Carnotite Resources of the Dolores Bench, Montrose County, Colorado

By D. A. Jobin

Trace Elements Investigations Report 214

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Geology and Mineralogy

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CARNOTITE RESOURCES OF THE DOLORES BENCH, MONTROSE COUNTY, COLORADO*

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D. A. Jobin

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CARNOTITE RESOURCES OF THE DOLORES BENCH, MONTROSE COUNTY, COLORADO

By D. A. Jobin

ABSTRACT

The Dolores bench is about 2 miles northwest of Uravan, Montrose County, Colo. From 1913 to November 1952 about 95,000 short tons of ore averaging 0.40 percent U_3O_8 and 2.0 percent V_2O_5 was mined from the Dolores bench. The production represents three periods of activity--1913-18, 1938-43, and 1948-52.

The ore deposits are in broad sandstone lenses near the top of the Salt Wash member of the Jurassic Morrison formation. The deposits are mainly impregnations of sandstone by carnotite and vanadiferous clay minerals. The deposits are irregular tabular layers which occasionally include pod-like masses called "rolls". The rolls as well as the mineralized areas enclosing them have a poorly defined northeast trend.

Between December 4, 1951, and August 1, 1952, the U. S. Geological Survey diamond-drilled 183 holes totaling 53,654 feet.

The indicated and inferred reserves of carnotite-bearing material, and the pounds of contained U_3O_8 and V_2O_5 are summarized in table 1. At the highest thickness and grade cutoffs (1 foot thick and 0.10 percent U_3O_8 or 1.0 percent V_2O_5), indicated and inferred ore reserves total 90,000 short tons, averaging 0.33 percent U_3O_8 and 2.11 percent V_2O_5. These reserves include only those discovered by U. S. Geological Survey drilling. Potential reserves, whose existence is based on geologic evidence alone, are estimated to be about 10,000 short tons, averaging about 0.30 percent U_3O_8 and 2.00 percent V_2O_5.

No additional exploration of the Dolores bench is planned by the Geological Survey. Diamond drilling by claim owners is recommended in several parts of the area.

Table 1. Summary of indicated and inferred reserves 1 foot or more thick, Dolores bench, Montrose County, Colorado

Reserves	Grade cutoff	Short tons 1/	Percent		Pounds 2/	
			U_3O_8	V_2O_5	U_3O_8	V_2O_5
Indicated	0.10% U_3O_8 or 1.0% V_2O_5	40,900	0.27	1.52	221,000	1,243,500
	0.05% U_3O_8 or 0.50% V_2O_5	41,800	0.27	1.50	225,500	1,254,000
Inferred	0.10% U_3O_8 or 1.0% V_2O_5	49,200	0.38	2.60	374,000	2,558,500
	0.05% U_3O_8 or 0.50% V_2O_5	57,800	0.33	2.30	381,500	2,659,000

1/ Figures rounded to nearest 100 tons.

2/ Figures rounded to nearest 500 tons.

INTRODUCTION

The Dolores bench is about 2 miles northwest of Uravan, Montrose County, Colo., in parts of secs. 10, 15, 16, 19, 20, 21, 22, 28, 29, and 30, T. 48 N., R. 17 W., and parts of secs. 2, 11, 12, 13, 14, 24, and 25, T. 48 N., R. 18 W., New Mexico principal meridian (figs. 1 and 2). The area explored is a narrow bench about 2,000 feet wide on the north and east sides of the San Miguel and Dolores Rivers. The bench is developed on the resistant sandstones of the Morrison formation and partly surrounds Atkinson Mesa from Atkinson Creek on the southeast to Mesa Creek on the northwest. Access to the area is by two unimproved roads, both of which connect with Colorado Highway 141 two miles northwest of Uravan. Approximately half the area explored is covered by private claims and the balance is public land.

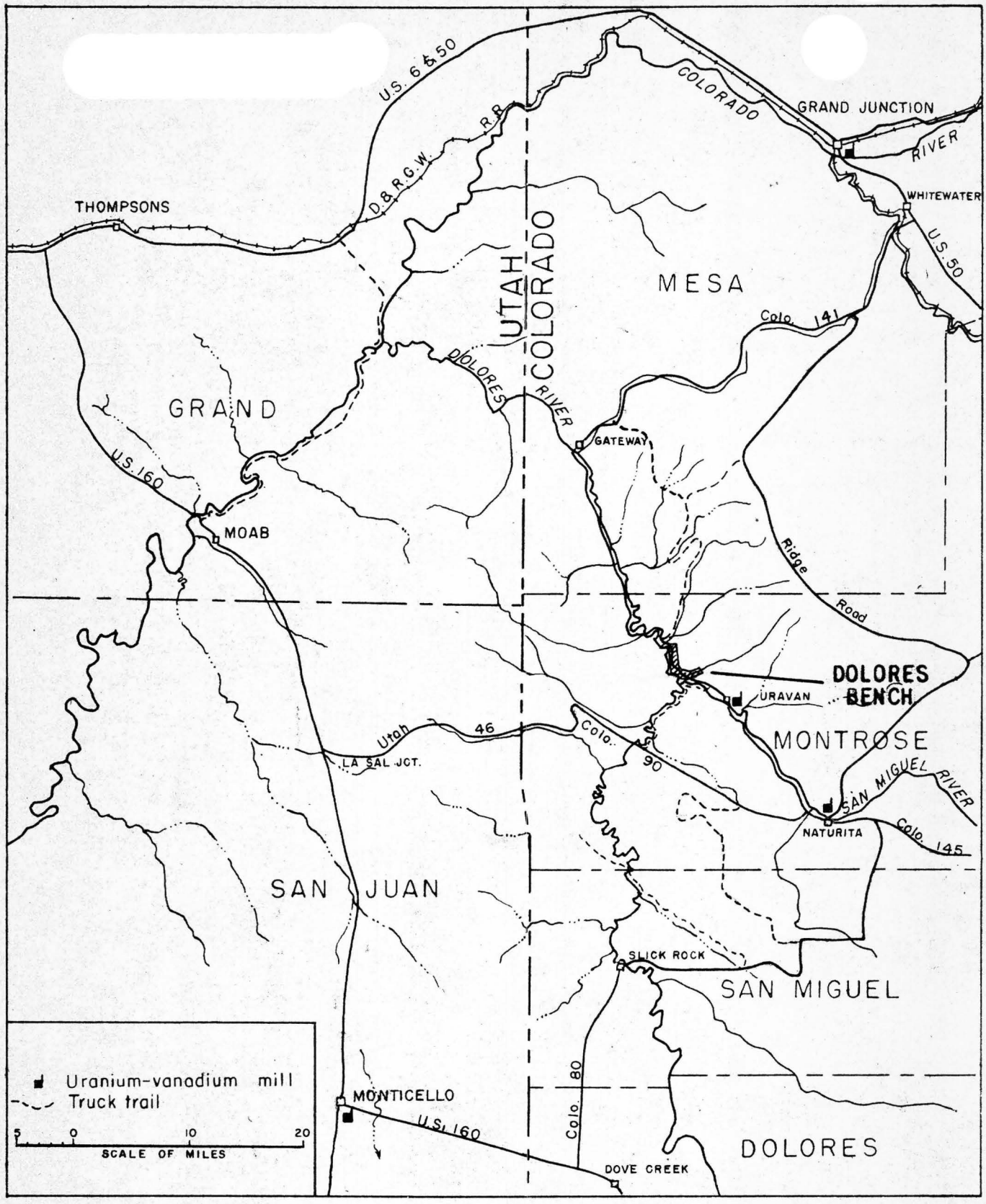

Figure 1. INDEX MAP OF PART OF THE COLORADO PLATEAU SHOWING THE LOCATION OF THE DOLORES BENCH, MONTROSE COUNTY, COLORADO

The bench has a moderate relief and ranges in altitude from 5,200 feet at the outcrop of the ore-bearing sandstone to about 6,000 feet at the Atkinson Mesa rim. The topography is comprised of gentle undulatory slopes which steepen and become hummocky with landslide blocks and debris near the Burro Canyon rim which caps Atkinson Mesa. Locally, steep-walled ravines transect the bench and, together with the landslide debris, make access difficult. The climate is semiarid and supports a sparse growth of piñon and juniper interspersed with sagebrush. Water is absent except where small check dams have been constructed to gather the runoff from a few of the larger ravines.

Mines in the area produced about 95,000 tons of ore between 1913 and 1952 (all tons mentioned in this report are short tons). Mining was interrupted from 1918 to 1938 and from 1943 to 1948 when virtually no ore was produced. Early mining from 1913 to 1918 was for the radium content of the carnotite ores and produced about 4,800 tons of ore averaging 2.0 percent U_3O_8 (table 2). About 59,600 tons of ore containing an average of 0.35 percent U_3O_8 and 1.75 percent V_2O_5 was produced from 1938 through 1943 (table 2). During this period the ore was mined chiefly for its vanadium content. The present mining in the area, which has been continuous from 1948, has produced about 30,200 tons of ore averaging 0.28 percent U_3O_8 and 1.50 percent V_2O_5 (table 3).

Private drilling, primarily by the United States Vanadium Company, has totaled about 45,000 feet of diamond drilling and about 5,000 feet of wagon drilling. The bulk of this has been development drilling near existing mines. A smaller amount was expended in exploration for new deposits and in blocking out deposits discovered by Geological Survey drilling, particularly in the areas where ore deposits were found at shallow depths.

Drilling by the Geological Survey on the Dolores bench from December 4, 1951, through August 1, 1952, amounted to 183 diamond-drill holes totaling 53,654 feet. The purpose of this drilling was to find new deposits and to appraise the uranium-vanadium reserves of the Dolores bench. Most of the drilling was used in testing ground some distance away from known deposits, ground that would probably not be drilled by private interests because of the large risks involved. Preliminary results of this drilling were reported previously (Jobin, 1952a). This report is a summary of the drilling results along with a brief description of the geology and the carnotite deposits of the Dolores bench.

Table 2. Production of carnotite ore from the Dolores bench, Montrose County, Colorado 1913-48 a/

Period	Ore (short tons)	Grade in percent	
		U_3O_8	V_2O_5
1913-18	4,800	2.00	10.0 b/
1919-37	0	--	--
1938	9,900	0.35 b/	1.75
1939	10,700	0.35 b/	1.75
1940	10,300	0.35 b/	1.75
1941	9,100	0.35 b/	1.75
1942	7,600	0.25 b/	1.24
1943	12,000	0.29 b/	1.43
Rounded total and weighted averages	64,400	0.45	2.25

a/ Data for 1913-43 from U. S. Vanadium Co., Uravan, Colo., and U. S. Geol. Survey, Grand Junction, Colo.

b/ Estimated on the basis of a 5:1 ratio for V_2O_5 to U_3O_8 as determined by production records for 1948-52.

Table 3. Production of carnotite ore from the Dolores bench, Montrose County, Colorado 1948-52 1/

Claim	Ore (short tons)	Percent 2/		Pounds 3/	
		U_3O_8	V_2O_5	U_3O_8	V_2O_5
Big Mitt	402.25	0.51	2.47	4,072	19,849
Black Rock	1,640.45	.22	1.46	7,141	48,018
Blue Bird	2,158.02	.30	1.61	13,075	69,627
Cliff Dweller	38.37	.19	1.31	146	1,007
Dolores	1,293.78	.41	2.01	10,604	52,028
Fox	897.33	.27	1.51	4,756	27,184
Joker	403.14	.33	1.50	2,654	12,089
Last Chance	136.10	.23	1.57	633	4,285
Last Chance No. 1	16.30	.15	1.10	50	359
Little Dick	318.63	.40	2.05	2,539	13,082
North Star	1,055.50	.27	1.87	5,614	39,537
Nucla	198.29	.51	1.81	2,034	7,194
Ophir	21,613.79	.26	1.42	113,239	612,055
Red Cow	9.64	.17	0.79	33	152
Totals and weighted averages	30,181.59	0.28	1.50	166,590	906,466

1/ Data from the Colorado Plateau Operations Office, Production Division, Atomic Energy Commission, Grand Junction, Colorado.

2/ Calculated from tonnage of ore and recoverable oxide as listed in Atomic Energy Commission records.

3/ Pounds of recoverable U_3O_8 and V_2O_5.

GEOLOGY

The rocks exposed on the Dolores bench are sedimentary beds of Jurassic and Cretaceous age and form a part of the southwestern limb of the northwestward-trending San Miguel syncline. These sedimentary beds strike about N. 35° W. and range in dip from 5° in the extreme southwest to horizontal where they cross the axis of the syncline. A small normal fault with a maximum stratigraphic separation of 40 feet offsets the beds in the eastern part of the bench (fig. 2). This is the only known fault in the area other than minor slump faults near the edges of the mesa.

The stratigraphic sequence from oldest to youngest consists of the Jurassic (?) Wingate and Kayenta formations, the Middle and Upper Jurassic Carmel and Entrada formations, the Upper Jurassic Summerville and Morrison formations, the Lower Cretaceous Burro Canyon formation and the Lower and Upper Cretaceous Dakota sandstone. The Morrison formation is divided into an upper member, the Brushy Basin, which is dominantly mudstone with a few sandstone lenses near the base, and a lower member, the Salt Wash, which is composed of alternating sandstone and mudstone beds. The Dolores bench is developed on the resistant sandstone of the lower part of the Brushy Basin and the upper part of the Salt Wash members. A preliminary report on the stratigraphy of the Morrison and related formations has been prepared (Craig and others, 1951).

Most of the known ore deposits are located in the uppermost sandstone strata of the Salt Wash member. These strata, called the "ore-bearing sandstone", are composed of partly overlapping and in places discontinuous compound lenses. The ore-bearing sandstone varies greatly in thickness, reaching a maximum of 120 feet where several individual lenses are superimposed, and thinning and disappearing completely, in other places. The areas where the ore-bearing sandstone is nonexistent are small and relatively few, so that it generally appears as a continuous series of strata averaging about 50 feet thick.

The ore-bearing sandstone is usually cross-bedded but may be massive. It is composed dominantly of medium to medium-fine grains, and ranges in color from gray to brown or red brown.

Mudstone as seams and interstitial grains or flakes is common with scattered lenses of mudstone pebble conglomerate. The mudstone within and surrounding the ore-bearing sandstone is dominantly red. A gradual change from red to gray or green occurs in the color of the mudstone within and immediately adjacent to the ore-bearing sandstone near zones of mineralized material. Near such zones the color of the sandstone usually changes from reddish brown to light brown owing to the abundance of limonite speckling and change of the interstitial mudstone from red to gray or green. Carbonaceous material, although common, is not always present in the ore deposits. It generally occurs as fragments of fossil trees, reeds, and leaves, but may be divided into flakes or aggregated into coaly masses up to several inches thick.

The Dolores bench lies within a "belt" which contains the major carnotite deposits of the Morrison formation. This belt and these deposits were described by Fischer and Hilpert (1952). A more complete discussion of the geology and character of the carnotite deposits of southwestern Colorado and Utah was given by Fischer (1942).

ORE DEPOSITS

In the Dolores bench the only commercial deposits of uranium and vanadium are found within the "ore-bearing sandstone" of the Salt Wash member of the Morrison formation. The deposits are found throughout this unit but are more common at the base and near the thicker parts of the unit. There is a close association of ore with sedimentary features such as festoons, cross-bedding, clay seams, clay-pebble conglomerates, and trash pockets. The mineralized layer coincides with or follows these sedimentary structures in general, but detailed examination reveals numerous crosscutting relationships.

The deposits range in content from a few tons to 80,000 tons and have an areal extent of a few hundred square feet to several thousand square feet. The thickness of mineralized material varies from a few tenths of an inch to over 20 feet. The shape of the deposits is usually irregularly tabular. Several pod-like ore masses may be connected by thin stringers of mineralized material. The ore

4. Carbonaceous material, especially in areas where gamma-ray data indicate it to be radioactive. Although carbonaceous material is wide-spread it is particularly abundant near mineralized rock.

5. Areas of abrupt change in thickness or mudstone content of the sandstone. These are common loci for ore.

6. The presence and degree of a radioactive anomaly at the contact between the ore-bearing sandstone and the underlying mudstone.

None of the above listed guides is sufficient in itself to delimit areas favorable for ore. The most consistently useful guide to ore is the presence and amount of gray-green mudstone. The other guides are useful chiefly as supplements to this criterion. Using these criteria as guides, it is possible after wide-spaced drilling to eliminate large areas of ground from further consideration and to concentrate on the most promising areas.

GEOLOGICAL SURVEY EXPLORATION

Between December 4, 1951, and August 1, 1952, the Geological Survey completed 183 diamond-drill holes for a total of 53,654 feet. The holes averaged about 293 feet in depth. Of the 183 holes drilled on the Dolores bench, 21 are in mineralized material of sufficient grade and thickness to be included in the highest reserve class used in this report (0.10 percent or more U_3O_8 and/or 1.0 percent or more V_2O_5 and 1 foot or more thick). Forty-one holes are in mineralized material (material containing 0.020 percent or more U_3O_8 or 0.10 percent or more V_2O_5) too low in grade or too thin to be included in the highest reserve class. Approximately 54 percent of the holes drilled were on public land with the balance on private claims.

The initial drilling was planned to explore the known favorable ground near the mines on 500-foot centers and to explore the deeper ground back from this by locating holes on 1,000-foot centers. As the favorable ground was defined it was drilled on 400- to 500-foot centers in search of new deposits. Most of these deposits were outlined on 150- to 200-foot centers. Over three-quarters of

the reserves discovered is on private claims and the balance is on public land. Enough drilling was done on private claims to furnish the minimum data necessary for the calculation of reserves and to stimulate owner development of the deposits.

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 natural outcrops, mine workings, or drill holes. These reserves are subdivided by thickness and grade cutoffs, and the method used in calculating them is explained below. Figures expressing the calculated tonnage and grade of the indicated and inferred reserves for each reserve block, and for each grade cutoff, are given in table 4. The ground containing the reserve blocks and several geologic sections showing the position of the mineralized rock in the ground is shown on figures 3 and 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 19.

Although reserves are not classified in this report according to their availability for mining, consideration was given to the 1951 mining and milling practices in selecting the higher grade and thickness cutoffs. 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 1951 conditions. A summary of indicated and inferred reserves in this category, and in a lower-grade category, is given in table 1. A detailed breakdown of reserves by grade and thickness cutoffs, and by block number, is given in table 4.

Table 4. Indicated and inferred reserves, 1 foot or more thick, Dolores bench, Montrose County, Colorado
(based on U. S. Geological Survey drilling, 1951-52)

Block No.	Location (claims)	Indicated reserves 1/						Inferred reserves 1/					
		Grade cutoff 0.10% U_3O_8 or 1.0% V_2O_5			Grade cutoff 0.05% U_3O_8 or 0.5% V_2O_5			Grade cutoff 0.10% U_3O_8 or 1.0% V_2O_5			Grade cutoff 0.05% U_3O_8 or 0.5% 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
1	Big Mitt, Slumgullion, Austin, Town House, Ruth Ellen, & public land	0	--	--	0	--	--	850	0.33	2.35	2,050	0.26	1.31
2	Ruth Ellen & Lucky Dog	2,350	0.30	2.18	2,550	0.29	2.06	300	0.30	2.16	750	0.26	2.05
3	Club No. 2 & Sandy	22,600	0.27	1.36	22,850	0.27	1.35	500	0.28	1.45	1,050	0.18	1.15
4	Abajo No. 5 & public land	2,300	0.24	1.18	2,450	0.23	1.14	1,850	0.24	1.18	2,000	0.23	1.13
5	Nucla, King Solomon Nos. 2-5, Indians & public land	0	--	--	0	--	--	34,750	0.42	2.97	38,250	0.39	2.77
6	Indians, Cliff Dweller, King Solomon No. 5 & public land	12,750	0.26	1.72	13,050	0.26	1.70	9,850	0.27	1.76	11,600	0.23	1.60
7	White Sox, Red Sox, & public land	900	0.33	1.73	900	0.33	1.73	1,100	0.33	1.73	2,100	0.17	1.15
Totals and weighted averages		40,900	0.27	1.52	41,800	0.27	1.50	49,200	0.38	2.60	57,800	0.33	2.30

1/ Rounded to nearest 50 tons

OFFICIAL USE ONLY

Indicated and inferred reserves

Definitions

Known reserves are classed as indicated and inferred. Owing to the erratic variations in thickness and grade of carnotite ore 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.

Indicated reserves _/ are those for which the grade is computed from drill-hole samples, exposures

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

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in mine workings and natural outcrops, gamma-ray logs, and production data, and for which the tonnage is computed by projections for a reasonable distance on geologic evidence from points of exposure (drill holes, mine workings, and natural outcrops). 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 ore-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, of course, 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.

Thickness cutoff

Although mining practices vary from place to place in the region as well as with individual operators, under 1951 mining conditions most ore bodies of average grade are being mined to where they pinch 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 cutoffs

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 1:5 as estimated from the assays of the Geological Survey drill core from the Dolores bench. 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 (Atomic Energy Commission, 1951) for ore, the vanadium content of ore containing the average metal ratio of 1:5 constitutes about one-third 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 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 Dolores bench area, indicated reserves are projected where correlation of samples is good between drill holes that are not more than 200 feet apart. On the other hand, indicated reserves are not projected more than 50 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 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.

Whenever a discrepancy was found between a uranium assay for a sample interval and the percentage of equivalent uranium, as shown on the gamma-ray log, an attempt was made to adjust this difference by using the average grade of the deposit, as based on other drill core assays and/or production figures.

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. The exact positions of the blocks are not shown on figures 3 and 4, though the mineralized 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 4.

Preliminary reports were transmitted for some of the reserve blocks on the Dolores bench. The report number, and past and present designations of these blocks are shown in the following table:

Present block No.	Former block No.	Report
2	A	Jobin 1952-b
3	B	" " c
6	C	" " d

Potential reserves

Potential reserves include the material in deposits that have not yet been found, but which are predicated solely on geologic evidence. It is expected that several deposits might be found between reserve blocks 3 and 4 (fig. 4), to the northwest of reserve block 3 (fig. 4), to the north and east of reserve block 7 (fig. 3), and northwest of the Big Mitt mines (fig. 4). A potential reserve of about

10,000 tons of material 1 foot or more thick and averaging about 0.30 percent U_3O_8 and 1.50 percent V_2O_5 is predicted in this ground.

PLANS AND RECOMMENDATIONS

No additional drilling by the Geological Survey is planned for the Dolores bench inasmuch as most of the favorable ground has been explored. Several promising deposits on privately owned claims were partially explored and the owners of these claims, primarily United States Vanadium Co., are now actively engaged in developing these Geological Survey discoveries.

The ore bodies found wholly or in part on public land all border the Atkinson Mesa area. Their possible extension into this area will be tested and the additional reserves, if any, will be reported at the completion of the drilling of the contiguous areas of Atkinson Mesa.

It is recommended that the area to the north and west of the Big Mitt mines (fig. 4) be wagon- or diamond-drilled by the claim owners to extend or connect the ore in this mine with the ore found by Geological Survey drill holes in this area. Similarly the claim owners should explore the ground between blocks 3 and 4 by close-spaced diamond-drill holes. Additional close-spaced drilling around individual Survey drill holes within and contiguous to the remaining reserve blocks on private claims is also recommended for claim owners, as these deposits were not completely defined.

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Table 5. Assay data, Dolores bench, Montrose County, Colorado

Geological Survey exploration, 1951-52. Assays by the Geological Survey. Samples in sandstone.

U. S. Vanadium Co. exploration, 1952. Assays by the U. S. Vanadium Co. Hole numbers have the prefix X or JX. Percent $CaCO_3$ undetermined.

Rock units containing less than 0.020% U_3O_8, less than 0.020% equivalent U_3O_8, and less than 0.10% 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 a radioactivity logging unit. Radioactivity expressed as percent equivalent U_3O_8. Values less than 0.020% eU_3O_8 are omitted from this table. Data of doubtful reliability.

Assay data listed under blocks 1-7 are within the blocks of calculated reserves.

Assay data listed 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.

Most collar elevations obtained by plane-table survey methods; others by less accurate methods shown with asterisk.

<	Less than
>	Greater than
e	Equivalent
Undet	Undetermined

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 1										
26 (5383)	15.0	16.9	1.9	0.020e	< 0.1	Undet	0.021	13.0	15.4	2.4
29 (5597)							0.053	210.0	210.9	0.9
31 (5400)	14.5	15.7	1.2	0.027e	< 0.1	Undet	0.022	13.9	15.4	1.5
	17.5	18.0	0.5	0.029	0.11	1.0				
	18.0	19.5	1.5	0.071	0.27	0.6	0.18	17.4	18.3	0.9
	19.5	19.8	0.3	0.045	0.13	1.8	0.049	18.3	20.1	1.8
	19.8	20.1	0.3	< 0.020e	0.33	Undet				
33 (5475)	93.7	94.7	1.0	0.029e	0.19	Undet	0.033	93.0	94.6	1.6
							0.037	94.6	95.6	1.0
	95.7	95.9	0.2	0.11	0.22	5.4	0.66	95.6	96.3	0.7
	95.9	96.2	0.3	0.88	1.82	1.6				
	96.2	96.7	0.5	0.065	0.20	1.6	0.045	98.0	99.2	1.2
	99.2	99.5	0.3	0.029e	0.11	Undet				
34 (5475)	86.4	86.8	0.4	< 0.020e	0.49	Undet	0.031	84.4	86.3	1.9
	86.8	87.3	0.5	0.10	2.60	0.2	2.2	86.3	86.9	0.6
	87.3	87.6	0.3	0.16	0.80	0.4	0.086	86.9	87.9	1.0
	87.9	88.1	0.2	0.50	0.78	0.1				
	88.1	88.4	0.3	0.64	3.36	0.2				
	88.4	88.6	0.2	0.046	14.62	0.6				
	88.6	88.9	0.3	0.039	1.28	0.2				
	88.9	89.2	0.3	< 0.020e	0.69	1.2				

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 1--Continued										
37 (5474)							0.020	105.6	106.5	0.9
137 (5536)	146.3	147.5	1.2	0.047	0.23	0.7	0.11	145.6	146.7	1.1
	147.5	148.1	0.6	< 0.020e	0.12	Undet	0.025	146.7	147.3	0.6
							0.13	147.3	148.2	0.9
139 (5533)	153.1	153.3	0.2	0.077	0.52	0.7	0.47	153.1	153.9	0.8
	153.3	153.6	0.3	0.091	0.52	1.2				
	153.6	153.8	0.2	0.030e	0.37	Undet				
140-A (5549)							0.021	167.2	168.3	1.1
150 (5611)							0.029	235.7	237.0	1.3
							0.020	241.0	242.3	1.3

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 2										
44 (5462)	28.8	29.0	0.2	< 0.020e	0.53	0.05	0.049	28.0	29.7	1.7
	29.0	29.6	0.6	0.021	1.64	0.02	0.98	29.7	31.0	0.3
	29.6	30.1	0.5	0.48	2.44	0.1	0.068	31.0	32.8	1.8
	30.1	30.4	0.3	0.088	0.84	0.03				
	30.4	30.6	0.2	0.19	1.88	0.3				
	30.6	31.5	0.9	0.17	2.57	0.1				
	31.5	32.0	0.5	0.079	3.14	0.03				
	32.0	32.2	0.2	0.045	0.60	0.03				
	51.7	52.2	0.5	< 0.020e	0.31	Undet	0.43	52.6	53.5	0.9
	52.2	52.5	0.3	0.034e	0.31	Undet				
	52.5	52.8	0.3	0.051	0.67	2.0				
	52.8	53.5	0.7	0.21	0.13	0.9				
	53.5	53.8	0.3	0.031	0.42	1.0				
JX-404 (5463)	28.8	30.2	1.4	0.72	3.39					
JX-405 (5456)	46.4	49.5	3.1	0.03	1.75					
JX-408 (5452)	41.2	43.3	2.1	0.26	1.70					
JX-409 (5455)*	45.5	46.5	1.0	0.20	2.30					
JX-414 (5469)	56.6	58.6	2.0	0.34	2.29					

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 2--Continued										
JX-415 (5472)	37.0	37.8	0.8	0.06	4.70					
Block 3										
36 (5578)	130.9	131.2	0.3	< 0.020e	0.24	Undet	0.053	131.1	131.9	0.8
	131.2	131.7	0.5	0.045	0.75	2.4	0.55	131.9	133.4	1.5
	131.7	131.8	0.1	0.26	2.12	1.4	0.027	133.4	134.9	1.5
	131.8	132.5	0.7	0.35	1.82	1.6				
	132.5	133.0	0.5	0.14	0.4	2.0				
	133.3	133.9	0.6	0.030e	0.18	Undet				
X-560 (5583)	113.9	114.6	0.7	< 0.02	0.1					
	133.3	133.6	0.3	0.07	2.56					
X-561 (5569)	130.2	131.1	0.9	0.02	0.29					
	131.1	131.6	0.5	< 0.02	0.14					
X-565 (5601)	142.1	143.1	1.0	< 0.02	0.27					
X-566 (5580)	123.5	123.9	0.4	0.02	< 0.10					
	123.9	124.5	0.6	0.55	2.24					
X-567 (5568)	115.0	116.0	1.0	< 0.02	0.10					
	119.0	120.2	1.2	0.10	0.66					
	128.3	129.0	0.7	0.03	0.10					

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 3--Continued										
X-568 (5576)	135.0	136.3	1.3	0.02	0.11					
	136.3	137.1	0.8	< 0.02	0.41					
	137.1	138.1	1.0	< 0.02	0.12					
	141.8	143.3	1.5	Undet	0.16					
X-569 (5587)	121.0	122.4	1.4	0.25	1.62					
	122.4	122.6	0.2	< 0.02	0.22					
X-570 (5582)	133.5	135.0	1.5	< 0.02	0.28					
X-571 (5578)	111.0	111.5	0.5	< 0.02	0.30					
	111.5	112.7	1.2	< 0.02	0.19					
X-572 (5572)	122.0	122.8	0.8	< 0.02	0.23					
X-584 (5580)	90.7	94.6	3.9	< 0.02	0.46					
	112.4	112.9	0.5	< 0.02	0.59					
	117.4	120.6	3.2	0.39	1.50					
X-586 (5598)	125.0	129.8	4.8	< 0.02	0.10					
	129.8	134.8	5.0	0.40	2.67					
	137.1	142.0	4.9	0.02	0.52					

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 3--Continued										
X-587 (5576)	113.8	117.0	3.2	0.19	0.69					
	123.5	125.0	1.5	0.37	0.54					
X-588 (5575)	133.1	133.3	0.2	< 0.02	0.17					
X-589 (5560)	110.8	111.6	0.8	< 0.02	0.50					
	115.4	116.4	1.0	0.05	0.26					
	121.1	121.5	0.4	0.03	0.42					
X-593 (5570)	111.9	112.4	0.5	< 0.02	0.32					
X-597 (5879)	131.4	134.6	3.2	< 0.02	0.18					
X-598 (5590)	141.0	141.4	0.4	< 0.02	0.52					
X-601 (5580)	121.8	124.7	2.9	< 0.02	0.33					
	124.7	128.5	3.8	0.21	1.29					
	128.5	130.6	2.1	< 0.02	0.35					
	130.6	131.0	0.4	0.12	2.11					
	131.0	131.8	0.8	< 0.02	0.30					
	136.1	136.4	0.3	0.02	1.58					

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 3--Continued										
X-602 (5570)	115.0	115.3	0.3	< 0.02	0.30					
	115.3	115.9	0.6	0.04	2.17					
	115.9	116.3	0.4	0.27	0.30					
	116.3	117.3	1.0	0.02	0.10					
X-603 (5573)	124.1	129.0	4.9	0.02	0.25					
X-605 (5597)	141.0	142.9	1.9	0.35	2.53					
	142.9	143.6	0.7	0.02	0.26					
X-606 (5570)	101.7	110.3	8.6	< 0.02	0.15					
	110.3	113.9	3.6	0.23	1.05					
	113.9	119.3	5.4	0.02	0.32					
X-607 (5567)	110.8	112.3	1.5	0.55	2.03					
	119.3	122.0	2.7	0.38	1.25					
X-608 (5595)	112.5	113.0	0.5	0.02	0.35					
	113.0	113.9	0.9	0.40	1.98					
	146.7	147.8	1.1	< 0.02	0.48					
X-609 (5540)*	103.8	104.1	0.3	0.05	0.61					
	104.1	104.5	0.4	< 0.02	0.10					

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 3--Continued										
X-614 (5590)	134.5	134.8	0.3	0.04	0.68					
	134.8	135.0	0.2	0.17	1.44					
	136.0	136.3	0.3	0.10	0.31					
	136.3	136.6	0.3	< 0.02	0.77					
	136.6	137.5	0.9	0.02	0.23					
	137.5	137.9	0.4	0.03	1.42					
	146.9	150.3	3.4	< 0.02	0.13					
X-617 (5564)	111.1	112.2	1.1	0.04	0.20					
	112.2	112.6	0.4	0.05	1.54					
	112.6	112.7	0.1	0.41	1.56					
	112.7	113.3	0.6	0.09	0.22					
	113.3	114.2	0.9	0.15	1.67					
	114.2	115.0	0.8	0.10	0.44					
X-620 (5587)	130.0	134.3	4.3	0.02	0.10					
	134.3	136.2	1.9	0.02	< 0.10					
JX-450 (5541)	69.5	70.0	0.5	0.02	< 0.10					
	75.0	78.0	3.0	0.12	0.40					
Block 4										
49 (5698)							0.022	249.1	249.8	0.7

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 4--Continued										
111-A (5695)	258.6	259.2	0.6	0.034e	0.30	Undet	4.8	259.1	259.9	0.8
	259.2	260.2	1.0	0.67	4.46	0.8				
	260.2	260.5	0.3	0.056	0.45	0.3				
142-A (5731)							0.029	222.3	223.3	1.0
179 (5693)	255.3	255.8	0.5	0.029e	0.13	Undet	0.030	247.5	248.7	1.2
	256.6	257.9	1.3	0.045	0.11	2.2	0.025	256.4	258.5	1.1
	257.9	259.5	1.6	0.049	0.14	2.3	0.070	258.5	262.9	4.4
	259.5	260.0	0.5	0.029e	0.24	Undet	0.44	262.9	263.9	1.0
	260.0	260.7	0.7	0.061	0.19	1.5				
	260.7	261.7	1.0	< 0.020e	0.12	Undet	0.19	264.5	265.7	1.2
	261.7	261.8	0.1	0.056	0.18	2.0	0.12	265.7	266.8	1.1
	261.8	262.5	0.7	0.20	0.88	0.8				
	262.5	263.3	0.8	0.14	0.34	1.3				
	263.3	263.4	0.1	0.059	0.24	1.5				
	263.4	264.5	1.1	0.13	0.19	1.8				
	264.5	265.1	0.6	0.062	0.13	3.0				
	265.1	265.8	0.7	0.15	0.28	1.7				
	265.8	266.3	0.5	0.025e	0.12	Undet				
	266.6	266.8	0.2	0.020e	0.10	Undet				

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 5										
65 (5785)*	135.8	138.4	2.6	0.065	0.30	< 0.1	0.24	136.0	137.3	1.3
	138.4	139.3	0.9	0.043	0.15	< 0.1	0.055	137.3	138.0	0.7
							0.14	138.0	138.7	0.7
	141.0	141.3	0.3	0.095	0.24	0.3				
							0.041	142.4	143.2	0.8
	143.2	143.7	0.5	0.022e	< 0.1	Undet				
							0.021	144.7	148.8	4.1
	146.7	147.0	0.3	0.021e	< 0.1	Undet				
							0.046	168.7	170.7	2.0
	147.5	148.0	0.5	< 0.020e	< 0.1	Undet				
	148.0	148.2	0.2	< 0.020e	< 0.1	Undet	0.14	171.7	172.9	1.2
	171.4	171.9	0.5	0.030e	< 0.1	Undet				
	171.9	172.9	1.0	0.067	< 0.1	< 0.1				
	172.9	173.2	0.3	0.038	< 0.1	< 0.1				
	173.2	173.7	0.5	0.024e	< 0.1	Undet				
69 (5859)	314.8	315.0	0.2	0.021e	0.28	Undet	0.20	313.8	314.8	1.0
	315.0	315.5	0.5	0.16	0.55	0.8	0.60	314.8	315.8	1.0
	315.5	316.1	0.6	0.038	1.08	Undet	0.046	315.8	317.1	1.3
	316.1	316.7	0.6	0.57	0.98	6.6	0.21	317.1	318.1	1.0
	316.7	317.1	0.4	0.044	0.36	7.1				
	317.1	318.3	1.2	0.034e	1.64	5.1				
	318.3	318.8	0.5	0.090	0.45	10.5				
	318.8	319.0	0.2	0.035	0.36	9.5				

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 5--Continued										
72 (5951)	395.5	396.3	0.8	0.031e	0.15	Undet	0.039	393.4	394.6	1.2
	396.3	396.5	0.2	< 0.020e	0.17	Undet				
							1.9	395.9	396.8	0.9
	396.8	397.0	0.2	< 0.020e	0.18	Undet	0.065	396.8	397.5	0.7
							0.41	397.5	398.2	0.7
	397.5	398.0	0.5	0.23	2.95	0.7				
	398.0	398.7	0.7	0.64	3.17	1.1	0.11	400.9	401.5	0.6
	398.7	399.5	0.8	0.033	0.23	1.8				
							0.021	403.9	405.2	1.3
	408.9	409.4	0.5	0.026e	< 0.1	Undet				
	409.4	410.1	0.7	0.049	< 0.1	4.8	0.040	406.7	407.9	1.2
	410.1	410.6	0.5	0.058	0.12	5.5	0.064	407.9	409.4	1.5
	410.9	411.1	0.2	0.021e	0.26	Undet	0.040	410.4	411.4	1.0
	411.6	412.4	0.8	0.029e	< 0.1	Undet				
104 (5918)	359.1	359.4	0.3	< 0.020e	0.15	Undet	4.3	359.5	360.6	1.1
	359.6	359.8	0.2	< 0.020	1.23	0.4	0.043	362.4	363.3	0.9
	359.8	360.3	0.5	0.035	0.43	1.6				
	360.3	360.8	0.5	0.92	1.76	< 0.1				
	360.8	361.6	0.8	2.14	7.90	0.7				
	361.6	361.9	0.3	0.57	27.84	0.1				
	361.9	362.2	0.3	0.22	1.40	1.2				
	363.5	364.0	0.5	0.031e	0.26	Undet				
108 (5826)	198.7	199.2	0.5	0.097	0.83	3.0	0.090	197.9	198.6	0.9
							0.021	201.4	202.5	1.1

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 5--Continued										
109 (5859)	243.5	243.8	0.3	0.32	0.87	1.5	0.37	242.5	243.8	1.3
	243.8	244.5	0.7	0.16	0.85	1.0	0.037	243.8	245.0	1.2
	244.5	245.6	1.1	0.034	0.21	0.1				
	246.2	246.6	0.4	< 0.020e	0.11	Undet				
110 (5831)	214.0	214.5	0.5	< 0.020e	0.34	Undet	0.27	214.6	216.1	1.5
	214.5	215.0	0.5	0.080	2.83	< 0.1	1.9	216.1	217.3	1.2
	215.0	215.4	0.4	0.12	3.80	0.2	6.4	217.3	218.7	1.4
	215.4	216.1	0.7	0.055	1.35	< 0.1				
	216.1	217.6	1.5	0.18	3.56	0.1				
	217.6	218.4	0.8	0.69	6.75	0.4				
	218.4	219.1	0.7	3.09	6.24	0.6				
	219.1	219.7	0.6	< 0.020e	0.23	Undet				
156 (5886)	317.8	318.1	0.3	0.024e	0.69	0.8	> 0.040 /	318.1	320.1	2.0
	318.1	318.4	0.3	0.98	5.65	0.2				
	318.4	318.8	0.4	0.043	0.86	1.2	0.033	321.4	321.9	0.5
	318.8	320.0	1.2	0.094	0.91	1.3				
	320.0	320.3	0.3	1.04	5.04	0.5				
157-B (5865)							0.028	318.8	319.7	0.9
162-A (5877)	310.0	310.1	0.1	< 0.020e	0.14	Undet				

/ Equipment failed.

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 5--Continued										
163-A (5940)	388.0	388.5	0.5	0.026e	0.14	Undet	0.048	351.1	352.5	1.4
	393.8	394.4	0.6	0.040	0.65	1.2	0.076	393.9	395.1	1.2
	394.4	394.9	0.5	0.045	0.32	1.9	0.064	395.1	395.8	0.7
	394.9	396.1	1.2	0.021e	0.17	Undet				
164 (5942)	387.7	387.9	0.2	< 0.020e	0.86	0.5	0.042	390.5	391.5	1.0
	389.7	390.0	0.3	0.025e	0.12	Undet	0.020	402.1	403.1	1.0
165 (5931)	334.3	335.5	1.2	0.15	0.86	0.4	0.29	325.8	326.6	0.8
	335.5	336.8	1.3	0.053	0.69	0.3	0.032	326.6	328.7	2.1
	336.8	338.1	1.3	0.12	1.16	0.2	0.12	328.7	330.2	1.5
	338.1	339.5	1.4	0.16	1.30	0.1	0.26	330.2	331.8	1.6
	339.5	340.8	1.3	0.18	1.56	0.1				
	340.8	342.0	1.2	0.15	1.28	0.1	0.21	332.2	333.8	1.6
	342.0	343.2	1.2	0.11	0.63	0.2	0.063	333.8	335.7	1.9
	343.2	344.2	1.0	0.074	0.41	0.2				
	345.0	345.7	0.7	0.033e	0.24	Undet				
168 (5914)							0.028	358.9	360.1	1.2
169 (5928)	365.8	366.1	0.3	0.022e	0.12	Undet	0.042	360.6	362.6	2.0
							0.48	362.6	363.6	1.0
	366.9	367.0	0.1	< 0.020e	0.26	Undet				
	367.0	367.6	0.6	0.31	1.94	1.6				

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 5--Continued										
170 (5890)	277.0	277.8	0.8	0.027e	0.15	Undet	0.022	276.0	277.4	1.4
							0.038	277.4	279.2	1.8
	278.5	278.7	0.2	0.028	0.99	0.2				
	278.7	279.2	0.5	0.043	0.27	0.1	0.18	288.4	289.3	0.9
	285.6	285.9	0.3	0.062	0.18	0.5				
175-A (5837)	212.0	212.3	0.3	0.020e	0.12	Undet	0.020	209.7	212.3	2.6
							0.056	212.3	213.7	1.4
	212.5	213.3	0.8	0.029e	0.14	Undet				
	213.5	214.0	0.5	0.031e	0.21	Undet				
176 (5854)	239.1	239.4	0.3	0.034	< 0.1	0.1	0.036	240.0	245.8	5.8
	239.6	239.9	0.3	0.020e	< 0.1	Undet				
	240.1	240.5	0.4	0.033e	< 0.1	Undet				
	240.5	241.5	1.0	0.050	0.19	0.8				
	241.5	243.0	1.5	0.029e	0.14	Undet				
	243.0	243.8	0.8	0.039	0.12	1.2				
	243.8	245.3	1.5	0.029e	< 0.1	Undet				
177 (5922)							0.020	323.2	324.1	0.9
							0.026	329.6	330.7	1.1

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 5--Continued										
178-A (5901)	295.9	296.1	0.2	0.030e	0.26	Undet	0.030	296.7	297.6	0.9
	296.4	296.6	0.2	< 0.020e	0.14	Undet	0.095	338.6	339.2	0.6
							0.064	339.2	340.0	0.8
	303.7	303.9	0.2	< 0.020e	1.21	0.3	0.038	340.0	341.6	1.6
	336.7	336.9	0.2	0.025e	0.14	Undet				
	336.9	337.2	0.3	0.13	0.26	2.4				
	338.1	339.1	1.0	0.045	0.28	4.0				
	339.3	339.8	0.5	0.043	0.15	6.8				
Block 6										
71 (5844)	214.0	215.0	1.0	< 0.020e	0.72	0.3	1.6	214.5	215.2	0.7
	215.0	216.0	1.0	0.15	0.85	0.2				
							0.021	218.8	219.9	1.1
	216.5	216.8	0.3	0.027e	0.22	Undet				
75 (5802)	204.9	205.4	0.5	< 0.020e	2.22	2.0	0.021	204.5	205.6	1.1
91 (5844)	268.5	268.9	0.4	0.20	3.75	0.4	0.67	268.5	269.5	1.0
	268.9	269.5	0.6	0.78	3.66	0.8				
							0.53	271.3	272.0	0.7
	271.4	272.2	0.8	0.16	3.25	0.8				
	272.2	272.4	0.2	< 0.020e	0.45	Undet	0.15	272.6	273.2	0.6
							0.026	274.0	275.0	1.0

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 6--Continued										
97 (5922)	322.7	323.2	0.5	0.56	3.83	0.2	0.052	320.7	321.3	0.6
	323.2	323.5	0.3	0.062	0.53	0.2	0.042	321.3	325.8	4.5
	323.5	324.4	0.9	< 0.020e	0.38	Undet	0.052	325.8	327.2	1.4
	324.4	324.7	0.3	0.026e	0.32	Undet				
							0.10	338.0	339.4	1.4
	325.3	325.6	0.3	0.030e	0.23	Undet				
	325.6	326.4	0.8	< 0.020e	0.17	Undet				
	327.3	327.8	0.5	0.025e	0.26	Undet				
	327.8	328.1	0.3	0.12	1.38	0.2				
	328.1	329.0	0.9	0.53	1.40	0.1				
	329.0	329.8	0.8	0.40	2.81	0.1				
	329.8	329.9	0.1	< 0.020e	0.49	Undet				
	339.1	339.6	0.5	0.020e	0.32	Undet				
	339.6	340.7	1.1	0.056	0.62	0.8				
	340.7	341.5	0.8	0.027e	0.53	5.8				
	341.5	341.8	0.3	0.023e	0.30	Undet				
153 (5927)	316.8	317.0	0.2	0.023e	< 0.1	Undet	0.043	320.5	322.4	1.9
							0.49	322.4	323.9	1.5
	322.0	323.4	1.4	0.40	2.11	0.1	0.47	323.9	325.5	1.6
	323.4	324.0	0.6	0.38	1.52	0.1				
	324.0	324.3	0.3	0.53	3.88	0.1				
	324.3	324.6	0.3	0.37	3.49	0.1				
	324.6	325.4	0.8	0.099	1.67	< 0.1				
	325.4	325.6	0.2	< 0.020e	1.60	< 0.1				
161 (5823)							0.043	246.6	248.2	1.6

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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 6--Continued										
171 (5882)	277.8	278.0	0.2	0.059	0.66	0.1	0.18	277.1	278.2	1.1
	278.0	278.7	0.7	0.14	1.37	0.1	0.48	278.2	280.0	1.8
	278.7	280.1	1.4	0.40	3.84	0.4				
	280.1	280.6	0.5	0.027e	1.49	0.1	0.29	280.6	281.9	1.3
	280.6	281.8	1.2	0.12	0.73	0.1	0.10	281.9	282.9	1.0
	281.8	282.0	0.2	0.020e	0.62	0.1				
	282.0	282.7	0.7	0.11	4.63	0.1				
	282.7	283.0	0.3	< 0.020e	0.20	Undet				
181-B (5837)	265.9	266.1	0.2	0.021e	< 0.1	Undet	0.044	261.2	262.4	1.2
Block 7										
73 (5838)	251.9	253.2	1.3	< 0.020e	0.15	Undet	3.1	320.4	321.3	0.9
	273.8	274.7	0.9	0.037	0.30	1.1				
	274.7	275.0	0.3	0.070	0.39	1.2				
	313.8	315.3	1.5	< 0.020e	0.20	Undet				
	315.3	315.7	0.4	< 0.020e	1.32	0.6				
	321.3	321.8	0.5	< 0.020e	0.15	Undet				
	321.8	322.7	0.9	1.19	4.88	1.1				
	322.7	322.8	0.1	0.20	5.71	1.4				
	322.8	323.1	0.3	0.027e	0.13	Undet				
90 (5885)	343.2	344.0	0.8	< 0.020e	0.17	Undet	0.020	349.1	350.1	1.0

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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										
58 (5770)*							0.027	227.5	228.4	0.9
							0.022	260.6	261.2	0.6
61 (5815)*	209.0	209.3	0.3	0.036	< 0.10	0.1	0.022	207.9	210.2	2.3
							0.032	210.5	211.5	1.0
76 (5831)	295.7	296.0	0.3	0.026	< 0.1	6.9	0.054	293.9	295.0	1.1
	296.0	296.2	0.2	0.16	0.11	2.1				
	296.2	296.7	0.5	0.028e	< 0.1	Undet	0.032	297.1	298.8	1.7
							0.055	314.5	315.5	1.0
80 (5710)*							0.033	228.0	228.7	0.7
85 (5610)	242.5	242.7	0.2	0.066	0.11	6.5	0.027	241.6	242.4	0.8
92 (5821)	259.5	260.6	1.1	< 0.020e	0.51	0.8	0.020	261.9	264.1	2.2
	260.6	262.1	1.5	< 0.020e	0.51	0.4	0.086	264.1	265.0	0.9
	262.1	262.7	0.6	< 0.020e	0.45	Undet				
	262.7	264.1	1.4	< 0.020e	0.36	Undet	0.047	276.1	277.2	1.1
	264.1	264.4	0.3	0.025e	0.34	Undet				
	264.4	265.0	0.6	0.020	0.19	Undet				
	265.0	265.3	0.3	0.063	0.60	0.4				
	265.3	266.5	1.2	< 0.020e	0.23	Undet				
	266.5	268.0	1.5	< 0.020e	0.23	Undet				
	270.3	270.5	0.2	0.028e	0.28	Undet				
	276.7	276.8	0.1	0.092	1.99	0.3				

Table 5. Assay data, Dolores bench, Montrose County, Colorado--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										
112 (5602)							0.078	177.8	178.6	0.8
117 (5634)							0.026	265.6	267.0	1.4
							0.028	267.0	268.7	1.7
126 (5695)*							0.023	384.7	385.9	1.2
127 (5480)*							0.028	173.9	175.7	1.8
129 (5505)*							0.026	249.8	250.9	1.1