DMEA Form 7
(12-56)

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Date	Surname	Code
2/15	Holt	400
2/15	Martin	400
2/15	Selfridge	130
"	Johnson	110
"	Butterworth	100
2-19	C	220
2/15	Lamb	130
2/15	Kiilsgaard	130

FEB 18 1957

Castle Peak Mining Company
4762 South State Street
Murray City 7, Utah

Re: Docket No. DMEA 4459 - Mercury
Castle Peak Mercury Mine
Storey County, Nevada

Gentlemen:

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

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

Careful study of our information, although noting mercury mineralization on the Castle Peak Mercury Mine group of claims, indicates to us that the probability of disclosing minable mercury ore reserves is not sufficiently promising to justify Government participation. Under these circumstances, we regret to advise you that your application is denied.

Our denial, however, is made without prejudice to the property. If at some future date additional work on the property discloses significant geological information which might alter our opinion, we shall be glad to consider a revised application for exploration assistance. The revised application should refer to the present docket and contain all of the necessary supporting data required by Form MF-103.

We wish to thank you for your interest in the Defense Minerals Exploration program and for bringing this property to our attention.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

SPHOLT:foc 2/15/57
cc to: Docket
Code 400
Admr. Read. File
Oper. Comm.
FT. REG. II
Messrs. J. W. Pennington, USBM
T. H. Kiilsgaard, USGS

8623

DMEA Form 7
(12-56)

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Date	Surname	Code
2/13	Holt	400
2/13	Martin	400
		130
		110
		100
		220

February 13, 1957

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of request for exploration assistance in the amount of $61,122.00
Docket No. DMEA 4459 - Mercury
Castle Peak Mining Company
Castle Peak Mercury Mine
Storey County, Nevada

Denial of the subject application is recommended by this Division based on the following information:

(1) The applicant, Castle Peak Mining Company, 4762 South State Street, Murray City 7, Utah, requested exploration assistance in the amount of $61,122.00 for wagon drilling, shaft sinking, drifting and underground diamond core drilling on the Castle Peak Mercury Mine group of claims.

(2) The applicant owns eleven unpatented lode mining claims, situated in sec. 20, T. 18 N., R. 21 E., M.D.B & M., on the West Fork of Louse Creek, in the Virginia Range, Storey County, Nevada, and recorded in the Courthouse of Storey County at Virginia City, Nevada, as follows:

Name of Claim	Recorded Book No.	Recorded Page No.
Juniper No. 1	H	241
Juniper No. 2	H	241-242
Juniper No. 3	H	242
Juniper No. 4	H	243
Artel No. 1	H	327
Artel No. 2	H	328
Artel No. 3	H	329
Artel No. 4	H	329
Artel No. 5	H	330
Artel No. 6	H	331
Little Joe	-	-

(3) The proposed program is to explore the mercury deposits on the Castle Peak Mercury Mine group of claims by 1,000 feet of wagon drilling on surface, sinking 150 feet of inclined shaft, drifting a total of 300 feet on three levels from the new shaft and 350 feet from old 185 ft. level, 600 feet of underground diamond drilling, and 600 feet of drift-

ing along the "north showing" of mercury ore.

(4) In the area of the Castle Peak Mercury Mine mercury occurs as cinnabar, with minor amounts of native mercury and calomel, in veinlets and clay-like replacements of alteration products of hornblende and plagioclase, localized along the intersections of steeply dipping faults and joints in andesite agglomerate and hornblende andesite.

(5) The Field Team concludes that exploration targets proposed by the applicant have for the most part been explored, or are so poor that exploration by DMEA is not warranted. Although additional prospecting by the owners might possibly disclose targets of enough significance to justify DMEA exploration at some future date, the Field Team now recommends that the applicant's request for exploration be denied. The Commodity Divisions of the Geological Survey and the Bureau of Mines concur in this recommendation.

W. S. Martin, Chief
Iron and Ferro-Alloys Division

SPHOLT:foc
2/13/57
cc to: Docket
Code 400
Admr. Read. File
Oper. Comm.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 29 1957

DATE	INITIALS	CODE
1-29	cw	220
1/30	WSM	400

January 28, 1957

Re: DMEA 4459
Castle Peak Mining Co.
Castle Peak Mine
Storey County, Nevada
$61,122.00 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 rehabilitating an old mine and exploring fringe areas of the mine and nearby smaller showings.

The property is credited with the production of 23,500 tons of ore of an average grade of 8.7 pounds of mercury per ton. In 1939, 1,995 tons of 2.6 pound rock was mined. The operation appears to have been the cleanup, as only 15 tons was mined thereafter. Most of the ore occurred in a pipelike ore body, and a large amount of exploratory underground work has shown no other such ore body.

The applicant proposed wagon drilling of several low grade outcrops to be followed, if warranted, by underground work. As the known outcrops promise so little tonnage, the examiners conclude the proposed work is not justified and recommend that the application be denied.

I concur with the recommendation.

N. E. Nelson

N. E. Nelson

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

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 25 1957

DATE	INITIALS	CODE
1-25	C	220
1/25	WSM	400

January 24, 1957

Memorandum

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

From: Commodity Specialist, Branch of Base Metals

Subject: Review of Field Team Examination Report, Docket No. DMEA 4459 (mercury), Castle Peak Mining Company, Castle Peak Quicksilver Mine, Storey County, Nevada. $61,122.00

The field examination of this property revealed that the exploration targets proposed by the applicant have either been explored by previous work or do not hold any promise of a significant discovery. Accordingly, the field examiners recommend that the applicant's request for exploration assistance be denied.

I concur with this recommendation.

A. D. McMahon

A. D. McMahon

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

DMEA

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

RECEIVED JAN 18 1957

DATE	INITIALS	CODE
1-18	C	220
		130
1-24	C	220
1/24	WSM	400

1605 Evans Avenue
Reno, Nevada

January 16, 1957

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-4459 - Mercury
Castle Peak Mining Company
Castle Peak Quicksilver Mine
Storey County, Nevada
(Your letter Oct. 4, 1956)

Enclosed are four copies of a report on subject property by H. K. Stager, Geological Survey and B. H. Sheahan, Bureau of Mines in which it is recommended that the application for exploration aid be denied.

Roscoe Smith and I concur in the recommendation.

S. Ricker

Encl.

Reviewed by
DMEA OPERATING COMMITTEE
1-23-57
(date)

BUREAU OF MINES
WASHINGTON, D. C.

JAN 18 8 43 AM '57

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 18 1957

DATE	INITIALS	CODE
		130
		220

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-4459 (Mercury)
Castle Peak Mining Company
Castle Peak Quicksilver mine
Storey County, Nevada

by

B. H. Sheahan
U. S. Bureau of Mines

H. K. Stager
U. S. Geological Survey

January 14, 1957

Reviewed by
DMEA Officials
1-23-57
(6430)

CONTENTS

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History and Production	3
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General Geology	5
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Ore Reserves	8
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ILLUSTRATIONS

Figure 1 . . . . . Index map

2 . . . . . Geologic and Underground maps

3 . . . . . Block diagram of the mine

INTRODUCTION

Mr. E. L. Wolsey, president of Castle Peak Mining Company, 4762 South State Street, Murray City 7, Utah, applied for Government assistance in a $61,122.00 program under the Defense Minerals Exploration Administration, docket DMEA-4459, to explore for mercury at the Castle Peak Quicksilver mine, Storey County, Nevada.

A field examination was requested by the Operating Committee on October 4, 1956 amd was made by B. H. Sheahan, U. S. Bureau of Mines, and H. K. Stager, U. S. Geological Survey, on October 30-31, 1956. The examiners were accompanied by the applicant's representative, Mr. Arthur Lakes, 700 Forest Street, Reno, Nevada.

Workings above the main haulage level and surface workings were examined and five samples were taken. The main winze below the haulage level was unsafe to enter and several workings above the haulage level were caved and inaccessible. Previous reports, maps, and records related to the property were a useful

source of information.[1] Much of the following information has

---

[1] Phoenix, David A., U. S. Geological Survey, Report on the Castle Peak Quicksilver Mine, Storey County, Nevada, July 1943.

Bailey, Edgar H., and Phoenix, David A., 1944, Quicksilver Deposits in Nevada, Univ. of Nev. Bull. 38, No. 5, p. 184.

---

been taken from these reports.

CONCLUSIONS AND RECOMMENDATIONS

The Castle Peak Quicksilver mine is idle and known ore bodies are exhausted. Most of the production was derived from one shallow ore body. Extensive underground exploration during the years 1934 - 1939 was unsuccessful in finding additional ore. Exploration targets proposed by the applicant have for the most part already been explored, or are so poor that exploration by DMEA is not warranted. Additional prospecting by the owners could possibly disclose targets of such significance that DMEA exploration could possibly be justified at some future date. Consequently, it is recommended that the applicant's request for exploration assistance be denied.

LOCATION, ACCESSIBILITY, AND LOCAL FACILITIES

The property is in sec. 20, T. 18 N., R. 21 E., M.D.B.&M., at an altitude of 5,800 feet in the Virginia Range, Storey County, Nevada.

To reach the mine from Reno, Nevada, travel 9.0 miles south on U. S. Highway 395, turn left on State Highway 17, and travel 7.2 miles easterly, turn left on dirt road and travel 3.7 miles northerly to the mine. The dirt road is usually impassable in winter months because of mud and snow.

Reno, Nevada, is the nearest source of labor and supplies. Water can be obtained from a spring 1.5 miles northeast of the mine.

HISTORY AND PRODUCTION

The deposit was discovered by Mr. Hank Lufek in 1927. The main ore body was mined by the Castle Peak Quicksilver Company who installed a 30-ton rotary furnace in 1928. By 1933 reserves were practically exhausted and desperate efforts were made to find ore. Several thousand feet of exploration work was done but results were discouraging. In 1944 the furnace plant, equipment, and buildings were all removed. The claims were relocated in 1951.

Castle Peak Mining Company acquired the property in 1956. A few shallow bulldozer trenches were excavated, and an application for exploration assistance was prepared by Mr. Arthur Lakes.

Total production from the deposit was 2,576 flasks of mercury recovered from 23,500 tons of ore that averaged 8.7 lbs. of mercury per ton. A tabulation of annual production follows:

Year	Operator	76-lb. Flasks Mercury	Ore, Tons	Average grade, Lbs./ton
1929	Castle Peak Quicksilver Co.	461	3,641	9.6
1930	" " " "	762	7,093	8.1
1931	" " " "	718	4,653	11.7
1932	" " " "	147	992	11.3
1933	" " " "	201	2,502	6.1
1934	" " " "	151	1,880	6.1
1935	" " " "	55	700	6.0
1936	" " " "	---	-----	---
1937	Bretchtel and Hann	---	-----	---
1938	Moro Bay Copper Co.	---	-----	---
1939	American Quicksilver Co.	66	1,995	2.6
1940	(Property leased by	5	-----	----
1941	(individuals	10	-----	----

PROPERTY AND OWNERSHIP

The property includes eleven unpatented mining claims held by the applicant. Location certificates are recorded at Virginia City, Nevada (see claim map "A" attached to application).

Name of Claim	File No.	Page	Book	Remarks
Juniper No. 1	20245	241	H	Old claims
" " 2	20246	241-242	H	Old claims
" " 3	20247	242	H	Old claims
" " 4	20248	243	H	Old claims
Artel No. 1	23149	327	H	Recent location
" " 2	23150	328	H	Recent location

Name of claim	File No.	Page	Book	Remarks
Artel No. 3	23151	329	H	Recent location
" " 4	23152	329	H	Recent location
Artel No. 5	23152	330	H	Recent location
" " 6	23154	331	H	Recent location
Little Joe				

Mr. Arthur Lakes submitted a letter dated November 21, 1956 which listed quit claim deeds dated July 16 and 17, 1956 and October 26, 1956 regarding title to the Juniper and Artel groups of claims.

There is no equipment at the mine and none is owned by the applicant.

DEVELOPMENT

The main ore body cropped out at the surface and was mined as an open pit and glory hole through a short crosscut and incline shaft. The mine was later developed by a main haulage level, raises, winzes, and sublevel drifts to the 150 level. Total footage of these workings exceeds 4,000 feet (fig. 2).

GENERAL GEOLOGY

The oldest rock in the mine area is a limy shale of pre-Tertiary age that is unconformably overlain by late Tertiary and Pleistocene volcanic rocks.

The limy shale crops out in the southern part of the mine area (fig. 2) and contains some pebble conglomerate and slate beds. The beds strike northerly and are vertical or steeply dipping.

The volcanic rocks from oldest to youngest consist of hornblende andesite, basalt, andesite agglomerate, rhyolite, andesite porphyry, and olivine basalt. The agglomerate contains angular fragments of andesite, basalt, shale, and boulders of silicified limestone. Alteration of the feldspars and hornblende to clay minerals has been extensive in the older andesitic rocks. These rocks are overlain by an unaltered gray andesite porphyry that contains abundant phenocrysts of plagioclase and minor amounts of hornblende and biotite. Capping the ridges and forming prominent cliffs east of the mine area are flows of fine-grained olivine basalt. All of the volcanic rocks strike NE and dip 20° to 50° SE.

Numerous faults of minor displacement cut the volcanic rocks in the mine area but only one is of economic importance. This fault trends north and dips about 50° E. It is exposed in the main inclined winze (fig. 2) and in drifts off the winze. Two sets of joints that trend N 55° W and N 65° E were of importance in localizing ore minerals. It is along the intersections of these two sets of joints and along the plane of the north-trending fault that the ore bodies occur.

ORE DEPOSITS

The volcanic type quicksilver ore bodies are localized along the intersections of steeply dipping faults and joints in andesite agglomerate and hornblende andesite.

The principal ore mineral is cinnabar with minor amounts of native mercury and calomel. Cinnabar occurs as veinlets and as replacements of the clay-like alteration products of hornblende and plagioclase. Native mercury occurs in crystal-lined vugs in the cinnabar veinlets. Gangue minerals are clays, carbonates, silica, barite, and pyrite.

The ore bodies are of two types. One type was localized along the joint intersections and extended into individual joints and into the wall rocks for several feet. The shape of the body was tabular to pipe-like. The second type of body was localized in fault gouge along the north-trending fault east of and below the main deposit.

The main ore body was of the first type, was from a few feet to as much as 60 feet in diameter, extended down dip about 100 feet and yielded about 20,000 tons of ore with an average grade of about 8 pounds of quicksilver per ton. The ore bodies of the second type were of higher grade but occurred as small masses and veins with

sharply defined walls and yielded about 3,500 tons of ore with an average grade of about 12 lbs. quicksilver per ton.

SAMPLING

There is very little cinnabar-bearing material exposed on the property. The following samples were taken from locations indicated on figure 2.

Sample No.	Width, feet	Lbs. Hg/ton	Remarks
S-547	Grab sample	6.0	From 10 ton dump.
S-548	2.0	1.2	Open cut.
S-549	4.0	<0.1	Alluvium.
S-550	4.0	0.2	Alluvium.
S-551	2.0	4.3	Open cut.

ORE RESERVES

Except for a few tons of ore grade material remaining in the walls and pillars of old stopes there are no measured or indicated ore reserves. Inferred reserves are a few hundred tons of ore with an average grade of about 6 pounds of quicksilver per ton. These reserves are contained in small widely scattered bodies, similar in size and grade to those that have been mined by leasers since the exhaustion of the major ore bodies. They can be found by exploration along joints and faults in the andesite agglomerate along and near the contact with andesite porphyry.

EXPLORATION POSSIBILITIES

The applicant proposed to explore the deposit by drilling from the surface followed by shaft sinking and underground work.

The surface drilling, using wagon-drills, was planned to explore the downward extent of the small ore-bearing fault that cuts a mass of silicified agglomerate about 1,000 feet north of the main workings (fig. 2) and to explore under a small concentration of cinnabar-bearing alluvial material overlying limy shale 300 feet west of the glory hole. If the drilling disclosed cinnabar-bearing material at depth it was proposed to test the showings by underground work. Underground test drilling was proposed on the main haulage level to explore the ore-bearing fault above the level. Additional drifting on the bottom level was proposed to further explore the main fault.

Each of these proposed exploration targets, and several others that were suggested during the examination, was carefully studied. Testing of the two areas of silicified agglomerate, 1,000 feet north and 200 feet south of the main workings, by a few diamond-core or wagon-drill holes could be justified if other more extensive exploration were being conducted at the same time on this or nearby properties, but the probability of making a significant discovery is too small to warrant a DMEA project on this work alone. Other more promising targets are not known. Previous exploration, the

results of which were not known to the applicant but were contained in maps and reports available to the examiners, had tested the targets in the main deposit without finding new ore bodies. The "new deposit" referred to in the application is a small concentration of cinnabar-bearing alluvial material at the foot of the slope below the outcrop and glory hole of the main deposit and does not represent an ore body in the underlying shale.

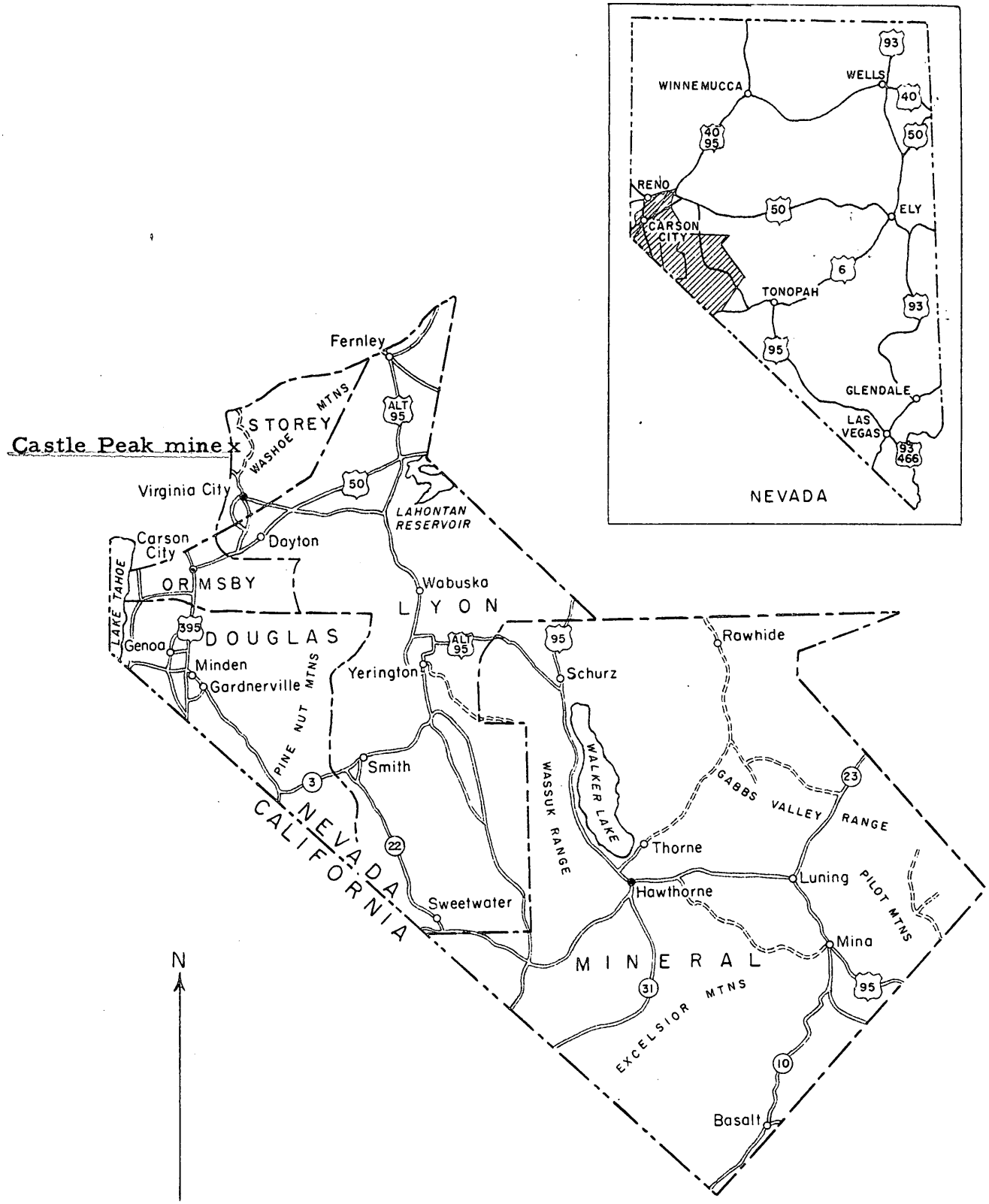

Figure 1. INDEX MAP OF STOREY, ORMSBY, DOUGLAS, LYON, AND MINERAL COUNTIES, NEVADA

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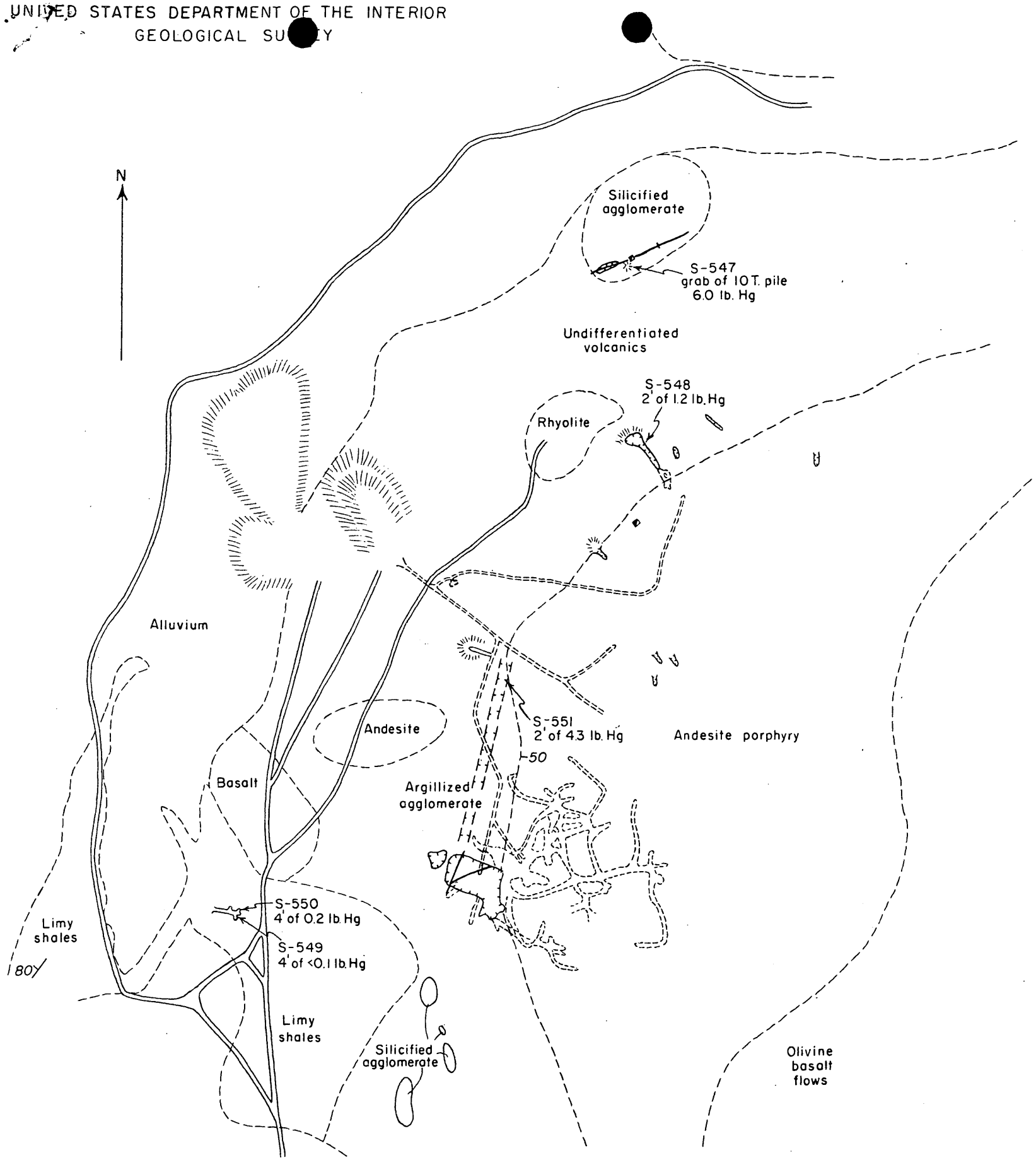
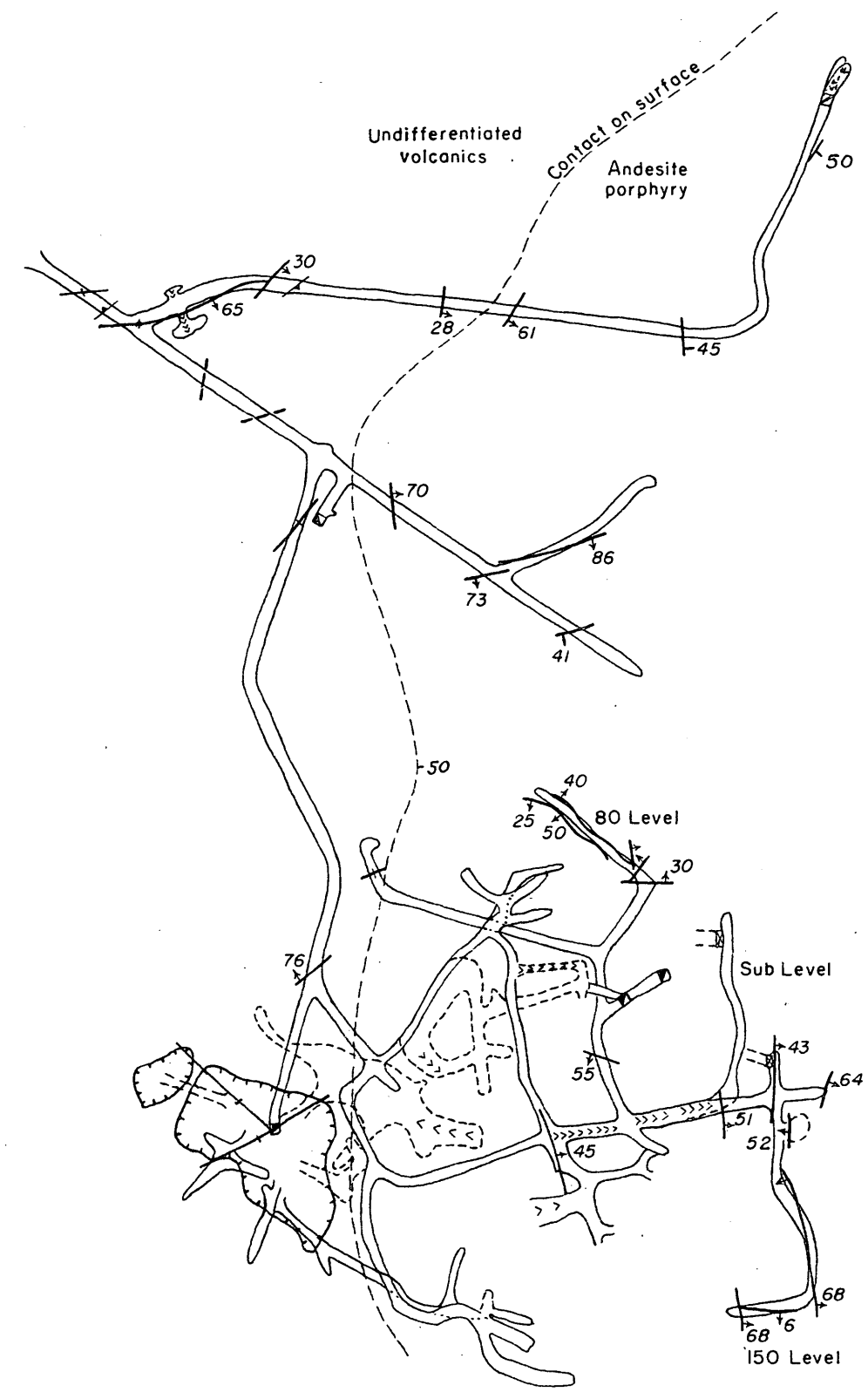
JAN 18 1957
D.M.E.A.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA 4459
(MERCURY)



GEOLOGIC SKETCH MAP
0 200 400 Feet



COMPOSITE UNDERGROUND MAP
0 100 200 Feet

Figure 2. CASTLE PEAK MINE, STOREY COUNTY, NEVADA

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JAN 18 1957
D.M.E.A.

BLOCK DIAGRAM OF THE

CASTLE PEAK QUICKSILVER MINE

STOREY COUNTY, NEVADA

Geology by David A. Phoenix, J. B. Cathcart, C. Melvin Swinney
U. S. Department of the Interior Geological Survey

1942

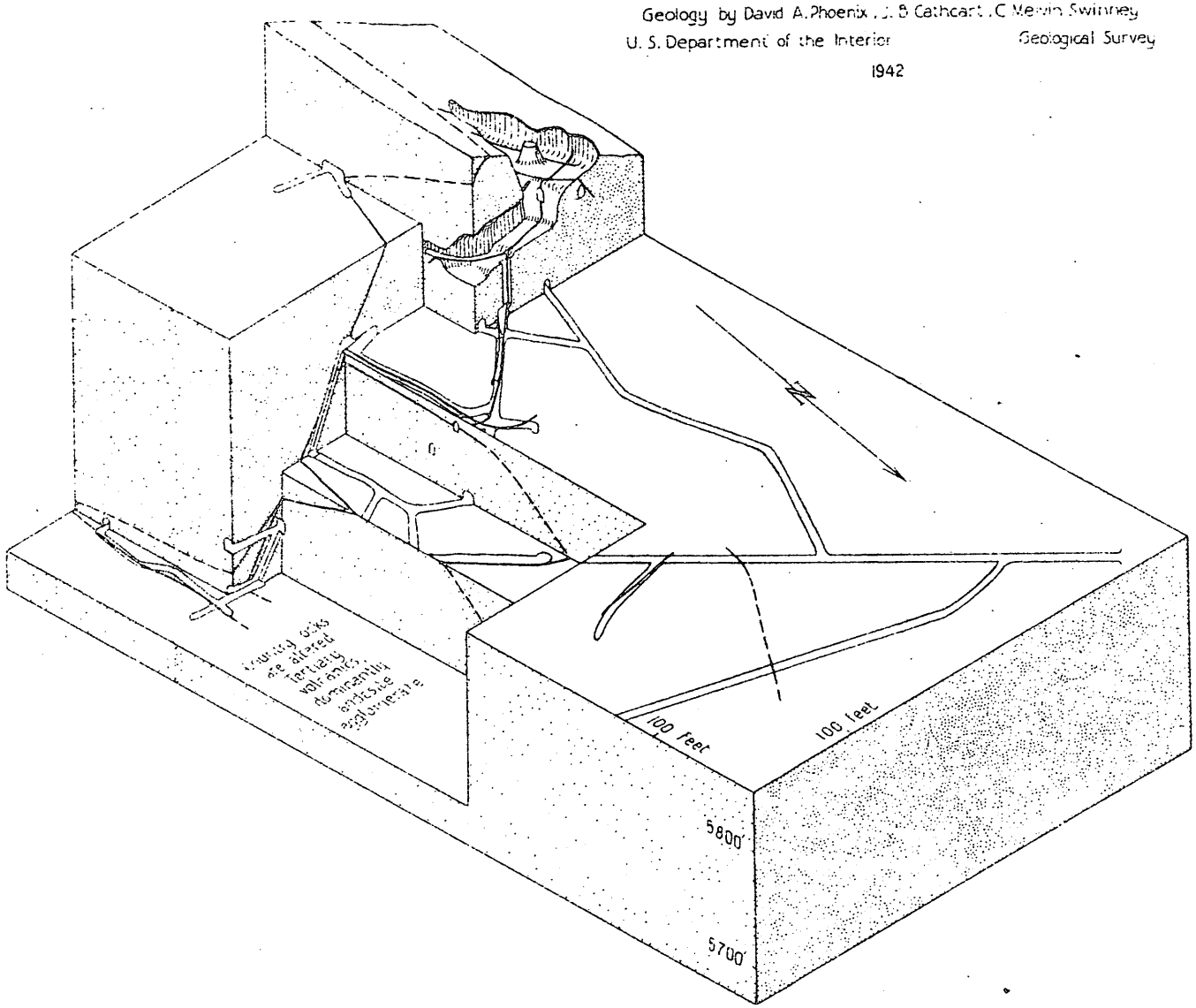

Figure 3

MCGILL UNIVERSITY
JAN 18 1957
LIBRARY

DOCKET
SURNAME
McMahon
Keating
Lamb
Kilsgaard
Selfridge

400

OCT - 1 1956

Castle Peak Mining Company
4762 South State Street
Murray City 7, Utah

Re: Docket No. DMEA 4459 - Mercury
Castle Peak Mercury Mine
Storey County, Nevada

Gentlemen:

The above-docketed application for exploration assistance for mercury ores has been reviewed by the Washington office of the Defense Minerals Exploration Administration and referred to Mr. Spangler Bicker, Executive Officer, DMEA Field Team, Region II, 1605 Evans Avenue, Reno, Nevada, for a field examination of the property.

Any assistance that you can give the members of the Field Team will be appreciated.

Sincerely yours,

C. O. Mittendorf

Administrator

ADMcMahon/foc
10/1/56
cc to: Docket
Code 400
Admr. Read. File
Oper. Comm.
FT. REG. 2
Messrs. J. W. Pennington, USBM
T. H. Kiilsgaard, USGS

RCS.

Docket
Surname

400

McMahon
Hunting
Selfridge

Mr. Spangler Richer, Executive Officer
DMEA Field Team, Region IX
1605 Evans Avenue
Reno, Nevada

Re: Docket No. DMEA-4459 - Mercury
Castle Peak Mining Company
Castle Peak Mercury Mine
Storey County, Nevada

Dear Mr. Richer:

The above-docketed application for exploration assistance is being referred to your office for a field examination of the property.

Copies of memoranda dated September 12 and 25, 1956, by W. E. Nelson, Geological Survey, and J. W. Pennington, Bureau of Mines, respectively, relating to the project are enclosed.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (JHB)

Enclosure

APPROVED:

Frank D. Lamb (JHB)
Director, Bureau of Mines

Thor H. Kiilsgaard (JHB)
Director, Geological Survey

ADMcMahon/esf - 10/1/56
cc: Docket
Code 400
Admr. R. File
Oper. Committee
THKiilsgaard, USGS
JWPennington, USBM

Docket

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

September 25, 1956

WSM

Memorandum

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

From: Commodity Specialist, Branch of Base Metals

Subject: Review of Application, Docket No. DMEA-4459 (mercury), Castle Peak Mining Co., Castle Peak Mercury Mine, Storey County, Nevada. $62,122.

The applicant proposes to explore for mercury mineralization in 3 stages; work will consist of 1,000 feet of surface drilling, 150 feet of shafting, 1,250 feet of drifting, and 600 feet of underground drilling at an estimated total cost of $62,122.00.

Bureau of Mines records indicate that 2,566 flasks of mercury have been produced from 23,756 tons of ore from the Castle Peak Mercury Mine. Ore grade was about 8.2 pounds of mercury per ton.

Referral of the application to the Field Team is recommended.

J. W. Pennington

J. W. Pennington

Copy to: Division of Minerals
Branch of Base Metals (2)
Thor Kiilsgaard, U.S.G.S.
F. D. Lamb
F i l e s

Copy retained 400

Docket

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
SEP 13 1956

September 12, 1956

Re: DMEA 4459
Castle Peak Mining Co.
Castle Peak Mine
Storey County, Nevada
$61,122.00 - Mercury

Copy retained 430

Memorandum

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

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

Subject: Review of application.

The applicant requests assistance in the rehabilitation of old mine workings and exploration in fringe areas of the mine and nearby smaller but similar shows.

The mine is credited with the production of perhaps 3,279 flasks of mercury from 8.7# rock.

The proposed work consists of:--

[illegible] RECAPITULATION

	PROJECT #1 (New shaft & 185)		PROJECT [illegible] (North [illegible])	
[illegible] I Surface drilling	600'	$2,4[illegible]	4[illegible]	[illegible]
[illegible] II Underground New Shaft, Drifts & 135-Winze level				
Drilling	500'	$3,300		
Shafting	150'	7,536		
Drifts off shaft	300'	8,191		
Drifting 135-Lev	350'	12,129		
Rehabilitating the Haulage Level		2,281		
[illegible] III North Tunnel			600'	$12,7[illegible]
Totals		$35,239		$14,[illegible]
[illegible]sion & consultant		4,900		2,1[illegible]
[illegible] Supplies		222		
New buildings, shack, powder houses (2) shed		552		125
Compressor shed		429		
Misc. repairs, assays, accounting		665		245
Payroll expense, tax, etc.		954		[illegible]
Contingencies		149		[illegible]
TOTALS		$43,701		$17,4[illegible]

Government share $45,840

Production required to amortize the requested advance at 5% of $225.00 per flask, 4,100 flasks.

Examination of the property is warranted.

Referral of the application to the Field Team is recommended.

N. E. Nelson

N. E. Nelson

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration
Washington 25, D. C.

September 11, 1956

Castle Peak Mining Company
4762 South State Street
Murray City 7, Utah

Subject: DMEA-4459
Re: Exploration Assistance
Castle Peak Mine

Gentlemen

Your application for exploration assistance, dated September 1, 1956 submitted to our office at Nevada has been assigned Docket Number DMEA-4459 and referred to the Iron and Ferro-Alloys Division in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

Allen S. Dakan, Chief
Operations Control and
Statistics Division

Copy to:

Region II-Reno, Nevada
Code 400

3571

DMEA

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

WASHINGTON 25, D. C.

RECEIVED
SEP 10 1956

1605 Evans Avenue
Reno, Nevada

September 6, 1956

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Loan Application (Mercury)
Castle Peak Mining Co.
Castle Peak Mercury Mine
Storey County, Nevada

Attached are three sets of MF-103, Application for Aid forms relative to above subject. The fourth set has been retained in our files.

S. Ricker

Attach.

BUREAU OF MINES
WASHINGTON, D. C.

SEP 10 12 49 PM '56

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

RECEIVED
SEP 10 1956

1605 Evans Avenue
Reno, Nevada

September 6, 1956

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Loan Application (Mercury)
Castle Peak Mining Co.
Castle Peak Mercury Mine
Storey County, Nevada

Attached are three sets of MF-103, Application for Aid forms relative to above subject. The fourth set has been retained in our files.

S. Ricker

Attach.

SRicker:gh
cc: R. M. Smith
File

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
SEP 10 1956

Form Approved.
Budget Bureau No. 42-R1085.2.

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. 4459
Metal or Mineral Mercury
Date Received 9/10/56
Estimated Cost $61,122
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: See attached. This space inadequate

(*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. (See attached)

(*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 Four unpatented claims in Storey County, Nevada. Details attached because this space inadequate

(*b*) State any mine name by which the property is known. Castle Peak Mercury Mine

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Owner by Cash purchase

(*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. (See attached)

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

(*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. (Attached)

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

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

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

(*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. Detailes and Maps attached

(*c*) The work will start within 60 days and be completed within 9 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. Attached

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: Attached

(*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.).

(*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. Attached

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

(*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. Attached

(*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. Attached

(*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. Attached

(*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. Attached

(*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 September 4, 1956, 195

CASTLE PEAK MINING COMPANY
(Applicant)

By E L Wolsey Pres

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

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

RECEIVED
SEP 10 1959

(This attached to Form MF-103 too constricted
to contain information)

1. NAME OF APPLICANT: (a) CASTLE PEAK MINING COMPANY, a Nevada corporation, incorporated July 5, 1956. Head office 4762 South State Street, Murray City 7, Utah. (Address of Nevada Agent, 700 Forest St., Reno, Nevada.)

(c) Officers & Directors: E. L. Wolsey, President, 565 West 3rd South, Provo, Utah. Dr. J. W. McEntire, Vice President, Ogden, Utah. Robert Rees Dansie, Secretary-Treasurer, 4762 South State Street, Murray City 7, Utah. James L. Stinnett, Director, 361 Main Street, El Segundo, California. Joe Revill, Director, Box 131, Draper, Utah.

3. APPLICANT'S PROPERTY RIGHTS: (a) Four unpatented mineral claims in Storey County, Nevada, to-wit: Shown on accompanying map "A")

Juniper No. 1,	File	20245 -	page	241 Storey County Records, Book "H".
Juniper No. 2,	"	20246	"	241-242
Juniper No. 3,	"	20247	"	242
Juniper No. 4,	"	20248	"	243

(b) Mine name "Castle Peak Mercury Mine"

(c) Owner by purchase

(e) No liens or encumbrances.

4. PHYSICAL DESCRIPTION: (a) Mining and exploration operations comprise surface and underground as shown on Sketch Map "B" herewith as follows:

(1) Old Castle Peak mine opened 400-feet depth by about 3400 lineal feet of workings, divided into 1500-feet crosscuts, 1130-feet drifts, 350-feet raises, 450-feet winzes.

(2) "New show" prospect opened about 70-feet long by cut and shallow tunnel.

(3) "North show" prospect opened by 20-foot shaft-stope into thin mercury bearing streak.

Detailed description: (See Map "B" and delineating reference letters.)

(1) Castle Peak mine is entered by adit crosscut A-A3 driven southeasterly 400-feet to caved face. Three branches extend off at A 1, 60-ft. from portal, A 2, 200-feet from portal and A 3, 330-feet from portal. A 1, extends east 300-feet to caved face and exposed small mercury near its takeoff. The 300 feet accessible for

examination. A 3 (330-ft. from portal) is 100 drift along thin mercury-iron sulphide streak, accessible for examination. A 2 is 20-ft. NW from raise to surface and extends 400-feet 400-feet southerly across barren rock to raise into open stope. At 330-feet from takeoff is crosscut A4 extending 50-feet southeasterly into another 40-foot raise to Open stope, thence crosscut A5 extends northeasterly 120feet to A6 drift which extends 130-feet southerly along ore productive Fault opened below by "Chicken-ladder raise" and Main winze. At 40-feet from A5 takeoff is another raise, approximately 60-feet up to ore stope and at 50-feet a caved crosscut to stope at Haulage level. The 100-foot interval between collars of "Chickenladder raise" and Main winze on A6 is caved and inaccessible to examination. From A5 raise the tunnel extends 220-feet southerly through barren, unaltered rock, to A8 which comprises two 30-foot easterly drifts in altered rock from which small mercury production is reported. At 60-feet south of A5 raise an easterly crosscut extends 100-feet to collar of Main winzewhich extends 185-feet down at 60° slope to the east along and under the 55° dipping ore productive fault as shown on Section "A" of Map "B". A drift extends southerly from Winzecollar into caved stope in this fault.

Main Winze has 2-timbered compartments in excellent condition. Three winzelevels have been driven (1) at 85-feet extending about 70-feet northerly into stope at "Chicken-ladder raise", the last 35-feet reported inaccessible by caving, and a caved drift extends southerly about 30-feet in to caved stope, reported about 40-feet long. (2) At 135-feet a 25-foot crosscut east to ore productive fault which was followed northerly about 140-feet to reported bottom of Chickenladder raise and about 20-feet caved drift extended Southerly to caved stope. North drift is reported inaccessible beyond 70-foot point. (3) At 185-feet a 40-foot easterly crosscut to ore productive fault, thence 20-foot drift northerly said to have shown excellent ore and 60-feet southerly into overhead and underhand stopes reported 40-feet long upwards of 5-feet width of excellent ore. The south drift is inaccessible. A 15-foot winze was extended beneath 185-level.

Surface showings comprise several cuts trenches and shallow shafts in extensive area of altered rock characteristic of material enclosing "Open stope" deposits. This area extends about 1000-feet northerly from Open stope to and through caved Cut "F". Numerous cuts in this area are reported to have shown some cinnabar. About 300-feet northerly from Cut "F" is 20-foot shaft "E" with small stope off to N. E. Cut "F" and shaft "E" inclusive of area between are designated as "North show" in this description. Cut "F" provided some mercury production and was connected by surface track to shaft down into Haulage level. Shaft "E" also provided some mercury and discard dump returns high cinnabar pannings. This shaft "E" is sunk on a thin cinnabar streak coursing NE-SW through hard unaltered andesitic porphyry, 120feet to NE and 50-feet to SW. Underlying this rock is softer more altered rock where the ore vein widens.

"New Show D" is 300 feet southwesterly from Open stope and exposes weathered rock opened 70-feet in easterly direction by cut and shallow tunnel. Large sample returned 8# mercury per ore ton. Surface samples over about 100-feet E-W by maximum 50-feet N-S returned 5# mercury per ore ton. This showing is believed to represent weathered cover of an ore deposit formed along presumed SW projection of the NE-SW structure that apparently controlled ore deposition and

position of the old mine's "Open stope deposits". The tunnel is accessible for examination and sampling.

(b) There is no current production. Nevada University Bulletin No. 41, "Quicksilver Deposits in Nevada" by E. H. Bailey and D. A. Phoenix (U.S.G.S. geologists) reports Castle Peak mine production from 1929 through 1936 at 23,500 tons returning 2,576-flasks of mercury, the ore averaging 8.7# mercury per ton. However, the report's listing of annual production adds up to 3,279-flasks (pages 184-185) which is here taken as the mine's output.

There is presently no blocked out ore because operators "gutted" the mine of each showing as found. Stop margins indicate considerable lower grade ore but quantity not determinable.

(c) Geologic features and reasons for wishing to explore:

Following is freely quoted from "Mercury Deposits in Nevada" and from engineering-geologic reports accompanying this application.

The rocks of Castle Peak area comprise pre-Tertiary limy shales striking northerly, Tertiary volcanic rocks - gray hornblende andesite, andesite agglomerate, some rhyolite and a late Tertiary flow of olivine basalt. The hornblende andesite and agglomerate have been extensively argillized and locally alunitinized into clayey materials. Unaltered gray andesite porphyry overlies these altered rocks.

Castle Peak mercury deposits are volcanic type, occurring typically in andesite lava flows and agglomerates and characterized by presence of abundant pyrite or marcasite, scarcity of silica, and by alteration of wall rock into clay. The amount of clay minerals in a deposit seems roughly proportionate to amount of cinnabar. Because of prevalence of sulphate in near surface waters, jarosite and gypsum are widespread in the outcrops. The volcanic type deposits include Nevada's largest and deepest mercury mines, of which Castle Peak is described as "a good example of larger deposit" on page 22 of "Quicksilver Deposits in Nevada".

The cinnabar localization is controlled by steeply dipping fractures and faults of small displacement and by intersecting joints.

Castle Peak ore deposits are of two classes: (1) The largest "Open stope" ore bodies mined in glory hole and stopes connecting down to and below Main Haulage level are localized along two sets of joints intersecting at 60-80°. The most persistent system strikes NE-SW, standing nearly vertical. It intersects less persistent NW-SE joints and apparently controls position and direction of the ore deposits. Brecciated joint intersections have been most favorable loci for ore deposition but mineable cinnabar also occurred out from intersection as tabular bodies along gouged roof NW-SE joints. The ore deposits at joint intersection were apparently pods which occurred in sufficient proximity of each other to provide nearly continuous furnace ore throughout glory hole and stopes down to and below Haulage level. (2) This second ore type provided lesser but richer deposits mined from Winze levels and "Chickenladder raise" below the Main Haulage Level. These were localized along

along northerly trending fault dipping 55° to east. Lenses of rich ore lay not only in the fault gough but also in places beneath gough and elsewhere along parallel faults, making small rich pods and veins with sharply defined walls, in contrast to the more disseminated type of the larger "Open stope" deposits.

Reasons for wishing to explore: Geologic indication that the nearly vertical NE-SW structure controlled localization and direction of the larger "Open stope" deposits has led to the following premise: That the NE-SW joint faulting represents a channelway for mercury solutions ascending from underlying magma which, where gough occurred in certain NW-SE crossing joints, were trapped and retarded thus allowing them to precipitate and form ore deposits as previously described. This leads to premise that the NE-SW "channelway" may continue in a series of disjointed fractures beyond the locality confined to presently exploited stopes in "Open stope" deposits and that recurrence of other ore deposits may be expected along channelway's extensions, where ore-favorable cross jointing may exist.

"New Show" ("D") Position of "New Show" in vicinity of SW projection of the 'Open Stope' channelway and occurrence of mercury ore in weathered rock and gravel overlying it has led to belief that the weathered rock represents cover of another ore deposit possibly similar in attitude and extent to the exploited "Open stope" deposits. This weathered ore had been opened for 70-feet easterly by cut and shallow tunnel from which a large sample returned 8# mercury per ore ton. The overlying gravel returned 5# mercury per ore ton. If this indicated deposit has similar attitude to "Open stope" deposits it will rake easterly into the mountain.

"North show" ("E" & "F") Other NE-SW structures might elsewhere have similar "channelway" significance. North show "E" fissure strikes NE-SW and stands nearly vertical. The thin mercury streak followed 170-feet NE and SW is in hard slightly altered andesitic porphyry but the shaft enters softer more altered andesitic rock where vein widens. The overlying rock might form a solution trap and the ore widen in softer more ore-favorable rock below. This is basis for wishing to explore this structure in depth below present shaft. (2) Highly altered rock at Cut "F" appears to strike NW down under gentle swale leading to intersection with projected SW extension of "E" structure. Precedence of ore deposition at Castle Peak suggests possible cinnabar deposit at and near intersection of the NW and SW structures which is reason for wishing to explore that part of "North show".

The fact that economics forced former operators to restrict production of higher grade ore would eliminate operations into lower grades variously reported to occur in cuts in area between Cut "F" and Open stope. At present prices some of these showings might provide ore of sufficient grade for profit by open pit mining.

Information that the Castle Peak's close down was due to low mercury prices and uneconomic mining conditions rather than by ore exhaustion, is basis for wishing to explore into old mine workings.

(d) Accessibility Castle Peak mine is situated 5800-feet above sealevel in Section 20, T. 18 N., R. 21 E., twenty one miles by highway and dirt road (17-miles paved highway and 4-miles good dirt road) from Reno. Reno is supply and residence point. If, and when, Castle Peak gets into production it will establish its own processing plant into quicksilver @ 76# flasks.

(e) Manpower is available from Reno labor market, the nearby mining areas of Virginia City, Silver City, and Fallon which is 65-miles distant. Materials, supplies, etc., can be purchased at Reno. Equipment can either be purchased or rented at Reno. There is no water on the property. Whatever water is required by exploration project will be hauled about 11-miles from valley point. Power will be Deisel.

5. THE EXPLORATION PROJECT

(A) Wish to explore for cinnabar (mercury) only.

(B) Description of proposed work Accompanying Sketch Map "B" shows localities and extent of proposed work sequences, underground workings and sketch sections giving picture of objectives.

For convenience of description the proposed work is divided into three stages. Stage I Drill exploration from surface. Stage II Underground exploration in "New show" and drilling and tunnelling exploration from old established Castle Peak mine workings. Stage III Tunnel work into downward extensions of "North show".

Stage I Drilling from surface. The rock characteristics will make core drilling difficult, and uncertain, hence work probably better performed by jet air drills, catching drill cuttings in bag. Location and hole attitudes will be largely dependent upon results from Bulldozer exploration now being done at Company Expense.

(1) New show will warrant 4 to 6-holes down to 75-100 feet below surface, estimated 600-feet drilling, to test downward extension below present weathered ore cap.

(2) North show; two holes under shaft "E" and two additional holes in vicinity of intersection of "E" and "F", about 100-feet each, total 400-feet.

(3) If appreciable ore indications should be found in the presently unsurveyed area between Cut "F" and Open stope interval would probably apply for amended program for drill exploration therein.

The drilling is to be considered useful preliminary test to show below-surface ore-favorable conditions and may define mercury occurrences but drill results, in themselves, are to be considered inconclusive and should be checked in any case by underground work.

Stage II Underground Exploration by shaft and drifts in New Show and old mine's 185-Winze level plus drill exploration in mine workings.

(1) New Show If surface drilling indicates New Show attitude similar to its "Open stope" counterpart along channelway, the New Show orebodies will rake down about 20° to east into the mountain. Underground exploration would comprise:

(1) A 2-compartment shaft 5' x 8' down 150' easterly @ 20° slope along channelway. (2) Three 7' x 5' drifts driven 50-feet NE and 50-feet SW, at the 50', 100' and 150' levels.

CASTLE PEAK MINE The Haulage level will require rehabilitation and 950-feet of track from portal to collar Main Winze. It will require 765-feet of 2" compressed air pipe from 315-cu. ft. per min. Deisel driven compressor situated at New shaft collar to winze collar. Thence 490-feet 2" pipe down winze and into aggregate 350-feet exploration tunnel at 185-Winze level. Water pipe will comprise 900-ft. 1/2" from site of water tank at Open stope dump (sta 8). Drift will require 350-feet track. (2) Drill 3-holes @ 75-100 feet from south end Haulage tunnel into south projection ore productive fault and 3-holes upward @ 125-ft. each from Haulage tunnel to test ore possibilities in the fault above Haulage tunnel.

The work is indicated on Sketch Map "B" and details of supplies, equipment, labor, etc., are shown herein under SECTION 6 "Estimate of costs".

Stage III North Show Two hundred eighty feet 5' x 7' southeasterly cross-cut adi from Louse Creek into "E" structure 100-feet below collar of Shaft "E" (see map "B"). Drift 150-ft. NE and 170-ft. SW along structure "E", into crossing of "E" and "F" structures. Total 600-feet tunneling. Details and costs under SECTION 6 "Estimate of Costs".

RECAPITUATION

	Shafting	Tunnelling	Drilling
STAGE I Drilling from surface			1000-ft
STAGE II Underground New Show & 185-Winze level	150-ft	650-ft	600
STAGE III Tunnelling North Show		600	
	150-ft	1250-ft	1600-ft.

(c) The work will start within 60-days from date of an exploration contract and be completed within 7-months thereafter.

(d) OPERATING EXPERIENCE E. L. Wolsey successfully explored Circle Cliffs Uranium property, Utah, to point where Kern County Land Co. of California is expending to production. Joseph N. Revill, Gen. Mgr., Castle Peak M. Co., has had three years company branch management

for Aetna Insurance Co. as adjustor and investigator. Two years experience as company property manager in Wyoming and Nevada for Interstate Mining & Exploration Co. Such work involved management, development and exploration operations on properties valued at several million dollars. Two years as material expeditor and purchasing manager for James F. Barnes Construction Co., at Tooele Ordinance Depot, Utah. Arthur Lakes E. M., Reno, Nevada, will supervise engineering and geologic matters. Has had 34 years experience as examining and supervising geologist-engineer and mine manager in United States, Canada and Mexico in successful exploration, development and exploitation of silver-lead, lead-zinc, copper, tungsten, iron mines; inclusive of discovery America's largest high grade tungsten mine (Emerald), B. C. producing 500-units WO_3 per diem together with 1800-tons zinc-lead ore per diem, Reeves MacDonald zinc-lead mine of PendOreille district, one of the West's foremost producers; Lucky Jim, Whitewater lead-zinc-silver mines Slocan District, B.C., etc., etc. Consulting geologist Lucky Friday, American Silver, Callahan Cons. mines in Coeur d'Alene District, Idaho,

Applicant ready to furnish proof of financial responsibility.

6. ESTIMATE OF COSTS

(a) Independent Contracts

Surface Drilling 1000-ft. @ estimated $4		$4,000	
Underground drilling 600-ft "	$5.50	3,300	$7,300

Company Operations

Project #1 New Show & 185-Winze Level

New Show shaft 150-ft. @ $50.24 per ft		$7,536	
Drifts off shaft 300-ft	$27.30	8,181	
		$15,727	
185-Winze Level 35-ft @ $34.65		$12,129	
950-ft. track & rehabilitation Haulage Level		2,283	
		$14,412	$30,139
Project #2 North Tunnel			$12,747
TOTALS Contractors & Company operations			$50,186

TOTAL COST ESTIMATES DETAILED BELOW

(1) New Show 150' Shaft 8' x 5' timbered & lagged top and sides
Estimated advance 2 1/2-ft. per shift
300' Drifts 7' x 5' not timbered @ 4-ft. per shift.

Item	Amount	Cost	Shaft	Drifts
LABOR				
Miners-timbermen	2	$4500	$2040	$2550
Hoistman-trammer	1	2295	1020	1275
Indus. Ins @ 6.9%		475	211	264
Explosives		1157	286	871
Timber & wedges		621	529	92
Track (12# rail), ties 3600#	3600#	780	260	520
Ventilation		275	225	50
Pipe 2" & 1/2"	900	242	84	158
Proportionate Rental				
315 cu. ft. per min Compressor @ $ 350		1470	647	823
1200-gal. Tank truck @ $100		290	129	161
Airhoist @ $100		700	300	400
Amortization drill, steel bits, hose		928	557	371
Mine Cars - 2 - @ $100		200	100	100
Proporation 1200-gal Diesel tank @ $175		90	36	54
Proportion 4320-gal Diesel oil (Compr)		725	322	403
Grease, oil, nails etc.		149	50	99
Sheive & bearings		100	100	
Headframe		100	100	
Skip, estimated		200	200	
250' braided cable @ $1		250	250	
Signal cord, bell, etc.		40	40	
CO2 Fire protection		50	50	
Total estimated Cost Shaft & drifts		$15,727	$7,536	$8,191

(b) 185-Winze Level & Haulage tunnel

Item	Amount	Total	Haulage Tun.	185-Level
LABOR				
Miners	2	$3385	$ 410	$2975
Hoist- trammer	1	1487		1487
Industrial Ins		337	29	308

(b) 185-Winze Level & Haulage tunnel - contd.

Item	Amount	Total	Haulage Tun.	185-Level
Explosives		665		665
Timber		1085	104	981
Track 12# rail		2255	1640	615
Ventilation		393		393
Pipe 2" & 1/2"		640		640
Proportionate rental				
315-c.f.m. Compressor	@$350	980		980
Water truck	@$100	190		190
Amortization, drill, steel, hose, bits		928		928
Proporation Diesel oil Compressor		472		472
Grease, oil, nails, etc.		70		70
Rental airhoist		500		500
Mine Cars (2 @ $100)		200	100	100
Proportion Diesel tank		85		85
Sheive & bearings		100		100
Headframe repair		100		100
Skip estimated		200		200
250' braided cable		250		250
Signal bell, cord, etc.		40		40
CO2 Fire protection		50		50
Totals		$14,412	$2,283	$12,129

Project #2 600-ft. Tunnel, North show (280-ft. crosscut, 320-ft drift)
7' x 5' @ 4- feet per shift.

Item		Amount	Cost
Labor Miners		2	$5100
Industrial Insurance			352
Supplies and Equipment			
Explosives	Powder	3831#	
	Fuse	15600'	
	Caps	1920	1141
Track	Rail	4800#	
	Fish pl	86-pairs	
	Ties	240	
	Spikes	960	1029

Project #2 - continued

Item		Amount	Cost
Timber	Posts	12	
	Caps	6	
	Lagging	90	
	Wedges	72	92
Pipe 2" and 1/2"		600'	
	Valves	1	
	Unions	2	
	Ls U plugs	3	311
Amortization drills steel, bits, hose (*Mounted Jackhammer)		1	647
Mine car 16 cu ft second hand			100
Gas fuel compressor 3000-gal @ 30¢			900
Grease, oil, nails, etc.			75
Rental 105 cfm Gas compressor @ $185			1480
Proportionate rental Water truck @ $100			320
Rental Mucking machine @ $150 per mo			1200
Total Project #2			$12,747

PRICES & COSTS

(b) Labor, supervision, consultants

Labor @ present wage schedule plus $1 per day travel allowance all men living off property.

		Per Day	Per 20-day month	
Labor requirements Project #1 North shaft, drifts, 185-Winze level				
2-hoistmen-trammers-framers	@$17	34	$ 680	
1-compressor man, outside work	17	17	340	
4-miners, timbermen	17	68	1360	
1-Working foreman	20	20	400	$2,780
Industrial insurance @ 6.9%				192
				$2,972

		Per Day	Per 20-day month
Labor requirements Project #2 North			
Tunnel 600'			
2-miners-trammers	@$17	$34	$ 680
Industrial Insurance @ 6.9%			47
			$ 727
Forward from Project #1			$ 2972
Total per month of Project #1 & #2 contemporaneous			$3,699
Supervision @ $600 per month			
Consultants @ $400 per month estimated			$1,000
Total estimate per month			$4,699

(c) Operating materials & supplies

1. The following have been pro rated into the various operations detailed above. Prices as of August, subject to change according to repurcussions steel strike, etc.

Items	Price	Amounts required	Total Cost	
Explosives				
Powder @ $0.449 per # @ tons lots		8938#	$4,014	
Fuse @ 1 1/2¢ per foot @ 3000' reels		36400'	546	
Caps @ 2 1/2¢ @ 2000 caps per case		4480	110	$4,670
Track				
12# rail @ $320 per ton		9.4 tons	$3,008	
Fish plates @ $1.25 per pair with bolts		332-pairs	415	
Spikes, 3/8 x 3" @ 5¢ each		3900	195	
Ties, 6" x 4" x 32" @ 48¢		950	446	$4,064
Timber Posts & caps 6" x 6" Lagging 8"x2"				
Post 7' long @ $2.00		170	$ 340	
Caps 5' long @ $1.32		181	238	
Sills (shaft) 8' @ $2.30		60	138	
Lagging 2" x 8" x 5'		1672	1,059	
Wedges @ 4 1/2¢		504	23	$1,798
Pipe Compressed air & water				
2" @ 45¢		2305	$1,038	
1/2" @ 5¢ second hand		1950	97	
Valves @ $6		12	24	
Ls & plugs @ 30¢		13	4	$1,193

(c) Operating materials & supplies - continued

Items	Price	Amounts required	Total Cost	
Ventilations (shafts)				
8" vent pipe @ 50¢		735'	$ 368	
Copus blowers @ $150		2	300	$ 668
Drills, steel, bits, hose				
IR 38A, 36" feed Jackleg @ $785		2	$1,570	
Mounted Jackhammer (second hand)		1	450	
Threaded steel: 7/8" 2' $5.50				
4' $7.25, 6' $9.10 $21.85 set		7-sets	154	
Timpkin carbide bits: 1 1/2" $15.45				
1-5/8" $16.70 $32.15 a set		7-sets	224	
50' 3/4" Airhose @ $35 with couplings		3	105	$2,503
16 cu. ft. Mine cars (second hand) @ $100		5		500
1200-gal tank for Diesel		1		175
*Note-Water stored in rented tank truck				
Sheive & bearings estimated @ $100		2		200
Skip, to be made, estimated @ $200		2		400
1/2" braided cable (hoist) @ $1 per foot		500'		500
Signal bell, cord, etc., @ $40 estimated		2		80
CO2 Fire protection @ estimated $50		2		100
Diesel oil for compressor @ $16.8¢		7130 gallons		1,197
Gas for small compressor @ 30¢		3000 gallons		900
Grease, oil, etc.				294
Carbide for miners lights @ $13.20/100		500#		66
				$19,308

Additional Items

Items	Price	Amounts	Cost	
Axe (timbering) @	$6.30	3	$18.90	
Miners picks	5.50	6	33.00	
Mine shovels	5.85	6	35.10	
4# hammer	4.15	3	12.45	
12# hammer	9.80	3	29.40	
Claw hammer	4.35	3	13.05	
Timber saw	8.69	3	26.07	
Crosscut saw	6.00	2	12.00	
20 dwt Nails per 100#	14.18	300#	42.50	
8 dwt Nails $14.61		300#	43.83	
First aid & basket estimated		1	50.00	
			$316.30	317
				$19,625

(d) OPERATING EQUIPMENT (Rentals)

	Per month	Total
315 cu. ft. per min Diesel compressor @	$350	$2,450
125 cu. ft. per min Gas compressor @	185	1,480
Mucking machine (second hand)	150	1,200
2- Air hoists @ $100 per month	200	1,200
4 x 4 Truck with 1200-gal tank @ $10 per day when used (be water storage at sta. 8 (map))		800
		$7,130

(3) Rehabilitation & Repairs: None because camp denuded of equipment and buildings.

(f) New buildings, improvements and installations for benefit of project.

1. Shack 12-ft. s 20-ft. change house and storage. 1900' B. M. lumber @ $95, 3-windows, 1 -door, visqueen covering, tempered masonite floor cover, nails, total $243. Estimated labor $160. Total $403. Three 6' benches, 1-table 2 1/2' x 5', Coleman heater. Estimated cost $33. Total cost $436.

2. Shed over compressor and hoistway at New Shaft: 2300' B. M. lumber @ $95, $218, visqueen roof $11, nails and labor $200. Total estimated cost $429.

3. Two powder houses 10' x 10' into hill; 1400' B. M. lumber @ $95 $133, 2-doors $20, Visqueen cover $14, Labor $83. Total $250.00.

(g) Miscellaneous (1) Estimated cost repairs and maintenance equipment @ $50 per month, $350.
(2) Assays estimated @ $200
(3) Accounting @ $50 per month for 8-months, $400. Total $950.

(4) Payroll Expenses @ $21,000 total labor
(a) Unemployment Insurance @ 2.7% - $667
(b) Social Security assessment @ 2% - 420
(c) Industrial Insurance 6.9% @ $21,000 ($1173 already allocated to labor costs) Total balance - $276.

Total balance	$1363
	950
Total misc	$2313

(h) Contingencies: Plough road in winter $200 (using plough on water truck).

7. The Company is prepared to furnish its share of proposed project with money 25% of costs.

COST RECAPITULATION

	PROJECT #1 (New shaft & 185)		PROJECT #2 (North Tun)		TOTALS
STAGE I Surface drilling	600'	$2,400	400'	$1,600	$ 4,000
STAGE II Underground New Shaft, drifts & 185-Winze level					
Drilling	600'	$3,300			
Shafting	150'	7,536			
Drifts off shaft	300'	8,191			
Drifting 185-Lev	350'	12,129			
Rehabilitating the Haulage Level		2,281			33,439
STAGE III North Tunnel			600'	$12,747	12,747
Totals		$35,839		$14,347	$50,186
Supervision & consultant		4,900		2,100	7,000
Additional Supplies		222		95	317
New Buildings, shack, powder houses (2) shed		552		125	677
Compressor shed		429			429
Misc. repairs, assays, accounting		665		285	950
Payroll expense, tax, etc.		954		409	1,363
Contingencies		140		60	200
TOTALS		$43,701		$17,421	$61,122

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PRELIMINARY REPORT

ON THE

CASTLE PEAK MERCURY PROPERTY

Storey County, Nevada

Arthur Lakes

December 24, 1954

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I N D E X

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ATTACHED MAP 2 showing surface and underground workings

Assay and Flotation test returns

Mercury Prices and United States Production

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PRELIMINARY REPORT
ON THE
CASTLE PEAK MERCURY PROPERTY
Storey County, Nevada

Current publications indicate that today mercury is providing increasingly stronger competition with uranium for top place in domestic mining. Many mercury mines that have, in the past, been unprofitable or marginal are back in operation and a number of deposits that were never exploited are being put into operation. Reasons for recent acceleration are not easily obtained but reports explain that, in addition to expanding industrial uses, large amounts of mercury are beingused as heat transferers in production of electricity and other power from atomic piles, which suggests a growing link between mercury and uranium in peacetime uses. Another explanation is that large competitive buying by European countries and countries behind the Iron Curtain may have strained delivery ability from the Spanish and Italian resources which have dominated the mercury markets. Present mercury demand apparently has a firm foundation and is not a temporary "boom".

Results of accelerated activity have been steady increases of mercury price from $76 per flask (76-pounds) in 1948 to $323-$330 per flask in November, 1954. Price acceleration got a firm foundation when the United States Government set a floor of $225 per flask about the middle of 1954, since when domestic prices have been increasingly higher to November's all time high. Expect market fluctuations and some commentators suggest that European sellers might offer mercury @ $305 per flask early in 1955. Probabilities are that mercury will hold above $300 per flask. Figures in this report are taken at conservative $276 per flask by averaging the Government $225 floor with $327 per flask average of November, 1954.

Mercury is a rare element, being only slightly more abundant than gold and silver, and suitable deposits have been hard to find, the recent demand upsurge making keener competition.

SUMMARY Castle Peak mine was discovered in 1927 and through 1929-1936 produced about 25,000-tons yielding 3279-flasks of mercury returning about $305,000 which today would provide from $728,000 at Government floor to $1,072,000 at November 1954 quotations, or $900,000 at average of the two. Operations ceased in 1936 due to low mercury prices and the furnace and other equipment was removed in 1943, hence resumption of operations will require complete re-equipment.

Castle Peak's deposits are "volcanic type" which type has provided Nevada's deepest mines (1200-feet plus below surface). Its ore-favorable area measures 1300-feet by 800-feet centering the 3000-feet by 1200-feet covered by Castle Peak's four unpatented claims which are favorably situated at 5800 to 6000-feet above sealevel, readily accessible by 21-miles of highway and road from Reno, Nevada. Its ore deposits were mined to a depth of 400-feet and high grade ore extends below the mine's bottom.

Production came from two different structures: (1) An estimated 75% from the largest and most important "Open stope" ore deposits which averaged 8# mercury per ton across 30-feet width. These deposits were formed by intersection of two systems of rock jointing and were mined down to about 300-feet below surface where there were left intact during low mercury prices of the mine's later operations and (2) About 25% from smaller, higher grade lenses and bunches up to 5 or 6 feet width, carrying 12# to 30#-plus of mercury per ton, with occurrences of nearly pure cinnabar containing native metal in crevices. These deposits formed in, and under, a fault and were exploited to the mine's bottom, 400-feet below surface. It is reliably reported that up to 5-feet width of high grade remains in the bottom level.

Castle Peak has two important ore showings and one major ore potentiality, plus two minor indications that might develop importantly. These comprise (1) A newly disclosed deposit, unknown to former operators, almost identical in exposed surface area and assayed mercury content with the mined "Open stope" deposits whose exploitation provided about $250,000, which at today's prices would be from $500,000 at Government floor, to about $750,000 @ November 1954 mercury quotations. (2) Reported good productive probabilities from unmined extensions of "Open stope" deposits and high grade ore left in the mine. (3) a geologic "bet" that prospecting might provide another major deposit 1200-feet from the Open stope and (4) Two unprospected showings that might also prove importantly productive.

(1) The "New showing" consists of weathered top of an ore deposit, 300-feet from mined Open stope ore bodies. It was apparently formed by same channelway and under same conditions that originated the "Open stope" deposits. Its surface area is about 100-feet by 60-feet, nearly identical with surface area of Open stope. It's 5# to 8# assayed ore grade is the same per ton average of "Open stope" deposits, hence it has strong indications that it may prove to be a replica of this mine's most important past producer. It's loose, gravelly surface extends down from 6 to 8-feet where it is underlain by harder, more consolidated weathered material crosscut by 65-foot tunnel to depth of 20-feet. Evidence is that this material lies above the unweathered parent ore deposit which has not yet been disclosed/. The loose, gravelly material assays about 5# mercury per ton and can be upgraded to about 10# per ton by screening out coarser material. The harder material assays about 8# mercury per ton and cannot be upgraded by screening.

First exploration sequance is to strip off the weathered ore down to the solid, unweathered parent body to determine its size, shape and ore grade. A small shovel will be most effective for this work.

Performance of this initial work has reasonable expectancy of providing about 3000-tons of 8.5# mercury per ton which should provide from $75,000 to $80,000 gross, returning from $40,000 to $45,000 net before taxes, by milling prior to retorting or selling mill concentrates.

Obviously the economic possibilities of the underlying parent deposit cannot be determined until it is fully developed but similarity

to "Open stope" deposits and good geologic evidence indicates probability that it should prove as productive of values and tonnage as proven by exploited "Open stope" deposits.

(2) During the company's later operations, only high grade was mined from the "fault ore" at lower levels of the mine and the, then unprofitable, extensions of the larger "Open stope" deposits were left unmined below 300-feet depth. This gives expectancy that appreciable tonnage of 8#-plus ore can be reopened and exploited because, today, 8# ore should return from $12 net per ton @ Government floor to $22 per ton @ November mercury quotations, or $17 net by averaging the two. A prominent Nevada engineer informs me that he mapped 5-feet width of 30#-plus "fault ore" at the mine bottom, which occurrence is also confirmed by two men who worked therein. Geologic evidence also points to downward and lateral extensions of this high grade "fault ore". The 30# ore would net from $72 per ton @ Government floor to $109 @ November mercury quotations, or $90 per ton average of the two.

The deposits must be reopened and their extensions developed before estimate can be made of their economic probabilities but reliable information and other factors indicate that the mine still has a profitable future, worth the expenditure to put it back into production.

(3) About 1200-feet north of Open stope is a narrow mercury vein, characteristic of channelway responsible for origin of "Open stope" deposits and also the newly discovered body near Open stope. This vein's extension is presently under overburden which will have to be removed to disclose bedrock. Coursing towards it is a structure that provided furnace ore during company operations. The geologic "bet" is chance that intersection of the two structures may provide an ore body similarly as structure intersections provided "Open stope" and "New show" deposits.

(4) Two unprospected showings north of Open Stope, at Stations #7 and #12 on accompanying map, deserve consideration in chance that they might importantly develop.

Recovery of mercury from its ores is a comparatively simple and inexpensive process with final product recovered at the mine. Treatment involves heating or "burning" the ore to 600-700° C. to volatilize the mercury and then condensing the vapor, cleaning the mercury and bottling in iron flasks containing 76# metal. The equipment in general use to burn and process ore comprises (1) retorts and (2) furnaces. Low grade ore can also be effectively upgraded by jig-table milling.

Retorts, which are smallest and least expensive ($2000 and up) comprise tubes fired externally, each with 24-hour capacity of from 1000# to 1500# hence are used to process higher grade ores only. Furnaces, fired internally, with 24-hour capacity from 20-tons to 100-tons are used to process lower grade ores. Cost from $1000 to $1500 per capacity ton including necessary condensing equipment, etc. Mercury from retorts is usually clean metal ready for flasks but mercury from furnaces often needs cleaning before flasking.

Furnace and retort losses are about 3% or mercury content. Estimated jig-table milling losses are about 10%.

A 40-ton furnace would probably be most economical for Castle Peak deposits, if, and when, they prove up to expectancies. Installation cost of furnace and accessories about $50,000 or more, which could be reduced if suitable second hand equipment could be found.

It is not advisable to consider furnace until further development of "New" deposit, and /or mine workings, provides tonnage to insure the expenditure. For this reason it is planned to exploit the initial 3000-tons (more or less) expected from first exploration into "New show" by jig-table concentration into high grade product.

If the estimated 3000-tons are procured and ore grade stands up to assays, it is indicated that about $83,000 worth of cinnabar concentrates will be gotten. If a buyer can be found, it is estimated that this $83,000 will return about $75,000. About same return is expected by furnacing if a plant is established at the property. Deducting $35,000 "New show" exploration and exploitation costs would return about $40,000 net before taxes. If the tonnage exceeds, or is less than the estimated 3000-tons, the returns will be proportionately greater or less as the per ton expenditure will remain constant.

Before starting the planned work it will be necessary to spend about $600 on road improvement between mine and highway and about $500 cost for transporting equipment. Total cost $1,100.

Planned prospecting comprises 4000-lineal feet of bulldozer stripping through 3 to 6-feet of overburden. About 1400-feet within the 300-foot gap between Open stope and "New show" in chance that additional deposits might be found; 2000-feet to test the geologic "bet" 1200-feet north from Open stope; and about 600-feet prospecting other showings. Total cost $2,000.

The most important exploration will be through weathered ore covering the expected "new deposit". This will cost about $7000. It will require a capital advance of about $27,000 to exploit its 3,000-tons (more or less) into expected $83,000 product. Total exploration and exploitation cost about $34,000.

CONCLUSIONS At present Castle Peak's future must be considered prospective because it has not yet blocked out ore tonnage for accurate profit appraisal. However, its excellent record coupled with good indications that appreciable profit remains in the mine, important geologic and surficial evidence practically assuring existence of another important deposit, plus reasonable prospective chance for a third, give bases for expectancy that the property has excellent probability of duplicating, or possibly exceeding, the mine's past production which, at present prices, would approximate $1,000,000.

A highly important factor is the reasonable expectancy that the "New show" ,in it's initial production, will provide an appreciable sum to apply to future development and equipment program and

that its initial returns should exceed investment required to purchase the property and perform the work outlined in this report. The success of this work will provide the mine's future productive possibilities which may be up to $1,000,000 or more.

I recommend Castle Peak as an attractive speculation with better chances for large profits than are usually provided.

Attached is tabulation of further information and details.

Fallon, Nevada.
December 24, 1954

Arthur Lopes
Mining Geologist & Engineer

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PROPERTY Castle Peak property comprises 4-unpatented claims, relocating old Castle Peak mine which successfully operated from 1929 to 1936 at average $93 per 76# flask compared with better than $300 per flask today.

The property is owned by Geo. Dallimore, Milton Jacobs, and F. J. DeLongchamps, all of Reno, Nevada. Claims are in good standing. Locations are recorded at Storey County Courthouse, Virginia City, as of September 1951 on pages 251-252 Mining Book "H".

LOCATION & ACCESS Property is on West Fork of Louse Creek in Section 20, T 18 N; R 21 E; at elevations ranging from 5800-feet to 6000-feet above sealevel.

The property is 21-miles from Reno, 17-miles over paved Highway #17 to dirt road branching 4-miles northerly therefrom. About $600 improvement is necessary to make this road suitable for heavy hauling. From the road branch Virginia City is 6-miles southerly over highway and mill facilities at Silver City 5-miles farther. The dirt road extends northerly down West Fork and Louse Creeks past Washington Hill prospect to Highway 40, about 8-miles east from Reno.

FACILITIES Water for early day operations and camps was pumped 1½-miles up 325-foot head from small spring down West Fork. All pipe and tanks have been removed. Condition of this spring and water availability remains for investigation. Preliminary operations will be supplied by water hauled 7-miles from Steamboat Hot Springs locality or 10-miles from Virginia City.

Whilst recent winters have been mild, there have been occasions of deep snow hence a bulldozer blade may be necessary to keep the 4-mile road open to ploughed highway.

Small scrub timber is on the ground. Mine and building timber will be bought and hauled in. Easy access by car makes it unnecessary to establish a boardinghouse at the mine. A trailer will be provided to establish a Dry and shelter and to store accumulated flakss of mercury. Possibly another to house a watchman during off work hours.

Furnace, plant, equipment, and buildings were removed in 1943, hence operation resumption will require complete re-equipment.

First work stage will require a small shovel to dig out the mercury bearing weathered top of the New orebody and a truck will be required to haul this ore to mill at Silver City for upgrading. A bulldozer will be needed to strip surface into indicated ore extensions and improve parts of the road.

Furnace, compressor, and other machinery, as and when installed, will be powered by Deisel engines. Furnace should be fueled by butane or propane.

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HISTORY Castle Peak mine was discovered in 1927 and by September 1929 a 30-ton rotary furnace was installed. Based upon average yearly prices the production was as follows:

Year	Flasks Recovered	Yearly average price per flask	Tons Ore Mined	Average pounds per ton
1929	461	$122.15	3,641	9,6#
1930-31	1480	101.71		
1931-32	865	73.66		12#-plus
1933-35	407	68.36		" "
* 1939 (Leasers)	66	103.94		
	3279	$92.08	25,000 estimated	9,9#

Indicated returns $305,311.76

At present prices the above would return:

At $225 per flask Govt. guarantee	Aat $327 per flask. Nov. 1954
$727,775.00	$1,072,235.00

Company operations ceased in 1936 due to low quicksilver prices. During the last period of company operations only high grade ore was mined, the lower grade reported left intact in the mine for future mining. The bottom level is reported to contain ore running 30#-plus mercury per ton.

In 1951 Messrs. Dallimore, Jacobs, and DeLongchamps re-staked the claims as Juniper 1, 2, 3, 4. In prospecting the surface Mr. Dallimore found gravelly material which pan-estimated from 2# to 10# mercury per ton over an area approximately 100-feet by 60-feet. A general sample taken in November, 1954 assays 5# mercury per ton. This area was tested by a cut and tunnel with two branches, 65-feet long attaining about 20-feet face depth. The tunnel is in harder weathered material but bedrock was not encountered, hence this material exceeds the 20-feet depth. Sampling of cut-tunnel returned 8# mercury per ton. Indications are that about 3000-tons of this weathered ore, averaging about 8.5# per ton can be gotten by screening down the gravelly material to about half its mass and thereby upgrading it to about 10# mercury per ton and then combining with the 8# per ton harder material. The 8.5# mercury ore will return $31 per ton @ $276 per flask average of Government guarantee with November, 1954 price.

The owners also traced 190-feet length along a narrow cinnabar streak at north part of the property. This streak is from 1 to 2-inches wide at northern extremity, widening to about 10-inches at the south where a 20-foot shaft provided about 4-tons of good ore,

GEOLOGY Quicksilver deposits formed from ascending alkaline solutions at 100° - 200° C. which is coeler than the magmatic solutions that originated other orebodies. Because the

solutions were ascending the orebodies must overlie a channelway which allowed upward migration of solutions. This is usually provided by a fault, rock jointing, or breccia zone. Minerals soluble in alkaline solutions occur in, or are removed from, sites of mercury deposits and therefore provide guides in prospecting for new ore possibilities.

Because mercury bearing solutions are relatively cool, the ore deposits form near surface, sometimes outcropping, otherwise under overburden cover. Depth of Nevada mercury deposits is not yet determined but occurrences of appreciable cinnabar are known to 1200-plus feet below surface, particularly the volcanic type, in which the Castle Peak deposits occur.

The physico-chemical conditions that affect rising solutions and cause cinnabar deposition are not well understood, but geologic structures have great importance in controlling ore localization and can be mapped and studied to guide prospecting and mining. Castle Peak area apparently has a number of unprospected showings that might develop importantly by further geologic study.

Local Geology Earlier operators evidently paid little attention to geologic conditions and clews, being mostly concerned with quick exploitation of deposits as they were found. My preliminary investigation, and excellent description by Bailey & Phoenix, defined certain geologic conditions controlling the exposed orebodies which may be applied to the search for deposits in Castle Peak's lesser explored areas. Application of observed control at Open stope and its downward extensions provides a satisfactory clew accounting for occurrence of the indicated large "New deposit" 300-feet from Open stope and also points to existence of a good orebody beneath the weathered ore surface. Application of similar controlling conditions also suggests good possibility for another ore deposit 1200-feet north from Open stope.

The rocks of the area consist of nearly vertical pre-Tertiary limy shales striking southerly beyond the south limits of mined ore deposits; pre-Tertiary hornblende andesite and andesitic agglomarate (which are host rocks of the ore deposits); some rhyolite; and a cover of basalt that eroded into flat mesas, from one of which Castle Peak evidently got its name.

The rocks enclosing the orebodies have been extensively bleached and altered almost to clay. Thin streaks of gypsum have been extensively introduced into the orezones and vicinity and gypsum, therefore, is a prominent accompaniment of cinnabar but, conversely, cinnabar does not always occur where gypsum may be. Other gangue minerals are clay, barite, some pyrite, various carbonates.

Orebearing structures (1) A northerly striking, east dipping fault has proven of economic importance in the mine's lower levels by localizing lenses and bunches of high grade ore along and under it and along parallel faults in its hangingwall.

Reliable reports state that this structure contains about 5-feet width of 30#-plus ore at the mine's bottom level and geologic conditions point to reasonable expectancy of this ore's lateral and downward extensions beyond present workings. The lenses and pods are enclosed in sharply defined walls and considerable nearly pure cinnabar containing free quicksilver is said to occur as bunches.

(2) Regional rock jointing strikes NW & SE and dips 60° to 80° SW. Less common is a series of nearly vertical NE striking joint-faults crossing the others. The largest and most important ore deposits, opened in Open stope and stopes below, formed along a strong, fairly persistent, vertical joint-fault system striking NE & SW crossing NW-SE joint systems. At intersection of these two sets the orebodies formed 30-feet width and extended out from the intersection are tabular deposits striking NW and SE as shown on Map 2. Near intersection these tabular bodies show stope width up to 8-feet, progressively narrowing to a few inches ore width at their far ends. Juncture walls are irregular and poorly defined, but the hangingwalls of the NW-SE branching "veins" are sharp and regular.

Ore formed along intersections in pipelike pods, expanding and merging one into the other, thereby making fairly continuous stopes about 30-feet width. This ore expansion was by replacement of crushed rock by cinnabar, which condition also continued some distance along the NW-SE branching structures, finally ceasing in less altered rock.

Control My premise is that the less common, stronger vertical NE-SW joint-faulting represents channelway of ascending mercury solutions migrating up from underlying magma and that the more common NW-SE, 60° to 75° SW dipping, regional jointing where intersected by the channelway afforded (1) roofs to retard rising solutions and thus allow them to precipitate and form ore and, (2) also formed passageways along which the solutions could progress and form tabular ore deposits. The NE-SW continuation of the channelway could also form other orebodies at intersection with other of the more common NW-SE joint zones.

New deposit Confirmation of the above premise is presented by the locality of "New deposit" represented by weathered ore outcrop. This deposit, measuring 100-feet by 60-feet, and opened 20-feet depth, lies over a parent orebody in bedrock, directly in line of southwest extension of channelway that formed Open stope deposits 300-feet away. A large, general sample of gravelly surface assayed 5# per ton and the large sample of harder, more consolidated material in tunnel assayed 8# per ton which possibly represents approximate grade of parent body. This deposit is of chief immediate interest because its exploitation down into unaltered parent body affords good promise of returning quick profits in amount that may equal or possibly exceed the cost of first work stage to prove the property's ore probabilities.

Geologic "bet" Proven conditions at exploited Open stope and extensions below provide a geologic bet that another important ore deposit might be found 1200-feet north of Open stope.

Here, a thin NW-SW vertical fracture has been exposed 190-feet long. Its northerly extremity, in harder andesite, is from 1-inch to 2-inches of good mercury ore which expands to about 10-inches width at its SW extremity where it is apparently entering softer rock which extends down NW from a small deposit that provided furnace ore during company operations. A 20-foot shaft at southern end provided about 4 or 5-tons of good mercury ore. The geologic bet is that the crossing of SW coursing "channelway" through the NW continuation of the orebearing, softer material might open up ore similarly as at "Open stope" and the "New show" to the south.

WORKINGS & OPENINGS Map 2 shows a total of 3400-feet mine workings opening the mine 400-feet slope depth as shown on Section. Water has not yet been encountered, though the bottom level is reported to have heavy damp ground. The workings are as follows:

	Crosscuts	Drifts	Raises	Winzes	Total
(1) Haulage Tunnel	1500-ft	400-ft			1900-ft
(2) Levels above (approx)		400			400
(3) Sublevels off Main Winz (incomplete)		330			330
(4) Main Winz				185	185
(5) Chickenladder Winz				185	185
(6) Upraises			350		350
(7) Small winzes below 185-sublevel (approx)				80	80
	1500-ft	1130-ft	350-ft	450-ft	3380-ft

Workings are all accessible except Chickenladder winz and stope-level between it and Main Winz, plus some sluffs at ore structures at sublevels. Ground is generally soft but stands surprisingly well even in highly altered zones and requires no timber except at some structures.

Surface Exposures Map 2 Surface exposures consist of (1) Open stope, about 100-feet by 60-feet connecting downward into a large stope below: (2) Several trenches and cuts at following Map 2 locations: #7, a cut into raise up from the Haulage tunnel with small ore structure coursing southerly; at #13, a vertical shaft about 50-feet deep, no ore indications; at #12, cut into caved tunnel extending SE and small ore showing exploited in early days when a track led to upraise near Haulage tunnel portal; a 3-ft. mercury bearing structure unprospected to NW; at #6 is a 20-foot vertical shaft in about 10-inches of ore; near #9 is a 65-foot cut-tunnel into weathered ore, considered the most important for immediate consideration.

Mine Most of the Haulage tunnel is in barren ground away from disclosed orezones. Most of this section shows no hydrothermal action or alteration. Alteration is noted near end of an easterly drift driven from a small mercury showing near tunnel portal and near end of the Main Crosscut is also altered rock where a

narrow cinnabar fracture was drifted 100-feet to the northeast.

The Haulage tunnel's southern extension into zone of ore occurrence comprises various diverging openings into and along minor and major ore structures. The north trending fault that localizes the high grade ore courses near collars of both Chickenladder and Main Winzes and fault ore was stoped up from this level about 30-feet south of Main Winz.

The Main Winz is a 2-compartment timbered shaft in excellent condition. It extends down easterly at 62° crossin the fault which dips 55°. The 85-sublevel takes off directly from the winz, whilst the 135 and 135-drifts along the fault are reached by northerly crosscuts as shown on Section.

A stope, 47-vertical feet above Haulage level, measures about 65-feet NE by 35-feet width with two narrower stopes branching SE from intersection zone. The vertical NE joint-fault is very strongly shown here. This stope connects with Open stope which extends 100-feet SE by 60-feet NE and, from its SE end, three stopes branch 35 to 65-feet along SE jointings. Open stope and its connecting stopes below, exploited the mine's largest and most important deposits. At Open stope's SE face a hangingwall sluff in a branching stope exposed a few inches of rich cinnabar formed in partings between narrow streaks of gypsum standing at 65° dip. A hole has been drilled to blast out the full width and if this showing indicates permanency it will be drifted farther.

The most important present consideration is the "New" deposit near station #9 (Map 2) and first mining will be done there.

ECONOMICS Mercury is a very rare element, only slightly more abundant than gold and silver, and less widely distributed than uranium, with which it is apparently linked in production of atomic power.

Principal United States production comes from the Western States, California, Nevada, Oregon, and Arizona with some from Kentucky & Arkansas. Its scarcity makes search for additional resources difficult, requiring many futile investigations before an acceptable property is found and when one is acquired, more often than not, it is highly prospective and its future highly speculative. Castle Peak property was chosen as considerably better than usual because of its good record and surface showings and geologic evidence that affords reasonable expectancy that one, and possibly two, virgin deposits will develop importantly and that the mine's ore possibilities also have good chance of producing future good profits.

Present urgency for mercury is reflected by United States' mid-1954 guarantee floor at $225 per 76# flask and by the fact that since this was established the open market has progressively advanced to all time high of $325-$330 per flask as of November 1954.

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From 1929 to 1951 (except for war years) mercury averaged $88.68 per flask, averaging $188.34 during Second World War with peak of $196 in 1942-43. Postwar years to 1951 averaged $91.73 per flask but in 1951-52-53 advanced to $200, possibly antisipating the accelerated demands that started in 1954. Thus the Government floor is about 2¼-times, and the $327 November price is nearly 3-3/4 times the 1929-50 average. Lowest prices of last 25-years were $58.58 per flask during 1932-33.

The World's largest mercury resource is in Spain and the United States market has been detrimentally influenced by Spanish and Italian offerings which were dumped on our market when the U.S. prices reached level to the cartel's advantage. The damage reached such proportions that caused representations for increased protective tariff as late as 1954. The new demandand heavy buying by England and France and behind Iron Curtain countries may have strained Italian and Spanish supply resources to such an extent that no dumping may occur for an indefinite time, though some commentators anticipate early 1955 sales around $305 per flask from European countries. The high prices and accelerated demand provides bases of opinion that present conditions do not reflect a temporary "boom" but rather an accelerated demand which will keep prices up and may possibly put them over the present all time high.

Mercury is a "poor man's" project because cinnabar is processed at the mine directly into finished metal. Mercury ore tonnage is very small compared with base metal, tungsten, and other resources but processing equipment is inexpensive in comparison with needs of other metals.

VALUES Many pannings of surface and tunnel exposures of "New" weathered deposit have returned from 2# to more than 10# mercury per ton. My sampling returned 5# over the extensive surface and showed 8# mercury per ton for 65-foot length of tunnel and cut into the harder, more consolidated, weathered material. The gravelly 5# material comprises about half fines and half fragments and it is believed that screening it through 3/4-inch mesh will reduce tonnage into half and thereby the screening should contain about 10# mercury per ton. The 8#, harder, material cannot be upgraded by screening. Combining the screened 10# per ton material with the 8#, harder material indicates that about 3000-tons of 8½# ore can be gotten.

Pannings and assays from 150-tons of furnace dust returned from 4# to 13# mercury per ton. Contour sampling the surface of this furnace dump assayed 13# mercury per ton.

Average company production was 9.9# mercury per ton, reports indicating that about 75% of total production came from "Open stope" deposits averaging about 8# mercury per ton, whilst the smaller, deeper, level ore bodies returned from 12# up through 30# and better.

It is anticipated that the "New show" will maintain 8#-plus mercury per ton, similar to record of its apparent replica in "Open stope " deposits.

PROCESSING Recovery of mercury from its ores has always been a comparatively simple and inexpensive process with the final product recovered at the mine. Treatment involves heating the ore to 600°-700° Centigrade to velatilize mercury and then condensing the vapor. Quicksilver is then cleaned and bottled in iron flasks containing 76# of metal and marketed. Very dirty quicksilver can be cleaned by putting in non-metallic vessel and washing with unslacked lime. Cleaner quicksilver can be freed from dirt by passing through chamois.

Retorts are used for high grade ore and furnaces for lower grades. They are the usual equipment for processing ore, though a chemical method has been evolved.

Retorts consist of tubes fired externally and have 24-hour capacity of from 1000# to 1500# per tube. They must be fired intermittently, which coupled with small ore charge, makes them more expensive per ton of ore treated than furnace costs, hence they can be economically used only on higher grade ore. Tube dimensions are from 12-inches to 18-inches diameter by 8-feet to 9-feet long, heated by burner in enclosed hearth. Condensing is by a smaller tube extending from the upper end. Retorts are inexpensive ($2000 up) and a skilled operator can limit mercury loss to less than 3%.

Furnaces vary from 20-tons to 100-tons per 24-hours, are fired internally and operate continuously, thereby providing cheapest per ton cost of ore treated, hence are used for lower grade ores. Condensing is by several condensers and new cost of rotary furnace, condensers, loading and unloading facilities, etc. varies from estimated $1000 to $1500 per capacity ton. Possibility that this cost might be reduced by procurement of suitable second hand equipment, but recent mercury demand has made second hand equipment scarce. Most used is rotary furnace consisting of gently inclined cylinder lined with firebrick, with length 10 to 20-times its diameter. It is slowly rotated while crushed ore is fed automatically and internal heat applied at lower end of cylinder by burner. The gases are drawn from upper end through a dust collector, thence through condensers, and finally released through stack. Operating costs are much less than by retorting and a skilled operator can limit mercury losses to less than 3% metal.

Cinnabar can be concentrated by jigging and tabling and can be successfully floated. However some surface ores do not respond easily and mill losses may exceed 10% of contained cinnabar. A mill test will be made before the 3000-tons (more or less) of weathered ore is milled, otherwise a furnace or retortswill be looked for.

Probably the most economical furnace for Castle Peak's ore requirements would be a 40-ton rotary plant. Until development expectancies have been proven sufficiently to warrant consideration of such a plant, the mercury ores will be upgraded into good product by jig-table concentration at the mill in Silver City, 15-miles from the mine or a burning plant will be contacted if the mill test shows excessive losses.

PROCEDURE (1) Prospecting by bulldozer comprises the following:

(A) Between Open stope and "New show", 300-feet apart/ Three cuts wide along Open stope channelway. Objective to thoroughly strip off overburden into the highly altered bedrock to disclose any ore along channelway intersection with crossing rock jointings. Total 1000-feet. Possibly three or more cross swipes if, and where, any mineralized cross members are found. Total 300 to 400-feet. TOTAL this project 1400-feet.

(B) About 1200-feet north of Open stope. Three cuts wide along 300-feet length of indicated channelway between stations #3 and #6 (Map 2) to determine degree of rock alteration along projected channelway and ore possibilities at its intersection with crossing rock jointings. Total 1000-feet. Possibly three or more cross swipes down from productive zone at #12 and across channelway, about 1000-feet. TOTAL this project 2000-feet.

(C) Minor stripping: (1) northeast on ore at #12 about 200-feet. (2) southeast from #7 along orebearing fissure about 200-feet. TOTAL 400-feet. TOTAL BULLDOZE PROSPECTING about 3800-4000-feet.

(D) Road additions comprising about 150-feet flattening approach to upper road and 300-feet branch from upper road to dump #3 which may be location of compressor when the mine is re-equipped, thereby saving 600-feet pipe length by extending down through Open stope and raise 190-feet to Haulage Tunnel.

(E) Relocation and repair of parts of the 4-mile road to highway to make suitable for heavy truck haul.

(2) Exploiting weathered top of "New" deposit in conjunction with the important exploration to determine size and grade of underlying parent orebody.

A shovel will be required to dig the mercury bearing material clean from enclosing barren material. Dig along center of deposit, spreading out each side until margin of ore is reached. Control digging by panning to insure minimum dilution of cinnabar content.

Estimate of exploitable material by screening the gravelly material and combining with harder material for upgrading

Mercury bearing gravelly surface material measures 100 x 60-feet, equal to 6000-sq. ft. Indicated depth 6-ft. equal to 36,000 cu. ft. which divided by 27 gives 1370-tons. General sample returned 5# mercury per ton. By screening expect to get about 700-tons @ about 10# mercury per ton. The harder, more consolidated, material disclosed 65-feet length by cut-tunnel to face depth 20-plus feet. Assayed 8# mercury per ton. Assuming its area 6000-sq. ft. by 20-feet depth get

120,000-cu. ft. which, on account of hillslope, divide by 2 equalling 60,000-cu. ft. divided by 27 gives 2222-tons, say 2300-tons which added to the 700-tons screened ore gives estimated exploitable ore 3,000-tons.

Estimated averages and Returns

(Calculated @ $276 per flask or $3.63 per pound by average of $225 Government floor and $327 November 1954 quotations. Returns will proportionately exceed calculations according to sale prices.)

Tons	Mercury per ton	Total Mercury	@ $3.63 per lb	Total Gross	Gross Total per ton
700	10#	7,000#	$3.63	$25,410	$36.30
2300	8#	18,000		66,790	29.30
3000-tons	8.47#	25,400	$3.63	$92,200	$30.70

Milling loss estimated at 10%
90% of 8.47# equals 7.62# mercury content per ton
90% of $30.70 $27.63 per ton of ore.

If the ore is "burned" in furnace the loss will be around 3% which will increase the per ton value sufficiently to stand an extra haualage charge to a furnace plant.

Estimated costs		
	Shovel mining & screening	$3.20 per ton
	Hauling to mill *	1.80
	Milling	7.25
		$12.25 per ton

Value per ton before retorting or selling concentrate:
$27.65 - $12.25 gives $15.40 per ton

Concentration of 7.62# ore

@ Ore tons to 1-tons conct.	Tons of concentrate recovered	Grade of concentrate per ton	Value conct per ton	Total concentrates
10-tons to 1-ton	300-tons	76.2#	$276.60	$82,930
20-tons to 1-ton	150-tons	152.4#	553.20	
30-tons to 1-ton	100-tons	228.6#	829.80	
40-tons to 1-ton	75-tons	304.8#	1106.40	

Total value of concentrates	$83,000
Sale of concentrates at estimated 90%	74,700
Less costs	36,600
	$38,100 net before taxes

The above returns will be increased to $43,000 @ $305 per flask
$45,000 @ $327 per flask

COSTS & EXPENDITURES The exploratory stage outlined in this report will require the following expenditures to prospect, explore, and also exploit initial ore tonnage from the weathered top of "New show".

(1) Before work can be started the 4-mile road from highway to the mine needs improvement for heavy hauling.				
Estimated cost				$600.00
(2) Hauling in and out the equipment and temporary housing required for the work				500.00
				$1,100
(3) Prospecting 4000-lineal feet at 3 to 6-feet depth				$2,000
(4) Exploring "New show" and exploiting weathered ore outcrop:				
(a) Mining 3700-tons	@ $1.80	$6,665.00		
(b) Screening 1400-tons	1.80	2,500.00		
(c) Compressor rental 20-days @ $16.50		335.00		
(d) Hauling 3000-tons to mill (Silver City)	1.80	5,400.00		
(e) Milling 3000-tons	7.25	21,750.00		$36,650
(5) Supervision, engineering, etc				5,000
(6) Contingencies				4,350
Total				$49,100

Possibilities of contacting a furnace where arrangements can be made to "brun" the ore on customs basis will be looked into prior to exploiting the weathered deposit. It is believed that the above provides sufficient cost margin to pay for furnace treatment and extra haul to plant. The better saving made by furnacing vs. mill losses will also be a factor.

Obviously the second Stage comprising Development and full Exploitation of deposits exposed by this first Stage will depend upon success of the work outlined in this report. Subsequent capital requirements will be determined by size and grade of the ore deposits found in the undeveloped surface deposits and by the needs of underground developments.

ACKNOWLEDGMENTS Preparation of this report was aided by reference to the valuable University of Nevada Geology & Mining Series No. 41 "Quicksilver Deposits of Nevada" by U. S. Geol. Sur.

Geologists Edgar H. Bailey and David A. Phoenix, published in 1944. I have freely quoted from this publication regards recovery of mercury and information re Castle Peak mine. Examination was expedited by the assistance of Milton Jacobs and George Dallimore was particularly helpful by his vivid recollection of ore occurrences and conditions when he worked for the operating company. His panning estimates made during the examination were very close to the assays of my samples.

COPY OF ASSAY CERTIFICATE

J. Benj. Parker

NEVADA MINERAL LABORATORIES

336 Morrill Phone Reno 2-1001
RENO, NEVADA

ASSAY CERTIFICATE

Arthur Lakes 11-17-54

We have assayed your samples and find they contain (Per ton 2000#)

No.	Mark	Mercury Lbs. Per ton
1	Sample of furnace dust	13.0
2	Large general sample of surface (weathered ore)	5.0
	Flotation concentrates on same	84.0
	Flotation middlings	12.0
	Flotation tailings	0.4
3	Sample of tunnel-cut	8.0

Charges $43.00 (Paid) J. Ben Parker

MERCURY PRICES, NEW YORK DELIVERY, AND UNITED STATES PRODUCTION
IN TERMS OF FLASKS OF 76 POUNDS
during the
PAST 34 YEARS

YEAR	AVERAGE PRICE	PRODUCTION
1920	$ 81.12	13,216
1921	45.46	6,256
1922	58.95	6,291
1923	66.50	7,833
1924	69,76	9,952
1925	83.13	9,053
1926	91.90	7,541
1927	118.16	11,128
1928	123.51	17,870
1929	122,15	23,632
1930	115.01	21,553
1931	87.35	24,947
1932	57.93	12,622
1933	59.23	9,669
1934	73.87	15,445
1935	71.99	17.518
1936	79.92	16,569
1937	90.18	16,508
1938	75.47	17,991
1939	103.94	18,633
1940	176.87	37,777
1941	185.02	44,921
1942	196.35	50,846
1943	195.21	51,929
1944	118.86	37,683
1945	134.89	30,763
1946	98.24	25,348
1947	83.74	23,244
1948	76.49	14,388
1949	79.46	9,930
1950	81.26	4,535
1951	210.13	7,293
1952	199.10	12,547
1953	193.03	14,300

1954 PRICE RANGE:

HIGH	LOW
$325 - $328	$187 - $189

1954 Production figures not available as yet

NEVADA Production in 1954 4,750 Flasks *
*(Preliminary estimate)

From February 15, 1955 News Letter
Nevada Mining Association, Reno, Nev.

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PROGRESS REPORT to INCORPORATORS of

CASTLE PEAK MINING COMPANY

A Nevada Corporation

THE INFORMATION IN THIS BULLETIN IS ASSEMBLED FOR THE USE AND PURPOSES OF THE INCORPORATORS OF CASTLE PEAK MINING COMPANY AND NO OTHERS.

Castle Peak Mining Co., a Nevada Corporation has been created as a private corporation designed for the development and mining of the property known as Castle Peak Mercury Mine.

This property, which consisted of 4 unpatented mining claims, known as Juniper 1 to 4, were purchased outright and title is now clear and in the corporation's name. Since this acquisition, an additional seven claims have been located surrounding the Juniper property, and covers all of the ore-favorable ground visibly exposed.

Castle Peak Mining Co. has been incorporated for 1,000,000 shares of stock with a par value of $1.00 per share.

The only stock being sold is to the original incorporators and for the payment of property and services.

The attached excerpt from the bulletin of the University of Nevada, December 1944, which examined the quicksilver deposits of the state, is self-explanatory.

Attached hereto is summary of the Reports of Arthur Lakes, Mining Engineer, made on December 24, 1954 and in March 1955, complete copies of which are in the company file and available to stockholders.

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Castle Peak property now comprises ten located mineral claims in compact group of about 180-acres enclosing all present mercury showings and their extension possibilities, plus numerous mineralized showings to be further investigated for mercury possibilities.

Property and showings are 21-miles by highway and road from Reno, Nevada.

Castle Peak mine produced about 25,000 tons containing 248,520# of mercury which returned $305,000 @ average $92 per 76# flask but today would be worth $880,000 at prevailing $270 per flask ($3.55 per pound). The ore came from two deposits (1) the largest but lower grade providing 23,300 tons containing 186,390# mercury which presently would be worth $662,000 and (2) from smaller but much richer deposit that produced 1,700 tons containing 62,100# mercury presently worth $220,600 or $129.50 per ton.

Neither deposit was exhausted by mining but was closed down when mercury price fell too low for profitable production. Their lateral and depth extensions remain for further development and production. Ore grades at mine's bottom level are reported in the mine's richest category.

The present most important considerations are two virgin deposits which have characteristics and geologic indications almost identical with the better parts of the old mine, thereby having precedent background for expectancy that one or both may attain similar production by development laterally and in depth. These are known as (1) "New Orebody" which was discovered after the mine closed down, and (2) "North Ore zone" which was mined for high grade from a small winze stope.

(1) "New Orebody's" location is within 300 feet from the old mine's largest "Open stope" ore zone and is located on same channel-way that formed and controlled the ore deposition there and also in "New Orebody." Ore bearing surface of "New Orebody" measures same area as that of "Open stope" ore body. Ore grade in "New Orebody's" 65-feet offcut and shallow tunnel is identical with the "Open stope" production grade. These conditions plus its widespread surface showing gives precedence that "New Orebody" has reasonable expectancy of duplicating Open stope production.

The very superficial work done on "New Orebody" plus 50-feet further depth extension is conservatively estimated to contain about 6,300 tons with about 54,400# mercury content, presently worth $179,000. Drilling and underground development to greater depths has possibility that this ore body may duplicate the mine's Open stope production.

(2) "North Ore zone" is presently a thin high grade streak coursing 180-feet along hard cap rock surface. Beneath this cap occurs softer, more mercury-favorable rock where the few inches ore width expanded to about 3-feet in small winze stope. Strike extension of this structure appears about 300-feet southwest from winze in which indications are that mercury bearing structures cross the North ore-zone structure where precedent, clearly shown at Open stope, provides good chance of making a major ore body.

The "New Orebody" can be open pitted for about 35-feet depth then will require incline shaft into its downward continuation. The "North Ore zone" can be tapped about 100-feet depth by 250-foot crosscut tunnel extending from Main

gulch, thereafter any depth development will require winze from this tunnel. The other showings may be open pitted or may require tunnelling, dependent upon findings of preliminary exploration.

The exploration program is largely subject to further geologic mapping and investigations. Generally the surface exploration will be by bulldozer cuts closely followed by hand prospecting into ore-favorable indications. Underground testing will be by preliminary drilling into downward extensions of "New Orebody" and "North Ore zone." Location, position, direction and hole depths remain for the further geologic determination. Drilling is to be considered useful preliminary for below-surface test of mercury favorable conditions but drill results will require checking and further enlightenment by underground work in any event.

In regards exploration. The DMEA advances 75% of exploration cost for mercury projects, the owner paying 25%. In event of successful exploration-development into production, the DMEA's advanced funds are to be repaid by 5% of gross output value. In event of failure the DMEA stands its loss. In this respect it would probably be advisable for Castle Peak to apply for DMEA exploration loan, thereby reducing risk loss to 25%.

I advise that $50,000 working capital be envisaged to explore the two major virgin showings and develop their successful showings into productive stage, open up and develop the mine's two past productive deposits, particularly the lateral and depth extensions of the richer ore deposit. Prior to and during underground exploration and development the surface and workings should be carefully mapped geologically, on topographic and underground maps. This may seem futile at first but when all details are mapped they will fall into a plan and show pattern that makes sense and can be used in guiding future work away from costly and time losing mistakes.

When the property may be brought to productive stage additional capital will be required for furnace to process the ore into commercial mercury product. A 50-ton plant can cost upward of $75,000 installed. Reliable information indicates that a well established manufacturing company plans to make a semi-portable furnace plant which it will establish at properties on royalty basis. This should be investigated because of the saving of heavy cash outlay to purchase and install a plant. Other plans should also be investigated.

Conclusions: Whilst at present Castle Peak's future must be considered prospective because it has no blocked out ore, it has had an excellent productive history which gives precedence for reasonable expectancy that the two strong virgin showings with almost identical characteristics to the mine's most productive showings, will also provide similar ore deposits and values by exploration-development. This would provide monetary returns similar to those that the mine's past production would have made at today's higher prices. The outlook for sustained high mercury prices is better today than it has ever been and in some informed quarters there is expectancy for prices higher than todays $3.55 per pound of mercury.

If the mine is operated under modern methods with reasonable geologic guidance I predict a very profitable future.

/S/ ARTHUR LAKES
Mining Engineer and Geologist

Reno, Nevada
May 7, 1956

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SUMMARY REPORT ON CASTLE PEAK MERCURY PROPERTY

Storey County, Nevada

This report concerns (1) property holdings expanded to 10-claims by 6-claims recently added to original 4-claim Castle Peak group. (2) Estimate of ore tonnage and grade possibilities and anticipated additions to be proven by exploration program and (3) estimate of working capital requirements for exploration-development into expected production.

In this connection it is necessary to review contributory items from the December, 1954, General Report and the March 3, 1956 supplement thereto. These should be referred to for details.

PROPERTY AND LOCATION

Castle Peak's four Juniper claims were located and recorded in fall of 1951. These have been increased by six "Artel" claims located for Edw. Wolsey, Provo, Utah, in May and recorded June 6, 1956. Castle Peak holdings now comprise ten claims as shown on attached map.

The claims cover an area approximately 3,900-feet North-South by 2,800-feet East-West and occupy most of west half of Sec. 20; T 18 N; R 21 E; which Section 20 is bounded on North-South-East and West by Railroad sections whose mineral rights have to be leased from Railroad Co. The ten claims enclose all of the mercury-favorable ground exposed by present exploration plus a number of interesting, presently unprospected, mineralized outcrops to West and North of the original Juniper claims which appear worth geological survey, allocation, and panning in chance that they may provide one or more additional mercury showings.

Castle Peak workings and showings are 21-miles by highway and road from Reno, Nevada; 17-miles over paved highway and 4-miles dirt road branching therefrom. The highway is open all winter and the branch road easily kept open under mine operational conditions.

PRODUCTIVE HISTORY

Records of previous operators are unavailable but following estimated from best information obtainable when making the 1954 report. Productive History is necessary background in estimating future ore possibilities.

From discovery in 1927 through 1936 - when closed down by low quick-silver prices - Castle Peak produced 3,279 seventy-six pound flasks of

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quicksilver, making it Nevada's 4th producer at that time. The 3,279 flasks (248,520#) were derived from about 25,000 tons of ore, thereby averaging 9.9# per ore ton. At the then prevailing $92.08 per flask the 3,279 flasks returned about $305,000 which at present average $270 per flask ($3.55 per pound) would equal $880,000. The ore came from two ore zones (1) the largest "Open Stope" zone producing about 23,300 tons averaging about 8# mercury per ton or 186,390# quicksilver which at today's average $3.55 per pound would be worth $662,000 or $28.40 per ore ton (2) the 1,700 ton balance came from the "Fault ore zone" mined along a northerly trending, east dipping fault down from Main Haulage to 185 feet below (about 340 feet below surface apex). So far as I have been able to ascertain, little or no exploration has been done on the Fault ore zone upward from Main Haulage tunnel about 155-feet below surface.

This "Fault ore" zone contains lenticular masses with appreciable nearly pure cinnabar (86.2% or 1724# mercury per ton) and liberal accompaniment of pure quicksilver. The 1700 tons provided about 826.5 flasks equal to 62,100# quicksilver thereby averaging 36.5# per ton which at present $3.55 per pound average would be equal to $220,600 or $129.50 per ton of ore.

The reports were that during last operational period under very low mercury prices, mining was stopped in the larger, lower grade "Open Stope" ore zone and was concentrated to exploiting the smaller, but much richer "Fault ore" from levels driven off from winze sunk down from Main Haulage Level. The bottom level extended only 80-feet length, providing high grade ore from overhead stope and a small underhand stope from drift to south of winze. Good ore is reported in north drift by outstanding mining engineer who examined the property after shut down. These definitely indicate high grade ore extending down below the present mine's bottom and experience in the upper winze levels point to further recurrence of high grade ore lenses by north and south extensions along this bottom level. The reports also indicate that downward extensions of "Open stope" ore zone remain intact for future mining.

The above considerations comprise important part of future operational program, more fully described in the two former reports.

PRESENT SHOWINGS AND INDICATIONS

In addition to the old mine's above described ore potentialities, Castle Peak has the following showings in following order of importance: (1) "New ore body" on southwest extension of strong channelway structure that formed and controlled the mine's "Open stope" ore zone. This "New orebody" was unknown at time of the mine's operation and was discovered by panning in 1951 but its true significance was not recognized until my 1954 examination. This "New orebody" presently comprises the major consideration in the development-exploration plan. (2) About 1,100-feet northerly from both "Open stope" and "New orebody" is "North showing" opened by shallow winze stope along a second prominent ore channel, more fully described in previous reports. (3) Two lesser prospected ore showings occur at sta. 12 and 14 on map. These pan good mercury values and their more extensive exploration is part of the program.

(4) In locating the six new claims we noted numerous areas of intense alteration similar to that enclosing the ore zones of the original Castle Peak property. Time limitations prevented panning or other investigation but the widespread occurrences warrant close geologic attention, panning, and sampling for assay such showings that contain mercury.

ESTIMATE OF ORE POSSIBILITIES

Until further explored in depth, any preliminary estimate of possible ore in New orebody is speculative but its near surface showing is strong enough to make present calculation into limited additional depth, which estimate should be considerably enlarged by depth exploration. This is particularly true because New Orebody's surface measure is identical to the exploited Open stope area and the New Orebody assays are also identical to "Open stope" orebody's average ore grade. The analogy extends further in the apparent fact that New orebody and Open stope ore body are each controlled and owe their ore deposition to the same channelway. Ore occurrence in Open stope zone consisted of a series of connected pods and branchings which made a continuous ore body along the channelway. New orebody may be considered a recurrence into another series of pods and branchings hence it appears to me that we can, with reasonable safety, apply Open stope production conditions into preliminary estimate of New Orebody's possibilities.

Present lack of explicit depth data - which can only be gotten by drilling and other underground work - this depth estimate must be limited to an additional 50-feet below the 1954 estimate, which in comparison with Open stope ore zone's proven extensions and reasonable expectancy for New Orebody's depth potentialities, represents only a fraction of this ore body's productive expectancy.

The 1954 Report notes sampling (1) over New Orebody's surface averaging 5# mercury per ton over a 100 x 60 foot area (identical with Open stope's first 60-feet depth) and (2) average of 8# mercury per ton for 65-feet length of tunnel and cut driven in weathered rock. This 8# ore is identical with Open stope orebody's productive average.

The Open stope ore zone plunges down 25° into the hill, following along the controlling channelway to about 250-feet plunge depth below surface. Its average cross section was abut 65-feet wide by 23-feet high which, extended 250-feet long, returned 23,300-tons which averages 93-tons per depth foot or 4,650-tons for each 50-feet depth. At 8# mercury per ton the 4,650 tons contained 37,200# mercury which @ present average $3.55 per pound would be worth $132,000.

Calculation of New Orebody's Ore possibilities to 50-additional feet below 1954 calculation:

The 1954 estimate was 3,000 tons @ 8.47# mercury per ton by mining 1,370-tons @ 5# from gravelly surface which by screening was estimated at 700 tons @ 10# mercury per ton; plus 2,300 tons of 8# weathered ore, totalling 3,000 tons. Reducing the 3,000 tons from 8.47# to 8# ore get 3,175 (say 3,200) tons. On basis of analogous Open stope ore zone productivity applied to New Orebody a preliminary estimate to 50-feet additional depth gives 4,650-tons. However, in view of present lack of depth exploration, the 4,650 tons should be depreciated 1/3 to about 3,100 tons which added to the 3,200 tons of 1954 estimate makes 6,300 tons estimated @ 8# mercury per ton equal to 50,400# mercury which at average $3.55 per pound would be worth $179,000 gross.

Obviously it will require work to prove this figure which I believe is safely within possibilities and further work into depth and lateral extensions

have good possibilities for considerable more ore potentialities in line with production of its apparent counterpart in the exploited Open stope ore zone.

OTHER SHOWINGS

Next to New Orebody the most important prospective ore probability is "North Orebody" described in 1954 Report and 1956 Supplement and shown on accompanying map.

Briefly this consists of a NE striking vertical channelway fissure which has been followed at surface 180-feet, the north 130 feet being an ore rich fissure from 2 to 3 inches wide traversing hard unaltered andesite cap, and southwest 50-feet being from 18 inches to 2-feet vein width in cut SW of winze. Under this hard rock occurs softer more altered (and more ore-favorable) rock opened 20-feet by winze stope about 20-feet long where the vein was apparently 3-feet or more wide, judged by stoped widths between clean walls. Dirt from a small dump (about 15 to 20-tons) apparently sorted from high grade shipped ore, panned an estimated 14# mercury per ton which would probably be increased if the dump material was mortared down to free cinnabar from rock fragments. In southwest line of this structure is a small mercury showing cut about 350-feet from winze. This indicated SW extension crosses a shallow swale extending down NW from other surface showings at sta. 12 and 14 (see map). As noted in 1954 Report this swale is believed to occupy a zone where softer altered rocks extend from the mercury showings at sta. 12-14. This is believed to be SW extension of the softer rocks coming under hard cap at winze, where the structure apparently widened from the few inches surface width to 3-feet or more.

This North Ore zone is considered important because (1) of its high cinnabar content along the exposed thin surface streak, (2) its apparent widening in winze where it enters softer, more ore-favorable rocks under hard cap which suggests that a mineable ore showing exists in downward extension, (3) in possibility that its SW extension crossing the indicate NW strike of sta. 12-14 structures may provide good ore body, presently covered in swale, by intersection of the NE and NW structures which condition deposited ore in Open stope zone as described in 1954 Report. The structure should be bulldozed into rock (followed closely by hand prospecting) and also diamond drilled under winze stope and NE and SW therefrom. Recent survey shows that 250-feet SE coursing crosscut tunnel from Main gulch should tap downward extensions of this structure about 100-vertical feet below winze collar.

At sta. 12 (see map) ore was mined and transported over surface track to winze connecting with Haulage Tunnel for transfer to furnace. This body is obscured by caving and should be uncovered. Adjacent to this showing is about 4-feet width of much altered, gravelly material coursing northeasterly across the NW strike of original mined show. This showing should be bulldozed down to rock to determine its possible importance and scope of further exploration-development.

At sta. 14 (see map) a small cut (about midway sta. 12 and the SW extension of "North ore zone" structure) opens showing in much weathered gravelly material that pans cinnabar. It should be bulldoze prospected into rock down NW into North ore zone structure in chance that its intersection with the latter might make a good ore body, following clearly established precedent in "Open stope" ore zone fully described in 1954 Report.

At least four additional small workings occur on Juniper claims. None have been sufficiently investigated to prove their possible economic importance but it is believed that each originated on some mercury showings or signs. Their investigation will be a part of the detailed geologic examination recommended.

METHOD OF ATTACK

(1) The "New Orebody" can be open pitted down to about 30-feet depth at its upper bank, thence will require incline shaft sloping probably 25° northeasterly into the hill along channelway.

The "North Orebody" can be tapped about 100-feet depth by 250-foot crosscut driven southeasterly from Main gulch. Any warranted depth development would be by winze from this tunnel.

The other Juniper claim prospects might be pitted to shallow depths or by tunnel, dependent upon preliminary exploration findings.

EXPLORATION PROGRAM

This program is subject to further geologic and other investigations to be carried on after this report which would be held up awaiting formulation of plans, cost estimates, etc. For this reason this report will concern general outline of the basic procedure to be varified and modified after the above investigation.

Surface exploration will be by bulldoze cuts down into rock. This to be followed up closely by blasting into formations and showings favorable for ore. Underground testing will be by preliminary diamond drilling into downward extensions of "New orebody" and North ore zone. Drilling will be by 50-foot lifts which is far enough in mercury exploration. The position, direction and hole depths remain for the later geologic determination. Drilling costs are presently indeterminate requiring bid after being viewed by contractor. It is probable that there will be some difficulty drilling in the altered rock which surrounds the ores, hence costs will be high and will require determination by contractor.

The diamond drilling is to be considered a useful preliminary test to show below-surface mercury favorable conditions and may define some mercury occurrences but drill results, in themselves, must be considered inconclusive and should be checked in any case by underground work. As outlined above this underground work will include tunnelling and shafting. DMEA permitted a tunnelling cost @ $35 per foot in rock similar to the unaltered andesite at Castle Peak. Drifting within the altered rock surrounding and enclosing the ore might be performed for $20 per foot or less because much of the ground is "augur ground" and most work in ore zones at Castle Peak was by hand work.

Equipment required for surface prospecting would include bulldozer and operator @ $12 per operating hour, possibly a small portable compressor for drilling and blasting into the bulldozer cuts @ rental about $17 per day. If hand miners can be gotten in this machine age this work would be satisfactorily performed at about same overall cost. Labor will be about $2.12 per hour ($17 per 8-hour shift). Underground work will require drilling equipment probably

on contracting per foot basis. Tunnels will require compressor, drills, tools, track and cars, etc. to be figured when the detailed plan has been worked out.

It is my belief that $50,000 working capital should be envisaged into the exploration-development of this project. The expected success of the program will then entail installation of processing plant, comprising about 50-tons per diem furnace and accessories. Present costs for plantare about $1,500 per capacity ton - a 50-ton plant costing about $75,000. In this respect I have been informed by reliable engineer of a semi-portable furnace plant which builders plan to install at various properties on a royalty basis, the amount of royalty not quoted but be based upon size and grade of ore resources. In view of the high installation cost for processing plant I advise that this proposition be investigated further because it would make a very important reduction in future capital needs.

In regards exploration. The D.M.E.A. advances 75% of exploration cost on mercury projects against 25% paid by owner. In event that a productive ore body is found all D.M.E.A.'s advances are repaid by 5% of gross production (before any costs are deducted). In event that no commercial results obtain, the D.M.E.A. takes its full loss. The repayment obligation extends beyond completion of any project and should commercial ore be found at a later date the property is still obligated to repay D.M.E.A. loss.

In this respect it would probably be advisable for Castle Peak to apply for D.M.E.A. loan, say for about $40,000 or $50,000 to cover expense of full exploration-development prior to expected production. This would include exploration plan on the various described showings and exploration-development into the old mine particularly into the rich "Fault ore" showings described in the previous reports. The company's repayment obligation would only cover actual advances, hence would not be obligated for more than was actually expended, probably considerably less than $50,000 asked.

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GEOLOGY AND MINING SERIES NO. 41

QUICKSILVER DEPOSITS IN NEVADA

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AND THE MACKAY SCHOOL OF MINES
JAY A. CARPENTER, DIRECTOR

STOREY COUNTY

Storey County contains a single quite productive mine and several small quicksilver prospects. Virtually all of the quicksilver produced in the county has come from the Castle Peak mine in the Castle Peak district ten miles north of Virginia City. This mine yielded 2,576 flasks of quicksilver, most of which was recovered during 1929-1934. In 1943 the deposits in the county were not being worked.

CASTLE PEAK DISTRICT

The Castle Peak district is about ten miles north of Virginia City in the Flowery Mountain Range. Cinnabar, the most important mineral mined in the district, was discovered in 1927 at the site of the Castle Peak mine. Over 2,500 flasks of quicksilver have been recovered from this deposit, but when the district was last visited late in 1943 the Castle Peak mine and the nearby Washington Hill prospect were idle.

The rocks in the district include pre-Tertiary sediments, Tertiary andesite volcanic rocks, and late Tertiary or Pleistocene basalt which forms broad mesas and flat-topped ridges. The largest deposits of cinnabar are of the volcanic type and occur in the altered facies of the volcanic rocks, but a small amount of cinnabar has been found disseminated in opalite.

CASTLE PEAK MINE

Location	Sec. 20, T. 18 N., R. 21 E.
Ownership	R. Nenzel of Babbit, Nevada
Discovery	1927 by H. E. Lufek
Production	2,576 flasks to the end of 1943
Geologic type	Volcanic

The Castle Peak mine lies at an elevation of about 5,800 feet on the west fork of Lousetown Creek in the Paradise Range. The deposit was discovered by Hank Lufek in 1927, and in the following year he did development that lead to the blocking out of considerable ore. By September 1929 he had organized the Castle Peak Quicksilver Company and installed a 30-ton rotary furnace. By the end of the year 461 flasks of quicksilver had been recovered from 3,641 tons of ore, averaging 9.6 pounds of quicksilver to the ton. During the following two years 1,480 flasks were recovered from ore mined from above the haulage level. In 1931 and 1932 somewhat richer ore encountered below the haulage level yielded 865 flasks. During 1933, 1934 and 1935 considerable development was done on the lower levels, and ore averaging about six pounds of quicksilver to the ton yielded 407 flasks. In 1937 the property was leased to Brechtel and Hann, and in 1938 to the Moro Bay Copper Company, but neither of these lessees produced. In 1939 it was leased to the American Quicksilver Company which recovered 66 flasks. Since 1939 the property has been leased to several individuals who produced only small amounts of quicksilver, and in 1943 the furnace was removed. The total production from the mine has been 2,576 flasks of quicksilver recovered from about 23,500 tons of ore averaging 8.7 pounds of quicksilver to the ton.

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The underground workings consist of over 3,000 feet of drifts and crosscuts and small stopes on three main levels and several sublevels. Surface workings consist of a glory hole which measures about 100 feet by 60 feet by 35 feet, several small trenches, and three shafts about 45 feet deep. (See Plate 23)

The rocks of the area consist of pre-Tertiary limy shales, Tertiary undifferentiated volcanic rocks and gray hornblende andesite, and a late Tertiary or Pleistocene flow of olivine basalt.

The pre-Tertiary sediments which strike northerly and stand nearly vertical crop out only in the area to the south of the mine.

The oldest Tertiary rocks are undifferentiated volcanics that include hornblende andesite, andesite agglomerate, olivine basalt, and rhyolite. The hornblende andesite and the agglomerate have been extensively argillized and locally alunitized. Lenticular bodies of olivine basalt interbedded with the altered andesitic rocks are remarkably free from alteration. Rhyolite is not abundant, but one small outcrop lies just north of the furnace. Unaltered gray andesite porphyry overlies the aforementioned rocks and apparently is not penetrated by the underground workings.

The only fault of economic importance is the northerly trending fault explored by drifts and the main inclined winze. No offset along this fault could be measured, but the displacement is believed to be small. Near the surface two sets of intersecting joints which trend N. 55° W. and N. 65° E. through the altered volcanic rocks were of importance in localizing ore minerals. These mineralized joints have been followed by the glory hole, the connecting or "dome" stope, the main haulage level, and a stope below the main haulage level.

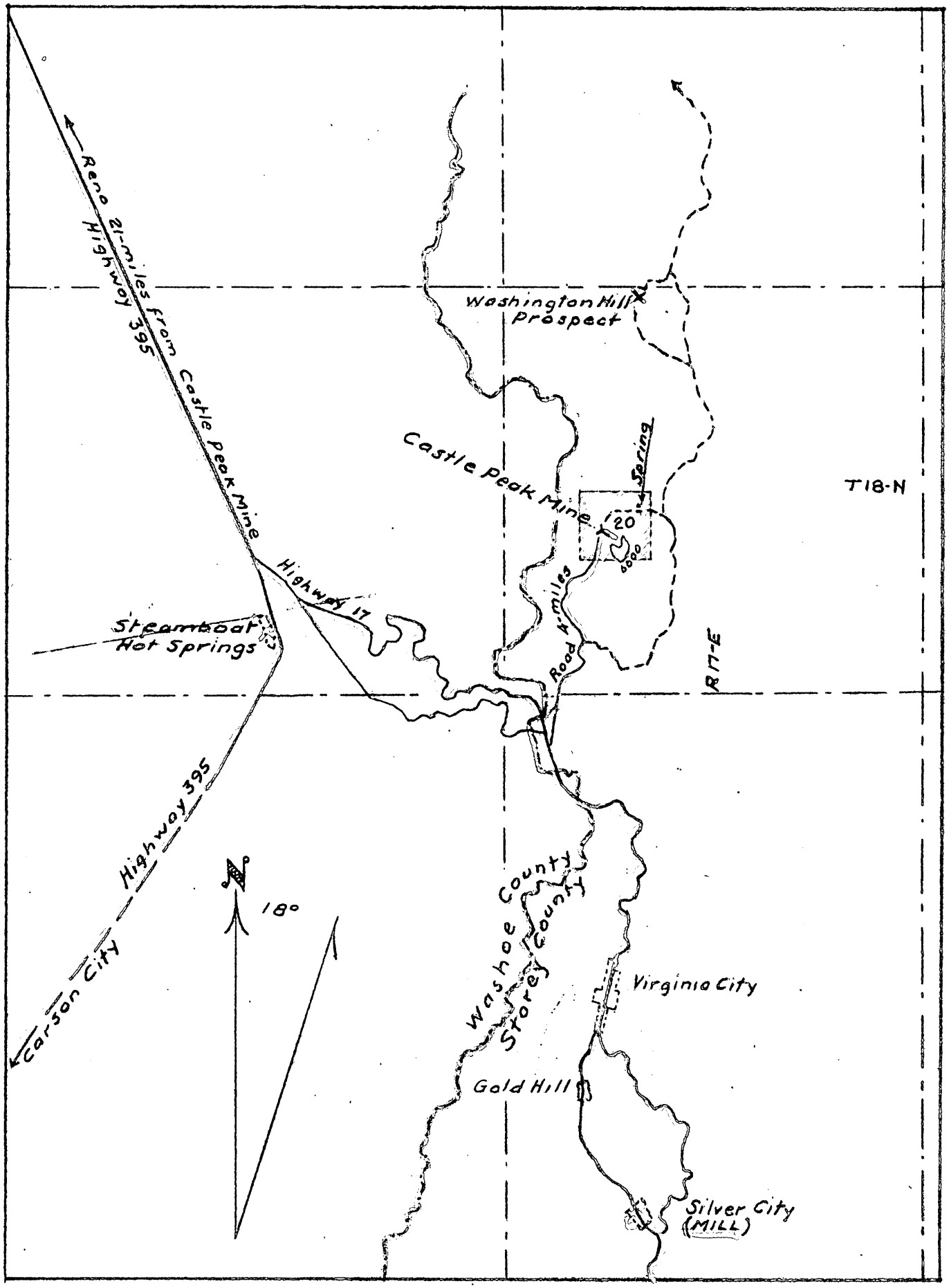
The principal ore mineral is cinnabar, but considerable native mercury, and less calomel, contribute to the value of the ore. Gangue minerals include clays, barite, several carbonates, pyrite, and possibly marcasite, and gypsum.

Crystalline cinnabar fills fractures as veinlets and fills small openings due to leaching of the volcanic rocks; the wider cinnabar veinlets in many places contain crystal-lined vugs which locally contain native mercury. In some specimens cinnabar clearly replaces selectively the clay-like alteration products of hornblende and plagioclase phenocrysts, and in some fine breccias it replaces selectively some of the smaller angular fragments. However, most of the cinnabar not in distinct veinlets is disseminated as very small crystals or crystalline aggregates through the altered rock. It seems probable that this cinnabar began to form in minute openings, but increased its size by replacing the surrounding rock.

The ore bodies may be classified on the basis of occurrence into two kinds. One kind includes the ore bodies of greatest value mined in the glory hole, connecting "dome" stope, and a stope immediately below the haulage level. They were localized along two sets of nearly vertical nonpersistent joints intersecting at angles of 60-80 degrees. The joint intersections seem to have been the most favorable loci for ore deposition, but cinnabar also occurred in mineable quantities along individual joints, and locally was disseminated for several feet into the wall rocks. As the ore bodies follow the joint planes they are in part tabular, but at joint intersections they are more pipe-like. The rock mined in the glory hole and upper stopes probably contained sufficient cinnabar disseminated away from the joints so that it all was furnace ore.

The ore bodies of the second kind were of lesser value and were mined from the levels below the haulage level. They were localized by the northerly trending fault which dips 55° to the east, but lenses of ore lay not only in the fault gouge but also in places beneath the gouge and elsewhere along parallel faults in the hanging wall. In contrast to the disseminated type of ore in the upper workings, this ore occurred as small rich pods and veins with sharply defined walls.

Rarely have character changes with increasing depth in quicksilver ore bodies been noted; however, some changes are conspicuous within a vertical interval of 250 feet at the Castle Peak mine. These changes in going from surface to depth consist of an increased in the amount of silicification, native mercury, pyrite, calcite, barite, ankerite, and dolomite (?), and a decrease in rock alteration, and the amount of gypsum, calomel, and disseminated cinnabar.



MAP Showing Location of Castle Peak Property.
SCALE: 2-miles to 1-inch

U. S. Government Messenger Envelope

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1. Use blocks consecutively, one at a
2. Void previous block.
3. Write clearly.

NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM		NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM	
Mr. Martin Room 3538 Ext.	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
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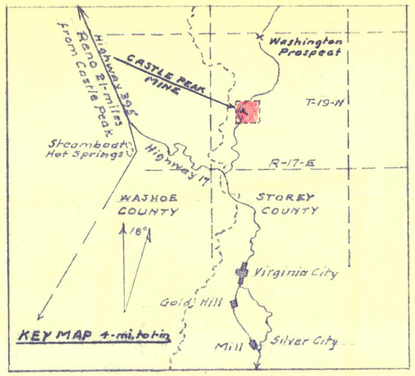
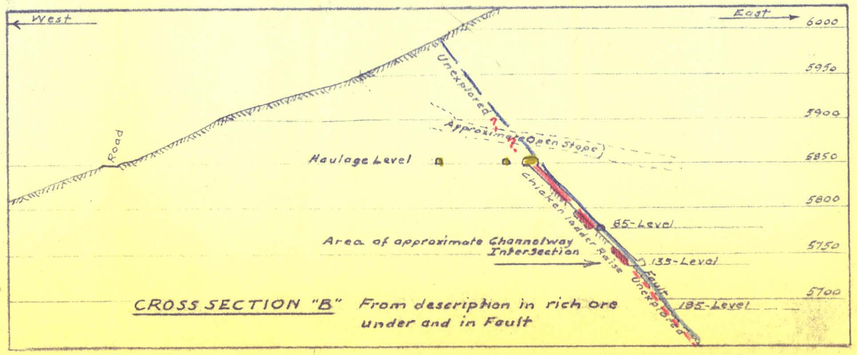
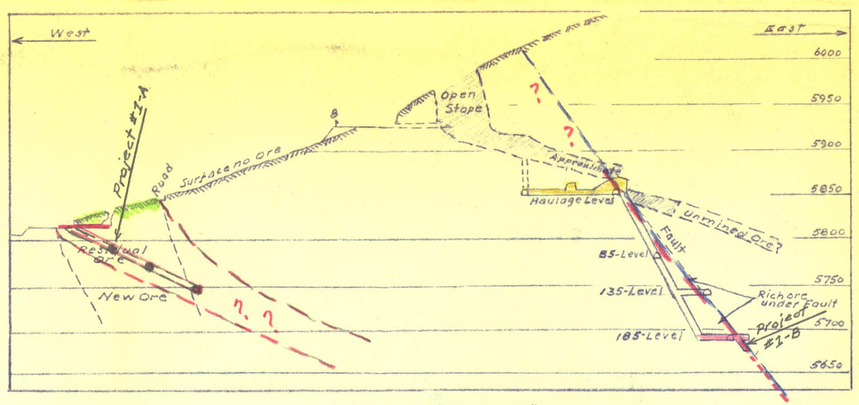




CROSS SECTION "B" From description in rich ore under and in Fault



CROSS SECTION "A"

SCALE: 100-ft. to 1-in.

☐ Ore in Stope area ▨ Ore below fault ▨ Barren gravel & earth ▨ Gravel carrying cinnabar in Residual Deposit

PLAN & SECTIONS CASTLE PEAK Property.

SCALE: 100-ft. to 1-in.

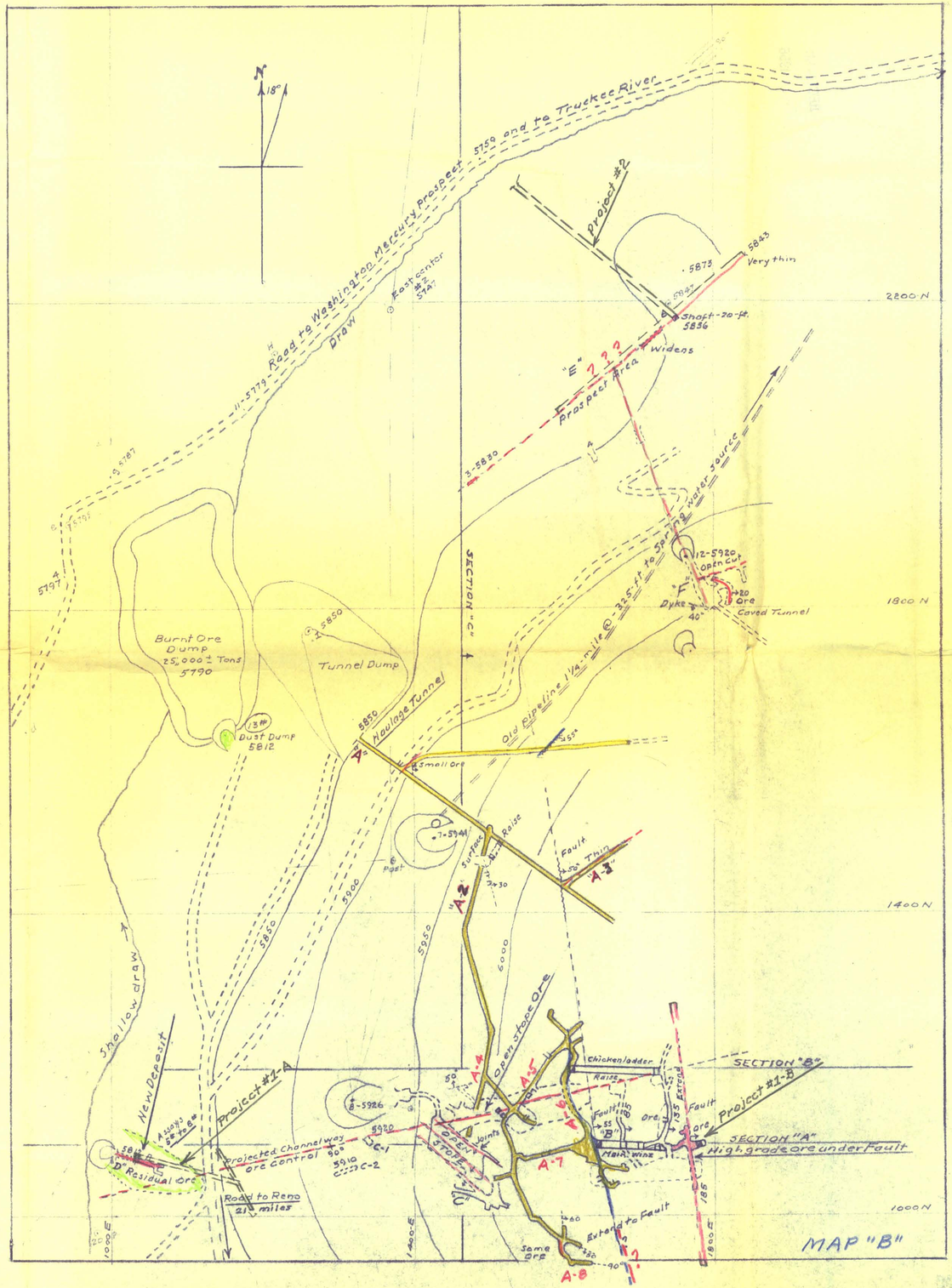
☐ "Open Stope" Ore along intersection "channelway" with regional jointing

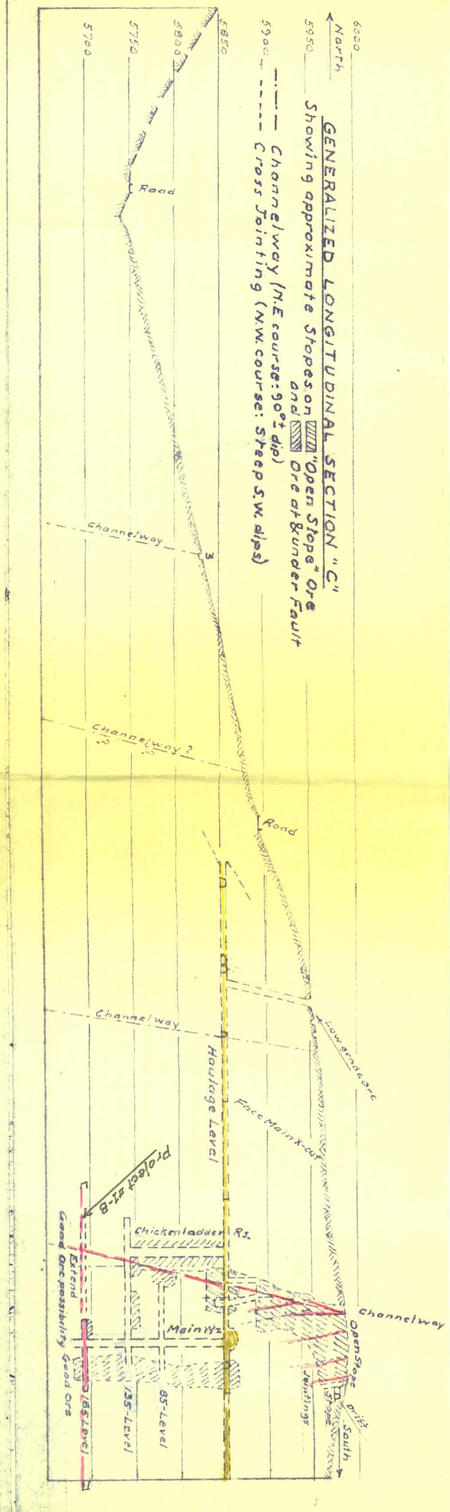
☐ Ore under Fault (Lenticular masses rich ore from 30# per ton to pure cinnabar.

==== Surface workings & concealed underground workings. ~~~ Fault

Approximate land forms.

Arthur Lakes, 1956



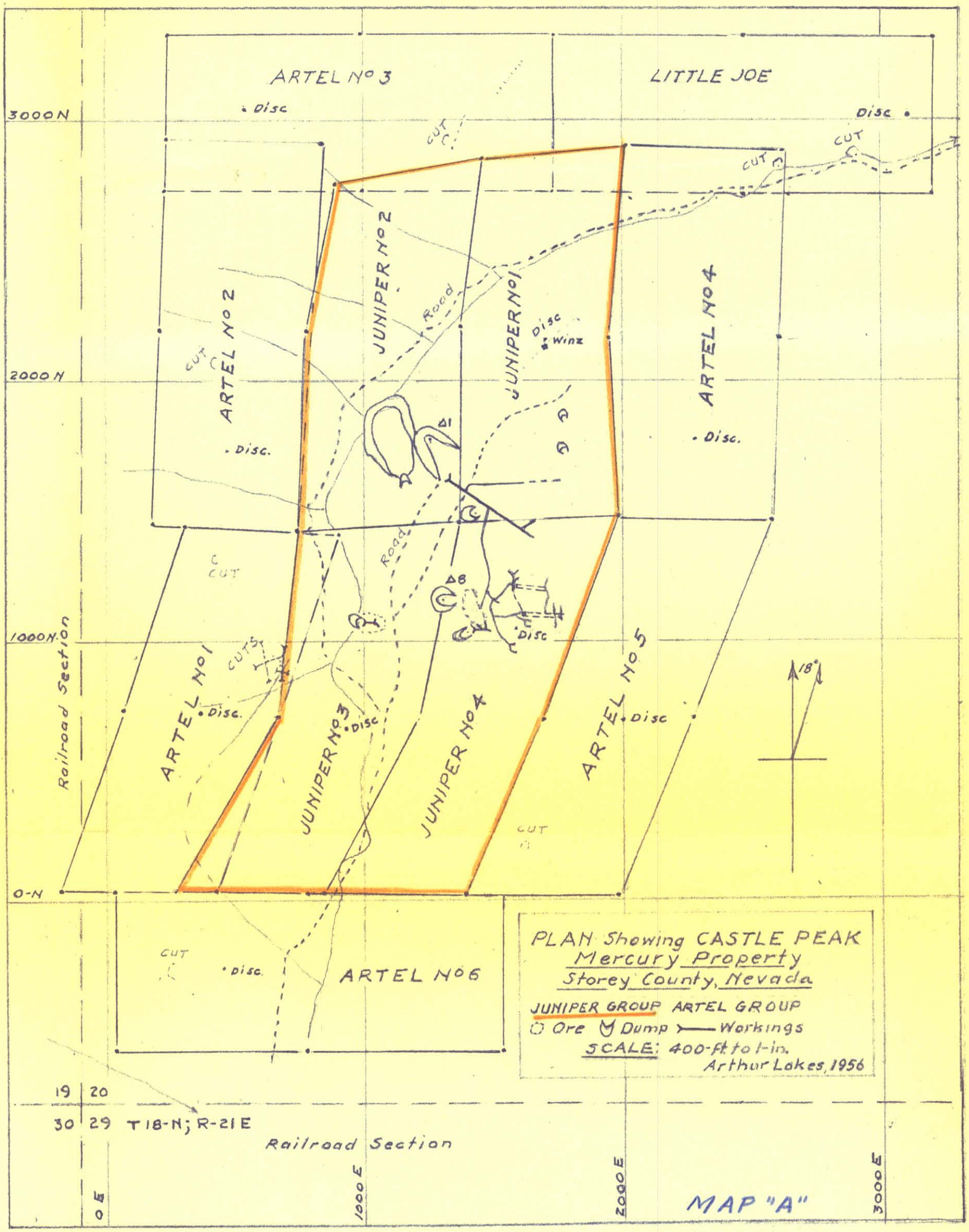


GENERALIZED LONGITUDINAL SECTION "C"

Showing approximate Stopes on ▨ "Open Stope" Ore and ▨ Ore at & under Fault

5950 ---- Channelway (N.E course: 90°± dip)

5900 ---- Cross Jointing (N.W. course: Steep S.W. dips)


ARTEL No 3
LITTLE JOE
3000N
2000N
1000N
0-N
Disc
CUT
JUNIPER No 2
JUNIPER No 1
ARTEL No 2
ARTEL No 4
Road
Winz
Δ1
Δ8
ARTEL No 1
JUNIPER No 3
JUNIPER No 4
ARTEL No 5
ARTEL No 6
Railroad Section
18°
PLAN Showing CASTLE PEAK
Mercury Property
Storey County, Nevada
JUNIPER GROUP ARTEL GROUP
Ore Dump Workings
SCALE: 400-ft to 1-in.
Arthur Lakes, 1956
19 20
30 29 T18-N; R-21E
Railroad Section
0E
1000E
2000E
3000E
MAP "A"