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

224 New Customhouse
Denver 2, Colorado

March 18, 1952

Memorandum

To: Chairman, Operating Committee, DMPA, Washington, D.C.

From: Field Team, Region IV

Subject: Final Report, DMA-2035, Stanco Sulphur Products, Auburn Hot Springs Sulphur Deposit, Lincoln County, Wyoming

Enclosed are the original and three copies of the final report on the application of Stanco Sulphur Products.

The above application is for a production loan of $55,500 of which $10,000 is to provide for working capital. The applicant proposes to pump the sludge from the pool to a settling basin where the sulphur is thickened and partially dewatered. The thickened sludge is then removed to a drying yard where due to the action of sun and wind, the sulphur bearing material is further dried for shipping.

No definite estimate of the quantity of sulphur-bearing sludge is available.

It is recommended that the Stanco Sulphur Products application for a production loan be denied.

The possibility of his making application for exploration has not been discussed with the applicant, but assets as listed in this application indicate inability to provide funds on a matching basis. The information shown on form MF-101 also states the owner of the property will not subordinate his interest to that of the Government.

cc: SRWilson w/copy of final report
RRoberts " " " " "
AHKoschmann " " " " "
DMA Final Report

W. H. King
W. H. King for
J. H. Hart, Jr.

A. H. Koschmann
A. H. Koschmann

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

March 18, 1952

Memorandum

To: Field Team, Region IV

From: Acting Chief, Mining Division, Region IV

Subject: Final Report, DMA-2035, Stanco Sulphur Products, Auburn Hot Springs Sulphur Deposit, Lincoln County, Wyo.

Enclosed are the original and seven copies of the final report on the application of the Stanco Sulphur Products by F. L. Wideman and J. H. Hild of the Bureau of Mines.

We concur with the findings of the examining engineers and recommend that the above application for a production loan of $55,500 be denied.

Assets of the Stanco Sulphur Products, as listed in the application, indicate inability to provide their share of funds for an exploration project.

W. H. King

Enclosure

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 1, UTAH

Mining Division
Date Rec'd.
MAR 10 1952
BUREAU OF MINES
Denver, Colorado

March 6, 1952

Memorandum

To: W. H. King, Acting Chief, Mining Division, Region IV

From: Chief, Utah-Wyoming Branch, Mining Division

Subject: DMA-2035, Stanco Sulphur Products, Auburn Hot Springs Sulphur Deposit, Lincoln County, Wyo.

Enclosed are the original and 7 copies of the subject engineering report, including a Summary, Conclusions and Recommendations section. The brochure and other data are also attached.

The examination disclosed that insufficient data are available to reliably estimate reserves of sulphur-bearing sludge; thus the proposal is not feasible from an engineering standpoint without more knowledge of the reserves.

Proper sampling will require use of a specially designed tube equipped with valves at top and bottom to permit cleaning the tube, and to hold the sample at the time the tube is lifted. Casing of the hole will be required to prevent flowage of the sediments. Sampling and sounding could be conducted from a float on each pool.

The possibility of establishing an exploration project on the property to sample the sulphur-bearing sludge has not been discussed with the applicant. The applicant was notified at the time the examination of the property was made, but was unable to be present on the property. Assets of the Stanco Sulphur Products, as listed in the application, indicate inability to provide funds on a matching basis. The information shown on form MF-101 states the owner of the property will not subordinate his interest to that of the government.

Preliminary sampling during the examination indicates that the sulphur-bearing sludge will require beneficiation by flotation or other method to insure a marketable-grade product. The application does not include a cost estimate for providing a beneficiation plant. No plans are given in the application to permit estimation of the quantity of excavation and asphalt concrete required for drying the sludge.

Mining Division
Date Rec'd.
MAR 10 1952
BUREAU OF MINES
Denver, Colorado

It is recommended by the examining engineers that the loan request be denied. I concur with this recommendation.

Stephen R. Wilson

Stephen R. Wilson

Enclosures - 3

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By F. L. Wideman and J. H. Hild

The Auburn Hot Springs sulphur deposit, under lease to Stanco Sulphur Products, was examined by F. L. Wideman and J. H. Hild during December 1951. The examination was made to appraise the feasibility of a direct loan application under DMA docket 2035.

Sulphur-bearing sludge occurs in three pools or hot springs which appear to be located along a fault. Travertine surrounds the pools. No soundings have been made to determine the depth of sludge and no reliable estimate of the grade and tonnage of sludge is available because of insufficient data. Samples taken during the examination indicate the average grade of the sulphur-bearing sludge to range from 30 to 40 percent sulphur.

The applicant has requested a loan of $55,500 to develop the property and establish a mine plant. The examining engineers believe additional information concerning grade and tonnage of the sludge and beneficiation data are required to properly evaluate the advisability of establishing a commercial operation. It is therefore recommended that the request for a direct loan of $55,500 be denied.

STANCO SULPHUR PRODUCTS
AUBURN HOT SPRINGS SULPHUR DEPOSIT
LINCOLN COUNTY, WYO.
DMA-2035
Sulphur

Engineering Report

By F. L. Wideman and J. H. Hild
Mining engineers
Bureau of Mines

STANCO SULPHUR PRODUCTS
AUBURN HOT SPRINGS SULPHUR DEPOSIT
LINCOLN COUNTY, WYO.

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ILLUSTRATIONS

Fig. 1 Location map, Auburn Hot Springs Sulphur Deposit, Lincoln County, Wyo.
Fig. 2 Plan map.

INTRODUCTION

Stanco Sulphur Products, lessee of the Auburn Hot Springs sulphur deposit, Lincoln County, Wyo., has made application for a direct loan of $55,500 to develop the property and establish a mine plant. The property was examined by Bureau of Mines engineers during December 1951 to evaluate proposals contained in the application.

LOCATION

The Auburn Hot Springs sulphur deposit is 2 miles north of Auburn and 10 miles northwest of Afton, Wyoming. Auburn is a village of approximately 300 persons. Afton, the principal town in the vicinity, has a population of 1,200 (fig. 1). It is approximately 55 miles to the nearest railroad shipping points of Cokeville, Wyo., to the south, and Montpelier, Idaho, to the southwest.

The deposit lies in low hills on the west side of Star Valley. The elevation is approximately 6,150 feet above sea level.

The summers are mild and pleasant, with little rainfall. Winters are long and severe, with deep snow and subzero temperatures.

HISTORY AND PRODUCTION

The property was originally developed by the present owner and his father as a bathing resort. Star Valley Mines, Inc., leased the property in 1947. Some sulphur-bearing material was taken from pool 2. Attempts were made to process the material in a revolving tube and other equipment. After several fires and explosions, the operation ceased.

Reliable information is not available concerning the production from the property. Some of the material was shipped between the years 1947 and 1949 as soil conditioner. The stock-piles listed in the application as containing 5,000 tons of ore probably contain less than 500 tons.

OWNERSHIP AND EXTENT

The deposit is on land owned by Mr. Keith Hyde of Auburn, Wyo., and is leased to Mr. J. B. Stanley, P. O. Box 603, Portland 7, Oregon. The land leased comprises 60 acres, more or less, and is situate in the southwest quarter of the northeast quarter (S.W. 1/4 N.E. 1/4) and the north half of the northwest quarter of the southeast quarter (N. 1/2 N. W. 1/4 S.E. 1/4) sec. 23, T. 33 N., R. 119 W., of the Sixth Principal Meridian, Lincoln County, Wyo.

The lessee has indicated by his answer to question 4d of form MF-101 that the lessors will not subordinate royalties to Government interest.

DESCRIPTION OF THE DEPOSIT

The sulphur-bearing material occurs as sludge in three pools which appear to be situated along a fault. The pools are surrounded by travertine. The water in the pools tastes of hydrogen sulfide in addition to having a distinctly saline taste. Gases are evolved from centers in the pools and from openings in travertine mounds between the two northern pools.

The northernmost pool is roughly rectangular in shape, with dimensions of approximately 135 feet by 150 feet.

The middle pool is also roughly rectangular in shape and measures approximately 80 feet in width by 150 feet in length. The water in this pool is hotter than that in the other pools. Apparently the slurry in this pool contains more sulphur than that in the other pools.

The southernmost pool is the smallest, and is roughly circular in shape, with a diameter of 75 feet. The elevation of this pool is approximately 25 feet lower than the other two (fig. 2).

Travertine mounds lie to the north and south of the pools in the same general line. A few small springs to the south of the pools evolve sulphur gas.

It is reported that virtually pure sulphur was found by ranchers while digging post holes on the low hills immediately north of the pools. There has been no exploration of this possibility.

Seven samples were taken from the deposits during the examination in December 1951. The locations of the samples are shown on fig. 2. The following table gives a brief description of the samples:

Sample No.	Description	Percent S
1.	Sludge, south edge, pool 1	1.95
2.	Sludge, north edge, pool 2	41.2
3.	Sludge, east edge, pool 3	1.68
4.	Vent in travertine between pools 1 and 2	41.3

Sample No.	Description	Percent S
5.	Grab sample, stock-piles, southwest corner, pool 2	2.87
6.	5-foot channel sample, bulldozer trench in travertine	3.10
7.	Grab sample, stock-pile, south-east edge, pool 2	31.5

The following table presents partial results obtained from analysis of a sample of water taken from pool 2 by George R. Mansfield of U. S. Geological Survey.[1/]

Auburn Hot Springs

	Parts per Million
Alkalies	
Na	1,314
K	114
Earths	
Cu	431
Mg	97
Metals	
Fe	—
Strong Acids	
SO_4	1,904
Cl	1,725
Weak Acids	
HCO_3	154
H_2S	Trace
SiO_2	20

1/ George Rogers Mansfield, U.S.G.S. Professional Paper 152, "Geography, Geology, and Mineral Resources of Part of South Eastern Idaho, 1927."

MINABLE ORE RESERVES

The ore reserves consist of sludge in pools of warm water. The areas of the pools were estimated at the time of the examination, but no soundings were made to determine the depths of the sludge in the pools. The estimates of the total areas in the pools, as contained in the application and measured during the examination, are within 10 percent of each other.

The application lists the "possible" ore reserves as follows:

Pool 1	7,200 tons
Pool 2	20,400 tons
Pool 3	500 tons
Total	28,100 tons

The above estimates are based on the areas of the pools and assumption of depths of sludge and percentage of moisture content. The samples taken during the examination indicate that the sulphur content set forth in the application may be higher than the actual content.

PRESENT STATUS

There is no production of sulphur from the property at the present time.

The only facility at the property is a concrete and cinder-block building which was formerly used as a bathing resort. The building needs repairs before it could be used for storage.

PROJECT PROPOSALS

The applicant requests a loan of $55,500 to produce sulphur, to construct buildings, repair existing buildings, purchase equipment, and for working capital until production is achieved.

New equipment proposed to be purchased includes:

1 injector dredge pump with motor and pipe fittings
1 tractor with shovel and blade
1 pellet machine
1 sewing machine
1 pick-up truck
1 lift truck
1 car loading equipment
1 storage bin and conveyor
Laboratory equipment for analyses.

Facilities to be installed include:

2 settling basins, 25' x 250'
2 dry yards, 50' x 250'
Storage bin
Repair present buildings.

The proposed settling vats and drying yards are to be constructed of asphalt concrete.

The deposit lies approximately 1½ miles from Highway 89, a hard-surfaced road which serves Star Valley. A gravelled county road passes near the deposit (fig. 1). Additional roads will be required between the settling vats and drying yards and from both to the county road. The total length of new roads necessary will not exceed 1/4 mile.

All transportation into Star Valley is by truck. Montpelier, Idaho, and Cokeville, Wyo., are the nearest railroad shipping points; each is approximately 55 miles distant. The current freight rate to these points by truck is $7.20 a ton.

Sufficient manpower is available in Star Valley for the requirements set up in the application.

Two R.E.A. power plants supply Star Valley with electricity.

Culinary water and water for other uses can be obtained from springs on the property.

PRODUCTION PLAN

The application states that 8 months will be required to bring the project to completion.

The estimated rate of production is 1,000 tons a month. It is proposed to pump the sulphur-bearing sludge into settling tanks and to dry the settlings on asphalt-paved yards. It is planned that some of the material be pelleted and sacked, and the remainder shipped in bulk. It has been estimated that the cost per ton will be $14.33.

SUMMARY

The application is for a direct loan of $55,500 to be used for the following purposes:

Purchase of operating equipment	$ 20,400
Construction of settling basins and dry yards	9,500
Repair to existing buildings	8,600
Operating capital and miscellaneous expense for 8 months	10,000
Miscellaneous supplies, mechanical, electrical installations, freight, etc.	7,000
Total	$ 55,500

No provision has been made in the proposal to beneficiate the sulphur in the sludge by flotation or other methods. Sampling indicates

that it would be desirable to do so, to produce marketable-grade sulphur.

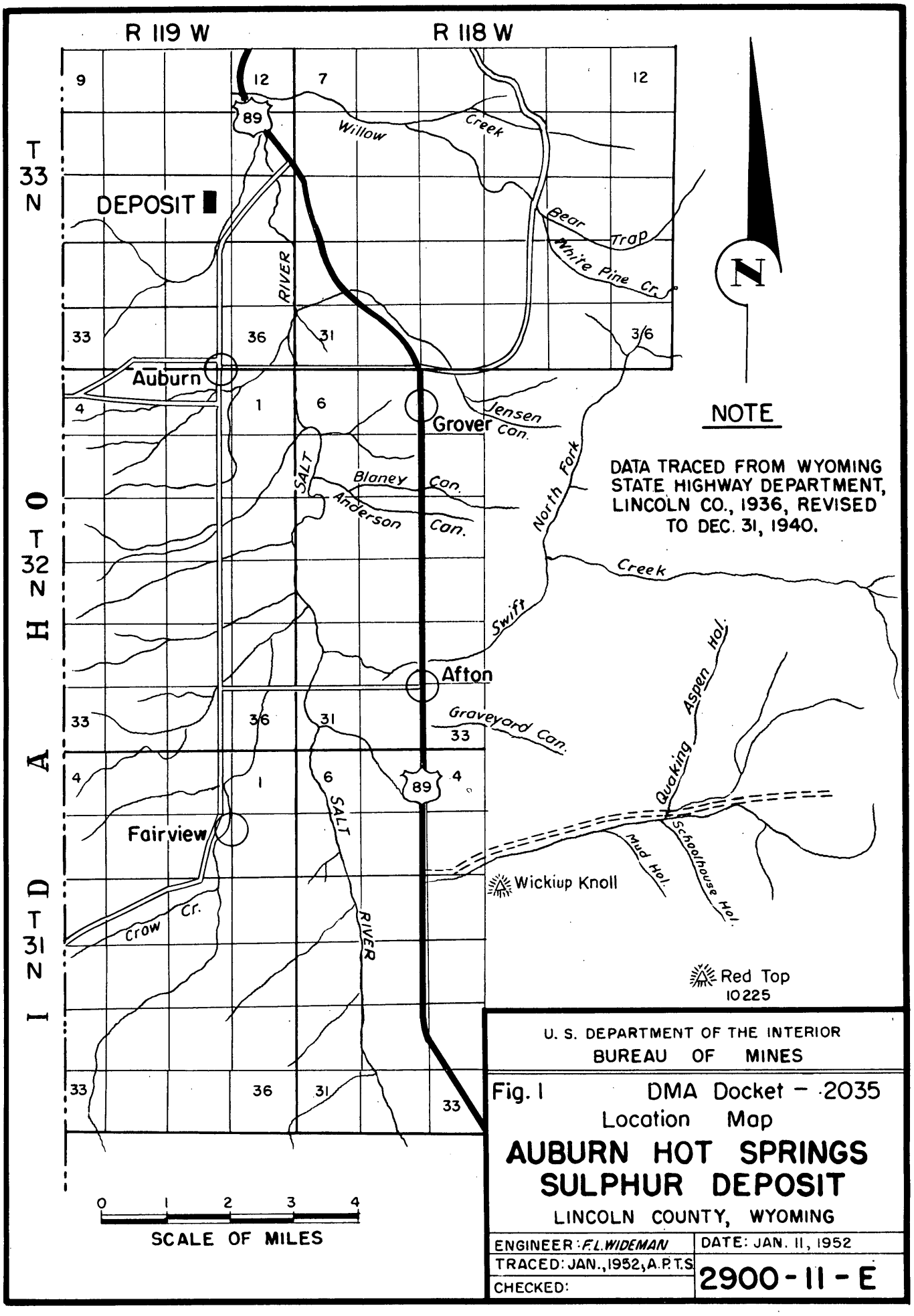
CONCLUSIONS

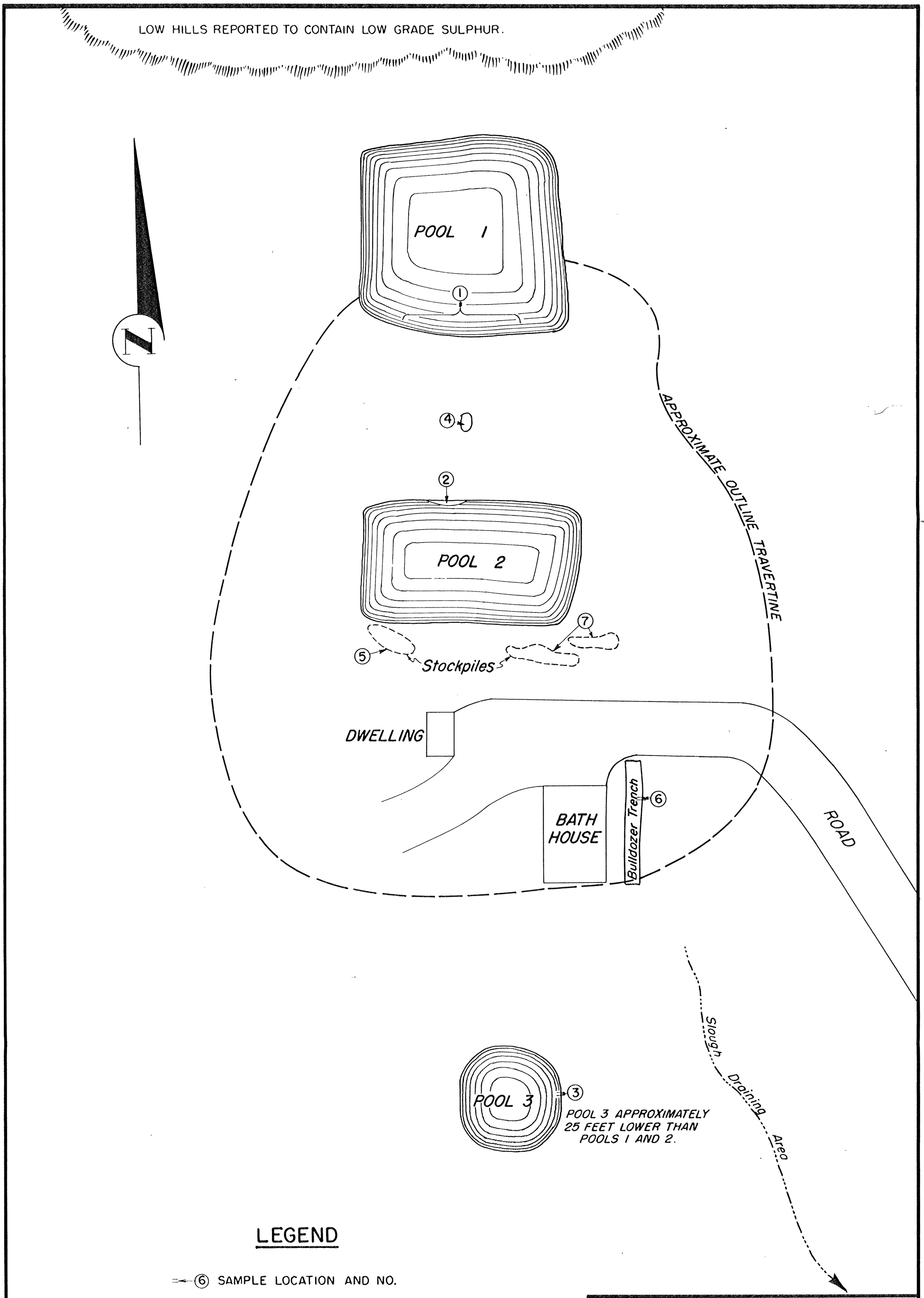
Insufficient data are available to reliably estimate the grade and quantity of sludge in the pools. Samples taken during the examination indicate that the average grade of the material is between 30 and 40 percent sulphur. It would be desirable to beneficiate the material at the property if the grade of the sulphur is not suitable for marketing. No provision has been made in the application for beneficiation.

More data on grade and beneficiation properties of the sulphur-bearing material are necessary for planning a possible economical operation.

RECOMMENDATIONS

It is recommended that the request for a direct loan of $55,500 be denied at this time. Additional information concerning grade and tonnage of workable sulphur-bearing sludge, plus beneficiation data, should be obtained by the operator to properly evaluate the advisability of establishing a commercial plant.


R 119 W
R 118 W
T 33 N
T 32 N
T 31 N
IDAHO
DEPOSIT
Auburn
Grover
Afton
Fairview
Wickiup Knoll
Red Top
10225
Willow
Creek
Bear
Trap
White Pine Cr.
RIVER
SALT
Jensen
Can.
Blaney
Can.
Anderson
Can.
North Fork
Creek
Swift
Graveyard Can.
Quaking
Aspen Hol.
Mud Hol.
Schoolhouse Hol.
Crow
Cr.
89
NOTE
DATA TRACED FROM WYOMING STATE HIGHWAY DEPARTMENT, LINCOLN CO., 1936, REVISED TO DEC. 31, 1940.
N
0 1 2 3 4
SCALE OF MILES
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
Fig. 1
DMA Docket - 2035
Location Map
AUBURN HOT SPRINGS
SULPHUR DEPOSIT
LINCOLN COUNTY, WYOMING
ENGINEER: F.L. WIDEMAN
DATE: JAN. 11, 1952
TRACED: JAN., 1952, A.P.T.S.
CHECKED:
2900-11-E



U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 2 DMA Docket - 2035

Plan Map

AUBURN HOT SPRINGS SULPHUR DEPOSIT

LINCOLN COUNTY, WYOMING

ENGINEER: F. L. WIDEMAN	DATE: JAN. 17, 1952
TRACED: JAN., 1952; BY: A.P.T.S.	2900 - 12 - D
CHECKED:	