IN REPLY REFER TO:

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

AEC- 168/7 September 28, 1956

Mr. Robert D. Nininger
Assistant Director for Exploration
Division of Raw Materials
U. S. Atomic Energy Commission
Washington 25, D. C.

Dear Bob:

Transmitted herewith are three copies of TEI-449, "Exploration for uranium-vanadium deposits in the Beaver Mesa area, Mesa County, Colorado, and Grand County, Utah," by L. J. Eicher, August 1956.

Sincerely yours,

for W. H. Bradley
Chief Geologist

OFFICIAL USE ONLY

Geology and Mineralogy

This document consists of 54 pages, plus 2 figures.
Series A

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

EXPLORATION FOR URANIUM-VANADIUM DEPOSITS IN THE BEAVER MESA AREA MESA COUNTY, COLORADO, AND GRAND COUNTY, UTAH*

By

L. J. Eicher

August 1956

Trace Elements Investigations Report 449

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.

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

OFFICIAL USE ONLY

USGS - TEI-449

GEOLOGY AND MINERALOGY

Distribution (Series A)	No. of copies
Atomic Energy Commission, Washington	1
Division of Raw Materials, Albuquerque	1
Division of Raw Materials, Austin	1
Division of Raw Materials, Casper	1
Division of Raw Materials, Denver	1
Division of Raw Materials, Ishpeming	1
Division of Raw Materials, Phoenix	1
Division of Raw Materials, Rapid City	1
Division of Raw Materials, Spokane	1
Division of Raw Materials, Salt Lake City	1
Division of Raw Materials, Washington	3
Exploration Division, Grand Junction Operations Office	6
Grand Junction Operations Office	1
Technical Information Extension, Oak Ridge	6
U. S. Geological Survey:	
Fuels Branch, Washington	1
Geochemistry and Petrology Branch, Washington	1
Geophysics Branch, Washington	1
Mineral Deposits Branch, Washington	2
P. C. Bateman, Menlo Park	1
A. L. Brokaw, Grand Junction	2
N. M. Denson, Denver	1
V. L. Freeman, College	1
R. L. Griggs, Albuquerque	1
W. R. Keefer, Laramie	1
M. R. Klepper, Spokane	1
A. H. Koschmann, Denver	1
L. R. Page, Washington	1
Q. D. Singewald, Beltsville	1
A. E. Weissenborn, Spokane	1
TEPCO, Denver	2
TEPCO, RPS, Washington, (including master)	2

47

CONTENTS

ILLUSTRATIONS

TABLES

EXPLORATION FOR URANIUM-VANADIUM DEPOSITS IN THE BEAVER MESA AREA, MESA COUNTY, COLORADO, AND GRAND COUNTY, UTAH

By L. J. Eicher

ABSTRACT

The U. S. Geological Survey explored the Beaver Mesa area from May 4, 1953, to October 30, 1954, with 212 diamond-drill holes that totaled 101,202 feet.

Sedimentary rocks of Mesozoic age are exposed in the Beaver Mesa area and are, from oldest to youngest, the Morrison formation of Jurassic age, the Burro Canyon formation of Early Cretaceous age, and the Dakota sandstone of Early(?) and Late Cretaceous age.

All of the economically significant uranium-vanadium deposits are in the lenticular sandstones within the upper one-half of the Salt Wash member of the Morrison formation. The deposits consist of sandstone impregnated and replaced by uranium- and vanadium-bearing minerals. The ore masses are the thicker parts of the tabular, blanketlike uranium-vanadium deposits. No persistent trends are apparent in these deposits.

The ore masses in the Beaver Mesa area range in size from a few tons to several thousand tons. The ratio of uranium oxide to vanadium oxide is about 1:4 in the Beaver Mesa area as compared to an average oxide ratio of 1:6 in most of the deposits of the Uravan mineral belt.

Guides to uranium-vanadium deposits in the Beaver Mesa area are:

1. The mudstone in contact with the sandstone is green or gray green.

2. The sandstone contains thin discontinuous green mudstone lenses, thin zones of green mudstone pebble conglomerate, and abundant fragments and masses of carbonaceous material.

3. The sandstone is light gray or light brown and is medium fine to medium grained.

4. The sandstone contains limonite stain, limonite spots, or disseminated pyrite.

5. The ore masses generally occur in the thicker part of the sandstone.

Indicated and inferred reserves of Class I material discovered by the U. S. Geological Survey drilling total 34,245 short tons averaging 0.46 percent U_3O_8 and 1.89 percent V_2O_5. Inferred reserves discovered by private drilling total 230,000 short tons averaging 0.30 percent U_3O_8 and 1.25 percent V_2O_5. Potential reserves totaling 100,000 short tons averaging 0.30 percent U_3O_8 and 1.25 percent V_2O_5 are estimated for the Beaver Mesa area.

INTRODUCTION

The U. S. Geological Survey exploration of the Beaver Mesa area had a two-fold purpose: (1) to search for new minable uranium-vanadium deposits and (2) to obtain data for an appraisal of the potential uranium-vanadium reserves of the Beaver Mesa area. The ground explored would not have been drilled by private companies because of excessive depths and lack of nearby deposits.

The Beaver Mesa area is about 6 miles southwest of Gateway, Mesa County, Colo. (fig. 1). The area, comprising about 12 square miles, is roughly rectangular, and is bounded on the north and east by the Dolores River, on the south by John Brown Canyon, and on the west by Beaver Creek Canyon. The explored part of the area includes parts of secs. 1, 2, and 11, T. 50 N., R. 20 W.; sec. 31, T. 51 N., R. 19 W.; secs. 14, 23, 24, 25, 26, 35, and 36, T. 51 N., R. 20 W., New Mexico principal meridian, Mesa County, Colo.; and sec. 33, T. 24 S., R. 26 E. and secs. 4, 5, 8, 9, 16, 17, and 20, T. 25 S., R. 26 E., Salt Lake meridian, Grand County, Utah.

The altitude of the area ranges from 6,900 feet in the east-central part to 7,900 feet in the southeastern part. The relief is generally slight to moderate, but several abrupt cliffs make access difficult locally. The vegetation consists of pine, pinyon, and juniper on rock outcrops and sagebrush and grasses on the alluvial flats. The climate is semiarid.

The Beaver Mesa area is accessible by 12 miles of Government access road that connects with Colorado Highway 141 half a mile south of Gateway, Colo. Numerous truck trails connect important parts of the area.

The uranium-vanadium deposits discovered by U. S. Geological Survey drilling are in the central and east-central part of the Beaver Mesa area. All of the deposits are on claimed ground. Production of the mines in the Beaver Mesa area, through December 1955, totals about 55,000 short tons of ore averaging 0.43 percent U_3O_8 and 1.76 percent V_2O_5 (table 1).

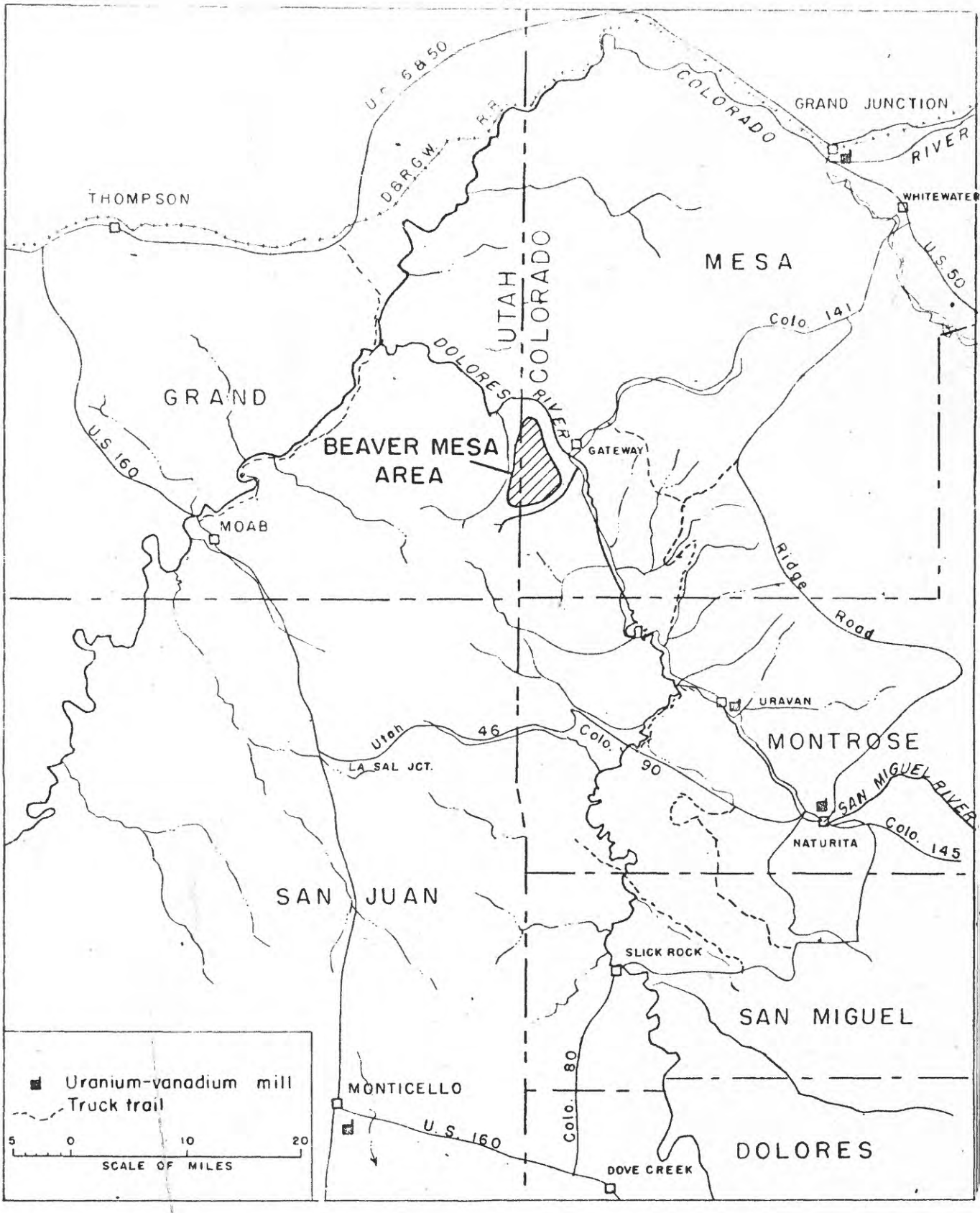


FIGURE 1.--INDEX MAP OF PART OF THE COLORADO PLATEAU SHOWING THE LOCATION OF THE BEAVER MESA AREA, MESA COUNTY, COLO. AND GRAND COUNTY, UTAH.

OFFICIAL USE ONLY

Table 1.--Summary of total production of uranium-vanadium deposits, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah.

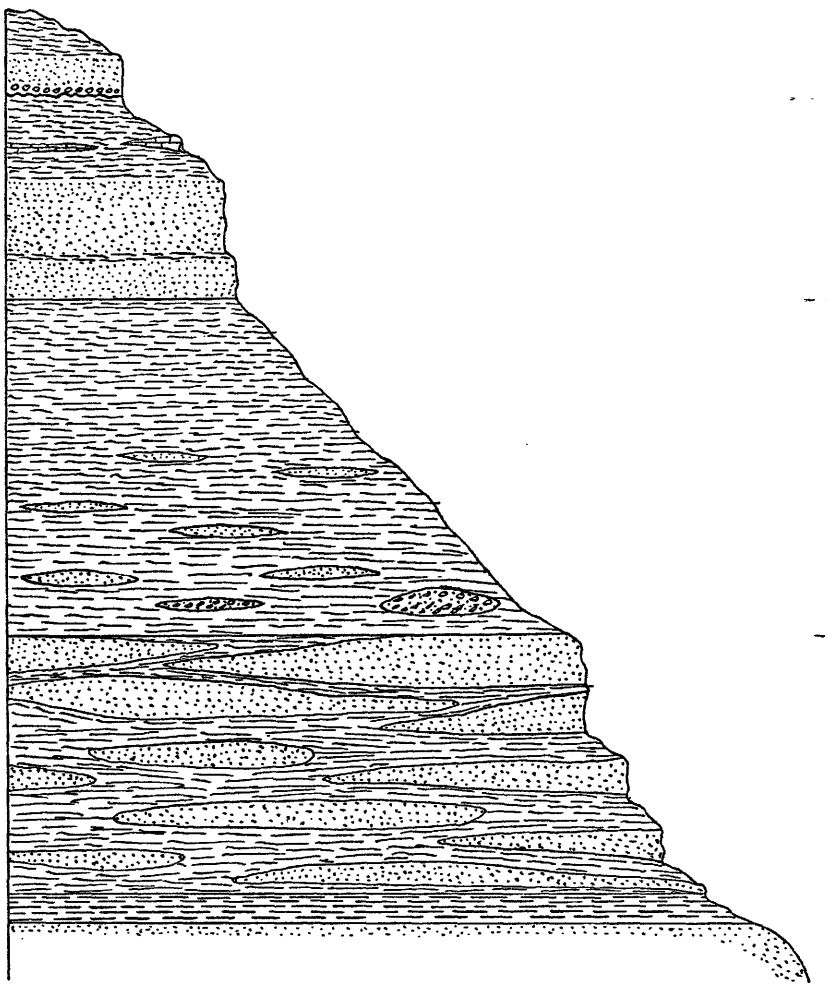
Mine or claim name		Total known production through Dec. 31, 1955	Percent average grade	
		Short tons	U_3O_8	V_2O_5
Ajax		272	0.19	1.15
Corvusite		11,083	0.63	2.41
Canyon No. 4		205	0.32	1.96
Cedar Point 2		2,328	0.50	1.42
Doctor Jr.		82	0.42	1.95
Cherokee shaft		3,594	0.41	1.51
La Sal group	La Salle	5,098	0.42	1.24
	La Sal 1	110	0.22	0.92
	La Sal 2 (Ukele)	1,848	0.47	1.57
	La Sal 2 (Gilmore)	602	0.33	1.55
Lumsden 1		2,288	0.36	1.88
Lumsden 2		8,448	0.40	1.59
Lumsden 3		4,114	0.31	2.01
Pack Rat 1		11,460	0.33	1.55
Prospect 2		1,727	0.32	2.39
Rae Marie 3		775	0.40	1.06
Rae Marie 6		1,464	0.49	1.54
Totals		55,498	0.43	1.76

This report summarizes the results of the U. S. Geological Survey exploration and contains a brief description of the geology and the uranium-vanadium deposits of the Beaver Mesa area. The exploration was done on behalf of the Division of Raw Materials of the U. S. Atomic Energy Commission.

GEOLOGY

Sedimentary rocks of Mesozoic age are exposed in the Beaver Mesa area. These rocks are, from oldest to youngest, the Morrison formation of Jurassic age, the Burro Canyon formation of Early Cretaceous age, and the Dakota sandstone of Early(?) and Late Cretaceous age (fig. 2). The stratigraphy of the Morrison and related formations has been discussed in detail by Craig and others (1955). Older Mesozoic and Paleozoic sedimentary rocks and Precambrian igneous and metamorphic rocks are exposed to the east and have been discussed previously (Cater, 1955).

The rocks in the Beaver Mesa area dip at low angles (5° maximum) in a northeasterly direction toward the axes of the Sagar's Wash (Dane, 1935) and Dolores (Cater, 1955) synclines. Mapping and exploratory drilling disclosed that Lumsden Canyon, which transects the major uranium-vanadium producing part of the Beaver Mesa area, developed along a vertical fault zone (fig. 3). The fault zone strikes N. 70°-80° E., and beds have been displaced as much as 90 feet.



SYSTEM	FORMATION	THICKNESS	CHARACTER
CRETACEOUS	Dakota sandstone	absent-90	Light-red and light-brown sandstone and conglomerate. Minor amounts of gray and yellow shales. Forms low cliffs.
	Burro Canyon formation	200-210	Light-gray and light-brown sandstone. Considerable green mudstone. Locally may contain thin, discontinuous, cherty limestone beds. Forms prominent cliffs
JURASSIC	Morrison formation	320-360	Brushy Basin member: Varicolored mudstone. Some thin sandstone and conglomerate lenses. Forms slopes
		260-300	Salt Wash member: Interstratified light-red, light-gray, and light-brown sandstones and red mudstone. Forms a series of cliffs and benches
	Summerville formation	30-40	Red, sandy mudstone. Thin bedded
	Entrada sandstone		Red and white massive sandstone. Forms smooth, rounded cliffs

FIGURE 2. GENERALIZED SECTION OF THE STRATA OVERLYING THE ENTRADA SANDSTONE IN THE BEAVER MESA AREA, MESA COUNTY, COLORADO AND GRAND COUNTY, UTAH.

All of the significant uranium-vanadium deposits found in the Beaver Mesa area are lenticular sandstones in the upper half of the Salt Wash member of the Morrison formation. The sandstones are light red, light gray, or light brown and are medium fine to medium grained.

The mudstone in contact with the sandstones is generally red. However, in the vicinity of uranium-vanadium deposits the mudstone in contact with the sandstones is gray green. Although the reason for the difference in color is not fully understood, the gray-green mudstone in contact with the sandstones is a useful target for exploration because it extends some distance beyond the limits of the uranium-vanadium deposit.

A general discussion of the geology and habits of the uranium and vanadium deposits of southwestern Colorado is given by Fischer (1942). A description of the "Uravan mineral belt," an elongate strip in which the deposits are larger and of higher grade than in other areas, is given by Fischer and Hilpert (1952). This "mineral belt" extends westward across Beaver Mesa, and all of the significant uranium-vanadium deposits are within its boundaries.

URANIUM-VANADIUM DEPOSITS

The uranium-vanadium deposits in the Beaver Mesa area consist predominantly of sandstone impregnated and replaced by uranium- and vanadium-bearing minerals. Also thin mudstone seams, beds of mudstone pebbles, and zones of carbonaceous material are commonly the sites of rich concentrations of uranium- and vanadium-bearing minerals. The significant uranium-vanadium deposits in the Beaver Mesa area are of the unoxidized (or only partially

oxidized) uranium-vanadium type, commonly called "black ores" (Weeks and Thompson, 1954). The principal ore minerals are the uranium-bearing minerals uraninite and coffinite and the vanadium-bearing minerals montroseite, doloresite, and lumsdenite.

The uranium-vanadium deposits are tabular or lens-shaped masses that are generally parallel to the bedding in the sandstone but may cross cut bedding in detail. The uranium-vanadium deposit consists of several ore masses connected by thin seams of mineralized material. The ore masses are the thicker parts of the blanketlike mass. No persistent trends are apparent in the uranium-vanadium deposits, but several of the ore masses exhibit a northeast elongation. Also, mineralized fossil logs within the uranium-vanadium deposits have a northeast orientation.

The ore masses in the Beaver Mesa area range in size from a few tons to several thousand tons. They are irregular in outline and range in areal extent from a few hundred square feet to several thousand square feet. The ratio of uranium oxide to vanadium oxide in most of the uranium-vanadium deposits in the Morrison formation in the Uravan mineral belt is about 1:6. However, production records and assay data from diamond-drill holes indicate the oxide ratio is about 1:4 in the Beaver Mesa area.

GUIDES TO URANIUM-VANADIUM DEPOSITS

Certain geologic features are commonly associated with uranium-vanadium deposits. The importance of these features as guides to ore has been studied by Weir (1952). The guides that are used in the Beaver Mesa area are modified versions of those presented by Weir. No single geologic feature can be used to define ground as favorable or unfavorable for the occurrence of uranium-vanadium deposits, but a reasonably accurate delimitation can be made by evaluating all the various geologic features.

Surface and subsurface geologic data indicate that the following geologic features are associated with known uranium-vanadium deposits in the Beaver Mesa area and are useful as guides to ore:

1. The mudstone in contact with the sandstone is green or gray green.

2. The sandstone contains thin discontinuous green mudstone lenses, thin zones of green mudstone pebble conglomerate, and abundant fragments and masses of carbonaceous material.

3. The sandstone is light gray or light brown and is medium fine to medium grained.

4. The sandstone contains limonite stain, limonite spots, or disseminated pyrite. Many specimens of drill core show pyrite partly oxidized to limonite.

5. The ore masses occur in the thicker part of the sandstone. However, the ore masses do not exhibit any detailed relationship to the thickness of the sandstone.

Several other features were evaluated in an effort to develop additional guides for exploration. These were: gamma-ray values at the contact of the sandstone with the underlying mudstone, maximum gamma-ray values within the sandstone, structure contour maps, variations in thickness of the sandstone units, variations in thickness of the underlying green mudstone, and trends of major sandstone units. Of these, the most useful was the relatively high gamma-ray anomaly at the base of the sandstone. This anomaly was found in the vicinity of uranium-vanadium deposits and offered a larger target than the uranium-vanadium deposits because it extended beyond the limits of mineralized material.

U. S. GEOLOGICAL SURVEY EXPLORATION

U. S. Geological Survey exploration in the Beaver Mesa area started on May 4, 1953, and was completed October 30, 1954. During the period, 212 diamond-drill holes were completed on two separate contracts for a total of 101,202 feet, of which 31,074 feet were core drilled. The core recovery averaged 93 percent. The average depth of holes drilled was 477 feet.

Of the 212 holes drilled, 71 penetrated mineralized material (material containing 0.020 percent or more U_3O_8 and/or 0.10 percent or more V_2O_5, but less than 0.10 percent U_3O_8 and/or 1.0 percent V_2O_5 or less than 1.0 foot thick regardless of grade), and 20 penetrated mineralized material that is in the highest reserve class used in this report (material 1.0 foot or more thick and containing 0.10 percent or more U_3O_8 and/or 1.0 percent or more V_2O_5). All of the holes were drilled on claimed ground.

Approximately 40 percent of the footage was utilized in widely spaced holes, 1,000 to 3,000 feet apart, to obtain geologic information that would be useful in the search for uranium-vanadium deposits, and to determine the location and general trend of favorable ground in unexplored areas. Approximately 50 percent of the footage was utilized in moderately spaced holes, 200 to 500 feet apart, to search for uranium-vanadium deposits in geologically favorable ground. About 10 percent of the footage was utilized in closely spaced holes, less than 200 feet apart, to better define the size and configuration of some uranium-vanadium deposits discovered by wider spaced drilling.

RESERVES

The terms "indicated" and "inferred" reserves are applied to the uranium- and vanadium-bearing material in the deposits that are known from exposures in outcrops, mine workings, or drill holes. The method used in calculating the reserves is explained below. Figures expressing the calculated tonnage and grade of the indicated and inferred reserves for each reserve block are given in table 1. The ground containing the reserve blocks is shown in figures 3 and 4. Several geologic sections showing the position of the mineralized rock in the ground is shown in figure 4.

In addition to the known deposits, other deposits are probably present which have not yet been found. These deposits are predicted solely on interpretation of geologic evidence, for there is no physical proof of their existence. The term "potential" reserves is applied to the material in these deposits. Potential reserves are described on page 24.

Although reserves are not classified in this report according to their availability for mining, consideration was given to the 1955 mining and milling practices in selecting the thickness and grade. This was done to obtain figures for a category of reserves that would express as nearly as possible the tonnage and grade of the material that might actually be mined from these deposits under 1955 conditions. A summary of indicated and inferred reserves in this category is given in table 2. A detailed breakdown of reserves by grade and thickness cutoffs and by block number is given in table 3.

Indicated and inferred reserves

Definitions

Known reserves are classed as indicated and inferred. Owing to the erratic variations in thickness and grade of uranium-vanadium within short distances and the general lack of abundant sample data for individual reserve blocks, the amount of reserves that can be calculated within a small limit of error, and thus can be classed as "measured," is so small as to be nearly negligible. Therefore, reserves that might be classed as measured are included with indicated reserves.

Table 2.--Summary of indicated and inferred reserves 1 foot or more thick, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah.

Reserves	Grade cutoff	Short tons	Percent		Pounds[1]	
			U_3O_8	V_2O_5	U_3O_8	V_2O_5
Indicated	0.10 percent U_3O_8 or 1.0 percent V_2O_5	6,982	0.50	1.35	70,175	188,475
	0.05 percent U_3O_8 or 0.50 percent V_2O_5	6,982	0.50	1.35	70,175	188,475
Inferred	0.10 percent U_3O_8 or 1.05 percent V_2O_5	27,263	0.45	2.02	247,200	1,105,600
	0.05 percent U_3O_8 or 0.50 percent V_2O_5	27,792	0.45	2.02	248,150	1,111,575

[1] Figures rounded to nearest 25 pounds.

Table 3.--Detailed summary of indicated and inferred reserves[1] 1 foot or more thick, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah.

(based on U. S. Geological Survey drilling, 1953-54)

Block No.	Location (claims)	INDICATED						INFERRED					
		Grade cutoff 0.10 percent U_3O_8 or 1.0 percent V_2O_5			Grade cutoff 0.05 percent U_3O_8 or 0.50 percent V_2O_5			Grade cutoff 0.10 percent U_3O_8 or 1.0 percent V_2O_5			Grade cutoff 0.05 percent U_3O_8 or 0.50 percent V_2O_5		
		Short tons	Percent U_3O_8	Percent V_2O_5	Short tons	Percent U_3O_8	Percent V_2O_5	Short tons	Percent U_3O_8	Percent V_2O_5	Short tons	Percent U_3O_8	Percent V_2O_5
A	La Sal No. 7												
	J.W.L. Frac. No. 1	869	0.54	2.15	869	0.54	2.15	4,880	0.54	2.15	4,880	0.54	2.15
B	Lot No. 1, sec. 35	4,346	0.58	1.03	4,346	0.58	1.03	7,438	0.58	1.03	7,492	0.58	1.03
C	Thornton	1,304	0.27	1.42	1,304	0.27	1.42	4,075	0.31	1.81	4,102	0.31	1.81
D	La Sal No. 25							673	0.11	1.27	673	0.11	1.27
E	Bonanza No. 1							729	0.18	4.88	729	0.18	4.88
F	La Sal Nos. 31-32												
	Bonanza Nos. 5 and 7	463	0.36	2.65	463	0.36	2.65	2,062	0.30	2.63	2,062	0.30	2.63
G	Pack Rat Nos. 1-2							842	0.06	1.14	842	0.06	1.14
H	Curecanti							1,178	0.31	0.63	1,178	0.31	0.63
I	La Sal No. 4												
	Rajah No. 1							1,964	0.18	1.52	1,964	0.18	1.52
J	Rajah No. 13							1,515	0.60	5.83	1,515	0.60	5.83
K	Lost Dutchman No. 8							1,178	1.00	3.39	1,384	0.87	2.81
L	Rajah No. 28							729	0.69	3.18	729	0.69	3.18
BV-39A											27	0.08	0.73
BV-139											52	0.07	0.43
BV-142											38	0.13	0.04
BV-151											61	0.07	0.11
BV-156											31	0.07	0.32
BV-161											34	0.05	0.32
Totals		6,982	0.50	1.35	6,982	0.50	1.35	27,263	0.45	2.02	27,792	0.45	2.02

[1] Assay values have been decreased from 4.70 percent U_3O_8 and 15.91 percent V_2O_5 to obtain more realistic figures for contained U_3O_8 and V_2O_5.

Indicated reserves _/ are those for which the grade is computed from drill-hole samples and for which the tonnage is computed by projections for a reasonable distance on geologic evidence from drill holes. Inferred reserves are those for which quantitative estimates are based largely on broad knowledge of the geologic character of the deposits and for which there are few, if any, samples or measurements.

Because of the variations in thickness and grade of ore and the scarcity of sample data, the indicated reserves in any single reserve block might actually amount to as much as twice the calculated tonnage or as little as one-half the calculated tonnage. The limit of error of the total tonnage for several blocks, however, is apt to be considerably lower, perhaps not more than 25 percent of the calculated tonnage. For this reason indicated reserves are not computed for single holes in reserve-grade material that have not been offset or cannot be connected with known deposits or mine workings. The limit of error in the tonnage figures for inferred reserves is apt to be higher than for indicated reserves. The possible limit of error in the calculated or estimated grade for both indicated and inferred reserves probably is somewhat smaller than the possible limit of error in the tonnage figures.

_/ The definitions used here for indicated and inferred reserves are abstracted from the definitions adopted by the U. S. Bureau of Mines and the U. S. Geological Survey in April 1943.

Thickness cutoff

Although mining practices vary throughout the region as well as with individual operators, under 1955 mining conditions most ore bodies of average grade are being mined to where they thin to a layer about 1 foot thick. Layers of material less than 1 foot thick are mined in places if the grade is high. The tonnage of minable material less than 1 foot thick is small with respect to the total reserves and for that reason reserves less than 1 foot thick are not calculated.

Grade cutoff

The deposits contain two metals of economic importance, uranium and vanadium. The oxides of these metals, U_3O_8 and V_2O_5, occur in an average ratio of about 1:4 as estimated from the assays of the U. S. Geological Survey drill core from the Beaver Mesa area. Within the deposits, however, the two metals are so erratically distributed that a single sample, such as that obtained from a drill hole, is not necessarily representative of the metal ratio or grade of the material near the point sampled. Knowing this by experience, the miner will drive toward a drill hole that shows a good value in vanadium, even though the uranium content of the sample might be negligible. Thus the material in the vicinity of this sample must be classed as a reserve, even though the sample shows a value for only one metal. Furthermore, with the 1951 price schedules (U. S. Atomic Energy Commission, 1951) for ore, the vanadium content of ore containing the normal oxide ratio (1:4) constitutes about one-fifth of the market value of the

ore. Thus both metals must be considered in reserve appraisals and in selecting grade cutoffs.

Reserves 1 foot or more thick are classified by two grade cutoffs. The higher cutoff—0.10 percent U_3O_8 or 1.00 percent V_2O_5—corresponds to the U. S. Atomic Energy Commission purchase cutoff for uranium and the commonly used mill cutoff for vanadium. Reserves are figured also on a lower cutoff—0.05 percent U_3O_8 or 0.50 percent V_2O_5—on the possibility that conditions in the future might demand or permit the mills to accept lower grade ore.

Calculation of tonnage

The method used for calculating the volume, and hence the tonnage, of a reserve unit 1 foot or more thick is based upon the premise that the reserve unit is a uniformly tapered mass. The average thickness of the drill-hole samples that can be combined within the specified grade class is assumed to be the average thickness of the reserve unit.

By definition, the tonnage of the indicated reserves is computed by projection for a reasonable distance on geologic evidence. In some places in the Beaver Mesa area, indicated reserves are projected where correlation of samples is good between drill holes that are not more than 100 feet apart. On the other hand, indicated reserves are not projected more than 25 feet beyond sample points, where the edge of the deposit has not been located or where correlation of data between sample points is lacking. Reserves are classed as inferred rather than indicated if the projection

exceeds these lengths. Inferred reserves are projected to the assumed limits of the deposits, as determined by geologic evidence and interpretation.

A constant of 14 cubic feet per short ton is used to calculate tonnage.

Calculation of grade

The average grade of the indicated reserves is calculated by weighting the assay values of all samples that qualify as reserves within the grade and thickness limits. As strict grade cutoffs are used, it is generally expected that the average grade assigned to the reserve blocks will be somewhat higher than the average grade of the ore that will be eventually mined from them, owing to the unavoidable dilution of the ore with waste and low-grade material during mining. On the other hand, the tonnage assigned to these blocks should be somewhat lower than the tonnage mined from them, owing to the increment of waste and low-grade material.

Reserve blocks

Masses or units of mineralized rock that constitute an indicated or inferred reserve, as defined by the thickness and grade cutoffs, are called reserve blocks. The geometric limits of reserve blocks are determined by the rules used in calculating reserves (see above). The exact positions of the blocks are not shown on figures 3 and 4 though the uranium-vanadium bearing ground that contains the blocks is designated by block numbers. Where mineralized layers overlap, even though they contain two or more

masses of reserves, a single block number is assigned, and the total tonnage of these masses, as well as their weighted grade, is shown on table 2. In addition, private drilling has discovered 230,000 short tons averaging 0.30 percent U_3O_8 and 1.25 percent V_2O_5.

Potential reserves

Potential reserves are estimates of the amount of reserve material that is probably present in deposits that have not been discovered to date, but whose presence is predicted on the basis of geologic reasoning. About 100,000 short tons of potential reserves are predicted for the Beaver Mesa area. These reserve masses are 1 foot or more thick and probably contain about 0.30 percent U_3O_8 and about 1.25 percent V_2O_5. Approximately one-half of these potential reserves probably are contained in deposits ranging from 1,000 to 5,000 short tons in the vicinity of the Lumsden group of mines. The remaining potential reserves are probably contained in small deposits, less than 1,000 short tons, throughout the favorable and mineralized areas in the central and east-central part of the Beaver Mesa area. Blocks D and E (fig. 3 and table 3) are typical examples of these small reserve masses.

PLANS AND RECOMMENDATIONS

No additional exploration is planned by the U. S. Geological Survey for the Beaver Mesa area. Because of excessive depth to the ore-bearing strata, exploratory drifting and underground drilling would probably be a less expensive method of developing additional reserves. However, several large favorable and mineralized areas in parts of secs. 25 and 36, T. 51 N., R. 20 W., and part of sec. 1, T. 50 N., R. 20 W., New Mexico principal meridian, Mesa County, Colo. need additional exploratory drilling (fig. 3). This drilling, if it cannot be supported by private capital, might merit Government participation.

LITERATURE CITED

Cater, F. W., Jr., 1955, Geology of the Gateway quadrangle, Colorado: U. S. Geol. Survey, Geologic Quadrangle Map 55.

Craig, L. C., Holmes, C. N., Cadigan, R. A., Freeman, V. L., Mullens, T. E., and Weir, G. W., 1955, Stratigraphy of the Morrison and related formations, Colorado Plateau region, a preliminary report: U. S. Geol. Survey Bull. 1009-E.

Dane, C. H., 1935, Geology of the Salt Valley anticline and adjacent areas, Grand County, Utah: U. S. Geol. Survey Bull. 863.

Fischer, R. P., 1942, Vanadium deposits of Colorado and Utah, a preliminary report: U. S. Geol. Survey Bull. 936-P, p. 363-394.

Fischer, R. P., and Hilpert, L. S., 1952, Geology of the Uravan mineral belt: U. S. Geol. Survey Bull. 988-A, p. 1-13.

U. S. Atomic Energy Commission, June 1951, Domestic Uranium program, Circ. 6.

Weeks, A. D., and Thompson, M. E., 1954, Identification and occurrence of uranium and vanadium minerals from the Colorado Plateaus: U. S. Geol. Survey Bull. 1009-B.

Weir, D. B., 1952, Geologic guides to prospecting for carnotite deposits on the Colorado Plateau: U. S. Geol. Survey Bull. 988-B, p. 15-27.

Table 4.--Assay data, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah

Geological Survey exploration, 1953-54. Assays by the U. S. Geological Survey.

Rock units containing less than 0.020 percent U_3O_8, less than 0.020 percent equivalent U_3O_8, and less than 0.10 percent V_2O_5, as determined by assay of drill core, are considered to be barren. Barren holes and rock units are omitted from this table.

Gamma-ray data obtained by probing drill holes with radiometric logging unit. Radioactivity expressed as percent equivalent U_3O_8. Values less than 0.020 percent eU_3O_8 are omitted from this table. These data are of doubtful reliability.

Assay data listed under blocks A-L are within the blocks of calculated reserves discussed in this report.

Assay data under "other holes" are within areas from which no reserves were calculated because the samples recovered are too thin or too weakly mineralized to qualify for the selected grade and thickness cutoffs.

Collar elevations and hole locations obtained by transit and stodia survey methods.

Undet Undetermined

e Equivalent

< Less than

* Represents reassay values

Table 4.--Assay data, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah.-Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	V_2O_5	$CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Block A										
BV-28 (7236)	399.1	399.7	0.6	0.37	4.60	0.9	2.2	398.9	400.1	1.2
	399.7	400.5	0.8	1.82	0.73	8.5	0.085	400.1	401.1	1.0
	400.5	400.6	0.1	0.49	0.55	0.7	1.9	401.1	401.9	0.8
	400.6	401.5	0.9	0.082	<0.1	4.6				
	401.5	401.8	0.3	0.20	0.29	7.0				
	401.8	402.4	0.6	0.66	4.37	3.4				
BV-59 (7239)	403.8	404.2	0.4	0.032	0.15	13.2	1.7	403.4	404.3	0.9
	404.2	405.0	0.8	0.94	5.73	1.8	0.11	404.3	405.7	1.4
	405.0	405.3	0.3	0.29	1.01	10.4				
	405.3	406.0	0.7	0.19	1.81	10.5				
	406.0	406.6	0.6	0.025	0.39	7.7				
BV-63 (7254)	415.3	415.6	0.3	0.15	4.30	1.4	0.21	414.9	415.5	0.6
	418.0	418.5	0.5	0.016e	0.52	7.0	0.078	418.0	419.1	1.1
	418.5	418.8	0.3	0.025	2.12	1.4				
	418.8	418.9	0.1	0.015	1.67	1.1				
	418.9	419.2	0.3	0.047	0.62	19.4				
	419.2	419.5	0.3	0.012e	0.33	Undet				
	419.5	419.6	0.1	0.31	1.24	21.1				

Table 4.--Assay data, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah,--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	V_2O_5	$CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Block B										
BV-36 (7219)	401.9	402.2	0.3	0.013e	0.12	Undet	0.090	402.8	403.7	0.9
	402.2	404.0	1.8	0.046	0.35	1.9	0.035	403.7	404.6	0.9
	404.0	404.7	0.7	0.22	0.67	1.2	0.038	404.6	406.4	1.8
	404.7	405.3	0.6	1.57	2.88	1.4	1.5	406.4	407.5	1.1
	405.3	406.8	1.5	0.89	0.84	1.2	0.36	407.5	408.7	1.2
	406.8	408.3	1.5	0.95	0.52	1.4	1.1	408.7	409.9	1.2
	408.3	408.9	0.6	0.39	2.10	1.1	0.055	409.9	412.2	2.3
	408.9	409.5	0.6	0.10	0.82	1.4	0.47	412.2	413.4	1.2
	409.5	409.8	0.3	0.11	0.87	1.6	0.040	413.4	415.6	2.2
	409.8	410.2	0.4	0.063	1.02	3.1				
	410.2	410.6	0.4	0.078	0.90	3.3				
	410.6	411.4	0.8	0.20	2.33	1.2				
	411.4	411.8	0.4	0.15	0.29	2.5				
	411.8	412.7	0.9	0.037	0.32	3.6				
	412.7	413.5	0.8	0.012e	0.15	Undet				
BV-62 (7229)	426.2	426.5	0.3	0.037	0.41	0.6	0.13	424.0	424.6	0.6
	432.9	433.3	0.4	0.14	0.60	2.4	0.41	430.4	431.6	1.2
	433.3	433.7	0.4	1.53	2.67	1.0	1.5	431.6	432.5	0.9
	433.7	435.2	1.5	0.59	0.26	3.6	0.55	432.5	433.5	1.0
	*433.7	435.2	1.5	0.63	0.31	Undet	0.049	433.5	436.3	2.8
	435.2	435.5	0.3	0.13	0.17	4.0				
	435.5	436.7	1.2	0.033e	<0.1	Undet	0.040	437.6	439.4	1.8
	436.7	438.3	1.6	0.054	<0.1	7.0	0.035	439.4	440.2	0.8
	438.3	438.5	0.2	0.51	0.36	1.4				
	438.5	438.8	0.3	0.034	<0.1	7.3				
	438.8	439.1	0.3	0.15	0.14	7.0				
	439.1	440.3	1.2	0.035	<0.1	14.6				

Table 4.--Assay data, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Block C										
BV-66 (7213)	411.6	412.2	0.6	0.040	0.64	2.5	0.023	311.7	312.5	0.8
	412.2	412.6	0.4	0.34	0.24	2.8				
	412.6	413.1	0.5	0.69	0.28	14.2	0.032	338.4	340.1	1.7
	*412.6	413.1	0.5	0.72	0.26	Undet				
	413.1	413.4	0.3	0.038	<0.1	13.2	0.14	351.1	352.1	1.0
	415.0	416.2	1.2	0.035	0.12	4.1	0.042	384.8	385.6	0.8
	416.2	416.6	0.4	0.15	<0.1	4.8				
	416.6	417.1	0.5	0.57	0.34	3.1	0.034	386.6	387.8	1.2
	417.1	417.5	0.4	1.38	3.13	2.0				
	417.5	417.8	0.3	0.34	0.40	2.9	0.82	409.3	410.2	0.9
	417.8	418.4	0.6	0.052	0.36	2.2				
	418.4	418.7	0.3	0.14	0.26	2.4	0.13	413.1	415.3	2.2
	418.7	419.3	0.6	0.068	0.38	2.6	0.84	415.3	416.4	1.1
	419.3	420.4	1.1	0.17	0.58	2.5				
	420.4	420.5	0.1	0.17	1.04	6.0	0.27	417.6	418.9	1.3
	420.5	421.7	1.2	0.40	1.35	5.6				
	421.7	422.9	1.2	0.34	3.13	8.8	0.49	419.2	421.5	2.3
	422.9	423.0	0.1	0.16	2.44	6.8				
	423.0	423.3	0.3	0.027e	0.21	Undet				
BV-93 (7234)	411.4	411.7	0.3	0.054	0.18	2.8	0.46	412.4	413.6	1.2
	411.7	412.4	0.7	0.025e	0.93	1.5				
	412.4	413.0	0.6	0.11	1.50	1.8	0.034	416.0	416.9	0.9
	413.0	413.9	0.9	0.28	1.75	1.9				
	413.9	414.5	0.6	0.097	0.70	1.8				
	414.5	415.1	0.6	0.038	0.78	1.6				
	416.6	416.8	0.2	0.065	1.66	1.6				

Table 4.--Assay data, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah.—Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Block C--Continued										
BV-96 (7219)	356.1	357.6	1.5	0.061	0.21	9.2	0.058	344.5	345.5	1.0
							0.025	345.5	346.8	1.3
	395.3	396.2	0.9	0.046	<0.1	19.7				
	396.2	396.5	0.3	0.23	<0.1	21.5	0.18	356.2	357.1	0.9
	*396.2	396.5	0.3	0.26	0.03	Undet				
	396.5	396.7	0.2	0.83	<0.1	7.1	0.98	395.2	396.0	0.8
	*396.5	396.7	0.2	0.85	0.03	Undet				
	396.7	397.3	0.6	0.050	<0.1	7.5				
	400.2	400.5	0.3	0.039	0.13	4.7	0.98	399.5	400.3	0.8
	400.5	401.1	0.6	1.16	0.14	2.9				
	401.1	401.7	0.6	0.043	0.23	3.8	0.034	416.8	418.2	1.4
	415.2	415.5	0.3	0.023	4.18	0.7	0.025	420.4	422.3	1.9
	415.7	416.2	0.5	0.021	2.14	0.9	0.029	425.4	427.1	1.7
	418.7	419.3	0.6	0.009e	0.82	3.4				
	419.6	419.9	0.3	0.020e	0.50	1.5				
	427.0	428.2	1.2	0.027e	0.65	8.0				

Table 4.--Assay data, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Block D										
BV-103 (7514)	521.4	522.0	0.6	0.021e	0.30	---	0.090	352.2	353.3	1.1
	527.1	527.4	0.3	0.021e	<0.1	---	0.037	353.3	354.6	1.3
	527.4	527.8	0.4	0.34	1.65	0.8				
							0.030	357.3	358.6	1.3
	536.4	536.7	0.3	0.005	1.55	0.4				
	536.7	537.2	0.5	0.074	0.72	1.1	0.043	520.1	521.0	0.9
	537.2	537.6	0.4	0.22	1.75	0.7				
	537.6	538.2	0.6	0.021	0.10	4.4	0.88	526.0	526.5	0.5
	539.1	539.4	0.3	0.010e	0.10	Undet	0.45	537.5	538.3	0.8
Block E										
BV-212 (7377)	447.3	447.6	0.3	0.30	1.08	3.6	0.035	444.2	445.2	1.0
	447.6	448.2	0.6	0.14	3.23	2.0				
							0.39	446.5	447.3	0.8
	462.6	462.9	0.3	0.018	0.25	3.1				
	462.9	463.1	0.2	0.48	4.36	0.5	0.40	461.1	461.7	0.6
	463.1	463.8	0.7	0.060	0.23	7.8	0.65	461.7	462.5	0.8
	463.8	464.2	0.4	0.20	0.25	3.2				
BV-57 (7376)	No sample						0.88	451.8	452.9	1.1
							0.047	452.9	453.8	0.9
							0.56	453.8	455.4	1.6
							0.051	455.4	457.3	1.9

Table 4.--Assay data, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah,--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Block F										
BV-82	591.9	592.2	0.3	1.11	11.42	0.9	0.90	592.0	592.7	0.7
(7437)	592.2	592.5	0.3	0.042	0.49	4.4	0.021	592.7	593.6	0.9
	592.5	592.8	0.3	0.023e	0.31	Undet				
	592.8	592.9	0.1	0.18	11.62	0.3	0.024	598.1	598.8	0.7
	592.9	593.0	0.1	0.025e	0.82	1.7				
BV-106	558.1	558.4	0.3	0.073	1.30	1.5	0.91	564.8	566.0	1.2
(7422)	558.4	558.6	0.2	0.19	1.76	1.4				
	558.6	558.9	0.3	0.10	0.48	2.3	0.038	572.7	573.5	0.8
	565.0	566.5	1.5	0.50	2.02	3.6	0.026	600.3	601.1	0.8
	571.8	573.3	1.5	0.017e	0.40	Undet				
	573.3	573.5	0.2	0.075	3.46	0.4				
BV-107	570.5	571.7	1.2	0.18	2.58	7.6	0.37	569.4	570.4	1.0
(7439)	571.7	572.6	0.9	0.040	0.29	7.5				
							0.31	572.1	572.8	0.7
	573.8	574.1	0.3	0.066	0.37	9.3				
	574.1	574.4	0.3	0.33	1.68	6.3	0.18	578.5	579.2	0.7
	574.4	574.6	0.2	0.029e	0.80	5.2				
	580.2	580.7	0.5	0.087	0.96	2.5				

Table 4.--Assay data, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah.—Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	V_2O_5	$CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Block G										
BV-48 (7055)	251.8	252.3	0.5	0.054	1.43	0.9	0.027	219.2	220.3	1.1
	252.3	252.6	0.3	0.13	0.82	0.4				
	252.6	252.9	0.3	0.017	0.15	0.5	0.32	251.6	252.5	0.9
	252.9	253.2	0.3	0.053	1.98	0.3				
	253.2	253.3	0.1	0.005e	1.11	1.2				
Block H										
BV-88 (7278)	242.1	242.7	0.6	0.77	1.33	12.6	0.86	261.6	262.2	0.6
	242.7	243.7	1.0	0.085	0.23	24.9	0.15	262.2	263.5	1.3
	243.7	244.2	0.5	0.20	0.61	22.6				
	244.2	245.2	1.0	0.097	0.26	10.4	0.024	265.0	265.9	0.9
							0.16	266.8	267.8	1.0
Block I										
BV-143 (7386)	507.9	508.8	0.9	0.058	0.12	12.36	0.25	495.3	496.1	0.8
	509.4	510.4	1.0	0.025e	<0.1	Undet	0.031	499.6	501.2	1.0
	511.0	511.3	0.3	0.037	<0.1	Undet	0.53	502.1	503.1	1.0
	511.3	512.5	1.2	0.31	1.63	7.50				
	512.5	513.3	0.8	0.11	0.80	14.31	0.020	541.1	543.0	1.9
	545.5	546.6	1.1	0.006e	0.11	Undet	0.44	543.0	543.9	0.9
	550.3	550.9	0.6	0.027e	<0.1	Undet	0.12	543.9	544.7	0.8
	552.4	552.7	0.3	0.098	1.80	6.33	0.024	544.7	545.9	1.2
	552.7	553.3	0.6	0.19	2.33	6.96				
	553.3	553.9	0.6	0.043	1.31	7.50				

Table 4.--Assay data, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	V_2O_5	$CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Block J										
BV-149 (7411)	562.2	563.2	1.0	0.020e	<0.1	Undet	0.030	560.5	562.4	1.9
							0.60	562.4	563.1	0.7
	563.7	565.0	1.3	0.40	3.17	7.50				
							1.80	566.8	567.6	0.8
	568.3	568.9	0.6	1.52	3.70	4.14				
	568.9	569.7	0.8	0.24	11.75	6.33	0.031	569.5	570.6	1.1
Block K										
BV-167 (7098)	265.8	266.1	0.3	0.045	0.20	3.21	0.055	265.9	267.1	1.2
	266.1	266.4	0.3	0.006e	0.38	Undet				
	266.4	267.3	0.9	0.024e	0.56	1.60	15.0	270.0	271.3	1.3
	267.3	267.6	0.3	0.015e	0.30	Undet	0.026	271.3	273.3	2.0
	267.6	267.9	0.3	0.020e	0.37	Undet				
	267.9	268.2	0.3	0.004e	0.30	Undet	0.33	274.0	275.1	1.1
							0.064	275.1	276.3	1.2
	268.8	269.7	0.9	0.032e	0.31	Undet				
	269.7	270.0	0.3	0.16	2.40	0.26				
	270.0	270.6	0.6	1.03	15.23	0.11				
	270.6	270.8	0.2	1.20	10.90	0.07				
	270.8	271.3	0.5	17.53	26.46	0.20				
	271.3	271.8	0.5	0.41	16.32	0.13				
	274.5	275.4	0.9	0.18	1.81	0.20				
	275.4	276.8	1.4	0.050	0.50	0.87				

Table 4.--Assay data, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah.—Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	V_2O_5	$CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Block L										
BV-208 (7534)	597.1	597.5	0.4	1.99	9.79	0.6	Not Probed			
	597.5	598.4	0.9	0.11	0.25	19.7				
	598.7	599.0	0.3	0.026e	<0.1	Undet				
Other Holes										
BV-16 (7564)	187.7	189.5	1.7	0.054	<0.1	5.1	0.023	15.9	16.8	0.9
	189.5	190.2	0.7	0.60	<0.1	11.1				
	190.2	190.8	0.6	0.057	<0.1	10.7	0.024	43.6	45.1	1.5
							0.020	46.4	48.5	2.1
							2.3	187.9	188.8	0.9
BV-39A (7239)	403.2	403.5	0.3	0.014e	1.72	0.7	0.16	404.2	405.1	0.9
	404.7	405.3	0.6	0.045	0.15	2.0	0.045	413.4	414.5	1.1
	405.3	406.5	1.2	0.079	0.73	2.1				
BV-43 (7169)	277.6	278.2	0.6	0.17	0.20	3.6	0.056	272.3	273.3	1.0
	278.2	278.5	0.3	0.098	0.32	0.7				
	278.5	278.8	0.3	0.055	<0.1	6.2				
BV-50 (7368)	No Sample						0.035	480.1	481.3	1.2
							0.16	519.0	519.7	0.7

Table 4.--Assay data, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah.—Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	V_2O_5	$CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other Holes--Continued										
BV-51 (7236)	405.8	406.1	0.3	0.033e	0.15	Undet	0.13	404.4	405.4	1.0
	406.1	406.4	0.3	0.62	0.17	3.7	0.21	405.4	407.4	2.0
	406.4	406.7	0.3	0.053	<0.1	9.0				
	406.7	407.0	0.3	0.18	<0.1	11.8				
	408.2	408.8	0.6	0.032e	<0.1	Undet				
BV-53 (7229)	416.4	416.7	0.3	0.031	0.15	1.0	0.021	407.8	409.6	1.8
	416.7	417.2	0.5	0.19	0.48	9.2	0.21	415.3	416.2	0.9
	417.5	417.7	0.2	0.015e	0.62	8.1	0.035	418.8	420.7	1.9
	419.8	420.2	0.4	0.038	<0.1	7.5				
	420.2	420.5	0.3	0.071	1.32	2.8				
	420.5	420.8	0.3	0.034e	0.37	Undet				
	421.4	421.7	0.3	0.057	0.59	6.5				
BV-55 (7406)	566.0	566.3	0.3	0.024	<0.1	0.3	0.020	559.6	560.6	1.0
							0.030	567.2	568.2	1.0

Table 4.--Assay data, Beaver Mesa area, Mesa County, Colo., and Grand County, Utah.—Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other Holes--Continued										
BV-58 (7215)	404.9	405.0	0.1	0.068	3.07	0.9	0.54	409.1	409.8	0.7
							0.021	409.8	412.3	2.5
	410.4	410.7	0.3	0.40	0.74	1.0				
	410.7	410.8	0.1	0.099	0.37	1.8	0.17	413.7	414.5	0.8
	410.8	411.4	0.6	0.040e	<0.1	Undet				
							0.025	418.6	419.7	1.1
	412.0	412.3	0.3	0.038	0.22	2.2				
							0.028	421.7	424.3	2.6
	414.1	414.7	0.6	0.022e	0.17	Undet				
	415.3	415.6	0.3	0.36	0.12	1.3				
	415.6	416.5	0.9	0.034e	<0.1	Undet				
	425.5	426.1	0.6	0.043	<0.1	19.4				
BV-61 (7474)	662.9	663.2	0.3	0.043	<0.1	1.4	0.020	447.5	448.5	1.0
	663.2	663.6	0.4	1.24	0.17	0.8				
							0.048	449.2	450.3	1.1
	*663.2	663.6	0.4	1.27	0.17	Undet				
							0.98	662.0	662.6	0.6

Table 4.--Assay data, Beaver Mesa area, Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU308	Depth in feet From	To	Thickness (feet)
Other holes										
BV-64 (7500)	No sample						0.022	615.6	616.6	1.0
							0.038	627.0	627.9	0.9
BV-68 (7471)	No sample						0.046	552.8	554.1	1.3
							0.022	555.5	557.0	1.5
BV-71 (7500)	609.3	609.6	0.3	0.025e	0.20	Undet	0.037	609.6	611.2	1.6
	609.9	610.5	0.6	0.067	0.31	2.0	1.8	614.6	615.2	0.6
							0.090	633.1	633.8	0.7
	614.2	614.4	0.2	2.65	9.86	0.4				
	614.4	614.6	0.2	0.092	0.59	0.4	0.25	633.8	634.5	0.7
	614.6	614.7	0.1	0.18	0.38	2.3				
	614.7	615.1	0.4	0.11	0.17	7.3				
	615.1	616.0	0.9	0.014e	0.13	Undet				
	632.3	633.4	1.1	0.046	0.43	2.7				
	633.4	633.6	0.2	0.031e	<0.1	Undet				
BV-73 (7448)	493.9	494.3	0.4	1.20	4.54	4.6	Not Probed			
	496.3	496.9	0.6	0.12	0.11	5.7				
	496.9	497.1	0.2	0.066	<0.1	6.5				

Table 4.--Assay data, Beaver Mesa area, Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-75 (7114)	No sample						0.024	215.3	216.6	1.3
							0.030	223.9	224.9	1.0
BV-76 (7231)	365.3	366.5	1.2	0.029	0.26	0.3	0.12	366.7	367.7	1.0
							0.027	368.9	369.5	0.6
BV-77 (7428)	523.7	524.3	0.6	0.025e	<0.1	Undet				
	524.3	525.0	0.7	0.24	1.51	5.4	0.35	524.7	525.4	0.7
BV-78 (7508)	515.6	516.3	0.7	0.026	0.28	4.4	0.048	349.0	350.3	1.3
	516.3	516.6	0.3	0.062	<0.1	0.5				
	517.5	518.4	0.9	0.029e	<0.1	Undet	0.040	358.3	359.5	1.2
	518.4	518.7	0.3	0.40	0.26	3.3				
	518.7	519.3	0.6	0.065	1.43	1.9	0.12	516.0	517.1	1.1
	530.1	530.5	0.4	3.02	13.97	0.2	0.033	517.8	518.8	1.0
							0.20	518.8	519.7	0.9
	537.5	537.9	0.4	0.44	1.12	1.6				
							7.0	530.5	531.1	0.6
							0.54	538.1	538.8	0.7

Table 4.--Assay data, Beaver Mesa area Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes.--Continued.										
BV-81 (7452)	599.0	599.3	0.3	0.026e	<0.1	Undet	0.034	594.7	596.3	1.6
	599.6	599.9	0.3	0.022e	<0.1	Undet				
BV-91 (7581)	607.3	607.8	0.5	0.02	1.60	Undet	Not Probed			
	(Assay data by private company. From interval below bottom of U. S. Geol. Survey hole.)									
BV-94 (7196)	No sample						0.050	325.3	326.4	1.1
BV-95 (7205)	345.1	345.4	0.3	0.23	<0.1	0.8	0.054	366.4	337.3	0.9
	*345.1	345.4	0.3	0.26	0.04	Undet				
	386.1	386.7	0.6	0.018e	0.25	Undet	0.054	347.3	348.1	0.8
	388.5	389.1	0.6	0.026e	0.11	Undet	0.054	390.0	390.9	0.9
	389.4	389.7	0.3	0.026e	< 0.1	Undet	0.030	392.0	393.0	1.0
	390.0	390.3	0.3	0.016e	0.10	Undet				
BV-97 (7400)	489.0	489.3	0.3	0.042	2.05	1.9	0.035	409.7	410.4	0.7
	489.3	489.5	0.2	0.014e	0.35	Undet				
							0.043	467.2	468.0	0.8
							0.034	488.7	489.6	0.9
BV-98 (7379)	383.8	384.8	1.0	0.023e	0.15	Undet	0.040	384.7	386.1	1.4

Table 4.--Assay data, Beaver Mesa area Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-99 (7373)	443.9	444.4	0.5	0.052	0.27	8.5	0.35	444.6	445.3	0.7
	444.4	444.9	0.5	0.16	2.82	2.8				
							0.17	452.3	453.0	0.7
	452.0	452.3	0.3	0.018	3.25	2.2				
	452.3	453.2	0.9	0.026e	0.10	--	0.049	453.0	453.7	0.7
	455.9	456.8	0.9	0.034e	<0.1	--	0.86	457.2	457.8	0.6
	456.8	457.4	0.6	0.19	0.15	6.0				
							0.021	460.2	461.0	0.8
BV-102 (7501)	No sample						0.078	344.6	345.2	0.6
							0.024	345.7	346.3	0.6
							0.048	514.1	514.5	0.4
BV-104 (7499)	518.4	518.7	0.3	0.012e	1.47	0.4	Not probed			
BV-109 (7482)	635.8	636.6	0.8	0.28	2.42	0.6	0.028	626.8	627.7	0.9
	637.5	638.1	0.6	0.021e	0.13	Undet	0.43	633.1	633.8	0.7
	642.0	642.3	0.3	0.016e	0.16	Undet	0.022	638.6	640.0	1.4

Table 4.--Assay data, Beaver Mesa area Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-110 (7494)	630.9	631.8	0.9	0.042	0.11	11.1	0.025	617.0	617.7	0.7
							0.044	624.0	625.1	1.1
							0.20	628.3	629.0	0.7
BV-112 (7434)	583.7	584.3	0.6	0.061	0.45	5.1	0.10	578.0	578.8	0.8
							0.021	580.1	581.1	1.0
							0.18	593.5	594.3	0.8
BV-116 (7435)	505.7	506.3	0.6	0.40	1.54	1.4	0.33	505.5	506.3	0.8
	506.3	506.7	0.4	0.031e	<0.1	Undet				
	506.7	507.7	1.0	0.028e	<0.1	Undet	0.052	506.3	508.1	1.8
	507.7	508.3	0.6	0.027e	<0.1	Undet				
	508.3	508.8	0.5	0.92	3.22	1.5	0.90	508.1	508.8	0.7
BV-120 (7437)	No sample						0.040	485.3	486.7	1.4
							0.034	499.3	500.0	0.7

Table 4.--Assay data, Beaver Mesa area Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-122 (7409)	No sample						0.020	410.3	411.2	0.9
							0.025	416.3	418.3	2.0
							0.42	461.3	461.8	0.5
BV-123 (7371)	455.6	455.9	0.3	0.018e	<0.1	Undet	Not probed			
	456.5	456.8	0.3	0.021e	<0.1	Undet				
	457.1	457.4	0.3	0.024e	<0.1	Undet				
BV-125 (7485)	612.0	612.3	0.3	0.068	0.17	7.80	0.050	610.4	611.4	1.0
BV-130 (7452)	639.9	640.2	0.3	0.046	1.52	5.40	0.066	637.4	638.3	0.9
BV-131 (7057)	196.8	197.1	0.3	0.046	0.39	13.02	0.048	196.8	197.9	1.1
	257.3	257.6	0.3	0.10	<0.1	4.17	0.025	256.6	258.2	1.6

Table 4.--Assay data, Beaver Mesa area Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-132 (7480)	660.9	661.2	0.3	0.020e	<0.1	Undet	0.032	469.4	472.8	3.4
	661.2	661.5	0.3	0.18	<0.1	4.28				
	661.5	662.4	0.9	0.030	<0.1	5.43	0.023	472.8	474.7	1.9
	662.4	662.7	0.3	0.35	<0.1	3.45				
	664.3	664.6	0.3	0.027e	<0.1	Undet	0.032	536.0	537.2	1.2
	664.9	665.2	0.3	0.10	<0.1	13.65				
	665.2	665.4	0.2	0.033e	<0.1	Undet	0.022	654.2	655.0	0.8
							0.10	661.8	662.4	0.6
							0.056	662.4	663.1	0.7
							0.18	663.1	663.9	0.8
							0.090	665.2	666.3	1.1
BV-133 (7205)	406.0	407.2	1.2	0.006e	0.15	Undet	0.13	406.4	407.4	1.0
	407.2	408.1	0.9	0.020e	<0.1	Undet				
	408.1	408.4	0.3	0.030e	0.27	Undet				
	408.4	409.0	0.6	0.23	0.27	4.62				
	409.0	409.3	0.3	0.090	<0.1	6.45				
	409.3	409.6	0.3	0.068	<0.1	6.18				

Table 4.--Assay data, Beaver Mesa area Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	V_2O_5	$CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-134 (7279)	343.6	343.9	0.3	0.055	<0.1	8.91	0.028	344.2	345.6	1.4
	345.8	346.1	0.3	0.076	0.12	19.74	0.034	346.7	347.5	0.8
	385.5	385.7	0.2	0.027e	1.37	3.42	0.033	386.9	389.4	2.5
	386.6	387.2	0.6	0.058	<0.1	4.86	0.098	389.4	390.4	1.0
	387.8	388.7	0.9	0.10	0.27	5.10				
BV-137 (7449)	476.1	476.5	0.4	0.10	3.43	1.15	0.068	475.2	476.2	1.0
	476.5	476.8	0.3	0.049	0.25	10.05	0.024	476.2	477.3	1.1

Table 4.--Assay data, Beaver Mesa area Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-139 (7212)	317.5	317.8	0.3	0.032e	<0.1	Undet	0.053	318.7	319.5	0.8
	317.8	318.1	0.3	0.045	0.19	9.45	0.14	324.3	325.0	0.7
	321.5	321.8	0.3	0.054	<0.1	5.43	0.058	361.7	362.4	0.7
	323.2	323.5	0.3	0.35	<0.1	6.18				
	323.5	323.9	0.4	0.051	<0.1	6.78	0.17	381.5	382.3	0.8
	361.0	361.6	0.6	0.030e	<0.1	Undet	0.023	382.3	383.5	1.2
	381.5	381.9	0.4	0.13	<0.1	0.59	0.11	383.5	384.5	1.0
	382.2	382.5	0.3	0.034e	<0.1	Undet	0.086	406.7	407.5	0.8
	383.1	383.4	0.3	0.068	<0.1	2.92				
	383.4	383.7	0.3	0.19	0.14	2.12				
	383.7	384.6	0.9	0.073	0.61	1.64				
	384.6	385.4	0.8	0.012e	0.50	1.60				
	407.0	407.4	0.4	0.10	0.90	2.26				
BV-140 (7178)	362.1	362.4	0.3	0.021e	<0.1	Undet	0.032	361.4	362.6	1.2
	374.3	374.4	0.1	0.071	< 0.1	7.50	0.033	369.5	370.4	0.9
	374.4	374.7	0.3	0.092	0.11	0.35	0.059	373.0	373.7	0.7

Table 4.--Assay data, Beaver Mesa area Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-141 (7424)	No sample						0.090	567.7	568.3	0.6
BV-142 (7167)	357.3	358.8	1.5	0.051	<0.1	4.83	0.21	357.8	358.7	0.9
	358.8	359.0	0.2	0.73	0.35	3.45	0.035	358.7	359.1	1.4
	359.0	359.3	0.3	0.024e	<0.1	Undet				
							0.24	359.1	359.7	0.6
	360.2	360.5	0.3	0.028e	<0.1	Undet				
	360.5	360.8	0.3	0.46	<0.1	5.55				
	360.8	361.1	0.3	0.066	<0.1	3.33	0.038	360.0	360.2	0.2
	361.1	361.3	0.2	0.20	<0.1	3.75				
	364.1	364.4	0.3	0.025e	<0.1	Undet	0.47	360.7	361.5	0.8
	365.0	365.9	0.9	0.031e	<0.1	Undet	0.056	364.7	365.7	1.0
	366.5	367.7	1.2	0.027e	<0.1	Undet				
	371.2	371.5	0.3	0.067	<0.1	15.60	0.55	370.2	371.1	0.9
BV-144 (7466)	613.7	613.9	0.2	0.064	<0.1	5.88	0.027	589.6	590.6	1.0
	613.9	614.2	0.3	0.021e	<0.1	Undet				
							0.028	612.4	613.4	1.0
BV-147 (7388)							0.024	542.8	543.3	0.5
BV-150 (7422)	No sample						0.094	495.6	496.4	0.8

Table 4.--Assay data, Beaver Mesa area Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	V_2O_5	$CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes--Continued										
BV-151 (7403)	517.2	517.5	0.3	0.055	0.19	10.02	0.028	515.7	516.8	1.1
	569.1	570.6	1.5	0.061	0.19	5.10	0.13	568.2	568.9	0.7
	570.6	571.8	1.2	0.072	<0.1	6.33	0.038	569.1	569.6	0.5
	572.4	573.0	0.6	0.030	0.51	3.09	0.31	570.3	571.1	0.8
							0.092	571.6	572.2	0.6
BV-152 (7352)	No sample						0.035	518.5	519.5	1.0
BV-153 (7379)	551.2	552.1	0.9	0.037	0.31	3.87	0.076	550.3	551.1	0.8
	556.2	556.4	0.2	1.45	4.34	0.49	0.92	555.5	556.3	0.8
	556.4	556.7	0.3	0.59	0.72	2.04				
	556.7	556.8	0.1	2.25	6.61	1.35	0.094	560.3	561.0	0.7
	556.8	557.1	0.3	0.23	6.14	1.15				

Table 4.--Assay data, Beaver Mesa area Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU308	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-156 (7416)	561.4	562.3	0.9	0.029e	0.16	Undet				
	515.5	516.1	0.6	0.029e	0.16	Undet	Not probed			
	526.2	526.5	0.3	0.021e	0.30	Undet				
	603.3	604.5	1.2	0.032e	0.37	Undet				
	604.5	605.9	1.4	0.071	0.32	6.18				
	607.1	607.5	0.4	0.068	0.12	6.69				
	607.5	607.8	0.3	0.016e	0.18	Undet				
BV-157A (7462)	609.3	609.9	0.6	0.11	<0.1	0.93	0.048	610.1	610.7	0.6
BV-158 (7185)	376.8	377.0	0.2	0.032e	<0.1	Undet	0.21	377.2	377.9	0.7
	377.0	377.7	0.7	0.065	0.21	2.76				
	377.7	377.8	0.1	0.25	2.39	0.18				
BV-159 (7162)	348.5	348.8	0.3	0.026e	<0.1	Undet	0.57	350.7	351.4	0.7
	348.8	349.4	0.6	0.34	<0.1	11.46				
	349.4	350.6	1.2	0.029e	<0.1	Undet				
BV-160 (7167)	No sample						0.033	277.9	278.5	0.6

Table 4.--Assay data, Beaver Mesa area, Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-161 (7384)	483.8	485.3	1.5	0.050	0.32	1.53	0.031	479.9	480.7	0.8
	532.6	532.9	0.3	0.030e	2.03	1.59	0.072	482.6	483.4	0.8
							0.032	532.7	533.5	0.8
BV-163A (7258)	527.6	527.9	0.3	0.024e	0.16	Undet	0.025	535.1	536.5	1.4
	541.8	542.7	0.9	0.020e	<0.1	Undet				
	577.6	577.8	0.2	0.070	0.12	1.60	0.020	541.6	542.4	0.8
							0.030	577.8	578.4	0.6
BV-164 (7168)	306.7	307.0	0.3	0.052	0.12	4.17	0.026	305.9	306.9	1.0
							0.028	310.5	311.8	1.3
BV-165 (7424)	537.7	538.3	0.6	0.027e	<0.1	Undet	0.078	545.7	546.4	0.7
	538.6	540.4	1.8	0.026e	<0.1	Undet	0.035	554.3	555.0	0.7
	544.4	545.3	0.9	0.046	0.14	0.11				

Table 4.--Assay data, Beaver Mesa area, Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-166 (7199)	396.5	396.8	0.3	0.22	4.26	0.57	0.29	397.4	398.2	0.8
	396.8	397.1	0.3	0.17	0.28	1.60				
	397.1	397.4	0.3	0.025e	0.71	2.04				
BV-171 (7486)	656.7	657.0	0.3	0.032e	<0.1	Undet	0.036	656.9	657.6	0.7
BV-180A (7256)	386.4	386.9	0.5	0.089	0.16	13.7	0.024	385.0	385.8	0.8
	391.1	392.6	1.5	0.047	<0.1	15.0	0.032	386.8	387.8	1.0
							0.047	390.6	391.4	0.8
BV-185 (7215)	353.1	353.7	0.6	0.016e	0.40	Undet	0.66	353.4	354.2	0.8
	353.7	353.9	0.2	0.027e	0.42	Undet				
	353.9	354.3	0.4	0.12	0.89	3.3	0.023	358.0	359.1	1.1
	354.3	354.7	0.4	0.31	1.94	2.9				
	354.7	355.6	0.9	0.033	0.14	3.6				
BV-187 (7169)	282.3	283.2	0.9	0.026e	0.12	Undet	0.025	289.2	291.7	2.5
	283.5	284.4	0.9	0.019e	0.19	Undet	0.053	299.6	300.6	1.0
	290.9	292.7	1.8	0.083	<0.1	2.3				
	292.7	293.0	0.3	0.18	<0.1	5.4				
	293.0	293.9	0.9	0.047	<0.1	1.9				
	299.7	300.9	1.2	0.033e	0.19	Undet				

Table 4.--Assay data, Beaver Mesa area, Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU308	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-191 (7073)	182.6	182.7	0.1	0.35	2.60	1.4	0.027	162.7	163.7	1.0
	183.6	183.8	0.2	0.065	0.19	0.4	0.084	181.9	182.5	0.6
	183.8	184.0	0.2	0.33	1.96	0.3				
	184.0	184.1	0.1	0.065	0.54	0.3	0.30	183.2	183.8	0.6
	186.7	186.8	0.1	0.35	4.09	1.3	0.060	184.4	184.8	0.4
	191.3	192.2	0.9	0.065	0.40	1.9	0.54	186.4	187.1	0.7
							0.12	191.3	192.1	0.8
							0.036	192.1	192.7	0.6
BV-192 (7516)	No sample						0.036	525.8	526.4	0.6
BV-195 (7497)	533.3	533.5	0.2	0.005e	0.13	Undet	0.035	534.1	535.0	0.9
	533.5	534.0	0.5	0.004e	0.11	Undet	0.020	535.0	536.6	1.6
							0.056	536.6	538.1	1.5
	536.0	537.2	1.2	0.020e	<0.1	Undet				
	537.5	538.7	1.2	0.026e	<0.1	Undet				
	538.7	539.6	0.9	0.15	0.25	7.1				
BV-205 (7442)	575.8	576.7	0.9	0.13	<0.1	0.2	0.11	573.9	574.6	0.7

Table 4.--Assay data, Beaver Mesa area, Mesa County Colo., and Grand County, Utah.--Continued.

Hole No. and collar elev. (feet)	Assay data: Depth in feet From	To	Thickness (feet)	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$	Gamma-ray data: Percent eU_3O_8	Depth in feet From	To	Thickness (feet)
Other holes.--Continued										
BV-206 (7442)	441.9	442.5	0.6	0.022e	0.13	Undet	0.035	437.6	438.6	1.0
	482.5	483.1	0.6	0.11	0.11	0.9	0.029	440.2	441.4	1.2
							0.076	478.1	479.1	1.0
							0.038	495.6	496.1	0.5
BV-207 (7426)	526.0	526.9	0.9	0.077	0.11	9.3	Not probed			
BV-211 (7455)	571.9	572.2	0.3	0.063	1.31	0.5	0.12	385.0	385.6	0.6
							0.27	385.6	386.8	1.2
							0.022	386.8	393.4	6.6
							0.26	393.4	394.3	0.9
							0.095	394.9	395.7	0.8
							0.068	396.3	397.6	1.3
							0.030	400.7	401.3	0.6
							0.063	570.0	570.4	0.4