Bowls, with 40-HP Motor, 1750-rpm.
Capacity: 500-Gallons minute, for 200-Ft. Head.
Price, delivered cars, Redding, California - - - - - - - - 3,255.00

1000 - ft. electric cable @ $1.25/ft. - - - - - - - - - - - - 1,250.00

1 Truc k - 2,500.00

Deposit on Power Connection - - - - - - - - - - - - - - - - - 3,500.00
($2,500.00 of this deposit returnable)

Total 35,185.00

NOTE:- I am quoting specific items of equipment on which I obtained prices. If other makes are preferred the price should be about the same.

Thus the total outlay for the necessary machinery would be about-35,200
The rehabilitation of this camp would cost about - - - - - - - 3,000
Timber and lumber would cost about - - - - - - - - - - - - - - 2,500
Miscellaneous tools and supplies - - - - - - - - - - - - - - - 2,000
Engineering, surveying, consultants, etc - - - - - - - - - - - 1,900
A crew of 10 men would come about as follows:

1-superintendent - - - -	$500/ month	
1-cook - - - - - - - - - -	300	
1-hoistman - - - - - - - -	350	
1-pump man & machanic -	350	
2-miners - - - - - - - -	600	
2-muckers - - - - - - - -	600	
2-timbermen - - - - - -	600	
TOTAL.....	3,300/month	
POWER	500/ "	
	3,800/ " for 1 year - - - - - - -	45,600
Grand Total		90,200

May 18, 1951

The unwatering of the mine and the rehabilitation of the workings down to and including the 600 level should not take more than 6 months and an additional 6 months of idamond drilling and drifting and crosscutting should suffice to give a comprehensive picture of the ore expectation in the lower workings of the mine.

If the preliminary work of opening the mine can be accomplished in 3 or 4 months the extra time and money will be available for the search for ore, which should be an incentive to proceed as expeditiously as possible.

Thus an equitable exploration of the mine could be accomplished in about one year's time at an estimated cost of about $20,000. On its record, I conclude that the Altoone Mine merits the expenditure of such a sum for exploration.

Sincerely yours,

C. N. SCHUETTE

MAR 14 1953

REPORT

on the

ALTOONA QUICKSILVER MINE

Located in

Trinity County, California

. . . . . .

By

E. E. Erich

July, 1946

. . . . . .

F O R E W O R D

This report has been made at the request of Mr. Richard E. Frowenfeld, President of Altoona Quicksilver Mining Co.

The writer's experience with this property dates back t o 1930 and 1931 at which time he carried out extensive investigations and studies of the geology of the ore occurrence. Later, during the war period (1943 to 1944) the writer again became interested in the property through the war needs and government incentives offered for the production of strategic quicksilver. During 1943 and 1944, under the writer's direction, the surface plant was rehabilitated and most of the upper portions of the mine which have been closed for over forty years (since 1902) were made accessible. The development work accomplished resulted in locating new ore which was mined with a re sulting production of over 1100 flasks of quicksilver.

The development work accomplished verified certain theories of ore occurrence in this property and the results of this work are made the basis for recommending continued development for ore in the lower levels of this property.

* * * * * * *

SUMMARY AND CONCLUSIONS

From evidence obtained through development and geologic work carried out in this ore deposit by the writer, there are expected to exist in the lower portions of the mine several latge, unexplored, ore-bearing conduits or veins and vein extensions, both above and below the Virginia Level.

There are also expected to exist several smaller veins or conduits in both the upper and lower mine workings which, upon exploration, may yield additionsl important quicksilver productions.

With the present installations of electric power and pumping equipment, the water of the mine can be handled to the Frowenfeld or 450 Level with no great difficulty or cost. A similar pumping installation can then be installed and operated in the winze which extends from the Frowenfeld (450) level to the Virginia (600) level. Thus the mine can be completely unwatered and the principal obstacle to development which caused the termination of operations by the early operators would be overcome and development of new ore in the lower levels of the mine could proceed.

The principal cost of carrying out a development program of the lower levels of the mine will be in the installation of pumping equipment and de-watering the 150 foot winze, which extends from the Frowenfeld (450 Level to the Virginia (600) level. This is expected to cost between $10,000 and $15,000.

Once the lower workings are made accessible, their development can proceed and the results obtained would determine the extent to which operations would be carried out. The amount of at least $10,000, however, should be made available to carry out such work, making a total of $25,000 that may be involved to explore the lower ore extensions of the mine.

The location and development of new ore extensions in the lower levels of this property could and probably would result in an attractive profit. The return could far overshadow the initial risk taken in advancing the development funds.

The Possibilities for continued ore are attractive and warrant the expenditure and effort involved to explore them.

RECOMMENDATIONS

The writer believes that the exploration and development of the lower levels of this ore deposit, as described in this report, will yield a profitable reward and recommends the expenditure of $25,000.00 for unwatering and developing the lower mine ore extensions.

Written by E. E. Erich

JULY, 1946

ALTOONA QUICKSILVER MINE

LOCATION:

The Latoona Quicksilver mine lies in a high mountain area at an elevation of 4,800 feet in the northern portion of Trinity County, California. It is located about 24 miles east from Carrville and 25 miles west from Castella and is reached from either point via a fair but steep mountain auto road.

The nearest railroad is at Castella. From Castella the road follows along an old logging railroad grade four miles, then rises steeply, and finally crosses a high pass at an elevation around 6,000 feet and then drops gradually to the mine. From Carrville the road also rises steeply and crosses a high pass at an elevation of about 6,000 feet and then descents and rises alternately until the camp is reached.

During the winter months, usually throughout December to May, the roads, particularly in the high pass areas, are closed by snow ranging from 6 feet to 20 feet deep. Access to the property, however, is maintained by means of a caterpillar tractor which rides on top of the snow, thus making it possible to bring in food and emergency mining supplies.

Snow conditions at the mine are not as severe as those on the roads through the high pass areas and, with proper preparation, winter conditions have no serious effect on mining operations. With a large buldozer it is not a difficult task to keep the roads open.

A new road to the property is now under condideration by the U. S. Forestry Service. This road would eliminate the high mountain passes, thus permitting an all-winter route which can be kept open for auto and truck travel.

PROPERTY:

The Altoona Quicksilver mine property includes patented lode mining claims known as and containing acreage as follows:

Altoona	20.05	acres
Trinity	22.66	"
Blockade or Central	11.31	"

Also, parcels of timber land containing approximately 400 acres located in Sections 26 and 28, Twp. 38 N, R 6 W, MDM.

EARLY HISTORY AND PRODUCTION:

The Altoona Quicksilver mine was discovered in 1871 and was operated in a small way until 1875. From information obtained at that time it is indicated that the discoverers produced about 2,500 flasks of quicksilver. In 1875 the present owners acquired the property. Operations on a larger scale were commenced by building a road 12 miles long connecting the mine with the main highway; also, the erection of a bench of six retorts in which to reduce the cinnabar obtained by the process of concentration to a 40 per cent basis; that is to say, the crude ore as taken from the stopes of the mine was washed or sluiced under pressure through a double line of flumes, each being 2 feet wide and 12 inches deep, containing riffles to especially save the finer particles of cinnabar or crystals. No attention was paid as to the number of tons extracted or quality of ore. As high as 400 flasks of quicksilver per month were produced in this most primitive mode of production. From 1876 until 1880 over 8,000 flasks of quicksilver were produced of the value of $265,244.23 (averaging $33.15 per flask).

Owing to the litigation that arose among the stockholders no work was done from 1880 to 1894. In this latter year operations on an extensive scale were resumed. In connection with all other structures that make up a plant, a 30 ton dry ore furnace was also erected and the method of roastine ore adopted.

From 1895 to 1901 and embracing a working period of 70 months, there were extracted 58,708 tons of wet ore yielding 19,871 flasks of quicksilver, or 1.28 per cent wet ton and of the value of $750,415.69 (or $58.15 average per flask).

The heavy influx of water into the mine was the greatest obstacle in the development of the downward extension of the ore deposit. The expense of continued development of the ore below the lower levels became prohibitive, whereupon it was decided to drive a lower drain tunnel from a point near the junction of the North Fork and East Fork of the Trinity river.

Attempts at securing a right-of-way through adjoining mining ground failed and the drain tunnel project was abandoned. The mine was closed down in 1902, allowed to fill with water, and has been inaccessible since that date.

After the closing of the mine, and, commencing in 1902, leasers have worked over the waste dumps, producing 1633 flasks of quicksilver of the value of $61,878.07 (averaging $36.77 per flask).

In summarizing the early history it can be stated that the Altoona Quicksilver mine has produced approximately 30,000 flasks of quicksilver. The major production was terminated in 1902 and the mine has been under water since that time.

RECENT HISTORY AND PRODUCTION:

The surface and upper portions of the property have more recently been worked by lessers, resulting in a small quicksilver production. The last lessee operated in a small way on what little money he could raise and equipment he could patch together. In 1940 he finally interested the Marsman Company of California, which company supplied this lessee with additional funds to continue operations. The project went ahead intermittently until 1943; during which time repair work was done, additional equipment was installed and a few flasks of quicksilver were produced.

The Marsman Company of California then made application to the Reconstruction Finance Corporation for a development loan. The loan was granted in 1943 and soon thereafter the Marsman Company made an arrangement with the writer to act as consulting engineer and manager of this operation.

Because the Altoona project presented a serious water handling problem, the writer provided in his recommendations a pumping arrangement which was applied with success at another mine where a similar water problem had to be handled. The pumping arrangement was installed and the mine was de-watered to a few feet below the 350 or Trinity level, which is the most extensively developed level of the mine.

Development work was then carried out in the de-watered levels with the result that during the period of 1943 to July, 1944, 1109 flasks of quicksilver were produced from approximately 6600 tons of new ore and stope fills.

The writer's connection with the Marsman Company were terminated toward the end of June, 1944. Subsequently the main shaft was cleared below the 350 foot level and the mine de-watered to the 450 or Frowenfeld level. This level was made accessible to the winze which extends 150 feet below the Frowenfeld

level and to the Virginia level (the lowest level of the mine). Preparations for pumping out this winze were made; however, the work was not completed. The winze was not unwatered and, consequently, the main objective - to reach the bottom of the mine - was not accomplished.

Except for a few flasks of quicksilver produced from remaining ore in the upper mine stopes, no further production has resulted and the contract held by the Marsman Company of California was recently terminated.

DEVELOPMENT:

According to the available records, the Altoona ore deposit has been developed to a depth of approximately 600 feet by means of two shafts and levels extended from approximately 45, 90, 130, 230, 290, 350, 410, 450, 500 and 600 feet depths as shown on the accompanying map No. 4.

The main shaft was extended vertically from the surface to a depth of 450 feet to the Frowenfeld level. From this level, about 225 feet northwest from the main shaft, a vertical winze was sunk 150 feet to the Virginia or 600 feet level, the lowest level of the mine.

There is a question as to the depth of the above-mentioned 150 foot winze. Mr. Porter, former manager of the mine, stated to the writer that this winze is 250 feet deep. However, the available records indicate that the winze is only 150 feet deep. This difference in depth has a most important bearing on calculating and projecting of ore extensions. This subject is further discussed in this report under - "POSSIBILITIES FOR NEW ORE".

ORE AND ORE GEOLOGY:

The ore of this deposit is cinnabar although occasionally free quicksilver is found. The ore occurs in and along veins and conduits in a faulted and fractured area of light colored quartz diorite and feldspatic porphyry which is pyritized and oxidized near the surface. Large and small bodies of serpentine containing mariposite occur in the porphyry and usually strike parallel to the fractures. Serpentine often underlies the porphyry and the ore-bearing conduits or veins appear to follow along and near the porphyry-serpentine contacts. Ore does not appear to extend and appreciable distances into serpentine.

The principal rocks of this deposit are more particularly described as follows:

Serpentine: This is a fine-grained, green rock, probably a serpentinized dunite, characterized by slick, waxy surfaces.

Quartz Diorite Porphyry: This is a fine-grained, dark greenish black rock that weathers to a rusty brown color. The phenocrysts are hornblende and ground mass is a fine-grained mixture of feldspar, quartz and hornblende.

Feldspar Porphyry: This rock is closely related to the quartz diorite porphyry. Its mineral composition is similar and differs chiefly in that the phenocrysts are feldspar instead of hornblende and it is coarser grained.

Carbonate Rock: This is a hard, fine-grained, dark, grey-green to greenish-black rock resulting from the replacement of the quartz diorite porphyry by carbonate and possible some quartz. This alteration and replacement appears to have taken place along contacts where this rock is often filled and cut by white carbonate vainlets.

Three principal veins, No. 1, No. 2, and No. 3, as well as several smaller veins, have been mined in the Altoona ore deposit.

These veins represent strong fractures in and along which cinnabar has been localized. The widths of the veins vary from a few inches to over fifteen feet. The old stopes show mined average widths varying around 4 feet to 10 feet and extending along the strike for distances varying from 100 feet to 300 feet.

In general it can be stated that ore is localized in and along fractures in the porphyry or, more particularly, where openings have occurred in these fractures. Wherever these openings were large usually a large concentraction of ore occurred and where the fractures contracted the ore did likewise.

The irregular occurrence of ore in this deposit is attributed to its type; that is, evidently this is a hot spring deposit containing

many irregular conduits in and along which cinnabar has been localized. Also, along these conduits are numerous open, as well as collapsed vugs which have caused weekened and broken walls and fractures into which cinnabar was deposited.

Development carried out by the writer encountered such a vug or ore concentration in No. 2 vein which resulted in most of the production made from this property during the writer's management.

According to descriptions by the former mine manager and mine superintendent of the ore in the lower levels of the mine, a much larger vug was encountered.

Following is a statement made by Mr. Joseph Porter, former manager of the Altoona Quicksilver mine:

> "In regard to the Virginia level in the Altoona mine, wish to say that when we struck the vein on the east end of the pay-shoot it was 2 1/2 feet wide and continued to increase in width as we went west.
>
> "At a distance of one hundred feet it widened to 12 feet. It held this width for about fifty feet and then opened out to thirty-two feet in width. This wide body of ore was about 100 feet long and the vein then ran down to about 6 feet in width where we struck a header in the west end. The total length of the pay-shoot that we oncovered was three hundred and sixty-five feet. The ore ran 1-1/3% quicksilver.
>
> "It always seemed to me that we must have struck the top of a big pay-shoot on this level as when we went up with stopes the body did not seem so solid and the pay began to pinch out. There is no question in my mind that there is a large body of ore along the Virginia level.
>
> "Drifting on the vein, on the Virginia level, encountered a 'lake of water' (or vug) 10 feet to 12 feet wide, taking the longest stringer we could get down into the mine, and extending 75 feet to 100 feet. It plumed 70 feet deep and we filled it up with waste. The sides of this vug were crusted with cinnabar and the ore was mined into each wall with a maximum distance of two sets."

Mr. Porter states further:

"Sinking in this amount of water was out of the question. We, therefore, undertook to make an arrangement for a right-of-way through the adjoining mining claims for a tunnel which would extend under the lowest mine workings at a depth of 500 feet. Apex rights were insisted upon by the adjoining property owners, hostilities developed and the plan failed."

POSSIBILITIES FOR NEW ORE:

From the evidence obtained through development and geologic work accomplished at this property it is the writer's conclusion that in the lower levels of the mine there exist important unexplored veins (or conduits) and vein extensions both above and below the Virginia level.

The foregoing conclusion is supported by the following

(1) According to the 'Old Timers' there actually is ore going down in the bottom levels of the mine. The writer, although he has not been in the bottom levels of the mine, has made the effort to interview those who have worked there, particularly the former mine superintendent and manager. These men insist that they had plenty of high grade ore in the bottom but could not take it out because of being unable to cope with the influx of water.

(2) Through detailed geologic study of the accessible mine levels and projecting the known veins or conduits into the lower inaccessible levels. (See Map No. 4).

(3) The general character of this ore deposit. It has already been stated herein that this is a hot spring type of deposit in which ore was deposited in and along conduits consisting of openings and fractures in crushed and broken porphyry walls and along porphyry-serpentine contacts.

(4) Through lack of development in the lower workings. (See Maps No. 3 and No. 4). In comparison with the work accomplished in the upper levels, the lower levels are little explored. This statement is further amplified as follows:

We know that the high grade cinnabar ore of this property was deposited in and along veins and conduits resulting in a highly irregular ore pattern requiring, in the exploration for ore, the procedure of either 'following the ore' or extensive and systematic development by cutting up the ground.

Without doubt the 'Old Timers' had a difficult and expensive water handling problem and there appears to be little question that this problem was the cause of the limited development work accomplished in the lower levels.

With the present installation of electric power and modern equipment the water can be handled easily. The present pumping installation now readily handles the influx of water into the main 450 shaft and a similar installation should handle the influx of water into the winze which extends from the 450 (Frowenfeld) level to the Virginia level (lowest level of the mine).

Thus the principal obstacle to development which caused the termination of operations by the early operators can now be overcome and the development of new ore in the lower levels of the mine can proceed without serious handicap.

(5) The work carried out by the writer reveals interesting possibilities for new ore as follows:

Information given the writer some years ago by Mr. J. Porter, former manager of the mine, was that the winze extended from the Frowenfeld (450) level to the Virginia level is 250 feet deep (mentioned in this report under 'Development'). A section map through the mine was compiled by projecting downward to a 250 foot depth (below the Frowenfeld level) the veins found in the levels above. This section indicates that it is not probable that veins No. 1 and No. 2 intersect as quoted by Mr. Porter, but, instead, veins No. 2 and No. 3 or veins No. 3 and No. 4 intersect.

A further search of the records indicate that Mr. Porter probably was mistaken in giving the depth of the winze as 250 feet rather than 150 feet. This is further substantiated by the engineering records compiled by Mr. Alf Baltzell, C. E. who gives the depth of the above-mentioned winze at 151.7 feet.

Mr. Charles Allenberg (former secretary of the Altoona Quicksilver Mining Company during the period of 1875 - 1916) in a statement written by him dated January 16, 1916, says:

> "The winze sunk from the Frowenfeld Level reached an ultimate depth of 151 feet, making a total depth of 601 feet from the surface to what is called the Virginia level."

By projecting the veins to and below the Virginia level and placing the Virginia level at 150 feet below the Frowenfeld level instead of 250 feet, the 'big ore' intersection would have occurred between veins labeled No. 3 and No. 4. (See section map No. 4).

If this is correct, then:

(1) Vein No. 1, never has been cut and was missed entirely in the Virginia level.

(2) Vein No. 2 was cut but little explored in the Virginia level and its downward extension will intersect the downward extensions of the combined veins No. 3 and No. 4 at a point approximately 100 feet below the Virginia level.

(3) Veins No. 3 and No. 4 combined and made the 'big' orebody and the combined veins (No. 3 and No. 4) carrying good ore would be the vein which extends below the Virginia level.

(4) Vein No. 5 might also have an important bearing on ore localization through its possible intersection with combined veins No. 3 and NO. 4 below the Virginia level.

(5) There is also an indicated intersection just below the Frowenfeld level between the main shaft and the 150 foot winze. This intersection would be made by the No. 1 vein and two smaller fractures encountered in the Goldstein and Frowenfeld levels. These fractures appear to be going downward toward No. 1 vein extension and should intersect approximately 100 feet below the Frowenfeld level. (See Map No. 4).

The foregoing possibilities appear likely to exist and, obviously, are intriguing. The answer can be obtained only by unwatering the winze and making the Virginia level accessible.

PROPOSED DEVELOPMENT PROGRAM:

In view of what we know regarding the ore of the upper levels and also the indication of ore extensions in the loeer levels of the mine, two development procedures are indicated and are described in the order of their importance as follows:

(1) Explore the main ore extensions of the lower levels. Thia exploration is of prime importance.

The work would involve installing a 'deep well' pumping unit in the 150 foot winze extended from the Frowenfeld level and through this winze unwater the lower levels. Then carry out drifting and crosscutting in the lower levels and, also, install a 'short hole' diamond drill for exploration below the Virginia level and carry out a drilling program. (See map No. 4).

This effort should not be particularly costly and should establish the existence of ore in the vein extensions as well as the existence of important vein intersections.

Once this ore is located, the procedure of developing and mining it will not be a difficult task.

This could be accomplished by extending a crosscut from the Virginia level to a point directly underneath the main 450 foot shaft and then connecting by raising. Either shaft could then be extended to the desired depth below the newly located ore and the present 450 foot shaft would become the main ore outlet.

In 1930 the writer considered driving a long drain tunnel under this ore deposit (following the plan of the original operators of the property). This plan, however, was abandoned. In view of the present knowledge of the ore occurrence of this deposit as well as having demonstrated that the water problem can be handled ecomomically with modern equipment, the writer is of the opinion that the better procedure would be to utilize the present mine openings and, should development work below the Virginia level find important new ore, the present main 450 foot shaft could be extended and used as the main haulage outlet. This procedure would be the least expensive and can be carried out in the shortest period of time.

(2) Explore and develop the smaller veins or conduits in both the upper and lower mine workings. This work could be carried out at the same time the work is being accomplished in the lower portions of the mine.

The work would involve principally drifting and raising on the smaller veins; also, diamond drilling of some of the likely places would be in order.

The combined work has excellent possibilities of locating important tonnages of new high grade ore.

COST OF A DEVELOPMENT PROGRAM:

The cost of carrying out a development program will, of course, depend upon the extent work is carried out. A minimum program would cost somewhere between $20,000 and $25,000.

The principal cost of the program will be the installing of pumping equipment in the 150 foot winze on the Frowenfeld level and in making the lower workings accessible. This may cost between $10,000 and $15,000.

Once the lower workings are made accessible, the development program could proceed and the results obtained would determine the extent to which development would be carried out. An allotment for such development should be at least $10,000, making a total of $25,000 which should be made available to undertake this work.

The ore expected to be encountered should be similar to that mined by the early operators; that is, between 20 lbs. to 30 lbs. quicksilver per ton. This grade of ore, if available in sufficient quantities, would permit a profitable mining and furnacing operation.

EQUIPMENT:

At present the property is completely equipped with electrically driven mining and furnacing machinery. Electric power is delivered to a sub-station on the premises by the Oregon-California Power Company.

The furnace has a capacity of around 30 tons per day and is fairly efficient. However, in the event a considerable ore tonnage is developed, it would be desirable to install more efficient furnacing equipment.

The present pumping facilities in the main shaft are capable of handling the water and holding it at the Frowenfeld level.

CAMP:

The camp consists of a boarding house, combination office and bunk house and several small houses, permitting accomodations for about twenty men.

It is to be noted that the most of the equipment and boarding house facilities now on the premises belonging to the

former lessee. However, the owner of the property has the privilege to use this equipment by paying a monthly rental.

SUMMARY AND CONCLUSIONS:

See page 2, this report.

RECOMMENDATIONS:

See page 5, this report.

Written by E. E. ERICH

JULY, 1946.

N

SEMI-ANNUAL REPORTS OF CERTIFIED PROJECTS

Reporting Period 7/1/58-12/31/58 Date of Examination 12/31/58

Operator The Castella Corporation

Mine Name Altoona Mine

County and State Trinity County, California

Docket Number and Commodity DMEA-3724 (Mercury)

Contract Number Idm-E 826

EXTRA COPY
O. M. E.
RECEIVED JAN 27 1959

DATE	INITIALS	CODE

Date of Contract 6/27/55

Date of Certification 5/2/58

Expiration Date of Royalty Payments 6/27/67

Total Amount of Contract $95,260.00

Total Expenditures under Contract ($92,668.00) $81,088.00*

Amount of Government Participation at 75% $60,816.00

Royalty Payments this Period $405.00

Previous Royalty Payments $734.17

Total Royalty Payments to Date $1,139.17

Percent Government Participation Repaid 1.9%

Royalty Due on Production to Date $2,000.00 estimated

Royalty Remarks: Royalty amounting to $405.00 was received from sale of 36 flasks of mercury. Royalty is due on an additional production of Approximately 175 flasks.
*Plus $11,580.00 actual cost of equipment which was sold to the operator after completion of project.

Castella Corp. (Altoona Mine) DMEA-3724 Idm-E 826

	Tons	Analysis
Original Estimate of DMEA Reserves (Field Team Final Report) Mines [ ] Survey [ ] Joint [X]	55,000	20 lbs. Hg./T
Revised Estimate of DMEA Reserves (Field Team) Mines [ ] Survey [ ] Joint [X]	92,000	15 lbs. Hg./T
Increase of Reserves by work performed subsequent to DMEA project work	37,000	15 lbs. Hg./T
Production DMEA ore (This period)	1,120*	15 lbs. Hg./T
(Previous)	29.5	15 lbs. Hg./T
(To date)	1,149.5	15 lbs. Hg./T
Operator's ore found subsequent to DMEA work (This period)	None	
(Previous)	None	
(To date)	None	

Percent Revised Reserves mined 1.2%

Investment Data

Shafts Size	Shafts Feet	Shafts Cost	Winzes Size	Winzes Feet	Winzes Cost	Drifts & Crosscuts Size	Drifts & Crosscuts Feet	Drifts & Crosscuts Cost
						5'x7'	350	$10,500.

Raises Size	Raises Feet	Raises Cost	Drilling Type & Size	Drilling Feet	Drilling Cost	Rehabilitation Description	Rehabilitation Cost
5'x8'	90	$5,000.	NX	1,775	$10,650.	Buildings	$25,000.

Facilities

Mine Plant Description	Mine Plant Cost	Mill Description	Mill Cost	Roads Description	Roads Cost
Head frame - furnace and other			$325,000.	Repairs	$10,000.

Remarks

The mine is active. Twenty-three men are employed. Production amounts to five or six flasks of mercury per week. The operator has installed a new Gould-type furnace and expended $25,000.00 for camp buildings and supplies.

* Estimated.

Signed Glenn G. Gentry (Engineer)
Glenn G. Gentry

EXTRA COPY
O. M. E.
RECEIVED MAY 20 1959

DATE	INITIALS	CODE

May 13, 1959

FIELD INSPECTION

Memorandum

To: Executive Officer, OME Region II

From: H. K. Stager, U. S. Geological Survey

Subject: DMEA-3724 (Mercury)
The Castella Corporation
Altoona Mine
Trinity County, California
Contract No. Idm E-826

A field inspection of the Altoona mine was made on May 6, 1959 by H. K. Stager accompanied by C. J. Ayers, superintendent. The mine and furnace plant are operating and about 25 men are employed.

Production of mercury since the end of the DMEA project totals about 800 flasks and current production is about 4 flasks per day. Furnace capacity is 25 to 30 tons of ore per day. The ore averages about 12 pounds of mercury per ton and recovery is between 90 and 95 percent. About 4,500 tons of ore has been put through the furnace plant and except for about 1,000 tons of ore from the 2,000 ton stockpile of ore recovered from the DMEA exploration workings most of this ore has been stoped from the le vein between the 600 and 500 levels. This stope has yielded about 3,500 tons of ore that averaged about 12 pounds of mercury per ton and there is about 3,500 tons of broken ore in the stope of the same average grade. The ore is being brought to the surface and piled in shallow stockpiles where it is allowed to dry out as much as possible before being furnaced. The ore is wet and in places consists of cinnabar and native mercury in a heavy black mud or gouge that is difficult to handle and furnace.

The Operator has started rehabilitation of old workings in preparation for exploration east of the Altoona fault in search of faulted segments of the 1e vein on the 350 level and for the 2e vein on the 550 sublevel. An application for OME assistance in this new exploration is being prepared by the Operator and will probably be submitted late in May 1959.

Dept. of the Interior
D.M.E.A.
1605 Evans Avenue
Reno, Nevada.

Altoona Mine

Docket D.M.E. 3724

FINAL REPORT AND RECAPITULATION

Work was begun under the above named loan in August 1955.

During the fall and early winter the camp was rehabilitated, the wreckage of the old head frame and hoisthouse cleared away, equipment purchased and installed, new buildings constructed and the shaft, which was caved to the 132' level, cleaned out and retimbered to the 132' level.

In February 1956, a steel head frame was erected, permanent hoist and other equipment installed.

In March 1956, the 132' level station was mucked out and dewatering pump installed. Actual pumping started March 16th at an estimated rate of 900 g.p.m. During March shaft was dewatered to the 252' level.

During the spring and summer dewatering continued steadily and shaft was repaired as the water receded. In July the 450' level was unwatered, the crosscut to the 450' winze rehabilitated and pump installed to stage the water out of the 500' and 600' levels to the main pump at the 450' shaft station.

A hoist was installed in the winze station and ventilation equipment installed. At this period considerable carbon dioxide gas was encountered. This gas gave us a great deal of trouble until all old accumulated water was removed from the workings. On August 15th, the sump on the bottom (600' level) was cleaned out. Actual dewatering therefore took 180 days. An estimated average of 750 g.p.m. was pumped during this period.

During the Fall of 1956, the lower levels were rehabilitated and sampled. Sampling showed considerable ore remaining in the old stopes, but the huge ore body rumored to be on this level was not found.

Diamond drilling (see map) was tried in the effort to core the vein below the 600' level. The holes were drilled from the long crosscut farthest west on the 600' level. The drilling was not satisfactory as excessive water under pressure and broken up vein material prevented us from getting any cores. Small amounts of mercury bearing sludge was recovered but it was decided it was a waste of money and the drilling was discontinued. 954 feet of hole was drilled, including false starts and lost holes.

After a study of the underground on the 450', 500' and 600' levels, we decided to try to pick up a vein that showed some stoping on the 450' level. A crosscut was therefore started on the 500' level from the 500 winze station toward the shaft. At 80 feet southeast of the winze the vein was cut and drifted on the northeast for 220'. This was all in ore.

Another crosscut was then run from the 600' level, the vein found at 40' from the winze and drifted on to the northeast for 210'. This drift was in ore all the way. An exploratory crosscut was then run 35' into the footwall at a point in the 600' level drift at a point 120' northeast of the main crosscut. No ore was found.

A raise was run 65' from the 600' level drift at a point 140' from the main crosscut. This raise was all in ore. A crosscut was run into the hanging wall from the 600' level drift at a point 110' from the main crosscut. No ore was found but a station was cut in the end of this crosscut for future use as a diamond drilling station. Holes will be run from this station to sample the vein below the 600' level.

While the above outlined work was being done, considerable other betterments were installed in which the government did not participate, including installation of air compressor, an electric hoist on the winze level, station pumps on the 450' and 600' levels, assay equipment, etc. Water discharge from the pump at the shaft collar was piped off in permanent concrete pipe and site for furnace excavated.

D.M.E.A. participation totaled $69,501.00, and total expenditures were about $400,000.00. Austin & Smith estimate ore as follows:

In the new vein developed on the 500' and 600' levels with D.M.E.A. assistance.

BLOCK #1 - (See map)

Positive Ore

Between the 500' & 600' levels:

$\frac{260' \times 5' \times 100'}{14}$ 9,285 Tons

Between the 500' & 450' levels:

$\frac{260' \times 5' \times 50'}{14}$ 4,642

13,927 Tons

Ore on dump from development 1,600

Positive Total : 15,527 Tons

Probable Ore

Below the 600' level:

$\frac{260' \times 5' \times 50'}{14}$ 4,642 Tons

Above the 450' level:

$\frac{260' \times 5' \times 50'}{14}$ 4,642

Probable Total: 9,284 Tons

Possible Ore

Below the 650' level:

$\frac{200' \times 5' \times 100'}{14}$ 7,000 Tons

Above the 400' level:

$\frac{260' \times 5' \times 100'}{14}$ 9,285

Possible Total: 16,285 Tons

RECAPITULATION

Positive Ore	15,527 Tons
Probable Ore	9,284 "
Possible Ore	16,285 "
TOTAL:	41,096 Tons

BLOCK #2 - (See map)

Positive Ore

Steep vein above 600' level in extreme western part of the workings.

High grade ore remaining in stope approximately ..... 300 Tons

In large flat vein above the 600' level in extreme western part of the workings approximately ..... 4,000 Tons

Probable Ore

Below the 600' level in steep vein and large flat vein, approximately ..... 10,000 Tons

There are other areas where ore can be seen and sampled, but we have not done enough work in them to add the probably substantional tonnage to this total.

All ore described is well within the boundaries of the Altoona property. A small amount of ore can be seen in the end of the 600' level drift that the oldtimers ran into the adjoining Anderson ground.

Car samples were taken from all development work. Each car was sampled as it came to the surface. Average of these car samples is approximately 13# per ton. Many of these cars were entirely or partly waste, as the drifts were in places 7 to 8 feet wide. We therefore believe the ore developed - when mined with a minimum of included waste, will average close to 20# HG. per ton.

We greatly appreciate the help and cooperation given us during this rather difficult operation by all the personnel of the D.M.E.A. and the U.S.G.S.

Yours very truly,

AUSTIN AND SMITH

THE CASTELLA CORP.

by B.C. Austin

B.C. Austin

APPENDIX

Table of Diamond Drill Holes

Hole#	Dip.	Bearing Mg.	Depth
1	42° 30'	S 50° E	110'
2	42° 30'	S 22° W	110'
3	42° 30	S 75° E	151'
4	51°	S 38° E	140'
5	33°	N 67° E	120'
6	22°	S 10° W	110'
7	33°	N 54° E	50'
8	45°	N 35° E	70'
9	42°	N 25° E	93'
		TOTAL:	954'

Hole # 8 showed $33.00 per Ton at 0 to 10'. No other assays were obtained although some cinnabar was panned from sludge.

APPENDIX #2

Cost Summary, work items

Crosscutting, drifting & raising 936'		25,984.00
Actual cost about	42,000.00	
Timbering ..... 500'		3,500.00
Actual cost about	4,500.00	
Unwatering Mine		6,750.00
Actual cost about	108,000.00	
Rehabilitation		
450' level		3,920.00
actual cost about	6,000.00	
150' winze		3,750.00
actual cost about	4,000.00	
500' level & 600' level		8,000.00
actual cost about	8,000.00	
Initial Rehabilitation & Repair		3,500.00
actual cost about	15,000.00	
Diamond drilling 954'		5,724.00
actual cost about	15,000.00	
New Buildings, etc.		5,990.00
actual cost about	20,000.00	
Operating equipment		19,300.00
actual cost about	50,000.00	

APPENDIX #3

Equipment Bought

1	Willys Truck	$ 2,524.05
1	Mine Hoist	2,887.08
2	Pumps - Layne & Bowler 8 - 11 stage & 6 5 stage	11,975.00
1	Mine Blower	517.58
1200'	Electric Cable	1,644.70
		$19,548.41
	Not Claimed	248.41
		$19,300.00

Diamond Drill Log

Sheet No. 1 of Sheets 2

Project Altoona Surface	Core Recovery do
Coord. Loc.	Type Core Barrel Rigid
Drilling Begun	Feet Casing
Drilling Finished	Hole No.
Type of Drill	Depth 1400 ft
Core Size AX	Angle 90° Bearing S 90° E

Description of Materials	Depth	Core Box No. 1
	10	
	20	
	30	3 ft core recovery
Rust color water & sludge soft. Light colored porphyritic diorite broken and weathered	40	
	50	No core
	60	5 ft core
	70	no core
	80	10 ft core
	85'	20 ft core
Light gray porphyritic diorite rusty water		10 ft core

Driller

Engineer

Diamond Drill Log Sheet No. 2 of 2 Sheets

Project: Altoona Surface
Coord. Loc.:
Drilling Begun:
Drilling Finished:
Type of Drill: Joy 12B
Core size: A.X.

Core Recovery: do
Type Core Barrel: Rigid
Feet Casing: 50

Core Box No.	Depth
100' Core Rec. 15%	
110'	

Description of Materials

Dark gray porphyritic diorite

Bottom of Hole

Driller

Engineer

Diamond Drill Log Sheet No. 1 of 2 Sheets

Project Atomic Surface	Core Recovery do
Coord. Loc.	Type Core Barrel Rigid
Drilling Begun Aug. 1956	Feet Casing 80
Drilling Finished	Hole No 2
Type of Drill	Bearing S22°W depth 110 ft.
Core size AX	Angle 46°

Description of Materials

No sludge

Dark brown porphyritic diorite
Brown water

Pocket of coarse quartz sand

Mixed fine grain blue gray and brown rock.

Core Box No. 1 — Depth

No Core — 10

5 cu. ft. — 20

30 cu. ft. core — 30

10 cu. ft. core — 40

12 cu. ft. core — 50

15 cu. ft. — 60

40 cu. ft. Core — 70

50 cu. ft. — 80

Box No 2 — 90

100

Driller

Engineer

Diamond Drill Log Sheet No. 2 of 2 Sheets

Project
Coord. Loc.
Drilling Begun
Drilling Finished
Type of Drill
Core size

Core Recovery do
Type Core Barrel
Feet Casing
Hole # 2.

Description of Materials	Core Box No.	Depth
	100	
Fine grain blue grey Rock.	100 of Core	
Bottom	110'5"	

Driller

Engineer

Diamond Drill Log Sheet No. 1 of 2 Sheets

Project. Altona	Core Recovery do
Coord. Loc.	Type Core Barrel Rapid & M series
Drilling Begun During August	Feet Casing 60 ft.
Drilling Finished same month.	Hole No. 3
Type of Drill Jay 12 B	Bearing S 70° E Depth 150 ft
Core size A.X.	angle 45°

Description of Materials	Core Box No.	Depth
Weathered light gray to brown porphyritic diorite soft. brown water broken and ~~weathered~~	10 % core / 10 % core / 15 % core / 10 % core / 15 % core / 30 % Core Rec.	10 / 20 / 30 / 40 / 50 / 60 / 70 / 80 / 90 / 100
Darker porphyritic diorite		

Engineer C. J. A.

Diamond Drill Log Sheet No. 2 of 2 Sheets

Project: Altoona Surface
Coord. Loc.
Drilling Begun
Drilling Finished
Type of Drill: Jay 12B
Core size: A.X.

Core Recovery: do
Type Core Barrel: Rigid + M series
Feet Casing: 50
Hole No 3

Description of Materials	Depth	Core Box No. 3
	100	100
	110	
	120	
Speckled gray porphyritic diorite fairly solid and not weathered as much as at surface.	130	
	140	
Bottom of hole	151	

drill water lost at 151 ft.

Driller

Engineer C. J. Ayre Sep 30 1956

Diamond Drill Log Sheet No. 1 of 2 Sheets

Project: Altoona Surface
Coord. Loc.:
Drilling Begun:
Drilling Finished:
Type of Drill:
Core size:

Core Recovery %:
Type Core Barrel:
Feet Casing:
Hole #4
Bearing S 38 E Depth 140'
Angle 65°

Description of Materials	Core Box No. 3	Depth
	10 %	10
	No Core	20
Weathered + Broken porphyritic diorite Rusty Water	8 %	30
	No Core	40
	10 %	50
	40 %	60
	No Core	70
	No Core	80
Fine grain hard rock. blue gray with brown iron stain streaks	12 %	90
		100

Driller

Engineer C.J.A.

Sept 30, 1956

Diamond Drill Log Sheet No. 2 of 2 Sheets

Project: Altoona Surface
Coord. Loc.:
Drilling Begun:
Drilling Finished:
Type of Drill: Joy 12B
Core Size: AX

Core Recovery do:
Type Core Barrel: M series
Feet Casing:
Hole No. 4

Description of Materials	Depth	Core Box No. 4
	100	5 do
	110	10 do
Blue gray porphyritic diorite with brown streaks		14 do
	120	8 do
	130	
Bottom of Hole	140	

Driller:

Engineer: C.J. Ayres.
Sept 30, 1956

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

MAY 2 1958

The Castella Corporation
1100 Quimby Building
650 South Grand Avenue
Los Angeles 17, California

Re: Docket No. DMEA 3724 - Mercury
Altoona Mine
Trinity County, California
Contract No. Idm-E826

Gentlemen:

Enclosed is a certification of discovery or development which covers all the land described in Article 2 of the contract.

By the terms of the Exploration Project Contract, as amended, and of the certification all minerals mined or produced from June 27, 1955, to June 27, 1967, are subject to the Government's percentage royalty as set forth in the contract until the sum of $60,816.00 is paid.

Royalty should continue to be paid, as it has been in the past, to the Executive Officer, DMEA Field Team, Region II, 1605 Evans Avenue, Reno, Nevada. Checks covering royalty should be made payable to the Defense Minerals Exploration Administration. The purchaser should be advised to deduct royalties from the amount due on each shipment and forward check to the Executive Officer. Royalty payments to the Government should be accompanied by suitable evidence, such as settlement sheets, showing quantity and grade of the products sold, the name of the purchaser, and the charge certified to be correct by the purchaser.

You are requested to notify the Executive Officer of any changes in ownership or production rights that might have any effect on the Government's right to its percentage royalty. Also, if production ceases at any time for any extended period, please notify the Executive Officer at 6-month intervals that no production has been made, when that is the case.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosure

CC TO: T. H. Kilsgaard, USGS

cc to: FT. REG. II
F. D. Lamb, USBM
J. W. Pennington, USBM

4-28-58
Code 400
110
800

HOLT:foc
cc to:

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

CERTIFICATION BY THE UNITED STATES OF AMERICA
OF A DISCOVERY OR DEVELOPMENT UNDER
AN EXPLORATION PROJECT CONTRACT

To: The Castella Corporation, Assignee
1100 Quimby Building
650 South Grand Avenue
Los Angeles 17, California

Pursuant to the provisions of Exploration Project Contract No. Ida-2826, executed June 27, 1955, (Docket No. DMA 3724), as amended, hereinafter called the "Contract", between The Castella Corporation (Assignee of L. A. Smith and B. C. Austin, a partnership) and the United States of America, hereinafter called the "Government", to establish and fix the Government's royalty on production and its lien therefor and on the land described in the contract, the Government considers and therefore certifies that a discovery or development from which production may be made has resulted from the explorations.

The nature of said discovery or development is described broadly or indicated as follows:

Drifting, crosscutting and raising, with attendant diamond drilling, on the 500- and 600-foot levels of the Altoona mine have indicated an appreciable tonnage of mercury ore in the form of cinnabar occurring in veins or shear zones in diorite porphyry adjacent to contacts with serpentine.

THE UNITED STATES OF AMERICA

Dated: MAY 1 1958

By: C. O. Mittendorf
Administrator, Defense Minerals
Exploration Administration

SPHOLT:foc 4-28-58
cc to: Code 400
110
800
Admr. R. File
Oper. Comm.
FT. REG. II
Messrs. F. D. Lamb, USBM
J. W. Pennington, USBM
T. H. Kiilsgaard, USGS

cc to: Finance Officer
C. A. Fredell, GSA
Altoona Quicksilver Min. Co.
L. A. Smith
B. C. Austin