Building 20 - Federal Center
Denver 25, Colorado

February 8, 1962

Memorandum

To: George C. Selfridge, Chief
Division of Field Operations, OME
Washington 25, D. C.

From: Acting Field Officer, OME, Region III

Subject: Docket OME-6195 (Mercury)
Armstrong Minerals Company
(Adobe Walls Dome)
Brewster County, Texas

Enclosed are the original and two copies of my Report of Examination on the subject property.

Further exploration work on this property is not warranted and it is recommended that the application be denied.

Original signed by

Hugh M. Connors

Attachments
HMC/lm
cc Chief, Division of Field Operations, OME (Orig & 2 copies)
Mineral Resources Region III DFC
OME 6195
Charon

UNITED STATES
DEPARTMENT OF THE INTERIOR
STEWART L. UDALL, SECRETARY

OFFICE OF MINERALS EXPLORATION

REPORT OF EXAMINATION
REGION III

OME-6195

Armstrong Minerals Company

Adobe Walls Dome

Brewster County, Texas

Mercury

Examination Report

By

Hugh M. Connors, Mining Engineer

January 1962

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OME-6195
Armstrong Minerals Company
Adobe Walls Dome
Brewster County, Texas

INTRODUCTION AND SUMMARY

The Armstrong Minerals Company, 402 Mutual Savings Building, Austin, Texas, applied for OME assistance in exploring the Adobe Walls Dome for mercury at an estimated total cost of $57,132.00. The application was dated November 11, 1961.

A field examination of the property was made on January 12, 1962 in the company of Edgar Armstrong, Howard Blomquist, and Aris Mallas, who represented the Applicant company.

Some diamond drilling and other work consisting of sinking two shallow shafts and drifting to connect them at the bottom, or 32-foot level, had been accomplished since another group of Applicants had made a request for exploration aid under Docket DMRA 3787 in 1955. That DMRA request was denied without prejudice.

It is the thought of the field examiner that enough work has now been done on the property to indicate that further exploration work is not warranted and it is recommended that the application be denied.

LOCATION AND ACCESSIBILITY, AND PHYSICAL FEATURES

This prospect is located about 10 miles North of the Terlingua mining district, and 70 miles South of Alpine, Texas, County Seat of Brewster County.

A paved highway, No. 118 from Alpine, extends to within 2 miles of the property. The two closest major sources of supply are El Paso,

Texas, about 285 miles, and Odessa, Texas, about 220 miles away.

The claims are on the crest of a structural dome which is sparsely covered by some desert vegetation. The relief ranges from 3,300 to 3,700 feet above sea level.

HISTORY AND PRODUCTION

In June 1951 Mr. L. C. Whittiker obtained eight Minerals Awards issued by the General Land Office of the State of Texas. These Minerals Awards cover the Adobe Walls Dome. Mr. Whittiker did some prospecting in the area and found small amounts of cinnabar and varactite. He organized the Big Bend Mining, Inc. and in April 1955 an application was presented for DMEA aid which was docketed DMEA 3787.

The property was subsequently examined by Donald Maclaren and Clinton C. Knox, DMEA personnel, who recommended that the application be denied without prejudice.

Some time between 1955 and 1960 many holes were diamond drilled in several of the areas which appeared to be most promising. The present applicants claim no knowledge of the results of this drilling or who did the drilling.

The present applicants have sunk two shallow shafts (fig. 1, drill area 4) which are connected by a 45-foot drift, the floor of which is 32 feet below surface. In this drift at shaft No. 1, three small pockets of ore grade material are said to have been found which produced four flasks of quicksilver, according to the applicants' statement.

OWNERSHIP AND EXTENT

Mr. L. C. Whittiker is the owner of eight Minerals Awards covering the crest of the Adobe Walls Dome. On May 11, 1961 he leased the entire property to Edgar W. Armstrong, who formed Armstrong Minerals Company and became the Applicant for GME aid.

The central part of the dome (fig. 1) is pentagonal up-thrust block, bounded by vertical faults.

PRESENT STATUS

The Applicants' only equipment consists of a windlass, 50 feet of 1½ inch Manila rope, and a home-made mercury retort.

There are no buildings of any kind on the property.

Numerous prospect holes have been sunk at varying intervals along the faults. The dumps around these holes show no mercury mineralization but a few specimens of cinnabar were noted.

GEOLOGY

The geology of the Terlingua district has been described in University of Texas Bulletin 3401 by Sellards and Baker, and by Clyde P. Ross (1934), in AIME Technical Publication No. 555 by C. W. Schmette (1930), and in University of Texas Bulletin 1822 by J. A. Udden (1918). An exploratory drilling program conducted by the U. S. Bureau of Mines at the Chisos and Fresno mines is described in U. S. Bureau of Mines RI 3995 by A. M. Evans and W. M. Traver, Jr. (1947).

The geological section of the report of examination on this property under DMEA docket 3787 by Donald R. Maclaren of the U.S.G.S. is considered to be an excellent dissertation on the

subject and is as follows:

"Most of the known mercury mines in the Terlingua district are within an area approximately 15 miles long in an east-west direction, and 4 miles wide, north to south. If deposits in the Mariscal Mountains southeast of Terlingua and others in Mexico are included, the area is about 30 miles long and 20 miles wide.

"Rocks in the Terlingua district are limestones, shales, and clays of Cretaceous age. Paleozoic and older sediments that are exposed in the Solitario Dome, about 10 miles to the northwest, probably underlie the Cretaceous rocks. There are many intrusive igneous rocks of Tertiary age, mostly andesite, trachyte, and trachy-andesite that form small laccoliths, pipes, dikes and sills. The normal section of the economically important sediments is:

Eagle Ford shale (Boquillas flags)	1,000 feet
Buda limestone	50 - 85 feet
Del Rio clay	100 - 170 feet
Georgetown (Devil's River) limestone	800 - 1,000 feet

"The structure is slightly complex due to faults, folds, domes, and collapsed areas. A large anticline plunges southeasterly from the Solitario Dome. In general the dips are moderate, ranging from 1° to 10°, except on the southwest flank of the anticline where they are locally vertical. There are two major fault systems, one striking N. 40° W. parallel to the axis of the anticline, the other striking No. 60° to 80° E. Faulting has resulted in uplifted and depressed blocks, and at least one northwesterly striking graben. Locally, intrusion of small laccoliths and igneous pipes has resulted in

doming of the sediments, while the formation of solution cavities in the underlying limestones followed by collapse of the overlying beds has resulted in the formation of depressions and sink holes.

The mercury ore bodies in the district may be generally classified as manto, fissure, and pipe-like breccia deposits. The largest and richest deposits are of the manto type and are found in the upper 100 feet of the Georgetown limestone where mineralizing solutions migrating upwards along the faults were trapped beneath the impervious Del Rio clay. Solution cavities in the limestone along faults are filled by fragments of limestone and clay that have fallen from the roofs and walls of the cavities. Cinnabar and calcite have filled the resulting voids and cracks as well as some of the pore spaces in the limestone fragments, forming pipe-like breccia deposits. Along the faults, smaller fissure-type ore deposits were formed by the deposition of cinnabar in a calcite gangue. At Study Butte, in the eastern part of the district, the ore occurs in fissure in an igneous sill and in small manto-type deposits between the sill and the overlying shales. At the Chisos and Rainbow mines the ore is mostly in mantos and breccia pipes in the upper 100 feet of the Georgetown limestone, with smaller deposits of the same types in the Buda limestone. Perhaps the best example of the manto-type deposit is at the Mariposa mine in the California Hill area. Here much of the Del Rio clay has been eroded exposing the ore at the surface. At the Fresno mine in the western part of the Terlingua district, there are two ore bodies of the manto type, 6 to 12 feet thick in the upper part of the Georgetown limestone, and one smaller body in the Buda limestone, which

outcrops on the surface. Elsewhere in the district small deposits of the blanket and breccia types have been found in the Buda limestone below the Eagle Ford shale. A few deposits have been found in the Austin series which overlies the Eagle Ford shale, but they are small and insignificant.

The Adobe Walls dome is about 13 miles northeasterly from the Chisos mine at Terlingua, and about 11 miles northerly from the Study Butte, the two closest known mines. Sedimentary rocks of Cretaceous age have been pushed up into a dome about 2 miles in diameter, probably by the intrusion of an igneous plug or a small laccolith. The central part of the dome (fig. 1) is a roughly pentagonal up-thrust block, about 1 mile across, bounded by vertical faults. On the flanks of the dome erosion has exposed beds of Del Rio clay, Buda limestone, and Eagle Ford shale that dip about 22° away from the upthrust central portion where the beds are nearly horizontal. About three-quarters of the surface of the upthrust portion is Georgetown limestone which, in the southeast one-quarter of the area is overlain by a thin section of Del Rio clay. In the West central part of the upthrust portion is a small rounded knob of Buda limestone that overlies Del Rio clay. Several small dikes and plugs ranging in composition from trachyite to trachyandesite have intruded the sedimentary beds in the central part of the dome. Within the central area there are several secondary vertical faults that strike N. 8° E., N. 50° E., and almost due east. There are also several roughly circular depressed areas some of which probably are the result of collapsed sub-surface solution cavities in the limestone, while others are probably the

result of solution of the limestone at the surface. The depressions that appear to be the most likely ones resulting from collapse are those indicated at drill sites 4, 10, 11, and 12; those most likely due to surface erosion are the ones in drill area 15; and the rest are of doubtful origin. Depressed areas within drill sites 10, 11, and 12 are along a fault that strikes about N. 50° E. In drill site 10 there are two pits, 8 to 10 feet deep and a shaft about 25 feet deep. There was no vein apparent at the shaft collar. Some of the calcite fragments were fairly large and could conceivably have formed in voids between breccia fragments, although no such fragments were identified on the dump. In drill site 11 there are two shallow shafts about 10 feet deep.

PROPOSED EXPLORATION

The Applicant proposes to sink the No. 1 shaft another 24 feet to a total depth of 80 feet. At a depth of 60 feet he proposes a total of 340 feet of drifting, north, south, east, and west. At the bottom of the shaft (80 feet) he proposes a total of 325 feet of drifting, north, south, east, and west. The Applicant's estimated total cost of his proposed work is $57,132.00.

The field examiner is convinced, after talking to him, that the Applicant has had very little, if any, experience in mining. He is an oil geologist and may be excellent as such but could not be recommended as an OMM Operator. His proposed work and costs are unrealistic.

Estimated costs or any changes in the proposed work were not discussed with the Applicant because it is believed that further

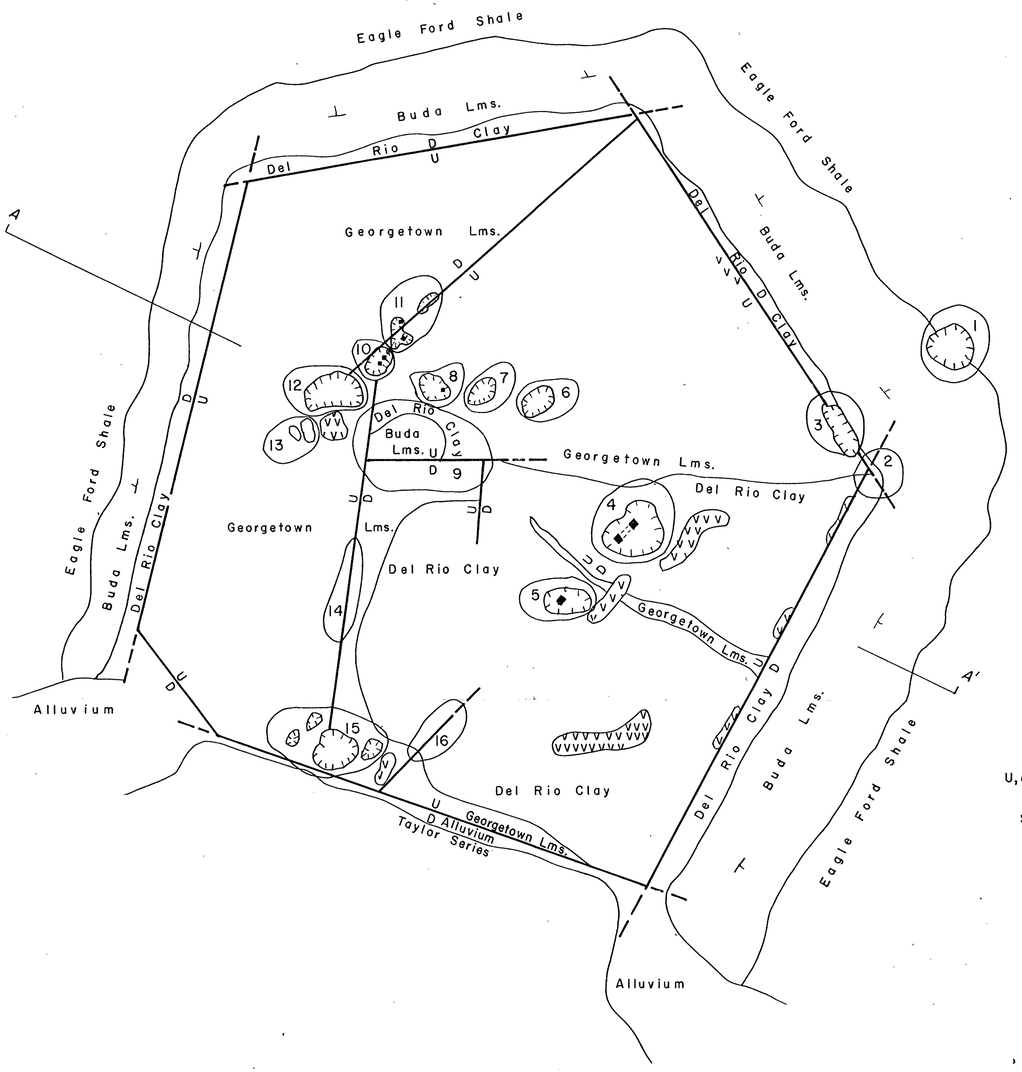
exploration of any kind on the property is not warranted.

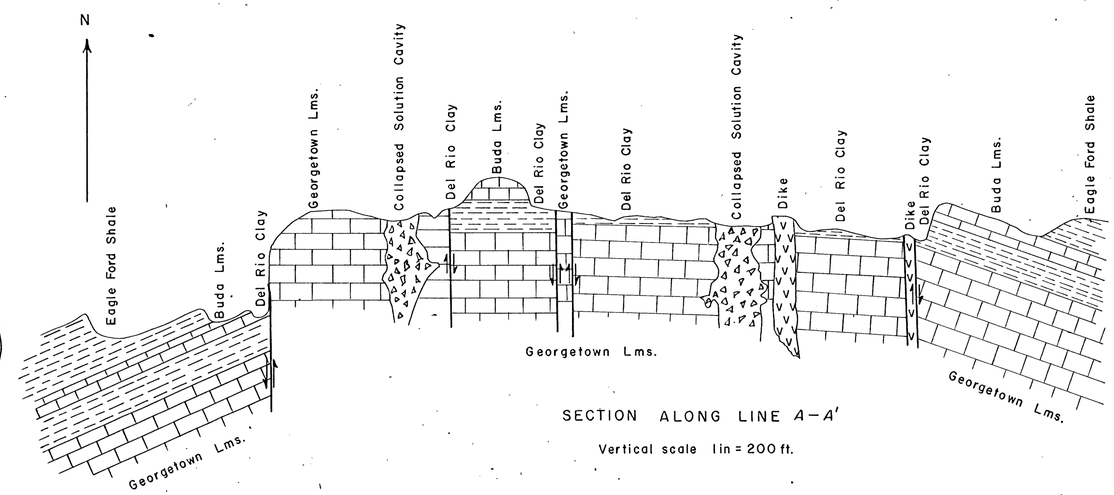
CONCLUSIONS AND RECOMMENDATIONS

Geologically Adobe Walls Dome appears to bear much similarity to some structures in the Terlingua mercury district but it was noted in the old properties we visited in the Terlingua district that there was a great continuity of ore there as shown by the stopes that came to surface and were mined laterally for hundreds of feet along the faults.

Mercury mineralization at Adobe Walls Dome is extremely sparse. The three small pockets which the Applicant said he found in and around the No. 1 shaft were in small caverns in the limestone. The ends of the caverns are still open but I saw no cinnabar and the calcite crystals lining the small ends of the caverns appeared to be untouched.

There is no reasonable probability of making a significant discovery of mercury on this property and I recommend that the application be denied.





SECTION ALONG LINE A–A'

Vertical scale 1 in = 200 ft.

EXPLANATION

U/D Fault
U, *upthrown side* D, *downthrown side*

Strike and direction of dip of bed

Shallow pit or shaft

Igneous dikes

Depressed areas

4 Proposed drilling area

Note: Adopted from map and section supplied by applicant on DMEA 3787

FIGURE 1.– PLAN AND SECTION SHOWING GEOLOGY, ADOBE WALLS DOME, BREWSTER COUNTY, TEXAS. OME 6195

January 1962

600 0 600 Feet