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INTERIM REPORT ON
EXPLORATION IN THE YELLOW
CAT AREA, GRAND COUNTY, UTAH

By M. D. Okerlund

TEM-582

This material contains information affecting the national defense of the United States within the meaning of the espionage laws, Title 18, U.S.C., Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

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Trace Elements Memorandum Report 582

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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Dr. Phillip L. Merritt, Assistant Director
Division of Raw Materials
U. S. Atomic Energy Commission
P. O. Box 30, Ansonia Station
New York 23, New York

Dear Phil:

Transmitted herewith are two copies of TEM-582, "Interim report
on exploration in the Yellow Cat area, Grand County, Utah," by
M. D. Okerlund, May 1953.

Sincerely yours,

W. H. Bradley

for
W. H. Bradley
Chief Geologist



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Geology and Mineralogy

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Series A

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

INTERIM REPORT ON EXPLORATION IN THE YELLOW CAT AREA,
GRAND COUNTY, UTAH*

By

M. D. Okerlund

May 1953

Trace Elements Memorandum Report 582

This preliminary report is distributed without editorial and technical review for conformity with official standards and nomenclature. It is not for public inspection or quotation.

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*This report concerns work done on behalf of the Division of Raw Materials of the U. S. Atomic Energy Commission.

USGS - TEM-582

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ILLUSTRATION

Figure 1. Map of the Yellow Cat area, Grand County, Utah . .In envelope

INTERIM REPORT ON EXPLORATION IN THE YELLOW CAT AREA,
GRAND COUNTY, UTAH

by M. D. Okerlund

INTRODUCTION

The Yellow Cat area is about 10 miles southeast of Thompsons, Grand County, Utah, and is principally in T. 22 S. and the northern part of T. 23 S., R. 22 E., Salt Lake meridian (fig. 1). It is accessible by two graded roads which leave U. S. Highway 50 at points 5 miles east of Thompsons and 7 miles west of Cisco, Utah. Altitudes in the Yellow Cat area range from about 4,600 feet to 5,300 feet.

Production of uranium-vanadium ore in the Yellow Cat area from 1935 through 1952 totaled about 31,000 short tons that averaged about 0.25 percent U_3O_8 and 1.4 percent V_2O_5 . The production prior to 1935 was very small. The United States Vanadium Co. maintains a sampling plant and purchase depot at Thompsons.

Between October 9, 1951, and March 24, 1953, the U. S. Geological Survey explored the Yellow Cat area by diamond and wagon drilling to find uranium-bearing deposits that might make new mines and to appraise the uranium reserves in the area. Also, several holes were drilled to test the relationship between geobotanical guides and mineralized ground (Cannon, 1951). About 95 percent of the explored area is covered by private claims and school sections; the remaining 5 percent is public land. Previous drilling by private industry and the U. S. Bureau of Mines have been reported (Alvord, 1952). The results of the Survey drilling are summarized briefly in this report.

The general geology and the distribution of mineralized rock in the Yellow Cat area, except for Squaw Park (fig. 1), has been described earlier (Alvord, 1952). In Squaw Park the Jurassic Summer-ville formation and the upper part of the underlying Jurassic Entrada sandstone are exposed between finger-like erosional remnants of the basal sandstone lenses of the Salt Wash member of the Jurassic Morrison formation.

GEOLOGICAL SURVEY EXPLORATION

Between October 9, 1951, and March 24, 1953, the Geological Survey completed 619 diamond-drill holes, totaling 90,165 feet, and 726 wagon-drill holes, totaling 54,973 feet, in the Yellow Cat area (fig. 1). This drilling was done during four separate contracts; the plan and results of exploration completed during the first three contracts have been reported (Alvord, 1952). During the fourth contract, 295 diamond-drill holes were completed, totaling 45,012 feet. Approximately 85 percent of these holes were drilled in the western part of the area, 10 percent in Squaw Park, and 5 percent in the north-central part of the area (fig. 1). All the holes in Squaw Park and about half the holes in the western part of the area were widely spaced to obtain geologic information, and, in Squaw Park, to provide stratigraphic control for future wagon drilling in geobotanically favorable areas. Most of the remaining holes were closely spaced to outline deposits. A few holes were moderately spaced to search for new deposits. In addition, about 15 holes were drilled in the western and north-central part of the area to test ground containing selenium-indicator and uranium-accumulator

plant assemblages (Cannon, 1951; and Cannon, in preparation).

As a result of the Geological Survey drilling in the Yellow Cat area, about 125 deposits have been discovered. Most of them are in the western part of the area and are small. Of the 283 holes in mineralized rock, 65 are in material 1 foot or more thick containing 0.10 percent or more U_3O_8 or 1.0 percent or more V_2O_5 .

RESERVES

A preliminary estimate of the indicated and inferred reserves found by Geological Survey drilling in the Yellow Cat area is about 30,000 short tons averaging about 0.25 percent U_3O_8 and 1.5 percent V_2O_5 . These reserves include only material in layers 1 foot or more thick containing 0.10 percent or more U_3O_8 or 1.0 percent or more V_2O_5 . The reserves are in deposits that range from about 50 to 10,000 short tons each, and are almost entirely in the western part of the area and in private land.

PLANS

No further drilling is planned for the Yellow Cat area until a complete appraisal is made of the past drilling. This appraisal is being made. It appears likely that at least a small amount of wagon drilling will be needed to complete testing of geobotanically favorable ground, and other ground where shallow deposits have been found but have not been defined adequately. This drilling might be done later this year if personnel are available to supervise the drilling.

UNPUBLISHED REPORTS

Alvord, D. C., 1952, Interim report on exploration in the Yellow Cat area, Grand County, Utah: U. S. Geol. Survey Trace Elements Memo. Rept. 352.

Cannon, H. L., 1951, Preliminary report on geobotanical exploration in the Yellow Cat district, Grand County, Utah: U. S. Geol. Survey Trace Elements Memo. Rept. 273.

Cannon, H. L., in preparation, Interim report on geobotanical results in the Yellow Cat area, Thompsons district, Grand County, Utah: U. S. Geol. Survey Trace Elements Memo. Rept. 579.

Geology by M. D. Okerlund, D. C. Alvord and others
Surveying by C. N. Brown and others



- EXPLANATION**
- APPROXIMATE CONTACT BETWEEN BRUSHY BASIN (Jabb) AND THE SALT WASH (Jsw) MEMBERS OF THE JURASSIC MORRISON FORMATION--ALSO APPROXIMATE BASE OF NO. 1 ORE-BEARING SANDSTONE, WHERE PRESENT
 - APPROXIMATE BASE OF THE SALT WASH MEMBER OF THE JURASSIC MORRISON FORMATION
 - [Hatched pattern] GROUND UNDERLAIN BY FAVORABLE PART OF NO. 1 ORE-BEARING SANDSTONE, BRUSHY BASIN MEMBER
 - [Hatched pattern] GROUND UNDERLAIN BY FAVORABLE PART OF NO. 2 ORE-BEARING SANDSTONE, TOP SANDSTONE IN SALT WASH MEMBER
 - [Hatched pattern] GROUND UNDERLAIN BY FAVORABLE PART OF NO. 3 ORE-BEARING SANDSTONE, SECOND SANDSTONE IN SALT WASH MEMBER
 - [Hatched pattern] GROUND UNDERLAIN BY FAVORABLE PART OF NO. 4 ORE-BEARING SANDSTONE, THIRD SANDSTONE IN SALT WASH MEMBER
 - [Red dots] GROUND UNDERLAIN BY CARNOTITE-BEARING ROCK FOUND BY GEOLOGICAL SURVEY DRILLING, PROJECTED TO INFERRED OUTER EDGES OF MINERALIZED LAYERS, SOME OF WHICH OVERLAP AND ARE NOT CONNECTED BETWEEN ADJACENT DRILL HOLES
 - [X symbol] HIDE OR PROSPECT IN MINERALIZED ROCK
 - [Hatched pattern] AREA DRILLED BY PRIVATE ENTERPRISE (ALL AREAS NOT SHOWN)
 - [Cross symbol] LAND SECTION CORNER FOUND IN FIELD AND LOCATED BY PLANE-TABLE SURVEY METHODS; OTHER CORNERS LOCATED APPROXIMATELY
 - 25 LAND SECTION NUMBER
 - [Diamond symbol] DIAMOND-DRILL HOLES AND MAGN-DRILL HOLES, GEOLOGICAL SURVEY, 1951-53. CLASSIFICATION BY GRADE BASED ON VISUAL ESTIMATE AND/OR CHEMICAL ASSAY OR GAMMA-RAY DATA) AND TRICENES. DRILL HOLES LOCATED BY TAPE AND COMPASS SURVEY METHODS. (NUMBERS ON DIAMOND-DRILL HOLE STAMPIPPES IN FIELD HAVE PREFIX YC; NUMBERS ON MAGN-DRILL HOLE STAKES IN FIELD HAVE PREFIX WY)
 - [Circle symbol] BARREN
 - [Red dot symbol] WEAKLY MINERALIZED (CONTAINS LESS THAN 0.10% U₃O₈ AND 1.0% V₂O₅ BUT 0.020% OR MORE U₃O₈ OR 0.10% OR MORE V₂O₅ BY VISUAL ESTIMATE AND/OR CHEMICAL ASSAY, OR REGISTERS GAMMA-RAY VALUES WITHIN THE RANGE FROM 0.020% TO 0.09% W₂O₃ OR LESS THAN 1 FOOT THICK IF HIGHER GRADE)
 - [Red dot symbol] ORE-BEARING (CONTAINS 0.10% OR MORE U₃O₈ OR 1.0% OR MORE V₂O₅ BY VISUAL ESTIMATE AND/OR CHEMICAL ASSAY, OR REGISTERS GAMMA-RAY VALUES OF 0.10% OR MORE W₂O₃ AND 1 FOOT OR MORE THICK)

Figure 1. MAP OF THE YELLOW CAT AREA, GRAND COUNTY, UTAH



