DEPARTMENT OF THE INTERIOR

TEI-415

MINOR ELEMENTS IN SOME ROCKS, ORES, AND MILL AND SMELTER PRODUCTS

By
E. P. Kaiser
B. F. Herring
J. C. Rabbitt

This report is preliminary and has not been edited or reviewed for conformity with U. S. Geological Survey standards and nomenclature.

April 1954

United States Geologic Survey,
Washington, D. C.

UNITED STATES ATOMIC ENERGY COMMISSION
Technical Information Service, Oak Ridge, Tennessee

Subject Category, GEOLOGY AND MINERALOGY.
Trace Elements Investigations Report 415.

This report has been reproduced with minimum alteration directly from manuscript provided the Technical Information Service in an effort to expedite availability of the information contained herein.

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

Printed in USA, Price 80 cents. Available from the Office of Technical Services, Department of Commerce, Washington 25, D. C.

AEC, Oak Ridge, Tenn.-W45398

CONTENTS

TABLES

TABLES--Continued

MINOR ELEMENTS IN SOME ROCKS, ORES, AND MILL AND SMELTER PRODUCTS

By E. P. Kaiser, B. F. Herring and John C. Rabbitt

ABSTRACT

A collection of nearly a thousand spectrographic analyses was started at the request of the War Production Board in 1942. Its purpose was the search for strategic metals in domestic mill and smelter products. Subsequently analyses of raw materials of many types were added.

The analyses are grouped by states and by major mineral raw materials. The samples vary widely in character and in kind of material. They were analyzed chiefly by spectrographic methods, the accuracy of which increased during the later stages of the work.

The significance of the analyses depends on choice of sample localities, sampling errors, analytical errors, and the availability of replicate analyses. The analyses show many significant relations, for example, the presence of cobalt in copper and zinc concentrates, of nickel, molybdenum, tin, and vanadium in Wisconsin lead-zinc ores, and of niobium in Arkansas bauxite.

INTRODUCTION

In October 1942, when the United States was approaching the peak of its wartime industrial effort, the newly organized War Production Board asked the U. S. Geological Survey to search for strategic metals in domestic mineral concentrates, tailings, smelter slags, and flue dusts. A sampling program was started immediately, and over a thousand samples, including many of ores and other raw materials, were collected during 1943 and 1944 by Survey geologists in the field or were furnished by mining and smelting companies. The samples were analyzed spectrographically for certain strategic and minor elements, including those suggested by the War Production Board. The spectrographic work during 1943 and the first half of 1944 was done by J. C. Rabbitt at Harvard University, and completion of this work ended the major part of the original program. Subsequently many additional samples have

been collected and analyzed in the Geological Survey laboratories, some of them in connection with work done by the Geological Survey on behalf of the Atomic Energy Commission.

Many of the more interesting analyses were transmitted by the War Production Board to the companies involved, but most of them have been available only within the government.

Some of the original analyses are omitted from the present compilation for two reasons: 1. Some samples are inadequately described and located, and the analytical data are therefore of little value; and 2. Much of the earlier work on sedimentary materials, especially phosphates and black shales, has been superseded by later and more accurate work.

METHODS OF SAMPLE COLLECTION

The samples vary widely in character. Many of them are "grab samples", taken from easily available material. Samples of this type may diverge more or less widely from a true average for a considerable volume or tonnage, especially in the case of minor elements that occur within scattered mineral grains, which may or may not be present in a given rock fragment. Unless otherwise stated, the samples are probably of the "grab sample" type.

Many of the samples are channel samples, mechanically sampled mill heads or products, and composite samples. These are much more significant than the grab samples and are of the type that should be collected in the future for information on minor-element content.

METHODS OF ANALYSIS

General

Nearly all of the analytical results were obtained by spectrographic methods. In addition, some analyses were made for mercury by the fluorescent screen method and for selenium by a wet chemical method.

Methods of spectrographic analysis

The spectrographic methods used are summarized in table 1. The spectrographic methods in general were standardized to allow rapid analysis of many samples, and in general silicate standards were used for evaluating the plates. The average limits of detection for the methods used by the different spectrographers are listed in table 2. The limits are those stated by the spectrographers at the time the analyses were made. More recent data indicated that the figures for the limits of detection in table 1 should be larger for some elements.

Methods of analysis for mercury and selenium

Most of the samples analyzed spectrographically by K. J. Murata were also analyzed by J. J. Fahey for mercury using the flurorescent screen method. The average limit of detection was 0.00002 percent (0.2ppm).

The selenium analyses were made by H. W. Lakin, using the following method. The samples are digested in nitric and sulfuric acid, using mercuric nitrate as a catalyst to insure rapid oxidation of any bivalent selenium. Hydrobromic acid and bromine are added, and the solution is distilled. The selenium in the distillate is reduced to elemental form and determined turbidometrically or gravimetrically as required. The average limit of detection is 0.0002 percent (2 ppm).

ORGANIZATION OF SAMPLE DATA

The analyses are arranged and numbered according to the following scheme:

A. State or province

B. Major mineral raw materials, as listed in table 3.

C. Serial number.

The analyses are grouped geographically, in alphabetical order, by states and Canadian provinces. Within the states they are grouped according to major raw material, following the list in table 3. This list adapted and expanded from that given by McKelvey (1950) table 3, p. 474-478); it includes the

major groups of rocks, thus covering materials that are not of direct economic interest. For those samples that contain more than one major raw material, for example both niobium (19) and titanium (26), the analyses and description are given under the first group; under the second group, only the description and a reference to the analysis are given.

Each group is arranged as described in the next paragraph, and then numbered serially as a separate group. For example, analysis no. ALA-10-3 is the third analysis in group 10 (gold) in Alabama. This sample also contains scheelite, and its description is repeated under group 27 (tungsten) as analysis no. ALA-27-1.

With each group representing a major raw material, the analyses are arranged alphabetically according to the following scheme:

1. County.

2. District.

3. Mine name.

4. Type of product, as listed in table 4.

With this arrangement in mind, analyses can be found and sorted according to place, major raw material, and type of product. It has been unnecessary, therefore, to prepare a separate index of the analyses.

SIGNIFICANCE OF ANALYSES

The significance of these analyses is affected by several factors.

1. The significance of an individual sample depends on the quantity of material it represents correctly.

2. The significance of an individual analysis depends on the accuracy with which it was made.

3. A group of similar analyses, of separate but similar samples, is more significant than an analysis of a single sample.

The advantages of grouping data have long been recognized in the calculation of grade of ore. A summary of standard practices is given by McKinstry (1948). Another outstanding example is the practice, in geochemical prospecting, of collecting many small samples and analyzing them by rapid methods. The individual errors of sampling and analysis are, in effect, statistically smoothed by the grouping of data. In practice, a single high figure is used with caution; two or more adjoining high figures are given an importance proportional to the size of the group.

The foregoing discussion indicates that the use of analytical data in geochemical and petrologic correlations should be tempered by critical evaluation of the significance of the samples and of their analyses.

A few of the significant relations in the analyses follows:

The presence of cobalt in copper concentrates is shown by analyses ARI-7-13, and EUS-7-1; cobalt in zinc concentrate is shown by analysis ARI-7-27.

The lead-zinc ores of the Upper Mississippi Valley contain small quantities of nickel, molybdenum, tin and vanadium, as shown in III-13-6 and 13-13.

Among the interesting more recent and more accurate analyses are those showing niobium in Arkansas bauxite (ARK-2-2 and 2-3) and in the syenite (ARK-2-7) from which the bauxite was formed; another is the analysis of Arkansas rutile (ARK-26-2), showing relatively high niobium content, although this was not found by an earlier analysis (ARK-26-3).

Many other significant relations may be found in the analyses. As the relations are of interest chiefly in connection with specific problems, their elaboration is left to the reader.

ACKNOWLEDGMENTS

Work on transcribing the analyses to file cards was done largely by Warren A. Guinan and Perry F. Narten. Geologist are indebted to the spectrographers and chemists whose labors have built up this body of analyses.

LITERATURE CITED

McKelvey, V. E., 1950, Value of domestic production of minerals from various classes of rocks: Econ: Geology, v. 45, p. 470-479.

McKinstry, H. E., 1948, Mining geology, 680 p., New York, Prentice-Hall, p. 46-66.

Table 1.—Methods of spectrographic analysis

Symbol used in tables	Spectrographer	Spectrograph	Sample preparation
A	J. C. Rabbitt	Baird Associates, modified Eagle mounting, 2-meter concave grating; 4 inch, 15,000 lines/inch. Dispersion about 4 A°/mm in 2d order. Wave length region 2250-4700 A°. Eastman II-O plate.	Ground and quartered to -400 in standard Tyler sieves. 100 mg mixed with equal weight of spectrographic graphite.
B	K. J. Murata and E. W. Claffy. (Hg by J. J. Fahey)	Bausch and Lomb, large, quartz Littrow spectrograph. Dispersion 5 A°mm/ at 3200 A°. Wave length region 2270-4700 A°. Eastman IV-O plate, DK-76 developer for 5 minutes at 21 degrees C.	Ground and quartered to 1 gram sample of impalable powder using cloth sieves. Siliceous rocks analyzed as is. Other materials mixed with equal weight of quartz. Hydrous materials ignited at 700°C.
C	C. L. Waring and C. S. Annell	Jarrell-Ash, 21 foot grating spectrograph. Dispersion 5 A°/mm. Wave length region 2250-4750 A°. Eastman I-L plate. D-19 developer for 4 minutes at 18 degrees C.	Ground and quartered to 100 mesh using stainless steel sieves. Samples mixed with 2 parts by weight of spectrographic graphite.
D	M. Slavin and J. N. Stich	Baird Associates, modified Eagle mounting; 3-meter concave grating; 4 inch, 15,000 lines/inch. Dispersion 5.6 A°/mm in 1st order throughout the near ultra-violet range. Wave length region 2450-3850 A°. Eastman I plate, D-19 developer for 4 minutes, temperature not controlled.	Samples funneled into electrodes directly as received without prior grinding and quartering.
E	R. S. Harner	Large quartz prism, Littrow type. Wave length region 2520-3575 A°. Eastman III-O plate, DK-50 developer for 5 minutes at 20 degrees C.	Ground in agate mortar to pass 150-mesh bolting cloth; quartered. Diluted with pegmatite base.
F	J. D. Fletcher	Same as B (Murata)	

Table 1.—Methods of spectrographic analysis—Continued

Symbol used in tables	Spectrographer	Excitation in high-purity graphite electrodes	Standards	Plate evaluation
A	J. C. Rabbitt	35-50 mg burned to completion with 220 v d-c arc at 13 amp.	Natural materials approximating composition of material. Diluted to achieve standards in orders of 10. (0.001, 0.01 percent etc.).	Visual comparison (no densitometer). Standard exposed on same plate as unknown samples.
B	K. J. Murata and E. W. Claffy. (Hg by J. J. Fahey).	25 mg burned to completion with 220 v ballasted d-c arc at 13 amp.	Graded concentrations of natural materials in matrix of 6 parts quartz; 4 parts microcline, and 0.1 part of Fe_2O_3 (pegmatite base) in 1/2 orders (1, 0.5, 0.1 percent etc.).	Visual comparison using Applied Research Laboratories comparator. Standard exposed on same plate or on other plates taken under same conditions.
C	C. L. Waring and C. S. Annell	10 mg burned to completion with interrupted 300 v d-c arc at 12 amp.	A standard reference plate was made for each element from pure chemicals. Solutions of the elements representing 10, 1, 0.1, 0.01, 0.001 and 0.0001 percent were added to electrodes and dried at 100°C and arced.	Visual comparison with standard plates.
D	M. Slavin and J. N. Stich	±10 mg burned to completion with 230 v d-c arc at 10 amp. using a 25 micron slit and 25 percent transmission.	Elements present in concentration of about 0.1 percent in a silica matrix	Visual estimation of line densities. A spectrogram of the silica matrix was used as a guide.
E	R. S. Harner	25 mg burned to completion with 250 v ballasted d-c arc at 15.5 amp. Collimator lens diaphragmed to central 2mm of arc column. 20 percent transmission.	Pegmatite base standards, diluted to contain 1.00, 0.464, 0.215, 0.100, 0.0464, 0.0215..... 0.00100 percent Nb, V, La, and Y. Ti percentage 10-fold higher. Few steps of standard put on each plate.	Plate calibrated by method of Dieke and Chrosswhite. Projection comparator-microphotometer with scanning slit at plate.
F	J. D. Fletcher	Same as B (Murata)		

Table 2.—Limits of detection in spectrographic analyses[1/]

Symbol used in tables	Spectrographer	Ag	B	Be	Bi	Nb	Cd	Ce	Co	Cr	Cu	Ga
A	Rabbitt	-	-	.001	.001	.01	.001	-	.001	-	-	.001
B	Murata	.001	-	.0001	.001	.001	.01	-	.005	-	-	.001
C	Waring	.001	-	.001	.001	.01	.01	.1	.01	-	-	-
D	Slavin	.001	.001	.001	.001	.001	.001	-	.001	.001	.001	-
E	Harner	-	-	-	-	.01	-	-	-	-	-	-
F	Fletcher	Same as B (Murata)										

		Ge	Hg	In	La	Mn	Mo	Ni	Pb	Pt	Re	Sb
A	Rabbitt	.001	.001	.001	-	-	.001	-	-	.001	.002	.001
B	Murata	.001	-	.001	.01	-	.001	.0001	-	.001	.005	.01
C	Waring	.1	.1	.001	.1	-	.001	.01	-	.01	.1	.01
D	Slavin	-	-	-	-	.001	.001	.001	.001	-	-	-
E	Harner	-	-	-	-	-	-	-	-	-	-	-
F	Fletcher	Same as B (Murata)										

		Si	Sn	Sr	Ta	Ti	Tl	V	W	Y	Zr
A	Rabbitt	-	.001	-	.001	-	.001	.001	.01	-	-
B	Murata	-	.001	-	.5	-	.001	.001	.01	-	-
C	Waring	-	.01	.01	.01	-	1.0	.01	.1	.001	.01
D	Slavin	.001	.001	-	-	.001	-	.001	-	-	.001
E	Harner	-	-	-	-	-	-	-	-	-	-
F	Fletcher	Same as B (Murata)									

1/ Data furnished by spectrographers.

Table 3.--Major mineral raw materials

Metal

1. antimony
2. bauxite
3. beryllium
4. bismuth
(cadmium: see lead-zinc)
5. chromite
6. cobalt
(columbium: see niobium)
7. copper
8. gallium
9. germanium
10. gold-silver
11. indium
12. iron
13. lead-zinc-cadmium
14. magnesium
15. manganese
16. mercury
17. molybdenum
18. nickel
19. niobium-tantalum
20. platinum metals
21. rare earths
22. selenium
(silver: see gold-silver)
(tantalum: see niobium-tantalum)
23. tellurium
24. thallium
25. tin
(thorium: see uranium-radium-thorium)
26. titanium
27. tungsten
28. uranium-radium-thorium
29. vanadium
(zinc: see lead-zinc-cadmium)
30. zirconium
31. other

Non-metallic material

41. abrasives
42. arsenic
43. asbestos
44. asphalt and related bitumins
45. barite
46. borates
47. cement
48. clay
49. coal
50. feldspar and aplite
51. fluorspar and cryolite
52. gemstones
53. glauconite
54. graphite
55. gypsum and anhydrite
56. lime
57. lithium
58. magnesium compounds
59. mica, vermiculite, kyanite
60. mineral waters
61. natural gas and helium
62. olivine
63. peat
64. perlite
65. petroleum
66. phosphate
67. potash
68. salt
69. sand and gravel
70. sillimanite group
71. stone
72. strontium
73. sulfur; native and pyrites
74. talc, soapstone, pyrophyllite
75. topaz, industrial
76. other

Table 3.--Major mineral raw materials--Continued

Rocks, other than commercial

90. igneous intrusive
91. igneous extrusive
92. metamorphic
93. mineralized and altered hypogene
94. sedimentary
95. soils, residuum, altered supergene

Table 4.--Types of products from raw materials

1. Raw Material; mine product; mill heads

   a. ore, mill heads
   b. samples of ore materials
   c. pure minerals, or lab separates
   d. wall rock or waste

2. Mill products

   a. middling products
   b. concentrates
   c. tailings

3. Smelter or furnace products

   a. matte, oxide, crude metal. Pure metal or compound.
   b. residue, sludge, calcine, filter cake
   c. solution, liquid; spent solution, wash water
   d. flue dust, furnace dust
   e. slag, clinker

Table 5.—Analyses and descriptions of samples from Alabama

	ALA-2-1	ALA-2-2	ALA-2-3	ALA-10-1	ALA-10-2	ALA-10-3	ALA-10-4	ALA-15-1	ALA-27-1	ALA-27-2	ALA-54-1	ALA-54-2	
Ag	-	-	-	-	-	-	-	-			-	-	Ag
BeO	0	0	0	0	0	0	0	0.03			0.001	0	BeO
Bi_2O_3	0	0	0	0.08	0.02	0.2	0.05	0			.001	0	Bi_2O_3
Nb_2O_5	0.01	0.006	0	-	-	-	-	-			0	0	Nb_2O_5
CdO	0	0	0	0	0	0	0	0			0	0	CdO
									See ALA-10-3	See ALA-10-4			
CoO	0	0	0	0	0	.005	.005	.2			.003	0.002	CoO
Ga_2O_3	-	-	-	0	0	0	0	0			-	-	Ga_2O_3
GeO_2	0	0	0	0	0	.005	.005	0			0	0	GeO_2
HgO	0	0	0	0	0	0	0	0			0	0	HgO
In_2O_3	.002	0	0	0	0	0	0	0			0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-			-	-	La_2O_3
MoO_3	.002	.004	0	0	0	.005	.005	.008			.006	.005	MoO_3
NiO	0	0	0	0	0	.008	.008	.08			.004	.005	NiO
Pt	0	0	0	-	-	-	-	-			0	0	Pt
Re	0	0	0	-	-	-	-	-			0	0	Re
Sb_2O_3	0	0	0	0	0	.08	0	0			0	0	Sb_2O_3
SnO	.01	.001	0.006	.005	.002	.1	.08	.01			.002	0	SnO
Ta_2O_5	0	0	0	0	0	0	0	0			0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0			0	0	Tl_2O_3
V_2O_5	.08	.09	.002	0	0	.008	.005	.02			.003	.08	V_2O_5
WO_3	0	0	0	0	0	-	-	0			0	0	WO_3
ZrO_2	-	-	-	.001	.002	-	-	.08			-	-	ZrO_2
Limits of detection [1]	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

ALA-2-1---Red slime residue from bauxite treated with NaOH, from Oliver filter. Bauxite feed from Ala., Ark., and Dutch Guiana. Listerhill reduction plant, Listerhill, Ala., Reynolds Metals Co. Sampled in 1943. Sample no. 86-REY-1

ALA-2-2---Sand from bauxite treated with NaOH. Bauxite feed from Ala., Ark., and Dutch Guiana. Listerhill reduction plant, Listerhill, Ala., Reynolds Metals Co. Samples in 1943. Sample no. 86-REY-2.

ALA-2-3---Burned alumina from cooler. Bauxite feed from Ala., Ark., and Dutch Guiana. Listerhill reduction plant, Listerhill, Ala., Reynolds Metals Co. Sampled in 1943. Sample no. 86-REY-3.

ALA-10-1--Gold mill heads, grab sample from ore-bins. Hog Mountain gold mine, 16 miles NE of Alexander City, Tallapoosa Co., Ala. Sampled in 1943. Sample no. 22-HOG-6.

ALA-10-2--Gold tailings, from old tailings pile. Hog Mountain gold mine, 16 miles NE of Alexander City, Tallapoosa Co., Ala. Sampled in 1943. Sample no. 22-HOG-3.

ALA-10-3--Scheelite-bearing material, pan concentrate from old gold tailings. Hog Mountain gold mine, 16 miles NE of Alexander City, Tallapoosa Co., Ala. Sampled in 1943. Sample no. 22-HOG-2.

ALA-10-4--Scheelite concentrate. Pan concentrate from old gold tailings, boiled in H_2SO_4. Contains 51 percent WO_3. Hog Mountain gold mine, 16 miles NE of Alexander City, Tallapoosa Co., Ala. Sampled in 1943. Sample no. 22-HOG-1.

ALA-15-1--Manganese tailings, from log washer. Emerson mine, near Piedmont, Rock Run district, Cherokee Co., Ala. Sampled in 1943. Sample no. 13-E-1.

ALA-27-1--(For analysis see 10-3). Scheelite-bearing material, pan concentrate from old gold tailings. Hog Mountain gold mine, 16 miles NE of Alexander City, Tallapoosa Co., Ala. Sampled in 1943. Sample no. 22-HOG-2.

ALA-27-2--(For analysis see 10-4). Scheelite concentrate. Pan concentrate from old gold tailings, boiled in H_2SO_4. Contains 51 percent WO_3. Hog Mountain gold mine, 16 miles NE of Alexander City, Tallapoosa Co., Ala. Sampled in 1943. Sample no. 22-HOG-1.

ALA-54-1--Graphite ore, belt sample at feeder bins. Pocahontas property, near Ashland, Clay Co., Ala. Sampled in 1943. Sample no. 117-AA-9.

ALA-54-2--Graphite concentrate, mill sample, Pocahontas property, near Ashland, Clay Co., Ala. Sampled in 1943. Sample no. 117-AA-8.

Table 6.—Analyses and descriptions of samples from Arizona

	ARI-7-1	ARI-7-2	ARI-7-3	ARI-7-4	ARI-7-5	ARI-7-6	ARI-7-7	ARI-7-8	ARI-7-9	ARI-7-10	ARI-7-11	ARI-7-12	
Ag . . .	-	-	-	0	0.002	0	-	-	-	-	-	-	. . . Ag
BeO. . .	0	0	0	0.0005	0	0.0004	0	0	0	0	0	0	. . .BeO
Bi_2O_3. .	0	0	0	0	0	0	0	0	0	0.03	0.02	0	. .Bi_2O_3
Nb_2O_5. .	0	-	0	0	0	0	0	0	0	0	0	0	. .Nb_2O_5
CdO. . .	0	0	0	0	0	0	0	0	0	.05	.03	0	. . .CdO
CoO. . .	0.01	0.004	0.01	0	.008	0	0.005	0.06	0.002	.004	.003	0.008	. . .CoO
Ga_2O_3. .	-	0	-	-	-	-	-	-	-	-	-	-	. .Ga_2O_3
GeO_2 . .	0	0	0	0	0	0	0	0	0	0	0	0	. . GeO_2
HgO. . .	0	0	0	0	0	0	0	0	0	0	0	0	. . .HgO
In_2O_3. .	0	.001	0	0	0	0	0	0	0	0	0	0	. .In_2O_3
La_2O_3. .	-	-	-	0	0	0	-	-	-	-	-	-	. .La_2O_3
MoO_3 . .	.02	.05	.5	.01	.1	.004	.02	.3	.003	.004	.003	.03	. . MoO_3
NiO. . .	.002	.004	.005	.0001	.008	0	.001	.005	.003	.005	.004	.004	. . .NiO
Pt . . .	0	-	0	0	0	0	0	0	0	0	0	0	. . . Pt
Re . . .	0	-	0	0	0	0	0	0	0	0	0	0	. . . Re
Sb_2O_3. .	0	0	0	0	0	0	0	0	.008	0	0	0	. .Sb_2O_3
SnO. . .	.05	.003	.005	0	0	0	.001	.01	0	0	0	.001	. . .SnO
Ta_2O_5. .	0	0	0	0	0	0	0	0	0	0	0	0	. .Ta_2O_5
Tl_2O_3. .	0	0	0	0	0	0	0	0	0	0	0	0	. .Tl_2O_3
V_2O_5 . .	.03	.06	.001	.006	0	.005	.02	.004	.003	.004	.003	.04	. . V_2O_5
WO_3. . .	0	0	0	0	0	0	0	0	0	0	0	0	. . .WO_3
ZrO_2 . .	-	.02	-	-	-	-	-	-	-	-	-	-	. . ZrO_2
Limits of detection 1/	A	A	A	B	B	B	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

ARI-7-1---Copper slag, reverberatory smelter. Ore from Copper Queen and other mines in vicinity. Douglas smelter, Douglas, Cochise Co., Arizona, Phelps Dodge Corp. Sampled in 1943. Sample no. 68-PD-6.

ARI-7-2---Copper tailings, Christmas Copper Co. mill, Winkelman, Gila Co., Arizona. Sampled in 1942. Sample no. 17-CC-6.

ARI-7-3---Copper concentrate, mill sample. Ore from Castle Dome open pit. Castle Dome mill, near Miami, Gila Co., Arizona. Castle Dome Copper Co., Inc. Sampled in 1943. Sample no. 119-CAS-1.

ARI-7-4---Copper mill heads, composite sample of 32-day run. Morenci open pit. Phelps Dodge and Defense Plant Corp. mill, Morenci, Greenlee Co., Arizona. Phelps Dodge Corp. Sampled in 1945. Sample no. 292-M-2.

ARI-7-5---Copper concentrates, composite sample of 32-day run. Ore from Morenci open pit. Phelps Dodge and Defense Plant Corp. mill, Morenci, Greenlee Co., Arizona. Phelps Dodge Corp. Sampled in 1945. Sample no. 292-M-1

ARI-7-6---Copper tails, composite sample of 32-day run. Ore from Morenci open pit. Phelps Dodge and Defense Plant Corp. mill, Morenci, Greenlee Co., Arizona. Phelps Dodge Corp. Sampled in 1945. Sample no. 292-M-3.

ARI-7-7---Copper tails, mill sample. Ore from Morenci open pit and others. Morenci concentrator, Morenci, Greenlee Co., Arizona. Phelps Dodge Corp. Sampled in 1943. Sample no. 68-PD-3.

ARI-7-8---Copper slag, from reverberatory smelter. Ore from Morenci open pit and others. Morenci smelter, Morenci, Greenlee Co., Arizona. Phelps Dodge Corp. Sampled in 1943. Sample no. 68-PD-4.

ARI-7-9---Copper tailings. Ore from Red Rover mine. Red Rover mill, Cave Creek district, Maricopa Co., Arizona. Sampled in 1943. Sample no. 124-RED-1.

ARI-7-10--Lead-zinc-copper mill heads from Belmont-McNeil mine, 30 miles SSW of Wickenburg, Vulture district, Maricopa Co., Arizona. Vulture mill, 15 milee SSW of Wickenburg. Sampled in 1943. Sample no. 124-VUL-3.

ARI-7-11--Lead-zinc-copper tailings. Ore from Belmont-McNeil mine, 30 miles SSW of Wickenburg, Vulture district, Maricopa Co., Arizona. Vulture mill, 15 miles SSW of Wickenburg. Sampled in 1943. Sample no. 124-VUL-4.

ARI-7-12--Copper tailings. Ore from New Cornelie open pit, Ajo. New Cornelia concentrator, Ajo, Pima Co., Aris. Phelps Dodge Corp. Sampled in 1943. Sample no. 68-PD-5.

Table 6.—Analyses and descriptions of samples from Arizona—Continued

	ARI-7-13	ARI-7-14	ARI-7-15	ARI-7-16	ARI-7-17	ARI-7-18	ARI-7-19	ARI-7-20	ARI-7-21	ARI-7-22	ARI-7-23	ARI-7-24	
Ag	-	-	-	-	-	-	0	0	0	0	0.0X	0	Ag
BeO	0	0.001	0	0	0	0	0	0	0	0	0	0	BeO
Bi_2O_3	0.05	0	0	0.006	0.003	0	0	0	0	0	.0X	0	Bi_2O_3
Nb_2O_5	-	-	0	0	0	0	0	0	0	0	.0X	0	Nb_2O_5
CdO	.04	0	0	0	0	0	0	0	0	0	0	0	CdO
CoO	.1	.002	0.002	.001	.004	0.002	0.0X	0.0X	0.0X	0	.X	0.0X	CoO
Ga_2O_3	.002	0	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	.003	.001	0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	0	0	0	0	0	0	La_2O_3
MoO_3	.1	.04	.01	-	-	.05	.0X	.0X	.0X	0.0X	.X	.0X	MoO_3
NiO	.1	.004	.002	0	.002	.002	.0X	.0X	.0X	.0X	.0X	.0X	NiO
Pt	-	-	0	0	0	0	0	0	0	0	0	0	Pt
Re	-	-	0	.002	0	0	0	0	0	0	0	0	Re
Sb_2O_3	0	0	.001	0	0	0	.0X	.0X	.0X	.0X	.0X	.0X	Sb_2O_3
SnO	.001	.001	0	.001	.004	0	.0X	.0X	.0X	.0X	.0X	0	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	.001	0	0	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.05	.1	.01	.002	.002	.008	.0X	0	0	.0X	.0X	.0X	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	.08	.02	-	-	-	-	.0X	.0X	.0X	.0X	0	.0X	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	C	C	C	C	C	C	

1/ See table 2 for limits of detection reported by spectrographers.

ARI-7-13--Copper concentrate. Ore from Leatherwood mine. Mill of Control Mines, Inc., Oracle, Catalina district, Pima Co., Arizona. Sampled in 1942. Sample no. 17-CM-4.

ARI-7-14--Copper tails, mill of Control Mines, Inc., Oracle, Cataline dist., Pima Co., Arizona. Sampled in 1942. Sample no. 17-CM-7.

ARI-7-15--Lead-copper tails. Ore from Bunker Hill mine, Bunker Hill mine and mill, 16 miles east of Mammoth, Pinal Co., Arizona. Sampled in 1943. Sample no. 125-CC-12.

ARI-7-16--Molybdenite ore, high grade sample from Childs-Aldwinkle mine, 11 miles east of Mammoth, Pinal Co., Arizona. Sampled in 1943. Sample no. 125-CC-13.

ARI-7-17--Molybdenite ore with specular hematite. Childs-Aldwinkle mine, 11 miles east of Mammoth, Pinal Co., Arizona. Sampled in 1943. Sample no. 125-CC-14.

ARI-7-18--Copper-molybdenum tails. Ore from Childs-Aldwinkle mine. Mine and mill 11 miles east of Mammoth, Pinal Co., Arizona. Sampled in 1943. Sample no. 125-CC-4.

ARI-7-19--Leached capping, porphyry copper, Ray mine, Ray, Pinal Co., Arizona. Kennecott Copper Corp. Sampled in 1948. Sample no. 381-KCC-4.

ARI-7-20--Schist ore, porphyry copper, Ray mine, Ray, Pinal Co., Arizona. Kennecott Copper Corp. Sampled in 1948. Sample no. 381-KCC-5.

ARI-7-21--Amphibolite schist ore, porphyry copper. Ray mine, Ray, Pinal Co., Arizona. Kennecott Copper Corp. Sampled in 1948. Sample no. 381-KCC-6.

ARI-7-22--Copper mill heads. Ore from Ray mine. Hayden mill, Hayden, Pinal Co., Arizona. Kennecott Copper Corp. Sampled in 1948. Sample no. 381-KCC-1.

ARI-7-23--Copper concentrate. Ore from Ray mine. Hayden mill, Hayden, Pinal Co., Arizona. Kennecott Copper Corp. Sampled in 1948. Sample no. 381-KCC-3.

ARI-7-24--Copper tails. Ore from Ray mine. Hayden mill, Hayden, Pinal Co., Arizona. Kennecott Copper Corp. Sampled in 1948. Sample no. 381-KCC-2.

Table 6.—Analyses and descriptions of samples from Arizona—Continued

	ARI-7-25	ARI-7-26	ARI-7-27	ARI-7-28	ARI-7-29	ARI-7-30	ARI-7-31	ARI-7-32	ARI-7-33	ARI-7-34	ARI-7-35	ARI-7-36	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0	0	0	0	0	0	0	0	0	0	0	0	BeO
Bi_2O_3	0.2	-	0.1	0.01	0	0.02	0.08	0	0.004	0.008	0	0.008	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	.008	0.01	.2	.002	0.002	.002	.006	0.2	0	0	0	0	CdO
CoO	.03	.01	.1	.004	.004	.00X	.001	.001	.08	.001	0.002	.001	CoO
Ga_2O_3	-	-	-	-	.0X	.0X	-	-	-	-	-	-	Ga_2O_3
GeO_2	.002	0	.01	0	0	0	.002	.008	0	0	0	0	GeO_2
HgO	0	0	0	0	0	0	0	0	0	-	0	0	HgO
In_2O_3	0	0	.001	0	.00X	.00X	0	.004	0	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.02	.03	.02	.01	.008	.005	.001	.002	-	-	.01	-	MoO_3
NiO	.002	0	.01	.001	.00X	.00X	.001	.001	.01	.001	.006	.001	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	0	0	.002	0	.003	Re
Sb_2O_3	.01	.02	0	0	.06	.01	.1	0	.01	0	0	0	Sb_2O_3
SnO	.002	.002	.008	.001	.002	.002	.008	.002	.002	.005	0	.004	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	.001	0	0	0	0	.002	0	0	0	0	Tl_2O_3
V_2O_5	.002	.006	.003	.004	.008	.0X	.008	.008	.005	.002	.01	.001	V_2O_5
WO_3	0	0	0	0	0	0	0	-	0	0	0	0	WO_3
ZrO_2	-	-	-	-	.00X	.00X	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

ARI-7-25--Copper concentrate. Ore from Duquesne, Bonaza, Estella, Holland, Empire and Pride of the West mines, Patagonia district, Santa Cruz Co., Arizona. Callahan Zinc-Lead Company mill, Nogales, Arizona. Sampled in 1943. Sample no. 94-CAL-1.

ARI-7-26--Lead concentrate. Ore from Duquesne, Bonaza, Estella, Holland, Empire and Pride of the West mines, Patagonia district, Santa Cruz Co., Arizona. Callahan Zinc-Lead Company mill, Nogales, Arizona. Sampled in 1943. Sample no. 94-CAL-2.

ARI-7-27--Zinc concentrate. Ore from Duquesne, Bonaza, Estella, Holland, Empire and Pride of the West mines, Patagonia district, Santa Cruz Co., Arizona. Callahan Zinc-Lead Company mill, Nogales, Arizona. Sampled in 1943. Sample no. 94-CAL-3

ARI-7-28--Copper-lead-zinc tailings. Ore from Duquesne, Bonaza, Estella, Holland, Empire and Pride of the West mines, Patagonia district, Santa Cruz Co., Arizona. Callahan Zinc-Lead Company mill, Nogales, Arizona. Sampled in 1943. Sample no. 94-CAL-4

ARI-7-29--Copper tailings, channel sample of tailings pile. Ore from Binghampton and Copper Queen mines, Aqua Fria district, Yavapai Co., Arizona. Binghampton mill, 6 miles NE of Mayer, Arizona. Sampled in 1943. Sample no. 106-BNG-1.

ARI-7-30--Copper tailings, channel sample of lower pond tailings pile. Ore from Binghampton and Copper Queen mines, Aqua Fria district, Yavapai Co., Arizona. Binghampton mill, 6 miles NE of Mayer, Arizona. Sampled in 1943. Sample no. 106-BNG-2.

ARI-7-31--Lead concentrate. Ore from Gladiator mine, Black Canyon district, Yavapai Co., Arizona. Golden Belt mill, near Cordes, Ariz. Sampled in 1943. Sample no. 106-GB-3.

ARI-7-32--Zinc concentrate. Ore from Gladiator mine, Black Canyon district, Yavapai Co., Arizona. Golden Belt mill, near Cordes, Ariz. Sampled in 1943. Sample no. 106-GB-4.

ARI-7-33--Copper concentrate. Ore from Bagdad mine, Eureka district, Yavapai Co., Arizona. Bagdad mill, Bagdad, Arizona. Sampled in 1943. Sample no. 114-BAG-2.

ARI-7-34--Molybdenum concentrate. Ore from Bagdad mine, Eureka district, Yavapai Co., Arizona. Bagdad mill, Bagdad, Arizona. Sampled in 1943. Sample no. 125-BC-1.

ARI-7-35--Copper tailings. Ore from Bagdad mine, Eureka district, Yavapai Co., Arizona. Bagdad mill, Bagdad, Arizona. Sampled in 1943. Sample no. 114-BAG-1

ARI-7-36--Molybdenum concentrate. Ore from Copper Hill mine, Eureka district, Yavapai Co., Arizona. Bagdad mill, Bagdad, Arizona. Sampled in 1943. Sample no. 125-CH-1.

Table 6.—Analyses and descriptions of samples from Arizona—Continued

	ARI-7-37	ARI-7-38	ARI-7-39	ARI-10-1	ARI-10-2	ARI-10-3	ARI-10-4	ARI-10-5	ARI-10-6	ARI-10-7	ARI-10-8	ARI-10-9	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0	0	0	0	0	0.03	0.001	0	0	0.006	0	0	BeO
Bi_2O_3	0	0	0	0.001	0	0	0	0.001	0	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0.001	0	0	0	0	0	0	0	0	0	0	0	CdO
CoO	.001	0.01	0.03	.002	0.002	.003	.002	0	0	.001	0	0.002	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.001	.006	.01	.007	.008	.002	.001	.001	0	.002	0.001	.001	MoO_3
NiO	.002	.002	.004	.004	.005	.003	.002	.001	0.001	.003	.001	.001	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Sb_2O_3
SnO	0	.01	.08	0	0	0	0	.002	0	0	0	0	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.005	.005	.006	.002	.003	.01	.01	.01	.02	.02	.02	.008	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

ARI-7-37--Copper-lead-zinc-silver tailings. Ore from Crown King, California (Silverore), Tiger and Gladiator mines, Pine Grove district, Yavapai Co., Arizona. Golden Crown Mining Company mill, Crown King, Ariz. Sampled in 1943. Sample no. 45-GC-8.

ARI-7-38--Copper tailings. Ore from United Verde mine, Verde (Jerome) district, Yavapai Co., Arizona. United Verde Smelter, Clarkdale, Ariz. Phelps Dodge Corp. Sampled in 1943. Sample no. 68-PD-1.

ARI-7-39--Copper slag. Ore from United Verde mine, Verde (Jerome) district, Yavapai Co., Arizona. United Verde Smelter, Clarkdale, Ariz. Phelps Dodge Corp. Sampled in 1943. Sample no. 68-PD-2.

ARI-10-1--Gold tailings from sulfide tailings pile. Ore from Vulture mine, Vulture district, Maricopa Co., Arizona. Vulture mill, 15 miles SSW of Wickenburg, Ariz. Sampled in 1943. Sample no. 124-VUL-1.

ARI-10-2--Gold tailings from oxide tailings pile. Ore from Vulture mine, Vulture district, Maricopa Co., Arizona. Vulture mill, 15 miles SSW of Wickenburg, Ariz. Sampled in 1943. Sample no. 124-VUL-2.

ARI-10-3--Gold tailings from mill tailings pile. Ore from Tyro, Portland, Minnie, Arabian and Frisco mines, San Francisco district, Mohave Co., Arizona. Katherine mill, Katherine, Ariz. Sampled in 1943. Sample no. 85-MC-3.

ARI-10-4--Gold tailings from mill tailings pile. Ore from Tom Reed, Black Eagle and Ben Harrison mines, San Francisco district, Mohave Co., Arizona. Tom Reed mill, Oatman, Ariz. Sampled in 1943. Sample no. 85-MC-5.

ARI-10-5--Gold tailings from mill tailings pile. Ore from Leland, Mitchell, Vivian, Oro Fino mines and custom ores, San Francisco district, Mohave Co., Arizona. Vivian mill, Oatman, Ariz. Sampled in 1943. Sample no. 85-MC-6.

ARI-10-6--Gold tailings from old tailings pile. Ore from United Eastern and Big Jim mines, San Francisco district, Mohave Co., Arizona. United Eastern Mines Corp. mill (dismantled), Oatman, Ariz. Sampled in 1943. Sample no. 85-MC-7.

ARI-10-7--Gold tailings from tailings pile. Ore from Goldroad mine, San Francisco district, Mohave Co., Arizona. Goldroad mill, Goldroad, Ariz. United States Smelting, Refining and Mining Company. Sampled in 1943. Sample no. 85-MC-9.

ARI-10-8--Gold tailings from tailings pile. Ore from Mossback mine, San Francisco district, Mohave Co., Arizona. Louson mill, Oatman, Arizona. Sampled in 1943. Sample no. 85-MC-10.

ARI-10-9--Gold tailings from tailings pile. Ore from Arizona Magma mines, Wallapai district, Mohave Co., Arizona. Sampled in 1943. Sample no. 85-MC-4.

Table 6.—Analyses and descriptions of samples from Arizona—Continued

	ARI-10-10	ARI-10-11	ARI-10-12	ARI-10-13	ARI-10-14	ARI-10-15	ARI-10-16	ARI-10-17	ARI-10-18	ARI-10-19	ARI-10-20	ARI-10-21	
Ag	-	-	-	-	-	-	0	-		-	-	-	Ag
BeO	0	0	0	0	0	0	0.0001	0		0	0	0	BeO
Bi_2O_3	0.002	0.004	0.001	0.001	0	0	0	0		0.01	0.01	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0		0	0	0	Nb_2O_5
CdO	.002	.002	.002	.001	0	0	0	0	See ARI-7-37	0	0	0	CdO
CoO	.006	.01	.005	.004	0.001	0.001	0	0.002		.001	.002	0.01	CoO
Ga_2O_3	-	-	-	-	-	-	-	-		-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0		0	0	0	GeO_2
HgO	0	0	0	0	0	0	0	0		0	0	0	HgO
In_2O_3	0	0	0	0	0	0	0	0		0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	0	-		-	-	-	La_2O_3
MoO_3	.002	.01	.008	.008	0	.01	0	.002		.006	.003	.02	MoO_3
NiO	.01	.01	.006	.005	.001	.001	.0003	.002		.001	.001	.02	NiO
Pt	0	0	0	0	0	0	0	0		0	0	0	Pt
Re	0	0	0	0	0	0	0	0		0	0	0	Re
Sb_2O_3	.006	.008	.1	.08	0	0	0	0		0	0	0	Sb_2O_3
SnO	.005	.006	.003	.004	0	0	0	0		0	0	0	SnO
Ta_2O_5	0	0	0	0	0	0	0	0		0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0		0	0	0	Tl_2O_3
V_2O_5	.02	.01	.002	.01	.01	.04	0	.02		.006	.006	.02	V_2O_5
WO_3	0	0	0	0	0	0	0	0		0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-		-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	B	A		A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

ARI-10-10--Lead-zinc-gold-silver tailings. Ore from Gladiator mine, Black Canyon district, Yavapai Co., Arizona. Golden Belt mill, near Cordes, Ariz. Sampled in 1943. Sample no. 106-GB-2.

ARI-10-11--Gold-silver tailings. Ore from Golden Belt (Golden Turkey Extension) mine, Black Canyon district, Yavapai Co., Arizona. Golden Belt mill, near Cordes, Ariz. Sampled in 1943. Sample no. 106-GB-1.

ARI-10-12--Gold-silver tailings, vertical channel sample of tailings pond. Ore from Golden Turkey (formerly Buckeye) mine, Black Canyon district, Yavapai Co., Arizona. Golden Turkey mill (dismantled), Cordes, Ariz. Sampled in 1943. Sample no. 106-GT-1.

ARI-10-13--Gold-silver tailings, vertical channel sample of tailings pond. Ore from Golden Turkey (formerly Buckeye) mine, Black Canyon district, Yavapai Co., Arizona. Golden Turkey mill (dismantled), Cordes, Ariz. Sampled in 1943. Sample no. 106-GT-2.

ARI-10-14--Silver-gold-lead-zinc tailings from tailings dump. Ore from Silver Cord mine, Black Canyon district, Yavapai Co., Arizona. Silver Cord Mining Company mill (dismantled), Cleator, Ariz. Sampled in 1943. Sample no. 45-SIL-4.

ARI-10-15--Gold-silver tailings from small dump. Ore from Atos mine and Super-X group, Black Rock district, Yavapai Co., Ariz. Atos mine mill, 16 miles NE of Wickenburg, Ariz. Sampled in 1943. Sample no. 45-AT-11.

ARI-10-16--Gold tailings. Ore from Climax mine, Hassayampa district, Yavapai Co., Arizona. Golden Age Mining Company mill, near Prescott, Ariz. Sample no. 169-4G-1

ARI-10-17--Gold tailings reworked from old tailings piles. Ore from Congress mine, Martinez district, Yavapai Co., Arizona. Congress Mining Corp. mill, Congress, Ariz. Sampled in 1943. Sample no. 45-CONG-7.

ARI-10-18--(For analysis see ARI-7-37). Copper-lead-zinc-silver tailings. Ore from Crown King, California (Silverore), Tiger and Gladiator mines, Pine Grove district, Yavapai Co., Arizona. Golden Crown Mining Company mill, Crown King, Ariz. Sampled in 1943. Sample no. 45-GC-8.

ARI-10-19--Gold tailings, channel sample of tailings pile. Ore from Sheldon mine, Walker district, Yavapai Co., Arizona. Sheldon mill (dismantled), near Walker, Ariz. Sampled in 1943. Additional analysis: 0.0004 Se. Sample no. 100-ST-1.

ARI-10-20--Gold tailings, channel sample of tailings pile. Ore from Sheldon mine, Walker district, Yavapai Co., Arizona. Sheldon mill (dismantled), near Walker, Ariz. Sampled in 1943. Sample no. 100-ST-2.

ARI-10-21--Gold-silver tailings from tailings pile. Ore from Old Alvarado mine, Weaver district, Yavapai Co., Ariz. Liberty Hill Gold Mines, Ltd., mill, Congress Junction, Ariz. Sampled in 1943. Sample no. 45-LIB-1.

Table 6.—Analyses and descriptions of samples from Arizona—Continued

	ARI-10-22	ARI-10-23	ARI-12-1	ARI-12-2	ARI-12-3	ARI-12-4	ARI-12-5	ARI-13-1	ARI-13-2	ARI-13-3	ARI-13-4	ARI-13-5	
Ag	-	-	0.0X	0.0X	0.0X	0.00X	0.0X			-	-	-	Ag
BeO	0	0	0	0	0	0	-			0.001	0	0	BeO
Bi_2O_3	0	0	0	0	0	0	-			0	0	0.006	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	-			0	0	0	Nb_2O_5
CdO	0	0	0	0	0	.00X	.00X			0	0	.3	CdO
CoO	0.001	0.002	0	0	0	0	-	See ARI-7-10	See ARI-7-11	.002	0.002	.02	CoO
Ga_2O_3	-	-	-	-	-	-	-			-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	-			0	0	.04	GeO_2
HgO	0	0	0	0	0	0	-			0	0	0	HgO
In_2O_3	0	0	0	0	0	0	-			0	0	.006	In_2O_3
La_2O_3	-	-	0	0	0	0	-			-	-	-	La_2O_3
MoO_3	0	.02	0	0	0	0	-			.004	.002	.003	MoO_3
NiO	.002	.002	0	0	0	0	.00X			.002	.001	.004	NiO
Pt	0	0	0	0	0	0	-			0	0	0	Pt
Re	0	0	0	0	0	0	-			0	0	0	Re
Sb_2O_3	0	0	0	.0X	0	.0X	-			0	0	0	Sb_2O_3
SnO	0	0	.00X	.00X	.00X	.00X	.00X			0	0	.006	SnO
Ta_2O_5	0	0	0	0	0	0	-			0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	-			0	0	.004	Tl_2O_3
V_2O_5	.01	.02	0	.0X	.0X	.0X	.0X			.01	.01	.008	V_2O_5
WO_3	0	0	0	0	0	0	-			0	0	0	WO_3
ZrO_2	-	-	.0X	.0X	.0X	.0X	.0X			-	-	-	ZrO_2
Limits of detection 1/	A	A	C	C	C	C	C			A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

ARI-10-22--Gold tailings from small tailings dump. Tuscarora Gold Mines Company mill, Octave, Weaver district, Yavapai Co., Ariz. Sampled in 1943. Sample no. 45-TUS-3.

ARI-10-23--Gold tailings from tails pond. Ore from Yarnell Mine, Weaver district, Yavapai Co., Ariz. Winslow Gold Mining Company mill, Yarnell, Ariz. Sampled in 1943. Sampled no. 45-WINS-2.

ARI-12-1---Zinc concentrates, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Ariz. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Additional analyses: 0. CeO_2, .00X Y_2O_3. Sample no. 1803-CAA-3.

ARI-12-2---Lead concentrate, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Ariz. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Additional analyses: 0. CeO_2, .0X SrO, .00X Y_2O_3. Sample no. 1803-CAA-2.

ARI-12-3---Pyrite concentrate, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Ariz. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Additional analyses: 0. CeO_2, .0X SrO, .00X Y_2O_3. Sample no. 1803-CAA-4.

ARI-12-4---Zinc-lead tailings, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Ariz. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Additional analyses: 0. CeO_2, .0X SrO, .0X Y_2O_3. Sample no. 1803-CAA-5.

ARI-12-5---Lead-zinc-iron heads, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Arizona. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Additional analyses: 0. CeO_2, .0X SrO, .0X Y_2O_3. Sample no. 1803-CAA-1.

ARI-13-1---(For analysis see ARI-7-10). Lead-zinc-copper mill heads from Belmont-McNeil mine, 30 miles SSW of Wickenburg, Vulture district, Maricopa Co., Arizona. Vulture mill, 15 miles SSW of Wickenburg. Sampled in 1943. Sample no. 124-VUL-3.

ARI-13-2---(For analysis see ARI-7-11). Lead-zinc-copper tailings. Ore from Belmont-McNeil mine, 30 miles SSW of Wickenburg, Vulture district, Maricopa Co., Arizona. Vulture mill, 15 miles SSW of Wickenburg. Sampled in 1943. Sample no. 124-VUL-4.

ARI-13-3---Lead-zinc tailings, vertical channel sample of tailings dump. Ore from Keystone, Champion, Cashier and Summet mines, Wallapai district, Mohave Co., Ariz. Alpha-Keystone mill, Chloride, Ariz. Sampled in 1943. Sample no. 85-MC-1.

ARI-13-4---Zinc-lead tailings, vertical channel sample of tailings dump. Ore from Oro Plata and Middle Golconda mines, Wallapai district, Mohave Co., Ariz. Davenport Mining and Reduction Company mill, Chloride, Ariz. Sampled in 1943. Sample no. 85-MC-2.

ARI-13-5---Zinc concentrate, composite mill sample. Ore from Tennessee mine, Wallapai district, Mohave Co., Ariz. Tennessee-Schuylkill mill, Chloride, Ariz. Sampled in 1943. Sample no. 85-MC-8-2.

Table 6.—Analyses and descriptions of samples from Arizona—Continued

	ARI-13-6	ARI-13-7	ARI-13-8	ARI-13-9	ARI-13-10	ARI-13-11	ARI-13-12	ARI-13-13	ARI-13-14	ARI-13-15	ARI-13-16	ARI-13-17	
Ag	-	-		-	-	-	-	-					Ag
BeO	0	0		0	0	0	0	0.001					BeO
Bi_2O_3	0.1	0.001		0	0.01	0.003	0.003	0					Bi_2O_3
Nb_2O_5	0	0		-	-	-	-	-					Nb_2O_5
CdO	.01	.001	See ARI-7-15	0.1	.2	.04	.01	0	See ARI-7-25	See ARI-7-26	See ARI-7-27	See ARI-7-28	CdO
CoO	.008	.008		.08	.06	.01	.005	.001					CoO
Ga_2O_3	-	-		.01	.001	.006	.008	0					Ga_2O_3
GeO_2	.008	.004		.001	0	.001	.001	0					GeO_2
HgO	0	0		0	0	0	0	0					HgO
In_2O_3	0	0		.01	.001	.01	.01	.001					In_2O_3
La_2O_3	-	-		-	-	-	-	-					La_2O_3
MoO_3	.003	.004		.1	.1	-	-	.05					MoO_3
NiO	.006	.01		.05	.001	.06	.005	0					NiO
Pt	0	0		-	-	-	-	-					Pt
Re	0	0		-	-	-	-	-					Re
Sb_2O_3	.02	0		.001	.01	0	0	0					Sb_2O_3
SnO	.002	.001		.005	.001	.006	.004	.001					SnO
Ta_2O_5	0	0		0	0	0	0	0					Ta_2O_5
Tl_2O_3	0	0		.005	0	.004	.001	0					Tl_2O_3
V_2O_5	.006	.03		.04	.03	-	-	.1					V_2O_5
WO_3	0	0		.001	0	.01	.01	0					WO_3
ZrO_2	-	-		.02	.01	.005	.2	.05					ZrO_2
Limits of detection 1/	A	A		A	A	A	A	A					

1/ See table 2 for limits of detection reported by spectrographers.

ARI-13-6---Lead concentrate, composite mill sample. Ore from Tennessee mine, Wallapai district, Mohave Co., Ariz. Tennessee-Schuylkill mill, Chloride, Ariz. Sampled in 1943. Sample no. 85-MC-8-3.

ARI-13-7---Zinc-lead tailings. Ore from Tennessee mine, Wallapai district, Mohave Co., Ariz. Tennessee-Schuylkill mill, Chloride, Ariz. Sampled in 1943. Sample no. 85-MC-8-1.

ARI-13-8---(For analysis see ARI-7-15). Lead-copper tails. Ore from Bunker Hill mine, Bunker Hill mine and mill, 16 miles east of Mammoth, Pinal Co., Ariz. Sampled in 1943. Sample no. 125-CC-12.

ARI-13-9---Zinc concentrate, mill grab sample. Ore from Mammoth and Collins mines, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-1.

ARI-13-10--Lead concentrate, mill grab sample. Ore from Mammoth and Collins mines, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-5.

ARI-13-11--Molybdenum-vanadium flotation concentrate, mill grab sample. Ore from Mammoth and Collins mines, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-2.

ARI-13-12--Molybdenum-vanadium table concentrate, mill grab sample. Ore from Mammoth and Collins mine, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-3.

ARI-13-13--Molybdenum-vanadium-lead-zinc tailings, from tailings pile. Ore from Mammoth and Collins mines, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-8.

ARI-13-14--(For analysis see ARI-7-25). Copper concentrate. Ore from Duquesne, Bonaza, Estella, Holland, Empire and Pride of the West mines, Patagonia district, Santa Crus Co., Arizona. Callahan Zinc-Lead Company mill, Nogales, Ariz. Sampled in 1943. Sample no. 94-CAL-1.

ARI-13-15--(For analysis see ARI-7-26). Lead concentrate. Ore from Duquesne, Bonaza, Estella, Holland, Empire and Pride of the West mines, Patagonia district, Santa Crus Co., Arizona. Callahan Zinc-Lead Company mill, Nogales, Arizona. Sampled in 1943. Sample no. 94-CAL-2.

ARI-13-16--(For analysis see ARI-7-27). Zinc concentrate. Ore from Duquesne, Bonaza, Estella, Holland, Empire and Pride of the West mines, Patagonia district, Santa Crus Co., Arizona. Callahan Zinc-Lead Company mill, Nogales, Arizona. Sampled in 1943. Sample no. 94-CAL-3.

ARI-13-17--(For analysis see ARI-7-28). Copper-lead-zinc tailings. Ore from Duquesne, Bonaza, Estella, Holland, Empire and Pride of the West mines, Patagonia district, Santa Crus Co., Arizona. Callahan Zinc-Lead Company mill, Nogales, Arizona. Sampled in 1943. Sample no. 94-CAL-4.

Table 6.—Analyses and descriptions of samples from Arizona—Continued

	ARI-13-18	ARI-13-19	ARI-13-20	ARI-13-21	ARI-13-22	ARI-13-23	ARI-13-24	ARI-13-25	ARI-13-26	ARI-13-27	ARI-16-1	ARI-17-1	
Ag											-		Ag
BeO											0		BeO
Bi_2O_3											0		Bi_2O_3
Nb_2O_5											0		Nb_2O_5
CdO	See ARI-12-1	See ARI-12-2	See ARI-12-3	See ARI-12-4	See ARI-12-5	See ARI-7-31	See ARI-7-32	See ARI-10-10	See ARI-10-14	See ARI-7-37	0	See ARI-7-16	CdO
CoO											0.003		CoO
Ga_2O_3											-		Ga_2O_3
GeO_2											0		GeO_2
HgO											.02		HgO
In_2O_3											0		In_2O_3
La_2O_3											-		La_2O_3
MoO_3											0		MoO_3
NiO											.02		NiO
Pt											0		Pt
Re											0		Re
Sb_2O_3											0		Sb_2O_3
SnO											0		SnO
Ta_2O_5											0		Ta_2O_5
Tl_2O_3											0		Tl_2O_3
V_2O_5											.08		V_2O_5
WO_3											0		WO_3
ZrO_2											-		ZrO_2
Limits of detection 1/											A		

1/ See table 2 for limits of detection reported by spectrographers.

ARI-13-18--(For analysie eee ARI-12-1). Zinc concentratee, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Ariz. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Additional analyses: 0. CeO_2, .00X Y_2O_3. Sample no. 1803-CAA-3.

ARI-13-19--(For analysie see ARI-12-2). Lead concentrate, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Ariz. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Samplad in 1949. Sample no. 1803-CAA-2.

ARI-13-20--(For analysis see ARI-12-3). Pyrite concentrate, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Ariz. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Sample no. 1803-CAA-4.

ARI-13-21--(For analysis see ARI-12-4). Zinc-lead tailinge, composit mill eample. Ore from Iron King mine, Big Bug district, Yavapai Co., Ariz. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Sample no. 1803-CAA-5.

ARI-13-22--(For analysis see ARI-12-5) Lead-zinc-iron heads, composite mill sample. Ore from Iroa King mine, Big Bug district, Yavapai Co., Arizona. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Sample no. 1803-CAA-1.

ARI-13-23--(For analysis see ARI-7-31). Lead concentrate. Ore from Gladiator mine, Black Canyon district, Yavapai Co., Arizona. Golden Belt mill, near Cordee, Ariz. Sampled in 1943. Sample no. 106-GB-3.

ARI-13-24--(For analysis see ARI-7-32). Zinc concentrate. Ore from Gladiator mine, Black Canyon district, Yavapai Co., Arizona. Golden Belt mill, near Cordes, Ariz. Sampled in 1943. Sample no. 106-GB-4.

ARI-13-25--(For analysis see ARI-10-10). Lead-zinc-gold-eilver tailings. Ore from Gladiator mine, Black Canyon district, Yavapai Co., Arizona. Golden Belt mill, near Cordee, Aris. Sampled in 1943. Sample no. 106-GB-2.

ARI-13-26--(For analysis see ARI-10-14). Silver-gold-lead-zinc tailings from tailings dump. Ore from Silver Cord mine, Black Canyon district, Yavapai Co., Arizona. Silver Cord Mining Company mill (dismantled), Cleator, Ariz. Sampled in 1943. Sample no. 45-SIL-4.

ARI-13-27--(For analysis see ARI-7-37). Copper-lead-zinc-silver tailings. Ore from Crown King, California (Silverore), Tiger and Gladiator mines, Pine Grove district, Yavapai Co., Arizona. Golden Crown Mining Company mill, Crown King, Aris. Sampled in 1943. Sample no. 45-GC-8.

ARI-16-1---Burned rock (mercury tailings) from tailings pile. Ore from Ord Mercury mine, Tonto district, Gila Co., Arizona. Ord Mercury Mines smelter, Tonto Basin, Arizona. Sampled in 1943. Sample no. 45-ORD-5.

ARI-17-1---(For analysis see ARI-7-16). Molybdenite ore, high grade eample from Childs-Aldwinkle mine, 11 miles east of Mammoth, Pinal Co., Arizona. Sampled in 1943. Sample no. 125-CC-13.

Table 6.—Analyses and descriptions of samples from Arizona—Continued

	ARI-17-2	ARI-17-3	ARI-17-4	ARI-17-5	ARI-17-6	ARI-17-7	ARI-17-8	ARI-17-9	ARI-17-10	ARI-27-1	ARI-29-1	ARI-29-2	
Ag										0.0003			Ag
BeO										.0005			BeO
Bi_2O_3										.01			Bi_2O_3
Nb_2O_5										.004			Nb_2O_5
CdO	See ARI-7-17	See ARI-7-18	See ARI-13-9	See ARI-13-10	See ARI-13-11	See ARI-13-12	See ARI-13-13	See ARI-7-34	See ARI-7-36	0	See ARI-13-9	See ARI-13-11	CdO
CoO										0			CoO
Ga_2O_3										-			Ga_2O_3
GeO_2										0			GeO_2
HgO										0			HgO
In_2O_3										0			In_2O_3
La_2O_3										0			La_2O_3
MoO_3										.002			MoO_3
NiO										0			NiO
Pt										0			Pt
Re										0			Re
Sb_2O_3										0			Sb_2O_3
SnO										.001			SnO
Ta_2O_5										0			Ta_2O_5
Tl_2O_3										0			Tl_2O_3
V_2O_5										0			V_2O_5
WO_3										.02			WO_3
ZrO_2										-			ZrO_2
Limits of detection 1/										B			

1/ See table 2 for limits of detection reported by spectrographers.

ARI-17-2---(For analysis see ARI-7-17). Molybdenite ore with specular hematite. Childs-Aldwinkle mine, 11 miles east of Mammoth, Pinal Co., Arizona. Sampled in 1943. Sample no. 125-CC-14.

ARI-17-3---(For analysis see ARI-7-18). Copper-molybdenum tails. Ore from Childs-Aldwinkle mine. Mine and mill 11 miles east of Mammoth, Pinal Co., Arizona. Sampled in 1943. Sample no. 125-CC-4.

ARI-17-4---(For analysis see ARI-13-9). Zinc concentrate, mill grab sample. Ore from Mammoth and Collins mines, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-1.

ARI-17-5---(For analysis see ARI-13-10). Lead concentrate, mill grab sample. Ore from Mammoth and Collins mines, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-5.

ARI-17-6---(For analysis see ARI-13-11). Molybdenum-vanadium flotation concentrate, mill grab sample. Ore from Mammoth and Collins mine, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-2.

ARI-17-7---(For analysis see ARI-13-12). Molybdenum-vanadium table concentrate, mill grab sample. Ore from Mammoth and Collins mine, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-3.

ARI-17-8---(For analysis see ARI-13-13). Molybdenum-vanadium-lead-zinc tailings, from tailings pile. Ore from Mammoth and Collins mines, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-8.

ARI-17-9---(For analysis see ARI-7-34). Molybdenum concentrate. Ore from Bagdad mine, Eureka district, Yavapai Co., Arizona. Bagdad mill, Bagdad, Arizona. Sampled in 1943. Sample no. 125-BC-1.

ARI-17-10--(For analysis see ARI-7-36). Molybdenum concentrate. Ore from Copper Hill mine, Eureka district, Yavapai Co., Arizona. Bagdad mill, Bagdad, Arizona. Sampled in 1943. Sample no. 125-CH-1.

ARI-27-1---Tungsten tailings, grab sample from tailings pile. Ore from Williams Tungsten mine, Aquarius Range, Mohave Co., Arizona. Williams Tungsten mill, near Wikieup, Ariz. Sample no. 169-W-6.

ARI-29-1---(For analysis see ARI-13-9). Zinc concentrate, mill grab sample. Ore from Mammoth and Collins mines, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-1.

ARI-29-2---(For analysis see ARI-13-11). Molybdenum-vanadium flotation concentrate, mill grab sample. Ore from Mammoth and Collins mine, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-2.

Table 6.—Analyses and descriptions of samples from Arizona—Continued

	ARI-29-3	ARI-29-4	ARI-73-1	ARI-73-2	ARI-73-3	ARI-73-4	ARI-73-5	ARI-95-1					
Ag . . .													. . . Ag
BeO. . .													. . .BeO
Bi_2O_3. .													. .Bi_2O_3
Nb_2O_5. .													. .Nb_2O_5
CdO. . .	See ARI-13-12	See ARI-13-13	See ARI-12-1	See ARI-12-2	See ARI-12-3	See ARI-12-4	See ARI-12-5	See ARI-7-19					. . .CdO
CoO. . .													. . .CoO
Ga_2O_3. .													. .Ga_2O_3
GeO_2 . .													. . GeO_2
HgO. . .													. . .HgO
In_2O_3. .													. .In_2O_3
La_2O_3. .													. .La_2O_3
MoO_3 . .													. . MoO_3
NiO. . .													. . .NiO
Pt . . .													. . . Pt
Re . . .													. . . Re
Sb_2O_3. .													. .Sb_2O_3
SnO. . .													. . .SnO
Ta_2O_5. .													. .Ta_2O_5
Tl_2O_3. .													. .Tl_2O_3
V_2O_5 . .													. . V_2O_5
WO_3. . .													. . .WO_3
ZrO_2 . .													. . ZrO_2
Limits of detection 1/													

1/ See table 2 for limits of detection reported by spectrographers.

ARI-29-3---(For analysis see ARI-13-12). Molybdenum-vanadium table concentrate, mill grab sample. Ore from Mammoth and Collins mine, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-3.

ARI-29-4---(For analysis see ARI-13-13). Molybdenum-vanadium-lead-zinc tailings, from tailings pile. Ore from Mammoth and Collins mine, Old Hat district, Pinal Co., Ariz. Mammoth-St. Anthony, Ltd., mill, Tiger, Ariz. Sampled in 1942. Sample no. 17-MST-8.

ARI-73-1---(For analysis see ARI-12-1). Zinc concentrates, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Ariz. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Sample no. 1803-CAA-3.

ARI-73-2---(For analysis see ARI-12-2). Lead concentrate, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Ariz. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Sample no. 1803-CAA-2.

ARI-73-3---(For analysis see ARI-12-3). Pyrite concentrate, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Ariz. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Sample no. 1803-CAA-4.

ARI-73-4---(For analysis see ARI-12-4). Zinc-lead tailings, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Arizona. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Sample no. 1803-CAA-5.

ARI-73-5---(For analysis see ARI-12-5). Lead-zinc-iron heads, composite mill sample. Ore from Iron King mine, Big Bug district, Yavapai Co., Arizona. Iron King mill, Humboldt, Arizona. Shattuck-Denn Corp. Sampled in 1949. Sample no. 1803-CAA-1.

ARI-95-1---(For analysis see ARI-7-19). Leached capping, porphyry copper, Ray mine, Ray, Pinal Co., Ariz. Kennecott Copper Corp. Sampled in 1948. Sample no. 381-KCC-4.

Table 7.—Analyses and descriptions of samples from Arkansas

	ARK-2-1	ARK-2-2	ARK-2-3	ARK-2-4	ARK-2-5	ARK-2-6	ARK-2-7	ARK-2-8	ARK-2-9	ARK-13-1	ARK-13-2	ARK-13-3	
Ag	0	0	0	0	0	0	0	0	0	-	-	-	Ag
BeO	0.0006	0.0006	0	0	0.006	0	0.000X	0	0	0.001	0.001	0.001	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	.03	.1	0.06	0.1	.03	0.08	.01	0.06	0.07	0	0	0	Nb_2O_5
CdO	-	-	-	-	-	-	0	-	-	.006	.08	.002	CdO
CoO	0	0	0	0	0	0	0	0	0	0	.002	0	CoO
Ga_2O_3	.005	.009	.008	.008	.01	.008	.003	.006	.01	-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	-	0	0	0	.004	0	GeO_2
HgO	-	-	-	-	-	-	-	-	-	0	0	0	HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0	.002	0	In_2O_3
La_2O_3	.008	.02	.01	.03	.02	.02	.05	.009	.009	-	-	-	La_2O_3
MoO_3	0	.006	0	0	.003	0	0	0	.004	0	.001	0	MoO_3
NiO	0	0	0	0	0	0	0	0	0	.004	.008	.003	NiO
Pt	-	-	-	-	-	-	-	-	-	0	0	0	Pt
Re	-	-	-	-	-	-	-	-	-	0	0	0	Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Sb_2O_3
SnO	0	0	0	0	0	0	0	0	0	0	.001	0	SnO
Ta_2O_5	0	0	0	0	0	0	-	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.02	.009	.02	.01	.01	.009	.005	.007	.016	.003	.003	0	V_2O_5
WO_3	-	0	-	-	-	-	-	-	-	0	0	0	WO_3
ZrO_2	.1	.3	.1	.3	.1	.3	.04	.1	.1	-	-	-	ZrO_2
Limits of detection 1/	B	B	B	B	B	B	B	B	B	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

ARK-2-1---Pisolitic bauxite hardcap. Core sample from USBM drill hole 6-127B, depth 278 feet. Bates deposit, Pulaski Co., Arkansas. Additional analyses: 0.01 B_2O_3, .004 BaO, .03 Cr_2O_3, .002 CuO, .01 MnO, 0. PbO, .02 SrO, 2.5 TiO_2, .03 Y_2O_3. Sample no. 396-AB-6127B-1.

ARK-2-2---Poorly pisolitic bauxite, siliceous. Core sample from USBM drill hole 16-052, depth 451.9-452.2 feet. East Bauxite deposit, Saline Co., Ark. International Paper Company. Sample no. 396-AB-16052-1.

ARK-2-3---Bauxitic underclay. Core sample from USBM drill hole 16-052, depth 480.5-480.6 feet. East Bauxite deposit, Saline Co., Ark. International Paper Company. Sample no. 396-AB-16052-3.

ARK-2-4---Fragmental kaolinitic underclay. Core sample from USBM drill hole 16-052, depth 488 feet. East Bauxite deposit, Saline Co., Ark. International Paper Company. Sample no. 396-AB-16052-5.

ARK-2-5---Bauxite pebbles filling channels in lower bed. Fletcher mine, Saline Co., Ark. Reynolds Mining Corp. Sample no. 396-AB-60-1.

ARK-2-6---Granite-textured bauxite ore, "sponge ore". Middle Maud mine, Saline Co., Ark. Alcoa Mining Company. Additional analyses: 0. B_2O_3, .002 BaO, .006 Cr_2O_3, .001 CuO, .1 MnO, .004 PbO, .009 SrO, 1.3 TiO_2, .008 Y_2O_3. Sample no. 396-AB-111-2.

ARK-2-7---Nepheline syenite. Grab sample from outcrop east of underpass NE of Bauxite P. O., Saline Co., Ark. Sampled in 1948. Additional analyses: 0.003 BaO, 0. Cr_2O_3, .000X CuO, .1 MnO, 0. PbO, .02 SrO, .5 TiO_2, .01 Y_2O_3. Sample no. 396-AB-310-1.

ARK-2-8---Oxidized ferruginous granite-textured bauxite. Pruden mine, Saline Co., Ark. Alcoa Mining Co. Sample no. 396-AB-74-17.

ARK-2-9---Pisolitic bauxite, "bird's-eye ore". Section 16 mine, Saline Co., Ark. Alcoa Mining Co. Sample no. 396-AB-80-1.

ARK-13-1--Zinc ore, mill sample. Ore from Gloria mine, Zinc district, Boone Co., Ark. Gloria mill, Zinc, Ark. Sampled in 1942. Sample no. 25-ARK-03.

ARK-13-2--Zinc concentrate, mill sample. Ore from Gloria mine, Zinc district, Boone Co., Ark. Gloria mill, Zinc, Ark. Sampled in 1942. Sample no. 25-ARK-01.

ARK-13-3--Zinc tailings, mill sample. Ore from Gloria mine, Zinc district, Boone Co., Ark. Gloria mill, Zinc, Ark. Sampled in 1942. Sample no. 25-ARK-02.

Table 7.—Analyses and descriptions of samples from Arkansas—Continued

	ARK-13-4	ARK-13-5	ARK-13-6	ARK-13-7	ARK-13-8	ARK-13-9	ARK-13-10	ARK-13-11	ARK-13-12	ARK-15-1	ARK-15-2	ARK-15-3	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0.001	0	0.001	0.001	0.002	0.001	0.002	0.001	0	0.01	0.01	0.01	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	-	0	0	0	0	-	-	-	Nb_2O_5
CdO	.01	0.2	.2	.002	.05	.3	.002	.008	0.02	0	0	0	CdO
CoO	0	.002	.002	0	.001	.003	0	.02	.03	.05	.08	.08	CoO
Ga_2O_3	-	-	-	-	-	-	-	.3	.3	.003	0	0	Ga_2O_3
GeO_2	0	.005	.008	0	.001	.008	0	.02	.02	0	.005	0	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	0	.002	.002	0	0	.003	0	.005	.004	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	0	.001	.001	0	.001	.001	0	.01	.02	.04	.04	.05	MoO_3
NiO	.004	.01	.008	.003	.004	.01	.003	.04	.04	.1	.1	.1	NiO
Pt	0	0	0	0	0	0	0	0	0	-	-	-	Pt
Re	0	0	0	0	0	0	0	0	0	-	-	-	Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Sb_2O_3
SnO	.001	.001	.002	0	0	.004	0	.008	.01	.08	.05	.06	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	-	0	.001	.004	0	.001	.001	Tl_2O_3
V_2O_5	.003	.003	.004	.001	.003	.003	0	.02	.01	.2	.1	.1	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	.06	.1	.08	ZrO_2
Limits of detection [1/]	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

ARK-13-4---Zinc ore, grab sample of mill run ore. Ore from Bald Hill mine, Cave Creek district, Newton Co., Ark. Bald Hill mill, Cave Creek, Ark. Sampled in 1942. Sample no. 25-ARK-BH3.

ARK-13-5---Zinc concentrate, grab sample. Ore from Bald Hill mine, Cave Creek district, Newton Co., Ark. Bald Hill mill, Cave Creek, Ark. Sampled in 1942. Sample no. 25-ARK-BH1.

ARK-13-6---Zinc concentrate, grab sample. Ore from Bald Hill mine, Cave Creek district, Newton Co., Ark. Bald Hill mill, Cave Creek, Ark. Sampled in 1942. Sample no. 25-ARK-BH2.

ARK-13-7---Zinc tailings. Grab sample from tailings pond. Ore from Bald Hill mine, Cave Creek district, Newton Co., Ark. Bald Hill mill, Cave Creek, Ark. Sampled in 1942. Sample no. 25-ARK-BH4.

ARK-13-8---Zinc ore, grab sample of mill run ore. Excelsior mine, St. Joe district, Searcy Co., Ark. Excelsior mill, St. Joe, Ark. Sampled in 1942. Sample no. 25-ARK-E3.

ARK-13-9---Zinc concentrate, mill sample. Excelsior mine, St. Joe district, Searcy Co., Ark. Excelsior mill, St. Joe, Ark. Sampled in 1942. Sample no. 25-ARK-E1.

ARK-13-10--Zinc tailings, from tailings pile. Excelsior mine, St. Joe district, Searcy Co., Ark. Excelsior mill, St. Joe Ark. Sampled in 1942. Sample no. 25-ARK-E2.

ARK-13-11--Slag from smelter. Zinc concentrates from Tri-State district and northern Ark. Athletic Mining and Smelting Company smelter, Fort Smith, Sebastin Co., Ark. Sampled in 1942. Sample no. 25-ARK-1.

ARK-13-12--Zinc smelter residue. Zinc concentrates from Tri-State district and northern Ark. Athletic Mining and Smelting Company smelter, Fort Smith, Sebastin Co., Ark. Sampled in 1942. Sample no. 25-ARK-2.

ARK-15-1---Manganese ore. Grab sample from high-grade stockpile. Aydelotte mine, Batesville district, Independence Co., Ark. Sample no. 14-ARK-2.

ARK-15-2---Manganese ore. Grab sample from Metals Reserve stockpile at Cushman, Ark. Aydelotte mine and others, Batesville district, Independence Co., Ark. Sample no. 14-ARK-2A.

ARK-15-3---Manganese ore. Grab sample from high-grade Metals Reserve stockpile at Cushman, Ark. Bill Jim, Wildcat, Section 16, Ozark, and other mines, Batesville district, Independence Co., Ark. Sampled in 1942. Sample no. 14-ARK-3.

Table 7.—Analyses and descriptions of samples from Arkansas—Continued

	ARK-15-4	ARK-15-5	ARK-15-6	ARK-16-1	ARK-16-2	ARK-16-3	ARK-16-4	ARK-16-5	ARK-16-6	ARK-16-7	ARK-16-8	ARK-16-9	
Ag . . .	-	-	-	-	-	-	-	-	-	-	-	-	. . . Ag
BeO. . .	0.01	0.008	0.01	0	0	0	0	0	0	0	0	0	. . .BeO
Bi_2O_3. .	0	.005	0	0	0	0	0	0	0	0	0	0	. .Bi_2O_3
Nb_2O_5. .	-	-	-	-	-	-	-	-	-	-	-	-	. .Nb_2O_5
CdO. . .	0	0	0	0	0	0	0	0	0	0	0	0	. . .CdO
CoO. . .	.1	.3	.08	0	0.001	0.005	0.005	0.001	0.005	0	0	0.001	. . .CoO
Ga_2O_3. .	0	0	0	0	0	0	0	0	0	0	0	0	. .Ga_2O_3
GeO_2 . .	.004	0	0	0	0	0	0	0	0	0	0	0	. . GeO_2
HgO. . .	0	0	0	0	0	.02	.02	0	.03	0	0	0	. . .HgO
In_2O_3. .	0	0	0	0	0	0	0	0	0	0	0	0	. .In_2O_3
La_2O_3. .	-	-	-	-	-	-	-	-	-	-	-	-	. .La_2O_3
MoO_3 . .	.04	.03	.002	0	0	0	0	0	0	0	0	0	. . MoO_3
NiO. . .	.1	.2	.1	0.004	.005	.008	.01	.005	.01	0.004	0.003	.003	. . .NiO
Pt . . .	-	-	-	-	-	-	-	-	-	-	-	-	. . . Pt
Re . . .	-	-	-	-	-	-	-	-	-	-	-	-	. . . Re
Sb_2O_3. .	0	0	0	0	0	0	0	0	0	0	0	0	. .Sb_2O_3
SnO. . .	.05	.08	.005	0	0	0	0	0	0	0	0	0	. . .SnO
Ta_2O_5. .	0	0	0	0	0	0	0	0	0	0	0	0	. .Ta_2O_5
Tl_2O_3. .	0	0	0	0	0	0	0	0	0	0	0	0	. .Tl_2O_3
V_2O_5 . .	.1	.05	.02	.03	.05	.06	.08	.05	.08	.03	.02	.03	. . V_2O_5
WO_3. . .	0	0	0	0	0	0	0	0	0	0	0	0	. . .WO_3
ZrO_2 . .	.1	.1	.05	.01	.02	.03	.02	.01	.02	.01	.01	.02	. . ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

ARK-15-4---Manganese ore, grab sample from low-grade Metals Reserve stockpile at Pfeifer, Ark. Bill Jim, Wildcat, Section 16, Ozark, and other mines, Batesville district, Independence Co., Ark. Sampled in 1942. Sample no. 14-ARK-3A.

ARK-15-5---Manganese concentrate, shipping grade. Ore from North American mine and custom ores, Glenwood district, Pike Co., Ark. Black Springs mill, North American Manganese Corp. Sampled in 1942. Sample no. 14-ARK-1.

ARK-15-6---Manganese table tailings. Ore from North American mine and custom ores, Glenwood district, Pike Co., Ark. Black Springs mill, North American Manganese Corp. Sampled in 1942. Sample no. 14-ARK-1A.

ARK-16-1---Burned mercury rock, from dump. Ore from Bemix Hill and Two Hill mines, Antoine Creek district, Clark Co., Ark. Ozark Quicksilver Corp. Sampled in 1942. Sample no. 2-AQ-3.

ARK-16-2---Burned mercury rock. Mercury ore from Caddo mine, Antoine Creek district, Clark Co., Ark. Caddo smelter. Sampled in 1942. Sample no. 2-AQ-2.

ARK-16-3---Flue dust from "Klondike" precipitator. Mercury ore from Caddo mine, Antoine Creek district, Clark Co., Ark. Caddo smelter. Sampled in 1942. Sample no. 2-AQ-2A.

ARK-16-4---Furnace dust. Mercury ore from Caddo mine, Antoine Creek district, Clark Co., Ark. Caddo smelter. Sampled in 1942. Sample no. 2-AQ-2B.

ARK-16-5---Burned mercury rock, from tailings pile. Ore from Humphreys mine, Antoine Creek district, Pike Co., Ark. Humphreys Gold Corp. smelter, Amity, Ark. Sampled in 1942. Sample no. 2-AQ-1

ARK-16-6---Dust from cyclone collector. Ore from Humphreys mine, Antoine Creek district, Pike Co., Ark. Humphreys Gold Corp. smelter, Amity, Ark. Sampled in 1942. Sample no. 2-AQ-1A.

ARK-16-7---Burned mercury rock from dump. Ore from Big Six mine, Pike Co., Ark. Sampled in 1942. Sample no. 2-AQ-4.

ARK-16-8---Burned mercury rock from dump. Little Missouri River district, Pike Co., Ark. Sampled in 1942. Sample no. 2-AQ-5.

ARK-16-9---Burned mercury rock from dump. Ore from Parker Hill and Parnell Hill mines, Little Missouri River district, Pike Co., Ark. Gap Ridge and Parker Hill smelters, Amity, Ark. Sampled in 1942. Sample no. 2-AQ-6.

Table 7.—Analyses and descriptions of samples from Arkansas—Continued

	ARK-16-10	ARK-16-11	ARK-16-12	ARK-16-13	ARK-16-14	ARK-16-15	ARK-16-16	ARK-26-1	ARK-26-2	ARK-26-3	ARK-90-1		
Ag	-	-	-	-	-	-	-	-	-	-			Ag
BeO	0	0	0	0	0	0	0	-	-	0			BeO
Bi_2O_3	0	0	0	0	0	0	0	-	-	0			Bi_2O_3
Nb_2O_5	-	0	0	-	-	-	-	2.7	2.0	-			Nb_2O_5
CdO	0	0	0	0	0	0	0	-	-	0	See ARK-2-7		CdO
CoO	0.006	0.001	0	0.005	0	0	0	-	-	.005			CoO
Ga_2O_3	0	-	-	0	0	0	0	-	-	-			Ga_2O_3
GeO_2	0	0	0	0	0	0	0	-	-	0			GeO_2
HgO	.03	.01	0	.02	0	0	0	-	-	0			HgO
In_2O_3	0	0	0	0	0	0	0	-	-	0			In_2O_3
La_2O_3	-	-	-	-	-	-	-	0	0	-			La_2O_3
MoO_3	0	0	0	0	0	0	0	-	-	0			MoO_3
NiO	.01	.004	0.003	.008	0.005	0.005	0.005	-	-	.001			NiO
Pt	-	0	0	-	-	-	-	-	-	0			Pt
Re	-	0	0	-	-	-	-	-	-	0			Re
Sb_2O_3	0	0	0	0	0	0	0	-	-	0			Sb_2O_3
SnO	0	0	0	0	0	0	0	-	-	.002			SnO
Ta_2O_5	0	0	0	0	0	0	0	-	-	-			Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	-	-	0			Tl_2O_3
V_2O_5	.06	.04	.04	.08	.05	.05	.05	.58	.54	.2			V_2O_5
WO_3	0	0	0	0	0	0	0	-	-	0			WO_3
ZrO_2	.02	-	-	.02	.01	.01	.01	-	-	-			ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	E	E	A			

1/ See table 2 for limits of detection reported by spectrographers.

ARK-16-10--Flue dust from Seroco collector. Ore from Parker Hill and Parnell Hill mines, Little Missouri River district, Pike Co., Ark. Gap Ridge and Parker Hill smelters, Amity, Ark. Sampled in 1942. Sample no. 2-AQ-6A.

ARK-16-11--Burned mercury rock from dump. Ore from Ajax mine, 10 miles NW of Murfreesboro, Pike Co., Ark. Ajax smelter. Sampled in 1942. Sample no. 2-AQ-7.

ARK-16-12--Burned mercury rock from dump. Ore from all mines in district (except Gap Ridge and Parker Hill mines), Pike Co., Ark. U. S. Mercury smelter, near Daisy, Ark. Sampled in 1942. Sample no. 2-AQ-8.

ARK-16-13--Dust from cyclone collector. Ore from all mines in district (except Gap Ridge and Parker Hill mines), Pike Co., Ark. U. S. Mercury smelter, near Daisy, Ark. Sampled in 1942. Sample no. 2-AQ-8A.

ARK-16-14--Burned mercury rock from dump 10 miles NE of Murfreesboro, Pike Co., Ark. Union Mining Company. Sampled in 1942. Sample no. 2-AQ-9.

ARK-16-15--Burned mercury rock from dump. 10 miles NE of Murfreesboro, Pike Co., Ark., Superior smelter. Sampled in 1942. Sample no. 2-AQ-10.

ARK-16-16--Burned mercury rock from dump 12 miles NE of Murfreesboro, Pike Co., Ark. Pike Mining Co. smelter, Amity, Ark. Sampled in 1942. Sample no. 2-AQ-11.

ARK-26-1--- Brookite crystals, composite sample. Christy brookite property, Magnet Cove, Hot Spring Co., Ark. Sampled in 1952. Sample no. (1673)-718e.

ARK-26-2---Rutile crystals, composite sample. West Pit, Magnet Cove Titanium Corp. property, Magnet Cove, Hot Spring Co., Ark. Sampled in 1952. Sample no. (1673)-814e.

ARK-26-3---Rutile concentrate, high grade. Ore from Titanium Alloy Co. (now Magnet Cove Titanium Corp.) property, Magnet Cove, Hot Spring Co., Ark. Sampled in 1943. Sample no. 40-TA-4.

ARK-90-1---(For analysis see ARK-2-7). Nepheline syenite. Grab sample from outcrop east of underpass NE of Bauxite P. O., Saline Co., Ark. Sampled in 1948. Sample no. 396-AB-310-1.

Table 8.—Analyses and descriptions of samples from British Columbia

	BC-7-1	BC-7-2	BC-7-3	BC-7-4	BC-7-5	BC-7-6	BC-10-1	BC-10-2	BC-10-3	BC-10-4	BC-13-1	BC-13-2	
Ag . . .	-	-	-	-	-	-							. . . Ag
BeO. . .	0	0	0	0.001	0	0.001							. . .BeO
Bi_2O_3. .	0.02	0.02	0.01	.01	0.004	0							. .Bi_2O_3
Nb_2O_5. .	0	0	0	0	0	0							. .Nb_2O_5
CdO. . .	.5	.5	.01	.1	0	.003							. . .CdO
CoO. . .	.001	.001	.008	.01	.02	0	See BC-7-3	See BC-7-4	See BC-7-5	See BC-7-6	See BC-7-1	See BC-7-2	. . .CoO
Ga_2O_3. .	-	-	-	-	-	-							. .Ga_2O_3
GeO_2 . .	.01	.01	0	0	.005	0							. . GeO_2
HgO. . .	0	0	0	0	0	0							. . .HgO
In_2O_3. .	.004	.005	0	.001	0	0							. .In_2O_3
La_2O_3. .	-	-	-	-	-	-							. .La_2O_3
MoO_3 . .	.03	.03	.06	.08	.05	.005							. . MoO_3
NiO. . .	.008	.008	.002	.005	.01	0							. . .NiO
Pt . . .	0	0	0	0	0	0							. . . Pt
Re . . .	0	0	0	0	0	0							. . . Re
Sb_2O_3. .	0	0	0	0	0	0							. .Sb_2O_3
SnO. . .	.002	.002	.005	.008	.01	0							. . .SnO
Ta_2O_5. .	0	0	0	0	0	0							. .Ta_2O_5
Tl_2O_3. .	.006	.007	.002	.003	.008	.001							. .Tl_2O_3
V_2O_5 . .	.01	.01	.004	.006	.004	.02							. . V_2O_5
WO_3. . .	0	0	0	0	0	0							. . .WO_3
ZrO_2 . .	-	-	-	-	-	-							. . ZrO_2
Limits of detection 1/	A	A	A	A	A	A							

1/ See table 2 for limits of detection reported by spectrographers.

BC-7-1---Zinc concentrate, experimental mill concentrate. From No. 8 ore, 4500 foot level, Brittania mines, Vancouver North Co., British Columbia. Brittania mill, Brittania Beach, B. C. Brittania Mining and Smelting Co., Ltd. Sampled in 1943. Sample no. 53-BRI-4.

BC-7-2---Zinc concentrate, experimental mill concentrate. From No. 8 ore, 4000 foot level, Brittania mines, Vancouver North Co., British Columbia. Brittania mill, Vancouver Beach, B. C. Brittania Mining and Smelting Co., Ltd. Sampled in 1943. Sample no. 53-BRI-5.

BC-7-3---Copper concentrate, experimental mill concentrate. Brittania mines, Vancouver North Co., British Columbia. Brittania mill, Brittania Beach, B. C. Brittania Mining and Smelting Co., Ltd. Sampled in 1943. Sample no. 53-BRI-1.

BC-7-4---Copper concentrate from No. 5 copper ore. Brittania mines, Vancouver North Co., British Columbia. Brittania mill, Brittania Beach, B. C. Brittania Mining and Smelting Co., Ltd. Sampled in 1943. Sample no. 53-BRI-2.

BC-7-5---Pyrite concentrate. Brittania mines, Vancouver North Co., British Columbia. Brittania mill, Brittania Beach, B. C. Brittania Mining and Smelting Co., Ltd. Sampled in 1943. Sample no. 53-BRI-3.

BC-7-6---Copper-pyrite tailings. Brittania mines, Vancouver North Co., British Columbia. Brittania mill, Brittania Beach, B. C. Brittania Mining and Smelting Co., Ltd. Sampled in 1943. Sample no. 53-BRI-6.

BC-10-1---(For analysis see BC-7-3). Copper concentrate, experimental mill concentrate. Brittania mines, Vancouver North Co., British Columbia. Brittania mill, Brittania Beach, B. C. Brittania Mining and Smelting Co., Ltd. Sampled in 1943. Sample no. 53-BRI-1.

BC-10-2---(For analysis see BC-7-4). Copper concentrate from No. 5 copper ore. Brittania mines, Vancouver North Co., British Columbia. Brittania mines, Vancouver Beach, B. C. Brittania Mining and Smelting Co., Ltd. Sampled in 1943. Sample no. 53-BRI-2.

BC-10-3---(For analysis see BC-7-5). Pyrite concentrate. Brittania mines, Vancouver North Co., British Columbia. Brittania mill, Brittania Beach, B. C. Brittania Mining and Smelting Co., Ltd. Sampled in 1943. Sample no. 53-BRI-3.

BC-10-4---(For analysis see BC-7-6). Copper-pyrite tailings. Brittania mines, Vancouver North Co., British Columbia. Brittania mines, Vancouver Beach, B. C. Brittania Mining and Smelting Co., Ltd. Sampled in 1943. Sample no. 53-BRI-6.

BC-13-1---(For analysis see BC-7-1). Zinc concentrate, experimental mill concentrate. From No. 8 ore, 4500 foot level, Brittania mines, Vancouver North Co., British Columbia. Brittania mill, Brittania Beach, B. C. Brittania Mining and Smelting Co., Ltd. Sampled in 1943. Sample no. 53-BRI-4.

BC-13-2---(For analysis see BC-7-2). Zinc concentrate, experimental mill concentrate. From No. 8 ore, 4000 foot level, Brittania mines, Vancouver North Co., British Columbia. Brittania mines, Vancouver Beach, B. C. Brittania Mining and Smelting Co., Ltd. Sampled in 1943. Sample no. 53-BRI-5.

Table 8.—Analyses and descriptions of samples from British Columbia—Continued

	BC-73-1	BC-73-2											
Ag													Ag
BeO													BeO
Bi_2O_3													Bi_2O_3
Nb_2O_5													Nb_2O_5
CdO	See BC-7-5	See BC-7-6											CdO
CoO													CoO
Ga_2O_3													Ga_2O_3
GeO_2													GeO_2
HgO													HgO
In_2O_3													In_2O_3
La_2O_3													La_2O_3
MoO_3													MoO_3
NiO													NiO
Pt													Pt
Re													Re
Sb_2O_3													Sb_2O_3
SnO													SnO
Ta_2O_5													Ta_2O_5
Tl_2O_3													Tl_2O_3
V_2O_5													V_2O_5
WO_3													WO_3
ZrO_2													ZrO_2
Limits of detection 1/													

1/ See table 2 for limits of detection reported by spectrographers.

BC-73-1---(For analysis see BC-7-5). Pyrite concentrate.
Brittania mines, Vancouver North Co., British Columbia.
Brittania mill, Brittania Beach, B. C. Brittania
Mining and Smelting Co., Ltd. Sampled in 1943.
Sample no. 53-BRI-5.

BC-73-2---(For analysis see BC-7-6). Copper-pyrite tailings.
Brittania mines, Vancouver North Co., British Columbia.
Brittania mill, Brittania Beach, B. C Brittania
Mining and Smelting Co., Ltd. Sampled in 1943.
Sample no. 53-BRI-6.

Table 9.—Analyses and descriptions of samples from California

	CAL-5-1	CAL-5-2	CAL-5-3	CAL-5-4	CAL-5-5	CAL-5-6	CAL-5-7	CAL-7-1	CAL-10-1	CAL-10-2	CAL-10-3	CAL-10-4	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0	0	0	0	0	0	0	0	0.002	0.002	0.001	0.002	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	-	-	-	-	-	-	-	0	0	0	0	0	Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	0	0	CdO
CoO	0.05	0.05	0.1	0.1	0.03	0.1	0.04	0.003	.001	.001	.001	.001	CoO
Ga_2O_3	-	-	-	-	-	.001	0	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.005	.005	.008	.01	.004	.01	.01	.001	0	0	0	.001	MoO_3
NiO	.4	.4	.5	.5	.3	.4	.3	.008	.008	.01	.01	.008	NiO
Pt	-	-	-	-	-	-	-	0	0	0	0	0	Pt
Re	-	-	-	-	-	-	-	0	0	0	0	0	Re
Sb_2O_3	.2	.1	.3	.3	.1	.2	.1	0	0	0	0	0	Sb_2O_3
SnO	.04	.04	.06	.06	.01	.06	.04	0	0	0	0	0	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.02	.02	.08	.06	.01	.08	.04	.01	.02	.01	.02	.01	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	.01	.01	.02	.02	.004	.01	.01	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

CAL-5-1---Chromite heads, composite sample. Ore from Gray Eagle mine, Glenn Co., Calif. Gray Eagle chromite mill, Glenn Co., Calif. Sampled in 1942. Sample no. 24-GE-2914.

CAL-5-2---Chromite ore. Grab sample of mine sample rejects. Ore from Gray Eagle mine, Glenn Co., Calif. Gray Eagle chromite mill, Glenn Co., Calif. Sampled in 1942. Sample no. 24-GE-RMC.

CAL-5-3---Chromite concentrate, composite sample. Ore from Gray Eagle mine, Glenn Co., Calif. Gray Eagle chromite mill, Glenn Co., Calif. Sampled in 1942. Sample no. 24-GE-2915.

CAL-5-4---Chromite concentrate, composite sample. Ore from Gray Eagle mine, Glenn Co., Calif. Gray Eagle chromite mill, Glenn Co., Calif. Sampled in 1942. Sample no. 24-GE-2916.

CAL-5-5---Chromite tailings, composite sample. Ore from Gray Eagle mine, Glenn Co., Calif. Gray Eagle chromite mill, Glenn Co., Calif. Sampled in 1942. Sample no. 24-GE-2913.

CAL-5-6---Chromite concentrate (fines). Grab sample from dewatering tank overflow recovery. Ore from Castro mine, San Luis Obispo district, San Luis Obispo Co., Calif. Castro Chrome Associates mill, San Luis Obispo, Calif. Sampled in 1943. Sample no. 18-CA-2.

CAL-5-7---Chromite tailings, grab sample. Ore from Castro mine, San Luis Obispo district, San Luis Obispo Co., Calif. Castro Chrome Associates mill, San Luis Obispo, Calif. Sampled in 1943. Sample no. 18-CA-1.

CAL-7-1---Copper-gold tailings from tailings pile. Ore from Funny Bug mine, Mother Lode district, Eldorado Co., Calif. Funny Bug mill, Gold Hill, Calif. Sampled in 1943. Sample no. 43-FB-1.

CAL-10-1--Gold tailings from tailings dump. Ore from Argonaut mine, Mother Lode district, Amador Co., Calif. Argonaut mill, Jackson, Calif. Sampled in 1943. Sample no. 43-ARG-1.

CAL-10-2--Gold tailings from tailings dump. Ore from Argonaut mine, Mother Lode district, Amador Co., Calif. Argonaut mill, Jackson, Calif. Sampled in 1943. Sample no. 43-ARG-2.

CAL-10-3--Gold tailings from tailings dump. Ore from Argonaut mine, Mother Lode district, Amador Co., Calif. Argonaut mill, Jackson, Calif. Sampled in 1943. Sample no. 43-ARG-3.

CAL-10-4--Gold tailings from tailings dump. Ore from Argonaut mine, Mother Lode district, Amador Co., Calif. Argonaut mill, Jackson, Calif. Sampled in 1943. Sample no. 43-ARG-4.

Table 9.—Analyses and descriptions of samples from California—Continued

	CAL-10-6	CAL-10-7	CAL-10-8	CAL-10-9	CAL-10-10	CAL 10-11	CAL-10-12	CAL-10-13	CAL-10-14	CAL-10-15	CAL-10-16	CAL-10-17	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0 001	0	0	0.002	0.002	0.001	0.002	0.001	0.002	0.002	0	0	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	0	0	CdO
CoO	0	0.006	0.02	.001	.001	.002	.001	.001	.001	.001	0.002	0.002	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	0	01	.01	0	.001	0	0	.001	.001	0	.008	.008	MoO_3
NiO	.01	.04	.1	.008	.01	.01	.008	.01	.01	.01	.01	.01	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Sb_2O_3
SnO	0	0	0	0	0	0	0	0	0	0	0	0	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	.001	.002	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.01	006	.004	.01	.01	.02	.01	.01	.01	.01	.01	.02	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

CAL-10-6--Gold tailings from tailings dump. Ore from Argonaut mine, Mother Lode district, Amador Co., Calif. Argonaut mill, Jackson, Calif. Sampled in 1943. Sample no. 43-ARG-6.

CAL-10-7--Gold cyaniding residue from dump. Ore from Argonaut mine, Mother Lode district, Amador Co., Calif. Argonaut mill, Jackson, Calif. Sampled in 1943. Sample no. 43-ARG-7.

CAL-10-8--Gold cyaniding residue from dump. Ore from Argonaut mine, Mother Lode district, Amador Co., Calif. Argonaut mill, Jackson, Calif. Sampled in 1943. Sample no. 43-ARG-8.

CAL-10-9--Gold tailings from east dump. Ore from Old Eureka mine, Mother Lode district, Amador Co., Calif. Central Eureka mill, Sutter Creek Calif. Sampled in 1943. Sample no. 43-CE-1.

CAL-10-10-Gold tailings from east dump. Ore from Old Eureka mine, Mother Lode district, Amador Co., Calif. Central Eureka mill, Sutter Creek, Calif. Sampled in 1943. Sample no. 43-CE-2.

CAL-10-11-Gold tailings from east dump. Ore from Old Eureka mine, Mother Lode district, Amador Co., Calif. Central Eureka mill, Sutter Creek, Calif. Sampled in 1943. Sample no. 43-CE-3.

CAL-10-12-Gold tailings from east dump. Ore from Old Eureka mine, Mother Lode district, Amador Co., Calif. Central Eureka mill, Sutter Creek, Calif. Sampled in 1943. Sample no. 43-CE-4.

CAL-10-13-Gold tailings from mill tailing, west dump. Ore from Old Eureka mine, Mother Lode district, Amador Co., Calif. Central Eureka mill, Sutter Creek, Calif. Sampled in 1943. Sample no. 43-CE-5.

CAL-10-14-Gold tailings from mill tailing, west dump. Ore from Old Eureka mine, Mother Lode district, Amador Co., Calif. Central Eureka mill, Sutter Creek, Calif. Sampled in 1943. Sample no. 43-CE-6.

CAL-10-15-Gold tailings from mill tailing,west dump. Ore from Old Eureka mine, Mother Lode district, Amador Co., Calif. Central Eureka mill, Sutter Creek, Calif. Sampled in 1943. Sample no. 43-CE-7.

CAL-10-16-Gold tailings from mill tailing dump. Ore from Carson Hill mine and two adjacent mines, Mother Lode district, Calaveras Co., Calif. Carson Hill Gold Mining Corp. mill, Melones, Calif. Sampled in 1943. Sample no. 43-CH-1.

CAL-10-17-Gold tailings from mill tailing dump. Ore from Carson Hill mine and two adjacent mines, Mother Lode district, Calaveras Co., Calif. Carson Hill Gold Mining Corp. mill, Melones, Calif. Sampled in 1943. Sample no. 43-CH-2.

Table 9.—Analyses and descriptions of samples from California—Continued

	CAL-10-18	CAL-10-19	CAL-10-20	CAL-10-21	CAL-10-22	CAL-10-23	CAL-10-24	CAL-13-1	CAL-16-1	CAL-16-2	CAL-16-3	CAL-16-4	
Ag	-	-		-	-	-	-		-	-	-	-	Ag
BeO	0	0		0	0	0.001	0		0	0	0	0	BeO
Bi_2O_3	0	0		0	0	0	0.1		0	0	0	0	Bi_2O_3
Nb_2O_5	0	0		0	0	0	0		0	0	0	0	Nb_2O_5
CdO	0	0	See CAL-7-1	0	0	0	0	See CAL-10-24	0	0	0	0	CdO
CoO	0.002	0.002		0.001	0.001	.001	0		0.002	0.002	0	0	CoO
Ga_2O_3	-	-		-	-	-	0		-	-	-	-	Ga_2O_3
GeO_2	0	0		0	0	0	0		0	0	0	0	GeO_2
HgO	0	0		0	0	0	0		0	0	0	0	HgO
In_2O_3	0	0		0	0	0	0		0	0	0	0	In_2O_3
La_2O_3	-	-		-	-	-	-		-	-	-	-	La_2O_3
MoO_3	.006	.01		.001	.001	.001	.01		.002	.001	0	0	MoO_3
NiO	.01	.02		.008	.008	.008	.005		.002	.002	0.001	0	NiO
Pt	0	0		0	0	0	0		0	0	0	0	Pt
Re	0	0		0	0	0	0		0	0	0	0	Re
Sb_2O_3	0	0		0	0	0	0		0	0	0	0	Sb_2O_3
SnO	0	0		0	0	0	.01		.001	0	0	0	SnO
Ta_2O_5	0	0		0	0	0	0		0	0	0	0	Ta_2O_5
Tl_2O_3	0	0		0	0	0	0		0	0	0	0	Tl_2O_3
V_2O_5	.01	.01		.06	.07	.08	.01		.05	.03	.01	0.01	V_2O_5
WO_3	0	0		0	0	0	.1		0	0	0	0	WO_3
ZrO_2	-	-		-	-	-	.01		-	-	-	-	ZrO_2
Limits of detection 1/	A	A		A	A	A	A		A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

CAL-10-18-Gold tailings from mill tailing dump. Ore from Carson Hill mine and two adjacent mines, Mother Lode district, Calaveras Co., Calif. Carson Hill Gold Mining Corp. mill, Melones, Calif. Sampled in 1943. Sample no. 43-CH-3.

CAL-10-19-Gold tailings from mill tailing dump. Ore from Carson Hill mine and two adjacent mines, Mother Lode district, Calaveras Co., Calif. Carson Hill Gold Mining Corp. mill, Melones, Calif. Sampled in 1943. Sample no. 43-CH-4.

CAL-10-20-(For analysis see CAL-7-1). Copper-gold tailings from tailings pile. Ore from Funny Bug mine, Mother Lode district, Eldorado Co., Calif. Funny Bug mill, Gold Hill, Calif. Sampled in 1943. Sample no. 43-FB-1.

CAL-10-21-Gold tailings, sample of tailings used as mine fill. Free milling gold-quartz ore, Sliger mine, Mother Lode district, Eldorado Co., Calif. Sliger mill, near Greenwood, Calif. Sampled in 1943. Sample no. 43-SM-1.

CAL-10-22-Gold tailing from tailings pile. Ore from Sliger mine, Mother Lode district, Eldorado Co., Calif. Sliger mill, near Greenwood, Calif. Sampled in 1943. Sample no. 43-SM-2.

CAL-10-23-Gold tailing from tailings pile. Ore from Sliger miner, Mother Lode district, Eldorado Co., Calif. Sliger mill, near Greenwood, Calif. Sampled in 1943. Sample no. 43-SM-3.

CAL-10-24-Lead-silver ore with scheelite. From NW pillar and adjacent walls, A-level, lower tunnel of the Thompson mine, Darwin district, Inyo Co., Calif. Sampled in 1942. Sample no. 12-T2-1.

CAL-13-1--(For analysis see CAL-10-24). Lead-silver ore with scheelite. From NW pillar and adjacent walls, A-level, lower tunnel of the Thompson mine, Darwin district, Inyo Co., Calif. Sampled in 1942. Sample no. 12-T2-1.

CAL-16-1--Altered basalt, wallrock from mercury mine. Grab sample from furnace dump. Rock from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-1.

CAL-16-2--Altered basalt, wallrock from mercury mine. Grab sample from furnace dump. Rock from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-2.

CAL-16-3--Altered basalt, wallrock from mercury mine. Grab sample from furnace dump. Rock from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-5.

CAL-16-4--Altered basalt, wallrock from mercury mine. Grab sample from furnace dump. Rock from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-6.

Table 9.—Analyses and descriptions of samples from California—Continued

	CAL-16-5	CAL-16-6	CAL-16-7	CAL-16-8	CAL-16-9	CAL-16-10	CAL-16-11	CAL-27-1	CAL-27-2	CAL-27-3	CAL-27-4	CAL-27-5	
Ag	-	-	-	-	-	-	-	-		-	-	-	Ag
BeO	0	0	0	0	0	0	0	0		0	0	0	BeO
Bi_2O_3	0	0	0	0	0	0	0	0.01		0.2	0.04	0.01	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0		0	0	0	Nb_2O_5
CdO	0	0	0	0	0	0	0	0		0	0	0	CdO
CoO	0	0	0.008	0.007	0.01	0.006	0.02	.05	See CAL-10-24	0	0	0	CoO
Ga_2O_3	-	-	-	-	-	-	-	-		0	0	0	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0		0	.002	0	GeO_2
HgO	0.001	0	.01	.01	.02	.01	.01	0		0	0	0	HgO
In_2O_3	0	0	0	0	0	0	0	0		0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-		-	-	-	La_2O_3
MoO_3	0	0	.001	0	.002	0	0	.006		.02	.02	.008	MoO_3
NiO	0	0.02	.01	.008	.03	.02	.1	.01		.01	.003	.004	NiO
Pt	0	0	0	0	0	0	0	0		0	0	0	Pt
Re	0	0	0	0	0	0	0	0		0	0	0	Re
Sb_2O_3	0	0	0	0	0	.01	.01	0		0	0	0	Sb_2O_3
SnO	0	0	0	0	0	.001	.001	.004		.01	.02	.01	SnO
Ta_2O_5	0	0	0	0	0	0	0	0		0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0		0	0	0	Tl_2O_3
V_2O_5	.02	.01	.03	.04	.03	.005	.008	.02		.03	.04	.03	V_2O_5
WO_3	0	0	0	0	0	0	0	.03		.7	2.63	.4	WO_3
ZrO_2	-	-	-	-	-	-	-	-		.01	.01	.01	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A		A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

CAL-16-5---Altered basalt, wallrock from mercury mine. Grab sample from furnace dump. Rock from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-7.

CAL-16-6---Sandstone and shale from the Franciscan formation, wallrock from mercury mine. Grab sample from dump. Rock from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Cleerlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-8.

CAL-16-7---Burned mercury ore. Grab sample from dump. Ore from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-3.

CAL-16-8---Burned mercury ore. Grab sample from dump. Ore from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-4.

CAL-16-9---Flue dust from mercury furnace. Grab sample. Ore from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-9.

CAL-16-10--Burned mercury ore, silica-carbonate rock. Grab sample from smelter pile. Ore from Mount Jackson quicksilver mine, Sonoma Co., Calif. Sonoma Quicksilver Mines, Inc., smelter, Guerneville, Calif. Sampled in 1942. Sample no. 26-MTJ-1.

CAL-16-11--Flue dust from mercury furnace collected in Sirocco dust collector. Ore from Mount Jackson quicksilver mine, Sonoma Co., Calif. Sonoma Quicksilver Mines, Inc., smelter, Guerneville, Calif. Sampled in 1942. Sample no. 26-MTJ-2.

CAL-27-1---Tungsten tailings from tailings pile. Ore from Darwin mines, Inyo Co., Calif. Tungsten mill, near Keeler, Calif. Sampled in 1943. Sample no. 93-WCD-1.

CAL-27-2---(For analysis see CAL-10-24). Lead-silver ore with scheelite. From NW pillar and adjacent walls, A-level, lower tunnel of the Thompson mine, Darwin district, Inyo Co., Calif. Sampled in 1942. Sample no. 12-T2-1.

CAL-27-3---Scheelite ore. Sample from 4 vertical cuts across scheelite-bearing zone. Ore from S. face, E. crosscut, sub A-level, lower tunnel of the Thompson mine, Darwin district, Inyo Co., Calif. Sampled in 1942. Sample no. 12-T1-3.

CAL-27-4---Scheelite ore from 1.7 foot sample across tactite bed. Addlesack and Moyer claims, Greenhorn Mtn., Kern Co., Calif. Sampled in 1941. Sample no. 12-G1-5.

CAL-27-5---Tungsten tailings. Mill grab sample. Ore from Major claim, Greenhorn Mtn., Kern Co., Calif. Sampled in 1941. Sample no. 12-G3-2.

Table 9.—Analyses and descriptions of samples from California—Continued

	CAL-27-6	CAL-27-7	CAL-91-1	CAL-91-2	CAL-91-3	CAL-91-4	CAL-91-5	CAL-94-1					
Ag . . .	-	-											. . . Ag
BeO. . .	0.01	0.01											. . .BeO
Bi_2O_3. .	.05	.05											. .Bi_2O_3
Nb_2O_5. .	0	0											. .Nb_2O_5
CdO. . .	0	0	See CAL-16-1	See CAL-16-2	See CAL-16-3	See CAL-16-4	See CAL-16-5	See CAL-16-6					. . .CdO
CoO. . .	0	0											. . .CoO
Ga_2O_3. .	0	0											. .Ga_2O_3
GeO_2 . .	0	0											. . GeO_2
HgO. . .	0	0											. . .HgO
In_2O_3. .	0	0											. .In_2O_3
La_2O_3. .	-	-											. .La_2O_3
MoO_3 . .	.03	.02											. . MoO_3
NiO. . .	.003	.003											. . .NiO
Pt . . .	0	0											. . . Pt
Re . . .	0	0											. . . Re
Sb_2O_3. .	0	0											. .Sb_2O_3
SnO. . .	.005	.005											. . .SnO
Ta_2O_5. .	0	0											. .Ta_2O_5
Tl_2O_3. .	0	0											. .Tl_2O_3
V_2O_5 . .	.04	.04											. . V_2O_5
WO_3. . .	.2	1.63											. . .WO_3
ZrO_2 . .	.08	.02											. . ZrO_2
Limits of detection 1/	A	A											

1/ See table 2 for limits of detection reported by spectrographers.

CAL-27-6---Huebnerite ore. Sample across 3.5 foot vein, 17.5 feet below collar of shaft, Scheelite Ray shaft (Pat mines), Providence Mtns., San Bernardino Co., Calif. Sampled in 1941. Sample no. 12-SR1-6.

CAL-27-7---Huebnerite ore. Sample across 5.2 foot vein, 35.5 feet below collar of shaft, Scheelite Ray shaft (Pat mines), Providence Mtns., San Bernardino Co., Calif. Sampled in 1941. Sample no. 12-SR2-7.

CAL-91-1---(For analysis see CAL-16-1). Altered basalt, wallrock from mercury mine. Grab sample from furnace dump. Rock from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-1.

CAL-91-2---(For analysis see CAL-16-2). Altered basalt, wallrock from mercury mine. Grab sample from furnace dump. Rock from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-2.

CAL-91-3---(For analysis see CAL-16-3). Altered basalt, wallrock from mercury mine. Grab sample from furnace dump. Rock from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-5.

CAL-91-4---(For analysis see CAL-16-4). Altered basalt, wallrock from mercury mine. Grab sample from furnace dump. Rock from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-6.

CAL-91-5---(For analysis see CAL-16-5). Altered basalt, wallrock from mercury mine. Grab sample from furnace dump. Rock from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-7.

CAL-94-1---(For analysis see CAL-16-6). Sandstone and shale from the Franciscan formation, wallrock from mercury mine. Grab sample from dump. Rock from Sulfur Bank mine, Lake Co., Calif. Bradley Mining Company smelter, Clearlake Park (Oaks), Calif. Sampled in 1942. Sample no. 26-SB-8.

Table 10.—Analyses and descriptions of samples from Colorado

	COL-7-1	COL-7-2	COL-7-3	COL-7-4	COL-7-5	COL-10-1	COL-10-2	COL-10-3	COL-10-4	COL-10-5	COL-10-6	COL-10-7	
Ag	0.000X	0.0X	0.00X	0.00X	0.00X	0.00X	0.0X	0.00X					Ag
BeO	0	.002	.002	0	0	0	0	0					BeO
Bi_2O_3	0	0	0	.00X	.00X	0	.0X	0					Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0					Nb_2O_5
CdO	0	.0X	0	0	0	.0X	.0X	.0X	See COL-7-2	See COL-7-3	See COL-7-4	See COL-7-5	CdO
CoO	.000X	0	0	.00X	0	.00X	.00X	0					CoO
Ga_2O_3	.00X	0	0	.0X	.00X	0	0	0					Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0					GeO_2
HgO	-	-	-	-	-	-	-	-					HgO
In_2O_3	-	-	-	-	-	-	-	-					In_2O_3
La_2O_3	.00X	0	0	0	.00X	0	0	0					La_2O_3
MoO_3	0	0	0	0	0	0	.00X	.0X					MoO_3
NiO	.00X	.000X	0	.00X	.000X	0	.000X	.000X					NiO
Pt	-	-	-	-	-	-	-	-					Pt
Re	-	-	-	-	-	-	-	-					Re
Sb_2O_3	0	0	0	0	0	0	0	0					Sb_2O_3
SnO	0	0	0	0	0	0	0	0					SnO
Ta_2O_5	0	0	0	0	0	0	0	0					Ta_2O_5
Tl_2O_3	0	.0X	0	0	0	0	0	0					Tl_2O_3
V_2O_5	.0X	0	0	.0X	.00X	0	.00X	.000X					V_2O_5
WO_3	-	-	-	-	-	-	-	-					WO_3
ZrO_2	.0X	.00X	.00X	.0X	.0X	.00X	0	.00X					ZrO_2
Limits of detection 1/	F	F	F	F	F	F	F	F					

1/ See table 2 for limits of detection reported by spectrographers.

COL-7-1---Wallrock of copper deposit. Altered quartz monzonite with disseminated pyrite. Grab sample from dump. Red Mountain No. 1 mine, 6 miles SE of Summitville, Conejos Co., Colo. Sampled in 1949. Sample no. 1536-328-595.

COL-7-2---Siliceous lead-zinc-copper ore, San Juan area. Sample no. 1536-328-590.

COL-7-3---Lead-zinc-copper mill tailings. Grab sample. San Juan area. Sample no. 1536-328-592.

COL-7-4---Copper-gold-silver ore. Grab sample from ore bins. Ore from Summitville mine, Summitville district, Rio Grande Co., Colo. Summitville mill, Summitville, Colo. Sampled in 1949. Sample no. 1536-328-597.

COL-7-5---Copper-gold-silver tailings, from dump. Ore from Summitville mine, Summitville district, Rio Grande Co., Colo. Summitville mill, Summitville, Colo. Sampled in 1949. Sample no. 1536-328-598.

COL-10-1--Lead-zinc-gold ore. Grab sample from dump. Miser mine, Jasper district, Conejos Co., Colo. Sampled in 1949. Sample no. 1536-328-594.

COL-10-2--Lead-zinc-silver ore. Grab sample from dump. Yellow Medicine mine, Galena district, Hinsdale Co., Colo. Sampled in 1949. Sample no. 1536-328-580.

COL-10-3--Lead-zinc-silver ore. Hidden Treasure mine, Lake City district, Hinsdale Co., Colo. Sampled in 1949. Sample no. 1536-328-576.

COL-10-4--(For analysis see COL-7-2). Siliceous lead-zinc-copper ore, San Juan area. Sample no. 1536-328-590.

COL-10-5--(For analysis see COL-7-3). Lead-zinc-copper mill tailings. Grab sample. San Juan area. Sample no. 1536-328-592.

COL-10-6--(For analysis see COL-7-4). Copper-gold silver ore. Grab sample from ore bins. Ore from Summitville mine, Summitville district, Rio Grande Co., Colo. Summitville mill, Summitville Colo. Sampled in 1949. Sample no. 1536-328-597.

COL-10-7--(For analysis see COL-7-5). Copper-gold-silver tailings, from dump. Ore from Summitville mine, Summitville district, Rio Grande Co., Colo. Summitville mill, Summitville, Colo. Sampled in 1949. Sample no. 1536-328-598.

Table 10.—Analyses and descriptions of samples from Colorado—Continued

	COL-10-8	COL-10-9	COL-10-10	COL-10-11	COL-10-12	COL-10-13	COL-10-14	COL-10-15	COL-10-16	COL-10-17	COL-13-1	COL-13-2	
Ag	-	-	-	-	-	-	-	-	-	-			Ag
BeO	0.005	0.005	0	0.01	0.001	0.002	0	0	0	0			BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0			Bi_2O_3
Nb_2O_5	-	-	-	-	-	-	0.004	0.004	0.005	0.004			Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	See COL-10-1	See COL-10-2	CdO
CoO	.03	.01	0.008	.005	.008	.005	.002	.003	.002	.002			CoO
Ga_2O_3	0	.003	0	0	.01	.02	-	-	-	-			Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0			GeO_2
HgO	0	0	0	0	0	0	0	0	0	0			HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0			In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-			La_2O_3
MoO_3	.03	.02	.05	.05	.1	.1	.02	.02	.01	.02			MoO_3
NiO	.02	.01	.008	.005	.04	.03	.008	.01	.008	.008			NiO
Pt	-	-	-	-	-	-	0	0	0	0			Pt
Re	-	-	-	-	-	-	0	0	0	0			Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0			Sb_2O_3
SnO	0	0	0	0	0	.005	0	0	0	0			SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0			Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	0			Tl_2O_3
V_2O_5	.1	.1	.05	.05	.6	.6	.03	.04	.03	.03			V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0			WO_3
ZrO_2	.3	.2	.05	.04	.04	.05	-	-	-	-			ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A			

1/ See table 2 for limits of detection reported by spectrographers.

COL-10-8--Gold concentrates. Ore chiefly from mines of Cripple Creek district, Teller Co., Colo. Golden Cycle mill, Colorado Springs, Colo. Sampled in 1942. Additional analysis: 0.005 Se. Sample no. 5-GC-1.

COL-10-9--Gold mill heads. Ore chiefly from mines of Cripple Creek district, Teller Co., Colo. Golden Cycle mill, Colorado Springs, Colo. Sampled in 1942. Additional analysis: 0. Se. Sample no. 5-GC-2.

COL-10-10-Gold refinery roaster dust from Cottrell precipitator. Ore chiefly from mines of Cripple Creek district, Teller Co., Colo. Golden Cycle mill, Colorado Springs, Colo. Sampled in 1942. Additional analysis: 0.011 Se. Sample no. 5-GC-3.

COL-10-11-Gold refinery flue dust from base of stack. Ore chiefly from mines of Cripple Creek district, Teller Co., Colo. Golden Cycle mill, Colorado Springs, Colo. Sampled in 1942. Additional analysis: 0.032 Se. Sample no. 5-GC-4.

COL-10-12-Gold refinery byproduct from treated slag. Ore chiefly from mines of Cripple Creek district, Teller Co., Colo. Golden Cycle mill, Colorado Springs, Colo. Sampled in 1942. Sample no. 5-GC-5.

COL-10-13-Gold refinery slag from roaster. Ore chiefly from mines of Cripple Creek district, Teller Co., Colo. Golden Cycle mill, Colorado Springs, Colo. Sampled in 1942. Sample no. 5-GC-6.

COL-10-14-Gold slimes, from slimes pit. Ore chiefly from mines of Cripple Creek district, Teller Co., Colo. Golden Cycle mill, Colorado Springs, Colo. Sampled in 1943. Sample no. 65-GC-7.

COL-10-15-Gold tailings sand, from tailings dump. Ore chiefly from mines of Cripple Creek district, Teller Co., Colo. Golden Cycle mill, Colorado Springs, Colo. Sampled in 1943. Additional analysis: 0.001 Se. Sample no. 65-GC-8.

COL-10-16-Gold tailings, sand, from tailings dump. Ore chiefly from mines of Cripple Creek district, Teller Co., Colo. Golden Cycle mill, Colorado Springs, Colo. Sampled in 1943. Sample no. 65-GC-9.

COL-10-17-Gold slimes from slimes pit. Ore chiefly from mines of Cripple Creek district, Teller Co., Colo. Golden Cycle mill, Colorado Springs, Colo. Sampled in 1943. Sample no. 65-GC-10.

COL-13-1--(For analysis see COL-10-1). Lead-zinc-gold ore. Grab sample from dump. Miser mine, Jasper district Conejos Co., Cole. Sampled in 1949. Sample no. 1536-328-594.

COL-13-2--(For analysis see COL-10-2). Lead-zinc-silver ore. Grab sample from dump. Yellow Medicine mine, Galena district, Hinsdale Co., Colo. Sampled in 1949. Sample no. 1536-328-580.

Table 10.—Analyses and descriptions of samples from Colorado—Continued

	COL-13-3	COL-13-4	COL-13-5	COL-27-1	COL-27-2	COL-27-3	COL-27-4	COL-27-5	COL-27-6	COL-51-1	COL-51-2	COL-51-3	
Ag				-	-	-	-	-	-	-	-	-	Ag
BeO				0.001	0.001	0	0.001	0	0	0.0003	0.0004	0.0003	BeO
Bi_2O_3				0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5				-	-	-	-	-	-	0	0	0	Nb_2O_5
CdO				0	0	0	0	0	0	0	0	0	CdO
CoO	See COL-10-3	See COL-7-2	See COL-7-3	.01	.005	0.008	.005	0.01	0.05	0	0	0	CoO
Ga_2O_3				0	0	0	0	0	.004	-	-	-	Ga_2O_3
GeO_2				0	0	0	0	0	0	0	0	0	GeO_2
HgO				0	0	0	0	0	0	0	0	0	HgO
In_2O_3				0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3				-	-	-	-	-	-	0	0	0	La_2O_3
MoO_3				.004	.001	.001	.001	.001	.001	0	0	0	MoO_3
NiO				.02	.01	.1	.008	.2	.05	0	.0005	0	NiO
Pt				-	-	-	-	-	-	0	0	0	Pt
Re				-	-	-	-	-	-	0	0	0	Re
Sb_2O_3				0	0	0	0	0	0	0	0	0	Sb_2O_3
SnO				.05	0	0	0	0	0	0	0	0	SnO
Ta_2O_5				0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3				.002	.002	0	.002	0	0	0	0	0	Tl_2O_3
V_2O_5				.08	.08	.02	.08	.02	.01	-	-	-	V_2O_5
WO_3				-	-	.05	-	.05	.04	0	0	0	WO_3
ZrO_2				.03	.04	.008	.03	.01	.008	-	-	-	ZrO_2
Limits of detection 1/				A	A	A	A	A	A	B	B	B	

1/ See table 2 for limits of detection reported by spectrographers.

COL-13-3--(For analysis see COL-10-3). Lead-zinc-silver ore. Hidden Treasure mine, Lake City district, Hinsdale Co. Colo. Sampled in 1949. Sample no. 1536-328-576.

COL-13-4--(For analysis see COL-7-2). Siliceous lead-zinc-copper ore, San Juan area. Sample no. 1536-328-590.

COL-13-5--(For analysis see COL-7-3). Lead-zinc-copper mill tailings. Grab sample. San Juan area. Sample no. 1536-328-592.

COL-27-1--Tungsten (ferberite) concentrate. Composite sample from jigs and tables. Ore chiefly from Pride mine, Boulder Co., Colo. Boulder Tungsten Mills, Inc., mill, Boulder Colo. Sampled in 1942. Sample no. 4-COL-4.

COL-27-2--Tungsten (ferberite) flotation concentrate. Ore chiefly from Pride mine, Boulder Co., Colo. Boulder Tungsten Mills, Inc., mill, Boulder, Colo. Sampled in 1942. Sample no. 4-COL-5.

COL-27-3--Tungsten (ferberite) flotation tails. Ore chiefly from Pride mine, Boulder Co., Colo. Boulder Tungsten Mills, Inc., mill, Boulder, Colo. Sampled in 1942. Sample no. 4-COL-6.

COL-27-4--Tungsten (ferberite) concentrates from jigs and table. Ore from several mines of the Wolf Tongue Mining Company, Boulder, Colo. Wolf Tongue Mining Company mill, Nederland, Boulder Co., Colo. Sampled in 1942. Sample no. 4-COL-7.

COL-27-5--Tungsten (ferberite) tailings from tailings pond. Ore from several mines owned by Wolf Tongue Mining Company, Boulder, Colo. Wolf Tongue Mining Company mill, Nederland, Boulder Co., Colo. Sampled in 1942. Sample no. 4-COL-8.

COL-27-6--Tungsten (ferberite) slimes from canvas tables. Ore from several mines owned by Wolf Tongue Mining Company, Boulder, Colo. Wolf Tongue Mining Company mill, Nederland, Boulder Co., Colo. Sampled in 1942. Sample no. 4-COL-9. Additional analysis: 0. Se.

COL-51-1--Fluorspar, metallurgical grade. Colorado. Sample no. 220-FPC-107.

COL-51-2--Fluorite mill heads. Colorado. Sample no. 220-FPC-109.

COL-51-3--Fluorspar concentrates. Colorado. Sample no. 220-FPC-110.

Table 10.—Analyses and descriptions of samples from Colorado—Continued

	COL-51-4	COL-51-5	COL-51-6	COL-51-7	COL-51-8	COL-51-9	COL-51-10	COL-51-11	COL-51-12	COL-51-13	COL-51-14	COL-51-15	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0.0005	0.0004	0.0003	0.0005	0.0002	0.0005	0.0003	0.0003	0	0.0004	0.0002	0.0003	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	0	0	CdO
CoO	0	0	0	0	0	0	0	0	0	0	0	0	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	.00002	.00002	HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	La_2O_3
MoO_3	0	0	0	0	0	0	0	0	0	0	.003	.002	MoO_3
NiO	.004	0	0	0	0	0	0	.0005	0	.0007	0	0	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Sb_2O_3
SnO	0	0	0	0	0	0	0	0	0	0	0	0	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	-	-	-	-	-	-	-	-	-	-	.003	.003	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	B	B	B	B	B	B	B	B	B	B	B	B	

1/ See table 2 for limits of detection reported by spectrographers.

COL-51-4--Fluorspar tailings. Colorado. Sample no. 220-FPC-111.

COL-51-5--Coarse-sorted fluorspar from waste dump. Colorado. Sample no. 220-FPC-108.

COL-51-6--Hand-sorted fluorspar, metallurgical-grade. Colorado. Sample no. 220-CFC-103.

COL-51-7--Fluorspar mill heads after hand picking of metallurgical-grade fluorspar. Colorado. Sample no. 220-CFC-104.

COL-51-8--Fluorspar concentrate. Colorado. Sample no. 220-CFC-105.

COL-51-9--Fluorspar tailings. Colorado. Sample no. 220-CFC-106.

COL-51-10-Fluorite sorted from material on waste dump. Poncha Springs mine, Poncha Springs district, Chaffee Co., Colo. Reynolds Mining Corp. Sampled in 1944. Additional analysis: 0.003 Y_2O_3. Sample no. 220-FPC-112.

COL-51-11-Fluorspar mill heads, 24-hour mill run. Ore from Poncha Springs mine, Poncha Springs district, Chaffee Co., Colo. Fluorspar Processing Corp. mill, Salida, Colo. Reynolds Mining Corp. Sampled in 1944. Additional analysis: 0.01 Y_2O_3. Sample no. 220-FPC-113.

COL-51-12-Fluorspar concentrates, 24-hour mill run. Ore from Poncha Springs mine, Poncha Springs district, Chaffee Co., Colo. Fluorspar Processing Corp. mill, Salida, Colo. Reynolds Mining Corp. Sampled in 1944. Additional analysis: 0.04 Y_2O_3. Sample no. 220-FPC-114.

COL-51-13-Fluorspar tailings, 24-hour mill run. Ore from Poncha Springs mine, Poncha Springs district, Chaffee Co., Colo. Fluorspar Processing Corp. mill, Salida, Colo. Reynolds Mining Corp. Sampled in 1944. Sample no. 220-FPC-115.

COL-51-14-Fluorite heads, mill sample. Ore from Fluorine claims No. 1, 2, and 3, Northgate district, Jackson Co., Colo. Western Fluorspar Corp. mill, Cowdrey, Colo. Sampled in 1944. Ozark-Mahoning Co. Sample No. 203-NWF-134.

COL-51-15-Fluorspar coarse mill waste product. Mill sample. Ore from Fluorine claims No. 1, 2, and 3, Northgate district, Jackson Co., Colo. Western Fluorspar Corp. mill, Cowdrey, Colo. Sampled in 1944. Ozark-Mahoning Co., Sample no. 203-NWF-135.

Table 10.—Analyses and descriptions of samples from Colorado—Continued

	COL-51-16	COL-51-17	COL-51-18	COL-93-1								
Ag . . .	-	-	-									. . . Ag
BeO. . .	0.0003	0.0002	0.0002									. . .BeO
Bi_2O_3. .	0	0	0									. . Bi_2O_3
Nb_2O_5. .	0	0	0									. . Nb_2O_5
CdO. . .	0	0	0									. . .CdO
CoO. . .	0	0	0	See COL-7-1								. . .CoO
Ga_2O_3. .	-	-	-									. . Ga_2O_3
GeO_2 . .	0	0	0									. . GeO_2
HgO. . .	.00002	0	0									. . .HgO
In_2O_3. .	0	0	0									. . In_2O_3
La_2O_3. .	0	0	0									. . La_2O_3
MoO_3 . .	.002	.002	.003									. . MoO_3
NiO. . .	.0002	.0001	0									. . .NiO
Pt . . .	0	0	0									. . . Pt
Re . . .	0	0	0									. . . Re
Sb_2O_3. .	0	0	0									. . Sb_2O_3
SnO. . .	0	0	0									. . .SnO
Ta_2O_5. .	0	0	0									. . Ta_2O_5
Tl_2O_3. .	0	0	0									. . Tl_2O_3
V_2O_5 . .	.003	.004	.002									. . V_2O_5
WO_3. . .	0	0	.01									. . . WO_3
ZrO_2 . .	-	-	-									. . ZrO_2
Limits of detection 1/	B	B	B									

1/ See table 2 for limits of detection reported by spectrographers.

COL-51-16-Fluorspar tailings from tailings pile. Ore from Fluorine claims No. 1, 2, and 3, Northgate district, Jackson Co., Colo. Western Fluorspar Corp. mill, Cowdrey, Colo. Sampled in 1944. Ozark-Mahoning Co., Sample no. 203-NWF-136.

COL-51-17-Fluorspar slimes from tailings pond. Ore from Fluorine claims No. 1, 2, and 3, Northgate district, Jackson Co., Colo. Western Fluorspar Corp. mill, Cowdrey, Colo. Sampled in 1944. Ozark-Mahoning Co., Sample no. 203-NWF-137.

COL-51-18-Fluorspar concentrate, metallurgical-grade. Ore from Fluorine claims No. 1, 2, and 3, Northgate district, Jackson Co., Colo. Western Fluorspar Corp. mill, Cowdrey, Colo. Sampled in 1944. Ozark-Mahoning Co., Sample no. 203-NWF-138.

COL-93-1--(For analysis see COL-7-1). Wallrock of copper deposit. Altered quartz monzonite with disseminated pyrite. Grab sample from dump. Red Mountain No. 1 mine, 6 miles SE of Summitville, Conejos Co., Colo. Sampled in 1949. Sample no. 1536-328-595.

Table 11.—Analyses and descriptions of samples from Eastern United States

	EUS-7-1	EUS-7-2	EUS-7-3	EUS-7-4	EUS-7-5	EUS-7-6	EUS-7-7	EUS-7-8	EUS-7-9	EUS-7-10	EUS-7-11	EUS-7-12	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0	0	0	0	0	0	0	0	0	0	0	0	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0	0	0.2	0.2	0	0	0	0	0	0	0	0	CdO
CoO	0.08	0.03	.01	.01	0.05	0.04	0.005	0.006	0.003	0.01	0.02	0.04	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	.002	.002	0	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	0	0	.001	.001	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.01	.008	.01	.006	.01	.01	.01	.003	.001	.008	.01	.02	MoO_3
NiO	.008	.006	.004	.005	.006	.01	.002	.001	.002	.002	.004	.008	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	.006	.008	0	0	.002	.001	0	0	0	.001	.002	.002	Sb_2O_3
SnO	.005	.02	.005	.01	0	0	.006	.008	.006	.001	.01	.004	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	.001	.001	.001	.001	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.001	.002	.003	.002	.003	.002	.008	.02	.01	.002	.003	.003	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

EUS-7-1---Copper concentrate, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--12.

EUS-7-2---Copper concentrate, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--17.

EUS-7-3---Zinc concentrate, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--14.

EUS-7-4---Zinc concentrate, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--19.

EUS-7-5---Iron sulfide concentrate, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--13.

EUS-7-6---Iron sulfide concentrate, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--18.

EUS-7-7---Iron concentrate, magnetic, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--15.

EUS-7-8---Copper-zinc tailings, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--16.

EUS-7-9---Copper-zinc tailings, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--20.

EUS-7-10--Copper slag from blast furnace. Copper-zinc deposits, eastern United States, Sampled in 1943. Sample no. 80--2.

EUS-7-11--Copper slag from reverberatory furnace. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--3.

EUS-7-12--Copper slag from converter. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--4.

Table 11.—Analyses and descriptions of samples from Eastern United States—Continued

	EUS-7-13	EUS-7-14	EUS-7-15	EUS-7-16	EUS-7-17	EUS-7-18	EUS-7-19	EUS-7-20	EUS-13-1	EUS-13-2	EUS-13-3	EUS-13-4	
Ag . . .	-	-	-	-	-	-	-	-					. . . Ag
BeO. . .	0	0	0	0	0	0	0	0					. . .BeO
Bi_2O_3. .	0	0.04	0	0.008	0.006	0	0	0					. .Bi_2O_3
Nb_2O_5. .	0	0	0	0	0	0	0	0					. .Nb_2O_5
CdO. . .	0.001	.01	0	0	0	0	0	0	See EUS-7-1	See EUS-7-2	See EUS-7-3	See EUS-7-4	. . .CdO
CoO. . .	.01	.008	0.03	0	0	0.02	0.01	0.01					. . .CoO
Ga_2O_3. .	-	-	-	-	-	-	-	-					. .Ga_2O_3
GeO_2 . .	0	.006	0	0	0	0	0	0					. . GeO_2
HgO. . .	0	0	0	0	0	0	0	0					. . .HgO
In_2O_3. .	0	0	0	0	0	0	0	.002					. .In_2O_3
La_2O_3. .	-	-	-	-	-	-	-	-					. .La_2O_3
MoO_3 . .	.006	.008	.008	.004	.003	.01	.008	.004					. . MoO_3
NiO. . .	.005	.01	.04	.008	.008	.008	.008	.001					. . .NiO
Pt . . .	0	0	0	0	0	0	0	0					. . . Pt
Re . . .	0	0	0	0	0	0	0	0					. . . Re
Sb_2O_3. .	.01	.01	.01	.001	.001	.004	.002	0					. .Sb_2O_3
SnO. . .	.02	.2	.01	.08	.06	.001	.001	.1					. . .SnO
Ta_2O_5. .	0	0	0	0	0	0	0	0					. .Ta_2O_5
Tl_2O_3. .	0	.004	0	0	0	0	0	.005					. .Tl_2O_3
V_2O_5 . .	.004	.02	.001	.01	.02	.001	.001	.001					. . V_2O_5
WO_3. . .	0	0	0	0	0	0	0	0					. . .WO_3
ZrO_2 . .	-	-	-	-	-	-	-	-					. . ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A					

1/ See table 2 for limits of detection reported by spectrographers.

EUS-7-13---Copper flue dust from blast furnace. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--6.

EUS-7-14---Copper flue dust from reverberatory furnace. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--5.

EUS-7-15---Copper flue dust from converter. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--7.

EUS-7-16---Settling residue from copper sulphate tower. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--10.

EUS-7-17---Residue from copper sulphate tank. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80-11.

EUS-7-18---Wet flue dust from iron roaster. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--8.

EUS-7-19---Dry flue dust from iron roaster. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--9.

EUS-7-20---Acid plant sludge from chamber plant. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--1.

EUS-13-1---(For analysis see EUS-7-1). Copper concentrate, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--12.

EUS-13-2---(For analysis see EUS-7-2). Copper concentrate, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--17.

EUS-13-3---(For analysis see EUS-7-3). Zinc concentrate, mill sample. Copper - zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--14.

EUS-13-4---(For analysis see EUS-7-4). Zinc concentrate, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--19.

Table 11.—Analyses and descriptions of samples from Eastern United States—Continued

	EUS-13-5	EUS-13-6	EUS-73-1	EUS-73-2	EUS-73-3	EUS-73-4	EUS-73-5	EUS-73-6	EUS-73-7	EUS-73-8	EUS-73-9	EUS-73-10	
Ag									-	-	-	-	Ag
BeO									0	0	0	0	BeO
Bi_2O_3									0	0	0	0	Bi_2O_3
Nb_2O_5									0	0	0	0	Nb_2O_5
CdO	See EUS-7-8	See EUS-7-9	See EUS-7-5	See EUS-7-6	See EUS-7-7	See EUS-7-18	See EUS-7-19	See EUS-7-20	0	0	0	0	CdO
CoO									0.04	0.05	0.03	0.06	CoO
Ga_2O_3									-	-	-	-	Ga_2O_3
GeO_2									0	0	0	0	GeO_2
HgO									0	0	0	0	HgO
In_2O_3									0	0	0	0	In_2O_3
La_2O_3									-	-	-	-	La_2O_3
MoO_3									.005	.006	.006	.004	MoO_3
NiO									.002	.001	.001	.006	NiO
Pt									0	0	0	0	Pt
Re									0	0	0	0	Re
Sb_2O_3									0	0	0	0	Sb_2O_3
SnO									.006	.005	.006	.001	SnO
Ta_2O_5									0	0	0	0	Ta_2O_5
Tl_2O_3									0	0	0	.001	Tl_2O_3
V_2O_5									.001	.002	.002	.001	V_2O_5
WO_3									0	0	0	0	WO_3
ZrO_2									-	-	-	-	ZrO_2
Limits of detection 1/									A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

EUS-13-5---(For analysis see EUS-7-8). Copper-zinc tailings, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--16.

EUS-13-6---(For analysis see EUS-7-9). Copper-zinc tailings, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--20.

EUS-73-1---(For analysis see EUS-7-5). Iron sulfide concentrate, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--13.

EUS-73-2---(For analysis see EUS-7-6). Iron sulfide concentrate, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--18.

EUS-73-3---(For analysis see EUS-7-7). Iron concentrate, magnetic, mill sample. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--15.

EUS-73-4---(For analysis see EUS-7-18). Wet flue dust from iron roaster. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--8.

EUS-73-5---(For analysis see EUS-7-19). Dry flue dust from iron roaster. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--9.

EUS-73-6---(For analysis see EUS-7-20). Acid plant sludge from chamber plant. Copper-zinc deposits, eastern United States. Sampled in 1943. Sample no. 80--1.

EUS-73-7---Mill heads. Pyrrhotite deposit, eastern United States. Sampled in 1943. Sample no. 79--1.

EUS-73-8---Concentrate from -3 + 8 tables, mill sample. Pyrrhotite deposit, eastern United States. Sampled in 1943. Sample no. 79--3.

EUS-73-9---Tails from -3 +8 tables, mill sample. Pyrrhotite deposit, eastern United States. Sampled in 1943. Sample no. 79--2.

EUS-73-10--Concentrate from -8 +20 tables, mill sample. Pyrrhotite deposit, eastern United States. Sampled in 1943. Sample no. 79--5.

Table 11.—Analyses and descriptions of samples from Eastern United States—Continued

	EUS-73-11	EUS-73-12	EUS-73-13	EUS-73-14	EUS-73-15	EUS-73-16	EUS-73-17						
Ag	-	-	-	-	-	-	-						Ag
BeO	0	0	0	0	0	0	0						BeO
Bi_2O_3	0	0	0	0	0	0	0						Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0						Nb_2O_5
CdO	0	0	0	0	0	0	0						CdO
CoO	0.01	0.05	0.01	0.04	0.03	0.02	0.03						CoO
Ga_2O_3	-	-	-	-	-	-	-						Ga_2O_3
GeO_2	0	0	0	0	0	0	0						GeO_2
HgO	0	0	0	0	0	0	0						HgO
In_2O_3	0	0	0	0	0	0	0						In_2O_3
La_2O_3	-	-	-	-	-	-	-						La_2O_3
MoO_3	.002	.005	.002	.005	.002	.002	.002						MoO_3
NiO	.003	.003	.002	.003	.002	.002	.003						NiO
Pt	0	0	0	0	0	0	0						Pt
Re	0	0	0	0	0	0	0						Re
Sb_2O_3	0	0	0	0	0	0	0						Sb_2O_3
SnO	.008	0	.006	.001	.003	.001	.002						SnO
Ta_2O_5	0	0	0	0	0	0	0						Ta_2O_5
Tl_2O_3	0	.001	0	.001	0	0	0						Tl_2O_3
V_2O_5	.004	.001	.003	.002	.003	.003	.003						V_2O_5
WO_3	0	0	0	0	0	0	0						WO_3
ZrO_2	-	-	-	-	-	-	-						ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A						

1/ See table 2 for limits of detection reported by spectrographers.

EUS-73-11-Tails from -8 +20 tables, mill sample. Pyrrhotite deposit, eastern United States. Sampled in 1943. Sample no. 79--4.

EUS-73-12-Concentrate from -20 +48 tables, mill sample. Pyrrhotite deposit, eastern United States. Sampled in 1943. Sample no. 79--7.

EUS-73-13-Tails from -20 +48 tables, mill sample. Pyrrhotite deposit, eastern United States. Sampled in 1943. Sample no. 79--6.

EUS-73-14-Concentrate from -48 tables, mill sample. Pyrrhotite deposit, eastern United States. Sampled in 1943. Sample no. 79--9.

EUS-73-15-Tails from -48 tables, mill sample. Pyrrhotite deposit, eastern United States. Sampled in 1943. Sample no. 79-8.

EUS-73-16-Light dust from tables, mill sample. Pyrrhotite deposit, eastern United States. Sampled in 1943. Sample no. 79--10.

EUS-73-17-Heavy dust from tables, mill sample. Pyrrhotite deposit, eastern United States. Sampled in 1943. Sample no. 79--11.

Table 12.—Analyses and descriptions of samples from Florida

	FLA-26-1	FLA-26-2	FLA-26-3	FLA-26-4	FLA-30-1	FLA-30-2	FLA-94-1	FLA-94-2	FLA-94-3	FLA-94-4			
Ag	-	-	-	-									Ag
BeO	0	0	0	0									BeO
Bi_2O_3	0	0	0	0									Bi_2O_3
Nb_2O_5	0.008	0.004	0.065	0.007									Nb_2O_5
CdO	0	0	0	0									CdO
CoO	.004	.004	0	0	See FLA-26-1	See FLA-26-2	See FLA-26-1	See FLA-26-2	See FLA-26-3	See FLA-26-4			CoO
Ga_2O_3	-	-	-	-									Ga_2O_3
GeO_2	0	0	0	0									GeO_2
HgO	0	0	0	0									HgO
In_2O_3	0	0	0	0									In_2O_3
La_2O_3	-	-	-	-									La_2O_3
MoO_3	.001	0	.001	.001									MoO_3
NiO	.001	.001	.004	.004									NiO
Pt	0	0	0	0									Pt
Re	0	0	0	0									Re
Sb_2O_3	0	0	0	0									Sb_2O_3
SnO	.005	0	.002	.003									SnO
Ta_2O_5	0	0	0	0									Ta_2O_5
Tl_2O_3	0	0	0	0									Tl_2O_3
V_2O_5	.01	.008	.01	.01									V_2O_5
WO_3	0	0	0	0									WO_3
ZrO_2	-	-	-	-									ZrO_2
Limits of detection 1/	A	A	A	A									

1/ See table 2 for limits of detection reported by spectrographers.

FLA-26-1---Heavy sand tailings from magnetic separator. Grab sample. Ore from Palm Bay beach gravel deposit, Brevard Co., Fla. Riz Mineral Company mill, Melbourne, Fla. Sampled in 1943. Sample no. 102-RIZ-1.

FLA-26-2---Heavy sand tailings from rough concentrater. Grab sample. Ore from Palm Bay beach gravel deposit, Brevard Co., Fla. Riz Mineral Company mill, Melbourne, Fla. Sampled in 1943. Sample no. 102-RIZ-2.

FLA-26-3---Ilmenite concentrate from beach sand. Jacksonville Beach, Duval Co., Fla. Sampled in 1944. Sample no. 143-JA-2.

FLA-26-4---Rutile concentrate from beach sand. Jacksonville Beach, Duval Co., Fla. Sampled in 1944. Sample no. 143-JA-3.

FLA-30-1---(For analysis see FLA-26-1). Heavy sand tailings from magnetic separator. Grab sample. Ore from Palm Bay beach gravel deposit, Brevard Co., Fla. Riz Mineral Company mill, Melbourne, Fla. Sampled in 1943. Sample no. 102-RIZ-1.

FLA-30-2---(For analysis see FLA-26-2). Heavy sand tailings from rough concentrator. Grab sample. Ore from Palm Bay beach gravel deposit, Brevard Co., Fla. Riz Mineral Company mill, Melbourne, Fla. Sampled in 1943. Sample no. 102-RIZ-2.

FLA-94-1---(For analysis see FLA-26-1). Heavy sand tailings from magnetic separator. Grab sample. Ore from Palm Bay beach gravel deposit, Brevard Co., Fla. Riz Mineral Company mill, Melbourne, Fla. Sampled in 1943. Sample no. 102-RIZ-1.

FLA-94-2---(For analysis see FLA-26-2). Heavy sand tailings from rough concentrator. Grab sample. Ore from Palm Bay beach gravel deposit, Brevard Co., Fla. Riz Mineral Company mill, Melbourne, Fla. Sampled in 1943. Sample no. 102-RIZ-2.

FLA-94-3---(For analysis see FLA-26-3). Ilmenite concentrate from beach sand. Jacksonville Beach, Duval Co., Fla. Sampled in 1944. Sample no. 143-JA-2.

FLA-94-4---(For analysis see FLA-26-4). Rutile concentrate from beach sand. Jacksonville Beach, Duval Co., Fla. Sampled in 1944. Sample no. 143-JA-3.

Table 13.—Analyses and descriptions of samples from Georgia

	GA-15-1	GA-15-2	GA-15-3	GA-15-4	GA-15-5							
Ag . . .	-	-	-	-	-							. . . Ag
BeO. . .	0.008	0.008	0.006	0.006	0.02							. . .BeO
Bi_2O_3. .	0	0	0	0	0							. .Bi_2O_3
Nb_2O_5. .	0	0	0	0	-							. .Nb_2O_5
CdO. . .	0	0	0	0	0							. . .CdO
CoO. . .	.04	.04	.04	.04	.2							. . .CoO
Ga_2O_3. .	-	-	-	-	0							. .Ga_2O_3
GeO_2 . .	0	0	0	0	0							. . GeO_2
HgO. . .	0	0	0	0	0							. . .HgO
In_2O_3. .	0	0	0	0	0							. .In_2O_3
La_2O_3. .	-	-	-	-	-							. .La_2O_3
MoO_3 . .	.003	.003	.003	.002	.02							. . MoO_3
NiO. . .	.02	.01	.03	.02	.1							. . .NiO
Pt . . .	0	0	0	0	-							. . . Pt
Re . . .	0	0	0	0	-							. . . Re
Sb_2O_3. .	0	0	0	0	0							. .Sb_2O_3
SnO. . .	.006	.008	.03	.02	.01							. . .SnO
Ta_2O_5. .	0	0	0	0	0							. .Ta_2O_5
Tl_2O_3. .	0	.001	.001	.001	0							. .Tl_2O_3
V_2O_5 . .	.04	.02	.03	.03	.02							. . V_2O_5
WO_3. . .	0	0	0	0	0							. . .WO_3
ZrO_2 . .	-	-	-	-	.08							. . ZrO_2
Limits of detection 1/	A	A	A	A	A							

1/ See table 2 for limits of detection reported by spectrographers.

GA-15-1---Manganese tailings from tailings pile. Ore from Appalachian mine, Cartersville district, Bartow Co., Ga. Appalachian Manganese Corp., Inc. Sampled in 1943. Sample no. 76-AP-1A.

GA-15-2---Manganese tailings from tailings pile in gravel pit. Ore from Aubrey mine, Cartersville district, Bartow Co., Ga. Sampled in 1943. Sample no. 76-AU-7A.

GA-15-3---Manganese tailings from tailings pile. Ore from Blue Ridge mine, Cartersville district, Bartow Co., Ga. Sampled in 1943. Sample no. 76-BR-2.

GA-15-4---Manganese tailings from tailings pile. Ore from Dobbins mine, Cartersville district, Bartow Co., Ga. Sampled in 1943. Sample no. 76-D-6A.

GA-15-5---Manganese tailings from tailings pile. Ore from Callahan mine, Cave Springs district, Polk Co., Ga. Sampled in 1943. Sample no. 13-C-2.

Table 14.—Analyses and descriptions of samples from Idaho

	IDA-1-1	IDA-1-2	IDA-1-3	IDA-7-1	IDA-7-2	IDA-7-3	IDA-7-4	IDA-7-5	IDA-7-6	IDA-7-7	IDA-7-8	IDA-7-9	
Ag . . .	0.02	0.04	0	-	-	-	-	-	-	-	-	-	. . . Ag
BeO. . .	.0002	0	0	0	0	0	0	0	0	0	0	0	. . .BeO
Bi_2O_3. .	0	0	0	0.01	-	-	-	-	-	0	0	0	. .Bi_2O_3
Nb_2O_5. .	0	0	0	0	0	0	0	0	0	-	-	-	. .Nb_2O_5
CdO. . .	0	0	0	0	-	-	-	-	-	0	0	0	. . .CdO
CoO. . .	.005	0	0	.02	-	-	-	-	-	0.005	0.005	0.01	. . .CoO
Ga_2O_3. .	-	-	-	-	-	-	-	-	-	0	0	.007	. .Ga_2O_3
GeO_2 . .	0	0	0	0	0	0	0	0	0	0	0	0	. . GeO_2
HgO. . .	.005	-	0	0	-	-	-	-	-	0	0	0	. . .HgO
In_2O_3. .	0	0	0	0	0	0	0	0	0	0	0	0	. .In_2O_3
La_2O_3. .	0	0	0.1	-	-	-	-	-	-	-	-	-	. .La_2O_3
MoO_3 . .	0	0	0	.01	-	-	-	-	-	.01	.01	.05	. . MoO_3
NiO. . .	.008	.001	.002	.01	-	-	-	-	-	.002	.002	.01	. . .NiO
Pt . . .	0	0	0	0	-	-	-	-	-	-	-	-	. . . Pt
Re . . .	0	0	0	0	-	-	-	-	-	-	-	-	. . . Re
Sb_2O_3. .	-	-	.02	0	-	-	-	-	-	0	0	0	. .Sb_2O_3
SnO. . .	0	0	0	.03	0.06	0.04	-	0.08	0.05	.2	.2	.2	. . .SnO
Ta_2O_5. .	0	0	0	0	-	-	-	-	-	0	0	0	. .Ta_2O_5
Tl_2O_3. .	0	0	0	0	-	-	-	-	-	0	0	0	. .Tl_2O_3
V_2O_5 . .	.007	.005	0	.004	-	-	-	-	-	.01	.01	.02	. . V_2O_5
WO_3. . .	.5	.9	-	0	-	-	-	-	-	0	0	0	. . .WO_3
ZrO_2 . .	-	-	-	-	-	-	-	-	-	.005	.005	.004	. . ZrO_2
Limits of detection 1/	B	B	B	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

IDA-1-1---Antimony-iron concentrate, mill sample, 24 hour run. Ore from Yellow Pine mine, Yellow Pine district, Valley Co., Ida. Yellow Pine mill, Stibnite, Ida. Bradley Mining Company. Sampled in 1944. Additional analysis: 0.013 Se. Sample no. 180-YP-1.

IDA-1-2---Antimony concentrate, mill sample, 24 hour run. Ore from Yellow Pine mine, Yellow Pine district, Valley Co., Ida. Yellow Pine mill, Stibnite, Ida. Bradley Mining Company. Sampled in 1944. Sample no. 180-YP-2.

IDA-1-3---High-grade tungsten concentrate, mill sample, 24 hour run. Ore from Yellow Pine mine, Yellow Pine district, Valley Co., Ida. Yellow Pine mill, Stibnite, Ida. Bradley Mining Company. Sampled in 1944. Sample no. 180-YP-3.

IDA-7-1---Copper slag from dump, grab sample. Ore from mines of the Copper Basin district, Custer Co., Ida. MacKay Standard smelter. Sampled in 1943. Sample no. 72-MAC-1.

IDA-7-2---Coppar ore (tactite) from 1000 foot level, 1058 stope, Empire mine, Mackay district, Custer Co., Ida. Sampled in 1944. Sample no. 166-JOH-44-86.

IDA-7-3---Copper ore (tactite) from 1057 stope, Empire mine, Mackay district, Custer Co., Ida. Sampled in 1944. Sample no. 166-JOH-44-89.

IDA-7-4---Oxidized copper ore from 12 inch vein in 1059 stope, Empire mine, Mackay district, Custer Co., Ida. Sampled in 1944. Sample no. 166-JOH-44-90.

IDA-7-5---Copper ore from 1057 stope, Empire mine, Mackay district, Custer Co., Ida. Sampled in 1944. Sample no. 166-JOH-44-91.

IDA-7-6---Tactite from crosscut between 1056 and 1057 stopes, Empire mine, Mackay district, Custer Co., Ida. Sampled in 1944. Sample no. 166-JOH-44-88.

IDA-7-7---Copper tailings from East tailings dam. Ore from Empire mine, Mackay district, Custer Co., Ida. Mackay Metals Company mill, Mackay, Ida. Sampled in 1942. Sample no. 3-MAC-4.

IDA-7-8---Copper tailings from West tailings dam, vertical channel sample. Ore from Empire mine, Mackay district Custer Co., Ida. Mackay Metals Company mill, Mackay, Ida. Sampled in 1942. Sample no. 3-MAC-3.

IDA-7-9---Copper slag from slag pile. Ore from Empire mine, Mackay district, Custer Co., Ida. White Knob Copper Company smelter, Mackay, Ida. Sampled in 1942. Sample no. 3-MAC-2.

Table 14.—Analyses and descriptions of samples from Idaho—Continued

	IDA-7-10	IDA-7-11	IDA-7-12	IDA-10-1	IDA-10-2	IDA-10-3	IDA-10-4	IDA-10-5	IDA-10-6	IDA-10-7	IDA-10-8	IDA-10-9	
Ag	-	0.001	0.001	0.01	0.02	0.01	0.0009	0.006	0.5	0.7	0.001	0.003	Ag
BeO	0	0	0	0	0	0	0	.0003	.0001	0	.0002	.0001	BeO
Bi_2O_3	0	.02	.04	.008	.02	.01	.001	0	0	0	0	0	Bi_2O_3
Nb_2O_5	-	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0	0	0	.01	.01	.02	0	0	0	.01	0	0	CdO
CoO	0	1.0	-	0	0	0	0	.001	0	.005	0	0	CoO
Ga_2O_3	0	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	.005	.0001	.0002	.002	0	0	0	0	.0002	HgO
In_2O_3	0	0	0	.004	.007	.007	.001	0	0	0	0	0	In_2O_3
La_2O_3	-	0	0	0	0	0	0	0	0	0	0	0	La_2O_3
MoO_3	0.01	0	0	.003	.002	.004	.004	0	0	0	0	0	MoO_3
NiO	.001	.04	.09	.004	.005	.005	.005	.001	.0002	.004	.0002	0	NiO
Pt	-	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	-	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	0	0	0	.05	.2	.1	.01	.03	.6	.8	.01	.01	Sb_2O_3
SnO	.001	.001	.002	.009	.03	.02	.003	.01	.04	.05	.009	0	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.005	.001	.003	.05	.007	.03	.07	.004	.001	.001	.003	.001	V_2O_5
WO_3	0	0	0	0	0	0	-	0	.009	.01	0	0	WO_3
ZrO_2	.001	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	B	B	B	B	B	B	B	B	B	B	B	

1/ See table 2 for limits of detection reported by spectrographers.

IDA-7-10--Flue dust from dump. Ore from Empire mine, Mackay district, Custer Co., Ida. White Knob Copper Company smelter, Mackay, Ida. Sampled in 1942. Additional analysis: 0.01 Se. Sample no. 3-MAC-1.

IDA-7-11--Copper ore, chip sample, from small lens, Uncle Sam mine, Blackbird district, Lemhi Co., Ida. Sampled in 1944. Sample no. 183-U-1.

IDA-7-12--Copper concentrate. Ore from Uncle Sam mine, Blackbird district, Lemhi Co., Ida. Blackbird mill, Cobalt, Ida. Sampled in 1944. Sample no. 183-U-2.

IDA-10-1--Zinc-lead heads, mill sample. Ore from Triumph-North Star-Independence group of mines, Warm Springs district, Blaine Co., Ida. Triumph Mining Company mill, Triumph, Ida. Sampled in 1944. Sample no. 180-TM-2.

IDA-10-2--Lead concentrates. Ore from Triumph-North Star-Independence group of mines, Warm Springs district, Blaine Co., Ida. Triumph Mining Company mill, Triumph, Ida. Sampled in 1944. Sample no. 180-TM-4.

IDA-10-3--Zinc concentrates. Ore from Triumph-North Star-Independence group of mines, Warm Springs district, Blaine Co., Ida. Triumph Mining Company mill, Triumph, Ida. Sampled in 1944. Sample no. 180-TM-1.

IDA-10-4--Zinc-lead tailings, mill sample. Ore from Triumph-North Star-Independence group of mines, Warm Springs district, Blaine Co., Ida. Triumph Mining Company mill, Triumph, Ida. Sampled in 1944. Sample no. 180-TM-2.

IDA-10-5--Lead heads, mill sample. Ore from Whitedelf mine, Clark Fork district, Bonner Co., Ida. Whitedelf mill, Clark Fork, Ida. Sampled in 1944. Sample no. 183-WD-3.

IDA-10-6--High-grade lead ore, grab sample, from Whitedelf mine, Clark Fork district, Bonner Co., Ida. Sampled in 1944. Sample no. 183-WD-4.

IDA-10-7--Lead concentrates. Ore from Whitedelf mine, Clark Fork district, Bonner Co., Ida. Whitedelf mill, Clark Fork, Ida. Sampled in 1944. Sample no. 183-WD-1.

IDA-10-8--Lead tailings from tailings pond, grab sample. Ore from Whitedelf mine, Clark Fork district, Bonner Co., Ida. Whitedelf mill, Clark Fork, Ida. Sampled in 1944. Sample no. 183-WD-2.

IDA-10-9--Gold-silver ore, mill sample. Ore from Bigger Lead mine, Burgdorf-Marshall Lake district, Idaho Co., Ida. Kimberly Gold Mines mill, Czizek, Ida. Sampled in 1944. Sample no. 183-K-3.

Table 14.—Analyses and descriptions of samples from Idaho—Continued

	IDA-10-10	IDA-10-11	IDA-10-12	IDA-10-13	IDA-10-14	IDA-10-15	IDA-10-16	IDA-10-17	IDA-10-18	IDA-10-19	IDA-10-20	IDA-10-21	
Ag	0.003	0.0001	0.03	-	-	-	-	-	-	0.0002	0.0001	0.001	Ag
BeO	.0001	.0004	.0001	0	0	0	0	0	0	0	0	.0003	BeO
Bi_2O_3	0	0	0	0.003	0.006	0.005	0.04	0	0 002	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	.05	0	.08	.002	0	.06	0	0	0	Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	0	.008	CdO
CoO	0	.004	0	0	.005	0	.01	0	0	0	0	.003	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	.01	.004	0	GeO_2
HgO	.0004	0	.0008	0	0	0	0	0	0	0	0	.0001	HgO
In_2O_3	0	0	0	0	0	0	o	0	0	0	0	0	In_2O_3
La_2O_3	0	0	0	-	-	-	-	-	-	0	0	.03	La_2O_3
MoO_3	0	0	0	0	0	.005	.03	0	0	.009	.05	.002	MoO_3
NiO	.0001	.002	.0001	.005	.01	.004	.01	0.01	.006	.0002	.0004	.003	NiO
Pt	0	0	0	-	-	-	0	-	-	0	0	0	Pt
Re	0	0	0	-	-	-	0	-	-	0	0	0	Re
Sb_2O_3	.01	0	.01	0	0	0	0	0	0	0	0	.01	Sb_2O_3
SnO	0	.001	0	.04	0	.03	-	0	.005	0	0	.002	SnO
Ta_2O_5	0	0	0	-	-	-	0	-	-	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	-	-	-	0	-	-	0	0	0	Tl_2O_3
V_2O_5	.002	.005	.003	.03	.01	.05	.01	.01	.03	.006	.004	.005	V_2O_5
WO_3	0	0	.08	-	-	-	-	-	-	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	B	B	B	A	A	A	A	A	A	B	B	B	

1/ See table 2 for limits of detection reported by spectrographers.

IDA-10-10--Gold-silver ore, mill sample. Ore from Gold Crest No. 1 mine, Burgdorf-Marshall Lake district, Idaho Co., Ida. Kimberly Gold Mines mill, Czizek, Ida. Sampled in 1944. Sample no. 183-K-1.

IDA-10-11--Gold silver ore, mill sample. Ore from Gold Crest No. 4 mine, Burgdorf-Marshall Lake district, Idaho Co., Ida. Kimberly Gold Mines mill, Czizek, Ida. Sampled in 1944. Sample no. 183-K-2.

IDA-10-12--Gold-silver ore, mill sample. Ore from Kimberly Lode mine, Burgdorf-Marshall Lake district, Idaho Co., Ida. Kimberly Gold Mines mill, Czizek, Ida. Sampled in 1944. Sample no. 183-K-4.

IDA-10-13--Pan concentrate of gold placer tailings. Fischer placer, Castle Creek district, Idaho Co., Ida. Sample no. 298-BI-49.

IDA-10-14--Heavy sand concentrate from gold dredge tails. Dixie Placer mine, Dixie district, Idaho Co., Ida. Sample no. 295-BI-8.

IDA-10-15--Sand concentrate from riffles of floating concentrator. Moose Creek placer, Elk City district, Idaho Co., Ida. Samp.e no. 298-BI-48.

IDA-10-16--Black sand concentrate. Placer on Moose Creek, Elk City district, Lemhi Co., Ida. Sampled in 1943. Sample no. 72-M00-2.

IDA-10-17--Heavy sand from tail race of dredge. Mount Vernon dredge, on Crooked River, Elk City district, Idaho Co., Ida. Sample no. 295-BI-4.

IDA-10-18--Pan concentrate of stream gravel. Golden Rule placer, Grouse Creek, Secesh (Burgdorf) district, Idaho Co., Ida. Contains 13 percent monazite, 2 percent zircon. Sample no. 298-BI-63.

IDA-10-19--Lead slag, composite sample from slag pile. Ore from Viola mine, Nicholia district, Lemhi Co., Ida. Nicholia (Viola) smelter, Nicholia, Ida. Sampled in 1944. Sample no. 183-V-1.

IDA-10-20--Lead slag from slag pile, grab sample. Ore from Viola mine, Nicholia district, Lemhi Co., Ida. Nicholia (Viola) smelter, Nicholia, Ida. Sampled in 1944. Sample no. 183-V-2.

IDA-10-21--Zinc-lead heads, mill sample 48-hour run. Ore from Amazon mine, Beaver district, Shoshone Co., Ida. Hercules mill, Wallace, Ida. Sampled in 1944. Sample no. 180-HM-3.

Table 14.—Analyses and descriptions of samples from Idaho—Continued

	IDA-10-22	IDA-10-23	IDA-10-24	IDA-10-25	IDA-10-26	IDA-10-27	IDA-10-28	IDA-10-29	IDA-10-30	IDA-10-31	IDA-10-32	IDA-10-33	
Ag	0.1	0.01	0	0.003	0.07	0.002	0	0.0005	0.1	0.005	0	-	Ag
BeO	0	0	0.0003	.0002	0	0	0.0003	.0002	0	0	0.0002	0	BeO
Bi_2O_3	.002	0	0	0	.001	0	0	0	.002	0	0	0.02	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	.02	.4	0	.01	.03	.2	0	.01	.02	.2	0	.02	CdO
CoO	.006	.04	0	.002	.002	.02	0	.001	.005	.02	0	.01	CoO
Ga_2O_3	-	-	-	-	-	0	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	.003	0	0	0	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	.0002	0	.0004	-	0	.0002	-	.00002	0	HgO
In_2O_3	.001	.002	0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	0	0	.03	.01	0	0	.02	0	0	0	0	-	La_2O_3
MoO_3	.003	.001	0	0	0	0	0	0	0	0	0	.001	MoO_3
NiO	.003	.004	.002	.0006	.001	.003	.0005	.0001	.002	.001	.0004	.006	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	.04	.01	0	0	.03	0	0	0	.04	0	0	.1	Sb_2O_3
SnO	.001	.001	0	0	0	0	0	0	0	0	0	.002	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.002	0	.004	.007	.001	0	.008	0	0	0	.003	.003	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	B	B	B	B	B	B	B	B	B	B	B	A	

1/ See table 2 for limits of detection reported by spectrographers.

IDA-10-22--Lead concentrate. Ore from Amazon mine, Beaver district, Shoshone Co., Ida. Hercules mill, Wallace, Ida. Sampled in 1944. Sample no. 180-HM-4.

IDA-10-23--Zinc concentrate. Ore from Amazon mine, Beaver district, Shoshone Co., Ida. Hercules mill, Wallace, Ida. Sampled in 1944. Sample no. 180-HM-1.

IDA-10-24--Zinc-lead tailings, mill sample. Ore from Amazon mine, Beaver district, Shoshone Co., Ida. Hercules mill, Wallace, Ida. Sampled in 1944. Sample no. 180-HM-2.

IDA-10-25--Zinc-lead heads, mill sample, 24-hour run. Ore from Parrott mine, Beaver district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-11.

IDA-10-26--Lead concentrate, mill sample, 24 hour run. Ore from Parrott mine, Beaver district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-1.

IDA-10-27--Zinc concentrate, mill sample, 24 hour run. Ore from Parrott mine, Beaver district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-4.

IDA-10-28--Zinc-lead tailings, mill sample, 24 hour run. Ore from Parrott mine, Beaver district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-2.

IDA-10-29--Zinc-lead heads. Ore from Silver Tip mine, Beaver district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-3.

IDA-10-30--Lead concentrate. Ore from Silver Tip mine, Beaver district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-6.

IDA-10-31--Zinc concentrate. Ore from Silver Tip mine, Beaver district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-7.

IDA-10-32--Zinc-lead tailings. Ore from Silver Tip mine, Beaver district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-5.

IDA-10-33--Lead concentrate, grab sample. Ore from Morning mine, Hunter district, Shoshone Co., Ida. Morning mill, Mullan, Ida. Federal Mining and Smelting Company. Sampled in 1943. Sample no. 51-MOR-3.

Table 14.—Analyses and descriptions of samples from Idaho—Continued

	IDA-10-34	IDA-10-35	IDA-10-36	IDA-10-37	IDA-10-38	IDA-10-39	IDA-10-40	IDA-10-41	IDA-10-42	IDA-10-43	IDA-10-44	IDA-10-45	
Ag	-	-	-	-	-	0.01	0.1	0.0006	0.002	0.02	0.0003	0.09	Ag
BeO	0	0.001	0	0	0.001	.0006	0	.0006	.0003	0	.0002	0	BeO
Bi_2O_3	0	0	0.03	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0.6	.003	.02	0.6	.004	.007	.04	0	.007	.07	0	.02	CdO
CoO	.04	.003	.01	.05	.008	.002	.0006	0	.001	.009	0	.008	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	.005	.001	0	.005	.001	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	0	0	-	0	.005	0	0	0	0	HgO
In_2O_3	.006	0	0	.006	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	0	0	0	0	0	0	0	La_2O_3
MoO_3	.01	.006	.001	.01	.002	0	.001	0	0	0	0	.002	MoO_3
NiO	.04	.001	.04	.05	.01	.001	.004	.0004	.0004	.003	.0002	.006	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	.01	.003	.2	.02	.004	.03	.08	0	0	.04	0	.1	Sb_2O_3
SnO	.03	.01	.002	.04	.02	0	0	0	0	0	0	.002	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	.005	.001	0	.005	.001	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.006	.01	.003	.006	.01	.01	.007	.01	.003	.001	.002	0	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	B	B	B	B	B	B	B	

1/ See table 2 for limits of detection reported by spectrographers.

IDA-10-34--Zinc concentrate, grab sample. Ore from Morning mine, Hunter district, Shoshone Co., Ida. Morning mill, Mullan, Ida. Federal Mining and Smelting Company. Sampled in 1943. Sample no. 51-MOR-2.

IDA-10-35--Lead-zinc-silver tailings, grab sample. Ore from Morning mine, Hunter district, Shoshone Co., Ida. Morning mill, Mullan, Ida. Federal Mining and Smelting Company. Sampled in 1943. Sample no. 51-MOR-1.

IDA-10-36--Lead concentrate, grab sample. Ore from upper levels, Frisco mine, Lelande district, Shoshone Co., Ida. Hull Leasing Company mill, Gem, Ida. Sampled in 1943. Sample no. 51-FRI-3.

IDA-10-37--Zinc concentrate, grab sample. Ore from upper levels, Frisco mine, Lelande district, Shoshone Co., Ida. Hull Leasing Company mill, Gem, Ida. Sampled in 1943. Sample no. 51-FRI-2.

IDA-10-38--Zinc-lead-silver tailings, mill grab sample. Ore from upper levels, Frisco mine, Lelande district, Shoshone Co., Ida. Hull Leasing Company mill, Gem, Ida. Sampled in 1943. Sample no. 51-FRI-1.

IDA-10-39--Lead-zinc heads, mill sample, 48 hour run. Ore from Sherman mine, Lelande district, Shoshone Co., Ida. Sherman mill, Burke, Ida. Sampled in 1944. Sample no. 180-S-3.

IDA-10-40--Lead concentrate, mill sample, 48 hour run. Ore from Sherman mine, Lelande district, Shoshone Co., Ida. Sherman mill, Burke, Ida. Sampled in 1944. Sample no. 180-S-1.

IDA-10-41--Lead-zinc tailings, mill sample, 48 hour run. Ore from Sherman mine, Lelande district, Shoshone Co., Ida. Sherman mill, Burke, Ida. Sampled in 1944. Sample no. 180-S-2.

IDA-10-42--Zinc-lead heads, mill sample. Ore from Constitution mine, Pine Creek district, Shoshone Co., Ida. Spokane-Idaho Mining Company mill, Kellogg, Ida. Sampled in 1944. Sample no. 183-SI-3.

IDA-10-43--Zinc-lead bulk concentrate. Ore from Constitution mine, Pine Creek district, Shoshone Co., Ida. Spokane-Idaho Mining Company mill, Kellogg, Ida. Sampled in 1944. Sample no. 183-SI-1.

IDA-10-44--Zinc-lead tailings, mill sample. Ore from Constitution mine, Pine Creek district, Shoshone Co., Ida. Spokane-Idaho Mining Company mill, Kellogg, Ida. Sampled in 1944. Sample no. 183-SI-2.

IDA-10-45--Lead concentrate, mill sample, 24 hour run. Ore from Nabob mine, Pine Creek district, Shoshone Co., Ida. Amy Matchless mill, Pine Creek, Ida. Sampled in 1944. Sample no. 180-LP-1.

Table 14.—Analyses and descriptions of samples from Idaho—Continued

	IDA-10-46	IDA-10-47	IDA-10-48	IDA-10-49	IDA-10-50	IDA-10-51	IDA-10-52	IDA-10-53	IDA-10-54	IDA-10-55	IDA-10-56	IDA-10-57	
Ag . . .	0.009	0	0.007	0.3	0.0001	0.002	0.05	0.007	0	-	-	-	. . . Ag
BeO. . .	0	0.0006	.0001	0	.0002	.0003	0	0	0.0004	0	0	0.001	. . .BeO
Bi_2O_3. .	0	0	0	0	0	0	.004	0	0	0.006	0	0	. . Bi_2O_3
Nb_2O_5. .	0	0	0	0	0	0	0	0	0	0	0	0	. . Nb_2O_5
CdO. . .	.1	0	0	.02	0	.02	.04	.3	0	.02	0.6	.003	. . .CdO
CoO. . .	.01	.002	.001	.01	0	.002	.004	.007	0	.03	.06	.01	. . .CoO
Ga_2O_3. .	-	-	-	-	-	-	-	-	-	-	-	-	. . Ga_2O_3
GeO_2 . .	0	0	0	0	0	0	0	.004	0	0	.006	.001	. . GeO_2
HgO. . .	0	0	.0008	.003	.001	.0005	0	0	-	0	0	0	. . .HgO
In_2O_3. .	.02	0	0	0	0	0	0	0	0	0	.006	0	. . In_2O_3
La_2O_3. .	0	0	.01	0	.01	0	0	0	0	-	-	-	. . La_2O_3
MoO_3 . .	.002	0	0	0	0	0	0	0	0	.002	.01	.001	. . MoO_3
NiO. . .	.007	.001	.0005	.004	.0002	.0002	.005	.004	.0004	.04	.05	.006	. . .NiO
Pt . . .	0	0	0	0	0	0	0	0	0	0	0	0	. . . Pt
Re . . .	0	0	0	0	0	0	0	0	0	0	0	0	. . . Re
Sb_2O_3. .	.02	0	.01	.05	0	0	.02	0	0	.7	.03	.005	. . Sb_2O_3
SnO. . .	0	0	0	0	0	0	0	0	0	.002	.02	.006	. . .SnO
Ta_2O_5. .	0	0	0	0	0	0	0	0	0	0	0	0	. . Ta_2O_5
Tl_2O_3. .	0	0	0	0	0	0	0	0	0	0	.004	.001	. . Tl_2O_3
V_2O_5 . .	0	.006	.002	0	.002	.005	.001	0	.005	.004	.005	.01	. . V_2O_5
WO_3. . .	0	0	0	0	0	0	0	0	0	0	0	0	. . . WO_3
ZrO_2 . .	-	-	-	-	-	-	-	-	-	-	-	-	. . ZrO_2
Limits of detection 1/	B	B	B	B	B	B	B	B	B	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

IDA-10-46--Zinc concentrates, mill sample, 24 hour run. Ore from Nabob mine, Pine Creek district, Shoshone Co., Ida. Amy Matchless mill, Pine Creek, Ida. Sampled in 1944. Sample no. 180-LP-3.

IDA-10-47--Zinc-lead tailings, mill sample, 24 hour run. Ore from Nabob mine, Pine Creek district, Shoshone Co., Ida. Amy Matchless mill, Pine Creek, Ida. Sampled in 1944. Sample no. 180-LP-2.

IDA-10-48--Lead heads, mill sample, 48 hour run. Ore from Dayrock mine, Placer Center district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-10.

IDA-10-49--Lead concentrate, mill sample, 48 hour run. Ore from Dayrock mine, Placer Center district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-9.

IDA-10-50--Lead tailings, mill sample, 48 hour run. Ore from Dayrock mine, Placer Center district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-8.

IDA-10-51--Zinc-lead heads, mill sample, 48 hour run. Ore from Tamarack mine, Placer Center district, Shoshone Co., Ida. Tamarack and Custer mill, Dorn, Ida. Sampled in 1944. Sample no. 180-TC-3.

IDA-10-52--Lead concentrate, mill sample, 48 hour run. Ore from Tamarack mine, Placer Center district, Shoshone Co., Ida. Tamarack and Custer mill, Dorn, Ida. Sampled in 1944. Sample no. 180-TC-1.

IDA-10-53--Zinc concentrates, mill sample, 48 hour run. Ore from Tamarack mine, Placer Center district, Shoshone Co., Ida. Tamarack and Custer mill, Dorn, Ida. Sampled in 1944. Sample no. 180-TC-4.

IDA-10-54--Zinc-lead tailings, mill sample, 48 hour run. Ore from Tamarack mine, Placer Center district, Shoshone Co., Ida. Tamarack and Custer mill, Dorn, Ida. Sampled in 1944. Sample no. 180-TC-2.

IDA-10-55--Lead concentrate, grab sample. Ore from Page and Blackhawk mines, Yreka district, Shoshone Co., Ida. Page mill, Page, Ida. Federal Mining and Smelting Company. Sampled in 1943. Sample no. 51-PAG-3.

IDA-10-56--Zinc concentrate, grab sample. Ore from Page and Blackhawk mines, Yreka district, Shoshone Co., Ida. Page mill, Page, Ida. Federal Mining and Smelting Company. Sampled in 1943. Sample no. 51-PAG-2.

IDA-10-57--Zinc-lead-silver tailings, mill grab sample. Ore from Page and Blackhawk mines, Yreka district, Shoshone Co., Ida. Page mill, Page, Ida. Federal Mining and Smelting Company. Sampled in 1943. Sample no. 51-PAG-1.

Table 14.—Analyses and descriptions of samples from Idaho—Continued

	IDA-13-1	IDA-13-2	IDA-13-3	IDA-13-4	IDA-13-5	IDA-13-6	IDA-13-7	IDA-13-8	IDA-13-9	IDA-13-10	IDA-13-11	IDA-13-12	
Ag													Ag
BeO													BeO
Bi_2O_3													Bi_2O_3
Nb_2O_5													Nb_2O_5
CdO													CdO
CoO	See IDA-10-1	See IDA-10-2	See IDA-10-3	See IDA-10-4	See IDA-10-5	See IDA-10-6	See IDA-10-7	See IDA-10-8	See IDA-10-19	See IDA-10-20	See IDA-10-21	See IDA-10-22	CoO
Ga_2O_3													Ga_2O_3
GeO_2													GeO_2
HgO													HgO
In_2O_3													In_2O_3
La_2O_3													La_2O_3
MoO_3													MoO_3
NiO													NiO
Pt													Pt
Re													Re
Sb_2O_3													Sb_2O_3
SnO													SnO
Ta_2O_5													Ta_2O_5
Tl_2O_3													Tl_2O_3
V_2O_5													V_2O_5
WO_3													WO_3
ZrO_2													ZrO_2
Limits of detection 1/													

1/ See table 2 for limits of detection reported by spectrographers.

IDA-13-1---(For analysis see 10-1). Zinc-lead heads, mill sample. Ore from Triumph-North Star-Independence group of mines, Warm Springs district, Blaine Co., Ida. Triumph Mining Company mill, Triumph, Ida. Sampled in 1944. Sample no. 180-TM-2.

IDA-13-2---(For analysis see 10-2). Lead concentrates. Ore from Triumph-North Star-Independence group of mines, Warm Springs district, Blaine Co., Ida. Triumph Mining Company mill, Triumph, Ida. Sampled in 1944. Sample no. 180-TM-4.

IDA-13-3---(For analysis see 10-3). Zinc concentrates. Ore from Triumph-North Star-Independence group of mines, Warm Springs district, Blaine Co., Ida. Triumph Mining Company mill, Triumph, Ida. Sampled in 1944. Sample no. 180-TM-1.

IDA-13-4---(For analysis see 10-4). Zinc-lead tailings, mill sample. Ore from Triumph-North Star-Independence group of mines, Warm Springs district, Blaine Co., Ida. Triumph Mining Company mill, Triumph, Ida. Sampled in 1944. Sample no. 180-TM-2.

IDA-13-5---(For analysis see 10-5). Lead heads, mill sample. Ore from Whitedelf mine, Clark Fork district, Bonner Co., Ida. Whitedelf mill, Clark Fork, Ida. Sampled in 1944. Sample no. 183-WD-3.

IDA-13-6---(For analysis see 10-6). High-grade lead ore, grab sample, from Whitedelf mine, Clark Fork district, Bonner Co., Ida. Sampled in 1944. Sample no. 183-WD-4.

IDA-13-7---(For analysis see 10-7). Lead concentrates. Ore from Whitedelf mine, Clark Fork district, Bonner Co., Ida. Whitedelf mill, Clark Fork, Ida. Sampled in 1944. Sample no. 183-WD-1.

IDA-13-8---(For analysis see 10-8). Lead tailings from tailings pond, grab sample. Ore from Whitedelf mine, Clark Fork district, Bonner Co., Ida. Whitedelf mill, Clark Fork, Ida. Sampled in 1944. Sample no. 183-WD-2.

IDA-13-9---(For analysis see 10-19). Lead slag, composite sample from slag pile. Ore from Viola mine, Nicholia district, Lemhi Co., Ida. Nicholia (Viola) smelter, Nicholia, Ida. Sampled in 1944. Sample no. 183-V-1.

IDA-13-10--(For analysis see 10-20). Lead slag from slag pile, grab sample. Ore from Viola mine, Nicholia district, Lemhi Co., Ida. Nicholia (Viola) smelter, Nicholia, Ida. Sampled in 1944. Sample no. 183-V-2.

IDA-13-11--(For analysis see 10-21). Zinc-lead heads, mill sample, 48-hour run. Ore from Amazon mine, Beaver district, Shoshone Co., Ida. Hercules mill, Wallace, Ida. Sampled in 1944. Sample no. 180-HM-3.

IDA-13-12--(For analysis see 10-22). Lead concentrate. Ore from Amazon mine, Beaver district, Shoshone Co., Ida. Hercules mill, Wallace, Ida. Sampled in 1944. Sample no. 180-HM-4.

Table 14.—Analyses and descriptions of samples from Idaho—Continued

	IDA-13-13	IDA-13-14	IDA-13-15	IDA-13-16	IDA-13-17	IDA-13-18	IDA-13-19	IDA-13-20	IDA-13-21	IDA-13-22	IDA-13-23	IDA-13-24	
Ag													Ag
BeO													BeO
Bi_2O_3													Bi_2O_3
Nb_2O_5													Nb_2O_5
CdO	See IDA-10-23	See IDA-10-24	See IDA-10-25	See IDA-10-26	See IDA-10-27	See IDA-10-28	See IDA-10-29	See IDA-10-30	See IDA-10-31	See IDA-10-32	See IDA-10-33	See IDA-10-34	CdO
CoO													CoO
Ga_2O_3													Ga_2O_3
GeO_2													GeO_2
HgO													HgO
In_2O_3													In_2O_3
La_2O_3													La_2O_3
MoO_3													MoO_3
NiO													NiO
Pt													Pt
Re													Re
Sb_2O_3													Sb_2O_3
SnO													SnO
Ta_2O_5													Ta_2O_5
Tl_2O_3													Tl_2O_3
V_2O_5													V_2O_5
WO_3													WO_3
ZrO_2													ZrO_2
Limits of detection 1/													

1/ See table 2 for limits of detection reported by spectrographers.

IDA-13-13--(For analysis see 10-23). Zinc concentrate. Ore from Amazon mine, Beaver district, Shoshone Co., Ida. Hercules mill, Wallace, Ida. Sampled in 1944. Sample no. 180-HM-1.

IDA-13-14--(For analysis see 10-24). Zinc-lead tailings, mill sample. Ore from Amazon mine, Beaver district, Shoshone Co., Ida. Hercules mill, Wallace, Ida. Sampled in 1944. Sample no. 180-HM-2.

IDA-13-15--(For analysis see 10-25). Zinc-lead heads, mill sample, 24-hour run. Ore from Parrott mine, Beaver district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-11.

IDA-13-16--(For analysis see 10-26). Lead concentrate, mill sample, 24 hour run. Ore from Parrott mine, Beaver district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-1.

IDA-13-17--(For analysis see 10-27). Zinc concentrate, mill sample, 24 hour run. Ore from Parrott mine, Beaver district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-4.

IDA-13-18--(For analysis see 10-28). Zinc-lead tailings, mill sample, 24 hour run. Ore from Parrott mine, Beaver district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-2.

IDA-13-19--(For analysis see 10-29). Zinc-lead heads. Ore from Silver Tip mine, Beaver district. Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-3.

IDA-13-20--(For analysis see 10-30). Lead concentrate. Ore from Silver Tip mine, Beaver district. Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-6.

IDA-13-21--(For analysis see 10-31). Zinc concentrate. Ore from Silver Tip mine, Beaver district. Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-7.

IDA-13-22--(For analysis see 10-32). Zinc-lead tailings. Ore from Silver Tip mine, Beaver district. Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-5.

IDA-13-23--(For analysis see 10-33). Lead concentrate, grab sample. Ore from Morning mine, Hunter district, Shoshone Co., Ida. Morning mill, Mullan, Ida. Federal Mining and Smelting Company. Sampled in 1943. Sample no. 51-MOR-3.

IDA-13-24--(For analysis see 10-34). Zinc concentrate, grab sample. Ore from Morning mine, Hunter district, Shoshone Co., Ida. Morning mill, Mullan, Ida. Federal Mining and Smelting Company. Sampled in 1943. Sample no. 51-MOR-2.

Table 14.—Analyses and descriptions of samples from Idaho—Continued

	IDA-13-25	IDA-13-26	IDA-13-27	IDA-13-28	IDA-13-29	IDA-13-30	IDA-13-31	IDA-13-32	IDA-13-33	IDA-13-34	IDA-13-35	IDA-13-36	
Ag													Ag
BeO													BeO
Bi_2O_3													Bi_2O_3
Nb_2O_5													Nb_2O_5
CdO	See IDA-10-35	See IDA-10-36	See IDA-10-37	See IDA-10-38	See IDA-10-39	See IDA-10-40	See IDA-10-41	See IDA-10-42	See IDA-10-43	See IDA-10-44	See IDA-10-45	See IDA-10-46	CdO
CoO													CoO
Ga_2O_3													Ga_2O_3
GeO_2													GeO_2
HgO													HgO
In_2O_3													In_2O_3
La_2O_3													La_2O_3
MoO_3													MoO_3
NiO													NiO
Pt													Pt
Re													Re
Sb_2O_3													Sb_2O_3
SnO													SnO
Ta_2O_5													Ta_2O_5
Tl_2O_3													Tl_2O_3
V_2O_5													V_2O_5
WO_3													WO_3
ZrO_2													ZrO_2
Limits of detection 1/													

1/ See table 2 for limits of detection reported by spectrographers.

IDA-13-25--(For analysis see 10-35). Lead-zinc-silver tailings, grab sample. Ore from Morning mine, Hunter district, Shoshone Co., Ida. Morning mill, Mullan, Ida. Federal Mining and Smelting Company. Sampled in 1943. Sample no. 51-MOR-1.

IDA-13-26--(For analysis see 10-36). Lead concentrate, grab sample. Ore from upper levels, Frisco mine, Lelande district, Shoshone Co., Ida. Hull Leasing Company mill, Gem, Ida. Sampled in 1943. Sample no. 51-FRI-3.

IDA-13-27--(For analysis see 10-37). Zinc concentrate, grab sample. Ore from upper levels, Frisco mine, Lelande district, Shoshone Co., Ida. Hull Leasing Company mill, Gem, Ida. Sampled in 1943. Sample no. 51-FRI-2.

IDA-13-28--(For analysis see 10-38). Zinc-lead-silver tailings, mill grab sample. Ore from upper levels, Frisco mine, Lelande district, Shoshone Co., Ida. Hull Leasing Company mill, Gem, Ida. Sampled in 1943. Sample no. 51-FRI-1.

IDA-13-29--(For analysis see 10-39). Lead-zinc heads, mill sample, 48 hour run. Ore from Sherman mine, Lelande district, Shoshone Co., Ida. Sherman mill, Burke, Ida. Sampled in 1944. Sample no. 180-S-3.

IDA-13-30--(For analysis see 10-40). Lead concentrate, mill sample, 48 hour run. Ore from Sherman mine, Lelande district, Shoshone Co., Ida. Sherman mill, Burke, Ida. Sampled in 1944. Sample no. 180-S-1.

IDA-13-31--(For analysis see 10-41). Lead-zinc tailings, mill sample, 48 hour run. Ore from Sherman mine, Lelande district, Shoshone Co., Ida. Sherman mill, Burke, Ida. Sampled in 1944. Sample no. 180-S-2.

IDA-13-32--(For analysis see 10-42). Zinc-lead heads, mill sample. Ore from Constitution mine, Pine Creek district, Shoshone Co., Ida. Spokane-Idaho Mining Company mill, Kellogg, Ida. Sampled in 1944. Sample no. 183-SI-3.

IDA-13-33--(For analysis see 10-43). Zinc-lead bulk concentrate. Ore from Constitution mine, Pine Creek district, Shoshone Co., Ida. Spokane-Idaho Mining Company mill, Kellogg, Ida. Sampled in 1944. Sample no. 183-SI-1.

IDA-13-34--(For analysis see 10-44). Zinc-lead tailings, mill sample. Ore from Constituion mine, Pine Creek district, Shoshone Co., Ida. Spokane-Idaho Mining Company mill, Kellogg, Ida. Sampled in 1944. Sample no. 183-SI-2.

IDA-13-35--(For analysis see 10-45). Lead concentrate, mill sample, 24 hour run. Ore from Nabob mine, Pine Creek district, Shoshone Co., Ida. Amy Matchless mill, Pine Creek, Ida. Sampled in 1944. Sample no. 180-LP-1.

IDA-13-36--(For analysis see 10-46). Zinc concentrates, mill sample, 24 hour run. Ore from Nabob mine, Pine Creek district, Shoshone Co., Ida. Amy Matchless mill, Pine Creek, Ida. Sampled in 1944. Sample no. 180-LP-3.

Table 14.—Analyses and descriptions of samples from Idaho—Continued

	IDA-13-37	IDA-13-38	IDA-13-39	IDA-13-40	IDA-13-41	IDA-13-42	IDA-13-43	IDA-13-44	IDA-13-45	IDA-13-46	IDA-13-47	IDA-27-1	
Ag													Ag
BeO													BeO
Bi_2O_3													Bi_2O_3
Nb_2O_5													Nb_2O_5
CdO	See IDA-10-47	See IDA-10-48	See IDA-10-49	See IDA-10-50	See IDA-10-51	See IDA-10-52	See IDA-10-53	See IDA-10-54	See IDA-10-55	See IDA-10-56	See IDA-10-57	See IDA-1-1	CdO
CoO													CoO
Ga_2O_3													Ga_2O_3
GeO_2													GeO_2
HgO													HgO
In_2O_3													In_2O_3
La_2O_3													La_2O_3
MoO_3													MoO_3
NiO													NiO
Pt													Pt
Re													Re
Sb_2O_3													Sb_2O_3
SnO													SnO
Ta_2O_5													Ta_2O_5
Tl_2O_3													Tl_2O_3
V_2O_5													V_2O_5
WO_3													WO_3
ZrO_2													ZrO_2
Limits of detection [1]													

[1] See table 2 for limits of detection reported by spectrographers.

IDA-13-37--(For analysis see 10-47). Zinc-lead tailings, mill sample, 24 hour run. Ore from Nabob mine, Pine Creek district, Shoshone Co., Ida. Amy Matchless mill, Pine Creek, Ida. Sampled in 1944. Sample no. 180-LP-2.

IDA-13-38--(For analysis see 10-48). Lead heads, mill sample, 48 hour run. Ore from Dayrock mine, Placer Center district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-10.

IDA-13-39--(For analysis see 10-49). Lead concentrate, mill sample, 48 hour run. Ore from Dayrock mine, Placer Center district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-9.

IDA-13-40--(For analysis see 10-50). Lead tailings, mill sample, 48 hour run. Ore from Dayrock mine, Placer Center district, Shoshone Co., Ida. Dayrock mill, Wallace, Ida. Sampled in 1944. Sample no. 180-DM-8.

IDA-13-41--(For analysis see 10-51). Zinc-lead heads, mill sample, 48 hour run. Ore from Tamarack mine, Placer Center district, Shoshone Co., Ida. Tamarack and Custer mill, Dorn, Ida. Sampled in 1944. Sample no. 180-TC-3.

IDA-13-42--(For analysis see 10-52). Lead concentrate, mill sample, 48 hour run. Ore from Tamarack mine, Placer Center district, Shoshone Co., Ida. Tamarack and Custer mill, Dorn, Ida. Sampled in 1944. Sample no. 180-TC-1.

IDA-13-43--(For analysis see 10-53). Zinc concentrates, mill sample, 48 hour run. Ore from Tamarack mine, Placer Center district, Shoshone Co., Ida. Tamarack and Custer mill, Dorn, Ida. Sampled in 1944. Sample no. 180-TC-4.

IDA-13-44--(For analysis see 10-54). Zinc-lead tailings, mill sample, 48 hour run. Ore from Tamarack mine, Placer Center district, Shoshone Co., Ida. Tamarack and Custer mill, Dorn, Ida. Sampled in 1944. Sample no. 180-TC-2.

IDA-13-45--(For analysis see 10-55). Lead concentrate, grab sample. Ore from Page and Blackhawk mines, Yreka district, Shoshone Co., Ida. Page mill, Page, Ida. Federal Mining and Smelting Company. Sampled in 1943. Sample no. 51-PAG-3.

IDA-13-46--(For analysis see 10-56). Zinc concentrate, grab sample. Ore from Page and Blackhawk mines, Yreka district, Shoshone Co., Ida. Page mill, Page, Ida. Federal Mining and Smelting Company. Sampled in 1943. Sample no. 51-PAG-2.

IDA-13-47--(For analysis see 10-57). Zinc-lead-silver tailings, mill grab sample. Ore from Page and Blackhawk mines, Yreka district, Shoshone Co., Ida. Page mill, Page, Ida. Federal Mining and Smelting Company. Sampled in 1943. Sample no. 51-PAG-1.

IDA-27-1---(For analysis see 1-1). Antimony-iron concentrate, mill sample, 24 hour run. Ore from Yellow Pine mine, Yellow Pine district, Valley Co., Ida. Yellow Pine mill, Stibnite, Ida. Bradley Mining Company. Sampled in 1944. Sample no. 180-YP-1.

Table 14.—Analyses and descriptions of samples from Idaho—Continued

	IDA-27-2	IDA-27-3	IDA-41-1	IDA-92-1	IDA-94-1	IDA-94-2	IDA-94-3	IDA-94-4	IDA-94-5	IDA-94-6	IDA-94-7	IDA-94-8	
Ag			0					-	-	-			Ag
BeO			0.0004					0	0	0			BeO
Bi_2O_3			0					0	0.003	0.004			Bi_2O_3
Nb_2O_5			0					0	.06	.05			Nb_2O_5
CdO	See IDA-1-2	See IDA-1-3	0	See IDA-7-6	See IDA-41-1	See IDA-10-13	See IDA-10-14	0	0	0	See IDA-10-15	See IDA-10-17	CdO
CoO			.001					0	0	0			CoO
Ga_2O_3			-					-	-	-			Ga_2O_3
GeO_2			.004					0	0	0			GeO_2
HgO			0					0	0	0			HgO
In_2O_3			0					0	0	0			In_2O_3
La_2O_3			.03					-	-	-			La_2O_3
MoO_3			0					0	0	0			MoO_3
NiO			.0002					0.006	.003	.002			NiO
Pt			0					-	-	-			Pt
Re			0					-	-	-			Re
Sb_2O_3			0					0	0	0			Sb_2O_3
SnO			0					0	.006	.006			SnO
Ta_2O_5			0					-	-	-			Ta_2O_5
Tl_2O_3			0					-	-	-			Tl_2O_3
V_2O_5			.007					.01	.03	.04			V_2O_5
WO_3			0					-	-	-			WO_3
ZrO_2			-					-	-	-			ZrO_2
Limits of detection 1/			B					A	A	A			

1/ See table 2 for limits of detection reported by spectrographers.

IDA-27-2---(For analysis see 1-2). Antimony concentrate, mill sample, 24 hour run. Ore from Yellow Pine mine, Yellow Pine district, Valley Co., Ida. Yellow Pine mill, Stibnite, Ida. Bradley Mining Company. Sampled in 1944. Sample no. 180-YP-2.

IDA-27-3---(For analysis see 1-3). High-grade tungsten concentrate, mill sample, 24 hour run. Ore from Yellow Pine mine, Yellow Pine district, Valley Co., Ida. Yellow Pine mill, Stibnite, Ida. Bradley Mining Company. Sampled in 1944. Sample no. 180-YP-3.

IDA-41-1---Garnet sand concentrate. Ore from placer deposit in Emerald Creek near Fernwood, Benewah Co., Ida. Garnet Mines, Inc. mill, Fernwood, Ida. Sample no. 180-GAR-1.

IDA-92-1---(For analysis see 7-6). Tactite from crosscut between 1056 and 1057 stopes, Empire mine, Mackay district, Custer Co., Ida. Sampled in 1944. Sample no. 166-JOH-44-88.

IDA-94-1---(For analysis see 41-1). Garnet sand concentrate. Ore from placer deposit in Emerald Creek near Fernwood, Benewah Co., Ida. Garnet Mines, Inc. mill, Fernwood, Ida. Sample no. 180-GAR-1.

IDA-94-2---(For analysis see 10-13). Pan concentrate of gold placer tailings. Fischer placer, Castle Creek district, Idaho Co., Ida. Sample no. 298-BI-49.

IDA-94-3---(For analysis see 10-14). Heavy sand concentrate from gold dredge tails. Dixie Placer mine, Dixie district, Idaho Co., Ida. Sample no. 295-BI-8.

IDA-94-4---Sand, pan concentrate from Crooked Creek gravel just below mouth of Horse Flat Creek, Dixie district, Idaho Co., Ida. Sample no. 295-BI-37.

IDA-94-5---Sand, pan concentrate from Crooked Creek gravel, 1.1 miles S of Dixie, Dixie district, Idaho Co., Ida. Contains 15 percent monazite, 1 percent zircon. Sample no. 298-BI-43.

IDA-94-6---Sand, pan concentrate from 4th of July Creek gravel, Dixie district, Idaho Co., Ida. Sample no. 298-BI-40.

IDA-94-7---(For analysis see 10-15). Sand concentrate from riffles of floating concentrator. Moose Creek placer, Elk City district, Idaho Co., Ida. Sample no. 298-BI-48.

IDA-94-8---(For analysis see 10-17). Heavy sand from tail race of dredge. Mount Vernon dredge, on Crooked River, Elk City district, Idaho Co., Ida. Sample no. 295-BI-4.

Table 14.—Analyses and descriptions of samples from Idaho—Continued

	IDA-94-9	IDA-94-10	IDA-94-11	IDA-94-12	IDA-94-13	IDA-94-14	IDA-94-15	IDA-94-16	IDA-94-17	IDA-94-18	IDA-94-19	IDA-94-20	
Ag	-	-	-	-	-	-	-	-	-	-	-		Ag
BeO	0	0	0	0	0	0	0	0	0	0	0		BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0.005	0		Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0		Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	0	See IDA-10-18	CdO
CoO	0.006	0.005	0.006	0	0	0	0.006	0.005	0.005	0	0.006		CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-		Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0	0		GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0		HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0	0		In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-		La_2O_3
MoO_3	0	0	0	0	0	0	0	0	0	0	0		MoO_3
NiO	.006	.006	.01	0.005	0.006	0.005	.006	.01	.008	.01	.01		NiO
Pt	-	-	-	-	-	-	-	-	-	-	-		Pt
Re	-	-	-	-	-	-	-	-	-	-	-		Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0	0		Sb_2O_3
SnO	0	0	0	0	0	0	0	0	0	0	0		SnO
Ta_2O_5	-	-	-	-	-	-	-	-	-	-	-		Ta_2O_5
Tl_2O_3	-	-	-	-	-	-	-	-	-	-	-		Tl_2O_3
V_2O_5	.01	.02	.02	.01	.01	.01	.01	.02	.04	.02	.03		V_2O_5
WO_3	-	-	-	-	-	-	-	-	-	-	-		WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-		ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A		

1/ See table 2 for limits of detection reported by spectrographers.

IDA-94-9---Sand concentrate from Big Elk Creek sands, 1.5 miles N of Elk City, Elk City district, Idaho Co., Ida. Sample no. 295-BI-21.

IDA-94-10--Sand, pan concentrate from Red River stream gravels, 1 mile NW of Red River Ranger Station, Elk City district, Idaho Co., Ida. Sample no. 295-BI-22.

IDA-94-11--Black sand, pan concentrate from Red River stream gravels, 3 miles N of Red River Ranger Station, Elk City district, Idaho Co., Ida. Sample no. 295-BI-23.

IDA-94-12--Sand, pan concentrate from Newsome Creek gravels, 9.5 miles NW of Elk City, Elk City district, Idaho Co., Ida. Sample no. 295-BI-25.

IDA-94-13--Sand, pan concentrate from Newsome Creek sand bar, 200 yards N of Newsome, Elk City district, Idaho Co., Ida. Sample no. 295-BI-26.

IDA-94-14--Sand, pan concentrate from Deadwood Creek sand bar, Elk City district, Idaho Co., Ida. Sample no. 295-BI-32.

IDA-94-15--Black sand, pan concentrate from stream gravel (previously placered) of the South Fork of the Clearwater River, 1/4 mile upstream from the mouth of Crooked River, Elk City district, Idaho Co., Ida. Sample no. 295-BI-16.

IDA-94-16--Sand, pan concentrate from stream sands of the West Fork of the American River, upstream from the mouth of Lick Creek, Elk City district, Idaho Co., Ida. Sample no. 295-BI-19.

IDA-94-17--Black sand concentrate from placer dumps on Crooked River 1.5 miles upstream from mouth, Elk City district, Idaho Co., Ida. Sample no. 295-BI-15.

IDA-94-18--Sand, pan concentrate, from sand bar 1.3 miles SE of Elk City, Elk City district, Idaho Co., Ida. Sample no. 295-BI-6.

IDA-94-19--Heavy sand, pan concentrate from 18 inch holes in stream bed, Grouse Creek, 3 miles E of Florence, Florence district, Idaho Co., Ida. Sample no. 295-BI-9.

IDA-94-20--(For analysis see 10-18). Pan concentrate of stream gravel. Golden Rule placer, Grouse Creek, Secesh (Burgdorf) district, Idaho Co., Ida. Contains 13 percent monazite, 2 percent zircon. Sample no. 298-BI-63.

Table 14.—Analyses and descriptions of samples from Idaho—Continued

	IDA-94-21												
Ag	See IDA-10-16												Ag
BeO													BeO
Bi_2O_3													Bi_2O_3
Nb_2O_5													Nb_2O_5
CdO													CdO
CoO													CoO
Ga_2O_3													Ga_2O_3
GeO_2													GeO_2
HgO													HgO
In_2O_3													In_2O_3
La_2O_3													La_2O_3
MoO_3													MoO_3
NiO													NiO
Pt													Pt
Re													Re
Sb_2O_3													Sb_2O_3
SnO													SnO
Ta_2O_5													Ta_2O_5
Tl_2O_3													Tl_2O_3
V_2O_5													V_2O_5
WO_3													WO_3
ZrO_2													ZrO_2
Limits of detection 1/													

1/ See table 2 for limits of detection reported by spectrographers.

IDA-94-21--(For analysis see 10-16). Black sand concentrate. Placer on Moose Creek, Elk City district, Lemhi Co., Ida. Sampled in 1943. Sample no. 72-MOO-2.

Table 15.—Analyses and descriptions of samples from Illinois

	ILL-7-1	ILL-13-1	ILL-13-2	ILL-13-3	ILL-13-4	ILL-13-5	ILL-13-6	ILL-13-7	ILL-13-8	ILL-13-9	ILL-13-10	ILL-13-11	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0	0	0.001	0	0	0	0	0	0	0	0.001	0	BeO
Bi_2O_3	0.05	0	0	0	0	0	0.001	0	0	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	-	-	-	Nb_2O_5
CdO	.5	0.002	.002	0.008	0	0	.04	0.6	0.001	0.6	.5	0.4	CdO
CoO	.005	0	0	0	0	0	0	.002	.001	0	0	.005	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	0	0	0	Ga_2O_3
GeO_2	.01	.001	.001	.001	0	0	.003	.01	0	.01	.01	.01	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	.004	0	0	0	0	0	0	.002	0	.008	.006	.01	In_2O_3
La_2O_3	-	-	-	-	-	0	-	-	-	-	-	-	La_2O_3
MoO_3	.03	0	0	0	0	0	.002	.002	.001	.01	.01	.01	MoO_3
NiO	.006	.002	.003	.001	0	0	.01	.001	.004	.005	.01	.02	NiO
Pt	0	0	0	0	0	0	0	0	0	-	-	-	Pt
Re	0	0	0	0	0	0	0	0	0	-	-	-	Re
Sb_2O_3	.03	0	0	.001	0	0	.04	.002	0	0	0	0	Sb_2O_3
SnO	.01	.001	.001	.001	0	0	.004	.01	.001	.01	.008	.005	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	.001	.001	.001	Tl_2O_3
V_2O_5	.01	.01	.01	.01	0 007	0.005	.03	.02	.02	.01	.008	.008	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	.001	.002	.002	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

ILL-7-1---Zinc concentrate from Buchans, Newfoundland. Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3693.

ILL-13-1--Mill heads, zinc-lead-fluorspar ore, mill sample. Ore from Green mine, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-1.

ILL-13-2--Mill heads, zinc-lead-fluorspar ore, mill sample. Ore from Anna L. Davis mine, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Ssmpled in 1943. Sample no. 41-MM-2.

ILL-13-3--Mill heads, zinc-lead-fluorspar ore, mill sample. Ore from Deardorff mine, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-3.

ILL-13-4--Metallurgical fluorspar concentrate. Mill sample, 24-hour run. Ore from Green, Anna L. Davis, and Deardorff mines, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-4.

ILL-13-5--Acid grade fluorspar concentrate. Mill sample, 24-hour run. Ore from Green, Anna L. Davis, and Deardorff mines, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-5.

ILL-13-6--Lead concentrate. Mill sample, 24-hour run. Ore from Green, Anna L. Davis, and Deardorff mines, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-7.

ILL-13-7--Zinc concentrate. Mill sample, 24-hour run. Ore from Green, Anna L. Davis, and Deardorff mines, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-8.

ILL-13-8--Fluorspar-lead-zinc tailings. Mill sample, 24-hour run. Ore from Green, Anna L. Davis, and Deardorff mines, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-6.

ILL-13-9--Flue dust from back of Cottrell precipitator. Custom ores and concentrates from Tri-State, Tenn., Wisc., Wash., and B. C. Matthiessen and Hegeler Zinc Company smelter, La Salle, Ill. Sampled in 1942. Additional analysis: 0.0007 Se. Sample no. 11-M-1.

ILL-13-10-Flue dust in front of Cottrell precipitator. Custom ores and concentrates from Tri-State, Tenn., Wisc., Wash. and B. C. Matthiessen and Hegeler Zinc Company smelter, La Salle, Ill. Sampled in 1942. Sample no. 11-M-2.

ILL-13-11-Flue dust from float ores. Custom ores and concentrates from Tri-State, Tenn., Wisc., Wash. and B. C. Matthiessen and Hegeler Zinc Company smelter, La Salle, Ill. Ssmpled in 1942. Sample no. 11-M-3.

Table 15.—Analyses and descriptions of samples from Illinois—Continued

	ILL-13-12	ILL-13-13	ILL-13-14	ILL-13-15	ILL-13-16	ILL-13-17	ILL-13-18	ILL-13-19	ILL-13-20	ILL-13-21	ILL-13-22	ILL-13-23	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0	0	0.01	0.002	0.001	0	0	0.001	0.001	0	0	0	BeO
Bi_2O_3	0	0	0	0	.1	0.04	0.07	.06	.03	0	0.01	0.08	Bi_2O_3
Nb_2O_5	-	-	-	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0.2	0.3	.05	.01	.08	-	.1	.06	.08	0.08	-	.3	CdO
CoO	0	.03	.05	.01	.06	.05	.01	.005	.03	.01	.01	0	CoO
Ga_2O_3	0	0	.08	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	.01	.864	.012	.006	.08	.02	.05	.04	.05	.002	.2	.5	GeO_2
HgO	0	0	0	0	0	0	.001	0	0	0	0	0	HgO
In_2O_3	.01	.001	.005	.01	.02	.002	.02	.02	.01	.02	.02	.02	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.001	.02	.02	.02	.03	.04	.05	.1	.01	.01	.02	.02	MoO_3
NiO	.005	.02	.04	.02	.01	.01	.007	.006	.008	.002	.03	.003	NiO
Pt	-	-	-	0	0	0	0	0	0	0	0	0	Pt
Re	-	-	-	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	0	.008	.005	0	.001	.1	.02	.03	.01	.01	.01	.03	Sb_2O_3
SnO	0	.07	.08	.01	.02	.006	.02	.01	.01	.01	.03	.04	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	.001	.002	.004	0	.002	.001	0	.001	.002	.003	.001	.001	Tl_2O_3
V_2O_5	.005	.005	.01	.08	.01	.005	.01	.01	.01	.01	.01	.005	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	.001	.005	.05	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

ILL-13-12--Flue dust from coarse Missouri ores. Matthiessen and Hegeler Zinc Company smelter, La Salle, Ill. Sampled in 1942. Sample no. 11-M-4.

ILL-13-13--Zinc oxide from oxide plant, grab sample. Custom ores and concentrates from Mo., Tenn., Wisc., Wash., and B. C. Matthiessen and Hegeler Zinc Company smelter, La Salle, Ill. Sampled in 1942. Sample no. 11-M-6.

ILL-13-14--Residue from zinc oxide plant. Custom ores and concentrates from Mo., Tenn., Wisc., Wash., and B. C. Matthiessen and Hegeler Zinc Company smelter, La Salle, Ill. Sampled in 1942. Sample no. 11-M-5

ILL-13-15--Coarse zinc oxide clinker from oxide plant. Calcines from Granby smelter, E. St. Louis, Ill. Hillsboro smelter, Hillsboro, Montgomery Co., Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-H-1.

ILL-13-16--Zinc calcines (smelter heads) from Ozark Smelting and Mining Company smelter, Coffeyville, Kans. Original zinc concentrate from Tri-State district. American Zinc Company of Illinois smelter, Monsanto, St. Clair Co., Ill. Sampled in 1943. Sample no. 44-MS-3670.

ILL-13-17--Residue, purification cake, from purification of zinc sulfate solution after addition of zinc dust. Monsanto smelter, Monsanto, St. Clair Co., Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-MS-3671.

ILL-13-18--Moore filter cake (residue from Moore filter). Monsanto smelter, Monsanto, St. Clair Co., Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-MS-3672.

ILL-13-19--Zinc calcines. Concentrates from Buchans, Newfoundland. Monsanto smelter, Monsanto, St. Clair Co., Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-MS-3673.

ILL-13-20--Zinc calcines from Athletic Mining and Smelting Company smelter, Fort Smith, Ark. Concentrates from Fresnillo, Mexico. Monsanto smelter, Monsanto, St. Clair Co., Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-MS-3674.

ILL-13-21--Zinc calcines from Dumas, Texas smelter. Concentrate from Potosi mine, Santa Eulalia, Mexico. Monsanto smelter, Monsanto, St. Clair Co., Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-MS-3675.

ILL-13-22--Cadmium furnace residue. Granby amelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3681.

ILL-13-23--Lead sludge from cadmium plant. Granby amelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3682.

Table 15.—Analyses and descriptions of samples from Illinois—Continued

	ILL-13-24	ILL-13-25	ILL-13-26	ILL-13-27	ILL-13-28	ILL-13-29	ILL-13-30	ILL-13-31	ILL-13-32	ILL-13-33	ILL-13-34	ILL-13-35	
Ag	-	-	-	-	-	-	-	-	-	-	-		Ag
BeO	0	0	0.003	0.002	0	0	0	0	0	0	0		BeO
Bi_2O_3	0.08	0.005	0	0	0.002	0.001	0.002	0.01	0.06	0.005	0.03		Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0		Nb_2O_5
CdO	-	.09	.7	.6	-	-	.2	.3	.4	.5	.5	See ILL-7-1	CdO
CoO	0	.02	.01	.008	.006	.008	.005	.04	.01	.01	.008		CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-		Ga_2O_3
GeO_2	.08	.5	.01	.06	.05	.006	.008	.005	.01	.01	.01		GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0		HgO
In_2O_3	.02	.005	.01	.04	.03	.01	.004	.002	.005	.006	.005		In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-		La_2O_3
MoO_3	.02	.02	.01	.01	.01	.008	.01	.01	.01	.01	.01		MoO_3
NiO	.004	.01	.01	.008	.01	.01	.008	.005	.01	.008	.008		NiO
Pt	0	0	0	0	0	0	0	0	0	0	0		Pt
Re	0	0	0	0	0	0	0	0	0	0	0		Re
Sb_2O_3	.01	.01	0	0	0	0	0	.002	.4	.04	.1		Sb_2O_3
SnO	.02	.02	.005	.008	.01	.01	.01	.01	.2	.01	.05		SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0		Ta_2O_5
Tl_2O_3	.003	.003	0	.001	.004	.004	.001	0	0	0	0		Tl_2O_3
V_2O_5	.008	.01	.07	.02	.01	.01	.01	.008	.007	.008	.01		V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0		WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-		ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A		

1/ See table 2 for limits of detection reported by spectrographers.

ILL-13-24--Zinc Cottrell dust from Cottrell collector in conjunction with Dwight-Lloyd sintering machine. Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3683.

ILL-13-25--Waelz plant oxide (furnace residues treated by Waelz process). Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3684.

ILL-13-26--Waelz plant clinker (furnace residues treated by Waelz process). Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3685.

ILL-13-27--Zinc furnace residue (from all zinc furnaces). Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3686.

ILL-13-28--Zinc Cottrell dust from Cottrell collector in conjunction with Herreshoff roaster furnace. Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3687.

ILL-13-29--Zinc Cottrell dust from American Zinc Lead and Smelting Company oxide plant, Columbus, Ohio. Concentrates from Mascot, Tenn. Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3688.

ILL-13-30--Zinc oxide calcines from American Zinc Lead and Smelting Company oxide plant, Columbus, Ohio. Concentrates from Mascot, Tenn. Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3689.

ILL-13-31--Zinc concentrate from Fresnillo, Zacatecas, Mexico. Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3690.

ILL-13-32--Zinc concentrate from Huanchaca, Bolivia. Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3691.

ILL-13-33--Zinc concentrate from Candalaria mine, Chihuahua, Mexico. Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sampled in 1943. Sample no. 44-GS-3692.

ILL-13-34--Zinc concentrate from Peru. Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3694.

ILL-13-35--(For analysis see 7-1). Zinc concentrate from Buchans, Newfoundland. Granby smelter, E. St. Louis, Ill. American Zinc Company of Illinois. Sampled in 1943. Sample no. 44-GS-3693.

Table 15.—Analyses and descriptions of samples from Illinois—Continued

	ILL-13-36	ILL-13-37	ILL-13-38	ILL-19-1	ILL-51-1	ILL-51-2	ILL-51-3	ILL-51-4	ILL-51-5	ILL-51-6	ILL-51-7	ILL-51-8	
Ag	-	-	-	-									Ag
BeO	0	0.001	0	0									BeO
Bi_2O_3	0.01	0	0	0									Bi_2O_3
Nb_2O_5	-	-	-	0									Nb_2O_5
CdO	.3	.1	0.4	0	See ILL-13-1	See ILL-13-2	See ILL-13-3	See ILL-13-4	See ILL-13-5	See ILL-13-6	See ILL-13-7	See ILL-13-8	CdO
CoO	.006	.01	.005	0.001									CoO
Ga_2O_3	0	.1	0	-									Ga_2O_3
GeO_2	.01	.2	.02	0									GeO_2
HgO	0	0	0	0									HgO
In_2O_3	.002	.01	.01	0									In_2O_3
La_2O_3	-	-	-	-									La_2O_3
MoO_3	.008	.006	.001	.05									MoO_3
NiO	.01	.02	.01	.001									NiO
Pt	-	-	-	0									Pt
Re	-	-	-	0									Re
Sb_2O_3	.1	.004	0	0									Sb_2O_3
SnO	.1	.001	.004	.002									SnO
Ta_2O_5	0	0	0	0									Ta_2O_5
Tl_2O_3	.001	.002	.001	0									Tl_2O_3
V_2O_5	.005	.08	.008	.002									V_2O_5
WO_3	0	0	0	0									WO_3
ZrO_2	.001	.02	.001	-									ZrO_2
Limits of detection 1/	A	A	A	A									

1/ See table 2 for limits of detection reported by spectrographers.

ILL-13-36--Zinc oxide from oxide plant, grab sample. Custom concentrates from Tri-State district and Wisc. The Hegeler Zinc Company smelter, Danville, Vermillion Co., Ill. Sampled in 1942. Sample no. 11-H-3.

ILL-13-37--Residue discharge from zinc oxide plant, grab sample. Custom concentrates from Tri-State district and Wisc. The Hegeler Zinc Company smelter, Danville, Vermillion Co., Ill. Sampled in 1942. Sample no. 11-H-2.

ILL-13-38--Flue dust, grab sample. Custom concentrates from Tri-State district and Wisc. The Hegeler Zinc Company smelter, Danville, Vermillion Co., Ill. Sampled in 1942. Sample no. 11-H-1.

ILL-19-1---Acid-alkali wash water. Tantalum ore and concentrates from South America, Australia, and Africa. North Chicago plants, North Chicago, Ill. Fansteel Metallurgical Corp. Sampled in 1943. Sample no. 126-FA-1.

ILL-51-1---(For analysis see 13-1). Mill heads, zinc-lead-fluorspar ore, mill sample. Ore from Green mine, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-1.

ILL-51-2---(For analysis see 13-2). Mill heads, zinc-lead-fluorspar ore, mill sample. Ore from Anna L. Davis mine, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-2.

ILL-51-3---(For analysis see 13-3). Mill heads, zinc-lead-fluorspar ore, mill sample. Ore from Deardorff mine, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-3.

ILL-51-4---(For analysis see 13-4). Metallurgical fluorspar concentrate. Mill sample, 24-hour run. Ore from Green, Anna L. Davis, and Deardorff mines, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-4.

ILL-51-5--(For analysis see 13-5). Acid grade fluorspar concentrate. Mill sample, 24-hour run. Ore from Green, Anna L. Davis, and Deardorff mines, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-5.

ILL-51-6---(For analysis see 13-6). Lead concentrate. Mill sample, 24-hour run. Ore from Green, Anna L. Davis and Deardorff mines, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-7.

ILL-51-7---(For analysis see 13-7). Zinc concentrate. Mill sample, 24-hour run. Ore from Green, Anna L. Davis, and Deardorff mines, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-8.

ILL-51-8---(For analysis see 13-8). Fluorspar-lead-zinc tailings. Mill sample, 24-hour run. Ore from Green, Anna L. Davis, and Deardorff mines, Rosiclare district, Hardin Co., Ill. Mahoning Mining Company mill, Rosiclare, Ill. Sampled in 1943. Sample no. 41-MM-6.

Table 16.—Analyses and descriptions of samples from Indiana

	IND-10-1	IND-13-1	IND-13-2	IND-13-3	IND-13-4	IND-13-5	IND-13-6						
Ag	-	0		0.001	0.4	0	0						Ag
BeO	0	0		.0003	0	0	0.0006						BeO
Bi_2O_3	0.003	0.002		0	.04	0.001	0						Bi_2O_3
Nb_2O_5	0	0		0	0	0	0						Nb_2O_5
CdO	0	0	See IND-10-1	0	0	0	0						CdO
CoO	0	0		.004	0	0	0						CoO
Ga_2O_3	-	-		-	-	-	-						Ga_2O_3
GeO_2	0	0		0	0	0	0						GeO_2
HgO	0	0		0	0	0	0						HgO
In_2O_3	0	.001		0	0	0	0						In_2O_3
La_2O_3	0	0		0	0	0	0						La_2O_3
MoO_3	0	0		.006	0	0	0						MoO_3
NiO	0	0		.05	0	0	.0003						NiO
Pt	0	0		0	0	0	0						Pt
Re	0	0		0	0	0	0						Re
Sb_2O_3	0	.1		.5	.6	0	.04						Sb_2O_3
SnO	0	-		.4	0	0	.04						SnO
Ta_2O_5	0	0		0	0	0	0						Ta_2O_5
Tl_2O_3	0	0		0	0	0	0						Tl_2O_3
V_2O_5	0	0		0	0	0	.01						V_2O_5
WO_3	0	0		0	0	0	0						WO_3
ZrO_2	-	-		-	-	-	-						ZrO_2
Limits of detection 1/	B	B		B	B	B	B						

1/ See table 2 for limits of detection reported by spectrographers.

IND-10-1---Dore (gold-silver) from lead refinery. Company and custom ores and concentrates. U. S. S. Lead refinery, East Chicago, Ind. U. S. Smelting, Refining, and Mining Co. Sampled in 1944. Sample no. 252-USS-2.

IND-13-1---Caustic skim from lead refinery. Company and custom ores and concentrates. U. S. S. Lead refinery, East Chicago, Ind. U. S. Smelting, Refining, and Mining Co. Sampled in 1944. Sample no. 252-USS-1.

IND-13-2---(For analysis see 10-1). Dore (gold-silver) from lead refinery. Company and custom ores and concentrates. U. S. S. Lead refinery, East Chicago, Ind. U. S. Smelting, Refining, and Mining Co. Sampled in 1944. Sample no. 252-USS-2.

IND-13-3---Blast furnace lead matte. Company and custom ores and concentrates. U. S. S. Lead refinery, East Chicago, Ind. U. S. Smelting, Refining, and Mining Co. Sampled in 1944. Sample no. 252-USS-3.

IND-13-4---Lead bullion from Midvale lead smelter. Company and custom ores and concentrates. U. S. S. Lead refinery, East Chicago, Ind. U. S. Smelting, Refining, and Mining Co. Sampled in 1944. Sample no. 252-USS-4.

IND-13-5---Refined lead. Company and custom ores and concentrates. U. S. S. Lead refinery, East Chicago, Ind. U. S. Smelting, Refining, and Mining Co. Sampled in 1944. Sample no. 252-USS-5.

IND-13-6---Blast furnace slag from lead refinery. Company and custom ores and concentrates. U. S. S. Lead refinery, East Chicago, Ind. U. S. Smelting, Refining, and Mining Co. Sampled in 1944. Sample no. 252-USS-6.

Table 17.—Analyses and descriptions of samples from Kansas

	KAN-13-1	KAN-13-2	KAN-13-3	KAN-13-4	KAN-13-5	KAN-13-6							
Ag	-	-	-	-	-	-							Ag
BeO	0	0	0.001	0.001	0	0.001							BeO
Bi_2O_3	0	0	0	0	0	0							Bi_2O_3
Nb_2O_5	0	0	0	0	0	0							Nb_2O_5
CdO	0.02	0.4	.6	.02	0.6	.002							CdO
CoO	.001	.004	.005	0	.003	0							CoO
Ga_2O_3	-	-	-	-	-	-							Ga_2O_3
GeO_2	.003	.02	.02	.001	.01	0							GeO_2
HgO	0	0	0	0	0	0							HgO
In_2O_3	0	.005	.004	0	.004	0							In_2O_3
La_2O_3	-	-	-	-	-	-							La_2O_3
MoO_3	.002	.002	.001	0	.001	0							MoO_3
NiO	.02	.03	.02	.004	.03	.002							NiO
Pt	0	0	0	0	0	0							Pt
Re	0	0	0	0	0	0							Re
Sb_2O_3	.001	0	0	0	0	0							Sb_2O_3
SnO	.001	.003	.002	.001	.001	0							SnO
Ta_2O_5	0	0	0	0	0	0							Ta_2O_5
Tl_2O_3	0	.001	.001	0	.001	0							Tl_2O_3
V_2O_5	.001	.006	.005	.002	.004	.002							V_2O_5
WO_3	0	0	0	0	0	0							WO_3
ZrO_2	-	-	-	-	-	-							ZrO_2
Limits of detection 1/	A	A	A	A	A	A							

1/ See table 2 for limits of detection reported by spectrographers.

KAN-13-1---Lead concentrate, composite mill sample. Ore from Bilharz mine, Tri-State district, Cherokee Co., Kans. Bilharz-Brewster mill, Baxter Springs, Kans. Sampled in 1942. Sample no. 25-BB-41A.

KAN-13-2---Zinc concentrate, coarse mill sample. Ore from Bilharz mine, Tri-State district, Cherokee Co., Kans. Bilharz-Brewster mill, Baxter Springs, Kans. Sampled in 1942. Sample no. 25-BB-41B.

KAN-13-3---Zinc concentrate, flotation. Ore from Bilharz mine, Tri-State district, Cherokee Co., Kans. Bilharz-Brewster mill, Baxter Springs, Kans. Sampled in 1942. Sample no. 25-BB-41C.

KAN-13-4---Coarse zinc feed from old tailings, mill sample. Ore from Tri-State district. Captain tailings mill, Treece, Kans. Sampled in 1942. Sample no. 25-CM-30A.

KAN-13-5---Zinc concentrate flotation, feed from old tailings. Ore from Tri-State district. Captain tailings mill, Treece, Kans. Sampled in 1942. Sample no. 25-CM-30B.

KAN-13-6---Zinc tailing, feed from old tailings. Ore from Tri-State district. Captain tailings mill, Treece, Kans. Sampled in 1942. Sample no. 25-CM-30C.

Table 18.—Analyses and descriptions of samples from Kentucky

	KEN-13-1	KEN-13-2	KEN-13-3	KEN-13-4	KEN-13-5	KEN-13-6							
Ag	-	-	-	-	-	-							Ag
BeO	0	0	0	0	0	0							BeO
Bi_2O_3	0	0	0.01	0.008	0	0							Bi_2O_3
Nb_2O_5	0	0	0	0	0	0							Nb_2O_5
CdO	0.03	0.6	.02	.01	0.002	0.002							CdO
CoO	0	0	0	0	0	0							CoO
Ga_2O_3	-	-	-	-	-	-							Ga_2O_3
GeO_2	.002	.01	0	0	0	0							GeO_2
HgO	0	0	0	0	0	0							HgO
In_2O_3	0	.002	0	0	0	0							In_2O_3
La_2O_3	-	-	-	-	-	-							La_2O_3
MoO_3	0	0	0	0	0	0							MoO_3
NiO	0	.003	.001	.001	.001	.001							NiO
Pt	0	0	0	0	0	0							Pt
Re	0	0	0	0	0	0							Re
Sb_2O_3	0	0	0	0	0	0							Sb_2O_3
SnO	0	.001	.001	0	0	0							SnO
Ta_2O_5	0	0	0	0	0	0							Ta_2O_5
Tl_2O_3	0	.001	0	0	0	0							Tl_2O_3
V_2O_5	.004	.003	.002	.002	.006	.005							V_2O_5
WO_3	0	0	0	0	0	0							WO_3
ZrO_2	-	-	-	-	-	-							ZrO_2
Limits of detection 1/	A	A	A	A	A	A							

1/ See table 2 for limits of detection reported by spectrographers.

KY-13-1---Lead-zinc heads, mill sample. Ore from Twin Valley (old Gratz) mine, Gratz district, Owen Co., Ky. Twin Valley Mining Company mill, Gratz, Ky. Sampled in 1943. Sample no. 95-TWI-6.

KY-13-2---Zinc flotation concentrate, composite sample. Ore from Twin Valley (old Gratz) mine, Gratz district, Owen Co., Ky. Twin Valley Mining Company mill, Gratz, Ky. Sampled in 1943. Sample no. 95-TWI-1.

KY-13-3---Lead flotation concentrate, composite sample. Ore from Twin Valley (old Gratz) mine, Gratz district, Owen Co., Ky. Twin Valley Mining Company mill, Gratz, Ky. Sampled in 1943. Sample no. 95-TWI-2.

KY-13-4---Lead concentrate from jigs, composite sample. Ore from Twin Valley (old Gratz) mine, Gratz district, Owen Co., Ky. Twin Valley Mining Company mill, Gratz, Ky. Sampled in 1943. Sample no. 95-TWI-3.

KY-13-5---Zinc-lead tailings from jigs, mill sample. Ore from Twin Valley (old Gratz) mine, Gratz district, Owen Co., Ky. Twin Valley Mining Company mill, Gratz, Ky. Sampled in 1943. .Sample no. 95-TWI-4.

KY-13-6---Zinc-lead tailings from flotation, mill sample. Ore from Twin Valley (old Gratz) mine, Gratz district, Owen Co., Ky. Twin Valley Mining Company mill, Gratz, Ky. Sampled in 1943. Sample no. 95-TWI-5.

Table 19.—Analyses and descriptions of samples from Michigan

	MIC-7-1	MIC-7-2	MIC-7-3	MIC-7-4	MIC-7-5	MIC-7-6	MIC-7-7	MIC-7-8	MIC-7-9	MIC-7-10	MIC-7-11	MIC-7-12	
Ag	0.0X	0.0X	0.0X	-	-	-	-	-	-	-	0.0X	0.0X	Ag
BeO	-	0	0	0	0.002	0	0	0	0	0	0	0	BeO
Bi_2O_3	-	0	0	0	.001	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	.0X	.0X	.0X	0	0	0	0	0	0	0	0.0X	.0X	Nb_2O_5
CdO	-	0	0	0	0	0	0	0	0	0	0	0	CdO
CoO	-	0	0	0.001	.002	0.006	0.004	0.001	0.001	0.002	0	0	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	-	0	0	0	0	0	0	0	0	0	0	0	GeO_2
HgO	-	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	-	0	0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	.0X	.0X	.0X	-	-	-	-	-	-	-	.0X	.0X	La_2O_3
MoO_3	.0X	.0X	.0X	.006	.02	.01	.002	.003	.001	.001	.0X	.0X	MoO_3
NiO	.0X	.0X	.0X	0	0	.005	.004	.002	.002	.002	.0X	.0X	NiO
Pt	-	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	-	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	-	0	0	0	0	0	0	0	0	0	0	0	Sb_2O_3
SnO	-	0	0	0	.001	0	0	.002	.003	.001	0	0	SnO
Ta_2O_5	-	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	-	0	0	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.X	.X	.X	0	.001	.02	.02	.005	.005	.004	.X	.X	V_2O_5
WO_3	-	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	.X	.X	.X	-	-	-	-	-	-	-	.X	.X	ZrO_2
Limits of detection 1/	C	C	C	A	A	A	A	A	A	A	C	C	

1/ See table 2 for limits of detection reported by spectrographers.

MIC-7-1---Copper concentrates from tables. Ore from Kearsarge Amygdaloid mine, Houghton Co., Mich. Ahmeek mill, Hubbell, Mich. Calumet and Hecla Consolidated Copper Company. Sampled in 1949. Additional analyses: 0.0X CeO_2, .0X Y_2O_3, .X SrO, .X TiO_2. Sample no. 397-CH-1.

MIC-7-2---Copper concentrates from tables. Ore from Iroquois amygdaloid, Iroquois mine, Houghton Co., Mich. Ahmeek mill, Hubbell, Mich. Calumet and Hecla Consolidated Copper Company. Sampled in 1949. Additional analyses: 0.0X CeO_2, .X Y_2O_3, .X SrO, .X TiO_2. Sample no. 397-CH-2.

MIC-7-3---Copper concentrates from tables. Ore from Houghton conglomerate and Iroquois amygdaloid, Allouez No. 3 mine, Houghton Co., Mich. Ahmeek mill, Hubbell, Mich. Calumet and Hecla Consolidated Copper Company. Sampled in 1949. Additional analyses: 0.0X CeO_2, .X Y_2O_3, .X SrO, .X TiO_2. Sample no. 397-CH-3.

MIC-7-4---Copper flotation concentrate. Ore from Quincy mine, Houghton Co., Mich. Quincy mill, Mason, Mich. Sampled in 1943. Sample no. 115-QUI-4.

MIC-7-5---Copper jig concentrate. Ore from Quincy mine, Houghton Co., Mich. Quincy mill, Mason, Mich. Sampled in 1943. Sample no. 115-QUI-3.

MIC-7-6---Copper tailings. Ore from Quincy mine, Houghton Co., Mich. Quincy mill, Mason, Mich. Sampled in 1943. Sample no. 115-QUI-1.

MIC-7-7---Copper tailings, composite sample of 12 drill holes in tailings dump of about 22 million tons. Ore from Quincy mine, Houghton Co., Mich. Quincy mill, Mason, Mich. Sampled in 1943. Sample no. 115-QUI-2.

MIC-7-8---Copper ore from White Pine No. 1 sandstone, grab sample. White Pine mine, Ontonagon Co., Mich. Freda mill, Freda, Mich. Sampled in 1943. Sample no. 115-WP-1.

MIC-7-9---Copper ore from White Pine No. 2 sandstone, grab sample. White Pine mine, Ontonagon Co., Mich. Freda mill, Freda, Mich. Sampled in 1943. Sample no. 115-WP-2.

MIC-7-10--Copper ore from White Pine shale, grab sample. White Pine mine, Ontonagon Co., Mich. Freda mill, Freda, Mich. Sampled in 1943. Sample no. 115-WP-3.

MIC-7-11--Copper table concentrates. Ore from White Pine mine, Ontonagon Co., Mich. Freda mill, Freda, Mich. Sampled in 1949. Additional analyses: 0.0X CeO_2, .X Y_2O_3, .X SrO, 3.6 TiO_2. Sample no. 397-CH-4.

MIC-7-12--Copper flotation concentrates. Ore from White Pine mine, Ontonagon Co., Mich. Freda mill, Freda, Mich. Sampled in 1949. Additional analyses: 0.0X CeO_2, .0X Y_2O_3, .X SrO, .X TiO_2. Sample no. 397-CH-5.

Table 20.—Analyses and descriptions of samples from Missouri

	MO-13-1	MO-13-2	MO-13-3	MO-13-4	MO-13-5	MO-13-6	MO-13-7	MO-13-8	MO-13-9	MO-13-10	MO-13-11	MO-13-12	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	-	-	0	-	0	0.001	0	0	0.001	0.002	0	0.001	BeO
Bi_2O_3	0-	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	-	-	-	-	-	0	0	0	0	0	0	0	Nb_2O_5
CdO	0.005	0.3	0.3	0.005	0	.01	0.05	0.03	.002	.05	0.4	.6	CdO
CoO	.002	.01	.01	0	0.001	.004	.03	.001	.001	.001	.004	.004	CoO
Ga_2O_3	.001	.008	.01	.001	0	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	.001	.001	0	0	.001	.008	.003	0	.002	.006	.01	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	0	.005	.004	.001	0	.002	.01	.001	0	.001	.004	.004	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.01	.005	.001	0	.01	.001	.02	.002	.001	0	.001	.001	MoO_3
NiO	.01	.02	.01	.02	.01	.008	.04	.01	.006	.005	.02	.02	NiO
Pt	-	-	-	-	-	0	0	0	0	0	0	0	Pt
Re	-	-	-	-	-	0	0	0	0	0	0	0	Re
Sb_2O_3	0	.001	0	0	0	0	0	.001	0	0	0	0	Sb_2O_3
SnO	.01	.01	.005	.005	.005	.001	.01	.002	0	.003	.008	.003	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	.002	.001	0	0	0	.001	0	0	0	0	0	Tl_2O_3
V_2O_5	.01	0	.01	.001	.01	.003	.006	.002	.002	.002	.004	.004	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	.001	.002	.001	.008	0	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

MO-13-1---Zinc-lead mill heads. Ore from High Grade mine, Tri-State district, Jasper Co., Mo. High Grade mill, Chitwood, Mo. Sampled in 1942. Sample no. 1-HG-2E.

MO-13-2---Zinc concentrate, coarse. Ore from High Grade mine, Tri-State district, Jasper Co., Mo. High Grade mill, Chitwood, Mo. Sampled in 1942. Sample no. 1-HG-2A.

MO-13-3---Zinc flotation concentrate. Ore from High Grade mine, Tri-State district, Jasper Co., Mo. High Grade mill, Chitwood, Mo. Sampled in 1942. Sample no. 1-HG-2B.

MO-13-4---Lead concentrate, coarse. Ore from High Grade mine, Tri-State district, Jasper Co., Mo. High Grade mill, Chitwood, Mo. Sampled in 1942. Sample no. 1-HG-2C.

MO-13-5---Zinc-lead tailings, mill sample. Ore from High Grade mine, Tri-State district, Jasper Co., Mo. High Grade mill, Chitwood, Mo. Sampled in 1942. Sample no. 1-HG-2D.

MO-13-6---Lead-zinc feed, mill sample. Coal removed by picking. Ore from open pit mine, near Versailles, Moniteau Co., Mo. Wemhauer mill, Versailles, Mo. Sampled in 1942. Sample no. 25-W-10-A.

MO-13-7---Coarse zinc jig concentrate. Ore from open pit mine, near Versailles, Moniteau Co., Mo. Wemhauer mill, Versailles, Mo. Sampled in 1942. Sample no. 25-W-10B.

MO-13-8---Coarse lead jig concentrate. Ore from open pit mine, near Versailles, Moniteau Co., Mo. Wemhauer mill, Versailles, Mo. Sampled in 1942. Sample no. 25-W-10C.

MO-13-9---Lead-zinc tailings, mill sample. Ore from open pit mine, near Versailles, Moniteau Co., Mo. Wemhauer mill, Versailles, Mo. Sampled in 1942. Sample no. 25-W-10D.

MO-13-10--Zinc feed, mill sample. Ore from Wentworth mine, Tri-State district, Newton Co., Mo. Wentworth mill, Wentworth Mo. Sampled in 1942. Sample no. 25-WM-43A.

MO-13-11--Zinc concentrate, coarse. Ore from Wentworth mine, Tri-State district, Newton Co., Mo. Wentworth mill, Wentworth Mo. Sampled in 1942. Sample no. 25-WM-43B.

MO-13-12--Zinc flotation concentrate. Ore from Wentworth mine, Tri-State district, Newton Co., Mo. Wentworth mill, Wentworth, Mo. Sampled in 1942. Sample no. 25-WM-43C.

Table 20.—Analyses and descriptions of samples from Missouri—Continued

	MO-13-13	MO-49-1	MO-49-2	MO-49-3	MO-49-4							
Ag	-											Ag
BeO	0.002											BeO
Bi_2O_3	0											Bi_2O_3
Nb_2O_5	0											Nb_2O_5
CdO	.003	See MO-13-6	See MO-13-7	See MO-13-8	See MO-13-9							CdO
CoO	0											CoO
Ga_2O_3	-											Ga_2O_3
GeO_2	0											GeO_2
HgO	0											HgO
In_2O_3	0											In_2O_3
La_2O_3	-											La_2O_3
MoO_3	0											MoO_3
NiO	.004											NiO
Pt	0											Pt
Re	0											Re
Sb_2O_3	0											Sb_2O_3
SnO	0											SnO
Ta_2O_5	0											Ta_2O_5
Tl_2O_3	0											Tl_2O_3
V_2O_5	.002											V_2O_5
WO_3	0											WO_3
ZrO_2	-											ZrO_2
1/ Limits of detection	A											

1/ See table 2 for limits of detection reported by spectrographers.

MO-13-13---Zinc tailings, mill sample. Ore from Wentworth mine, Tri-State district, Newton Co., Mo. Wentwoth mill, Wentworth, Mo. Sampled in 1942. Sample no. 25-WM-43D.

MO-49-1----(For analysis see 13-6). Lead-zinc feed, mill sample. Coal removed by picking. Ore from open pit mine, near Versailles, Moniteau Co., Mo. Wemhauer mill, Versailles, Mo. Sampled in 1942. Sample no. 25-W-10A.

MO-49-2----(For analysis see 13-7). Coarse zinc jig concentrate. Ore from open pit mine, near Versailles, Moniteau Co., Mo. Wemhauer mill, Versailles, Mo. Sampled in 1942. Sample no. 25-W-10B.

MO-49-3----(For analysis see 13-8). Coarse lead jig concentrate. Ore from open pit mine, near Versailles, Moniteau Co., Mo. Wemhauer mill, Versailles, Mo. Sampled in 1942. Sample no. 25-W-10C.

MO-49-4----(For analysis see 13-9). Lead-zinc tailings, mill sample. Ore from open pit mine, near Versailles, Moniteau Co., Mo. Wemhauer mill, Versailles, Mo. Sampled in 1942. Sample no. 25-W-10D.

Table 21.—Analyses and descriptions of samples from Montana

	MON-5-1	MON-5-2	MON-5-3	MON-5-4	MON-5-5	MON-5-6	MON-5-7	MON-5-8	MON-7-1	MON-7-2	MON-7-3	MON-7-4	
Ag	-	-	-	-	-	-	-	-	0.01	0.03	0.02	-	Ag
BeO	0	0	0	0	0	0	0	0	0	.001	.0002	0	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	.02	-	0.02	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	1.0	0	0	CdO
CoO	.08	.04	.08	.07	.08	.08	.05	.01	.001	.03	.005	.004	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	.007	.007	.05	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	.007	.07	.02	.001	GeO_2
HgO	0	0	0	0	0	0	0	0	.00004	.00002	0	0	HgO
In_2O_3	0	0	0	0	0	0	0	0	.002	.03	.03	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	0	0	0	-	La_2O_3
MoO_3	.001	.002	.001	.001	.001	.001	.001	.002	0	.008	.002	.004	MoO_3
NiO	.2	.5	.2	.2	.3	.3	.4	.6	.0002	.02	.002	.006	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	-	.6	-	-	-	-	.8	.3	0	.08	.05	.008	Sb_2O_3
SnO	.04	.01	.03	.04	.03	.03	.02	.005	0	.05	.01	0	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.08	.05	.08	.07	.08	.08	.06	.02	.003	.001	.007	.008	V_2O_5
WO_3	0	0	0	0	-	-	0	0	0	0	.02	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	B	B	B	A	

1/ See table 2 for limits of detection reported by spectrographers.

MON-5-1---Chromite cleaned concentrate. Ore from raise in No. 2 adit, Benbow mine, Stillwater district, Stillwater Co., Mont. Benbow mill, near Nye, Mont. Defense Plant Corp. Sampled in 1943. Sample no. 122-P-312.

MON-5-2---Chromite heads, mill sample. Ore from Mouat-Sampson mine, Stillwater district, Stillwater Co., Mont. Mouat-Sampson Chrome mill, Nye, Mont. Defense Plant Corp. Sampled in 1943. Sample no. 91-H-528.

MON-5-3---Chromite concentrates, mill sample. Ore from Mouat-Sampson mine, Stillwater district, Stillwater Co., Mont. Mouat-Sampson Chrome mill, Nye, Mont. Defense Plant Corp. Sampled in 1943. Sample no. 91-H-531.

MON-5-4---Chromite cleaned concentrate. Ore from USBM trench G-66, lowest layer of G-zone, Mouat-Sampson mine, Stillwater district, Stillwater Co., Mont. Mouat-Sampson Chrome mill, Nye, Mont. Defense Plant Corp. Sampled in 1943. Sample no. 122-G-66.

MON-5-5---Chromite cleaned concentrate. Disseminated ore from USBM pit H-25, top of H-zone, Mouat-Sampson mine, Stillwater district, Stillwater Co., Mont. Mouat-Sampson mill, Nye, Mont. Defense Plant Corp. Sampled in 1943. Sample no. 122-P-318.

MON-5-6---Chromite cleaned concentrate. Massive ore from USBM pit H-25, base of H-zone, Mouat-Sampson mine, Stillwater district, Stillwater Co., Mont. Mouat-Sampson mill, Nye, Mont. Defense Plant Corp. Sampled in 1943. Sample no. 122-P-319.

MON-5-7---Chromite middlings. Ore from Mouat-Sampson mine, Stillwater district, Stillwater Co., Mont. Mouat-Sampson mill, Nye, Mont. Defense Plant Corp. Sampled in 1943. Sample no. 91-H-529.

MON-5-8---Chromite tailings, mill sample. Ore from Mouat-Sampson mine, Stillwater district, Stillwater Co., Mont. Mouat-Sampson mill, Nye, Mont. Defense Plant Corp. Sampled in 1943. Sample no. 91-H-530.

MON-7-1---Zinc concentrates, grab sample. Ore from Butte mines, Silver Bow Co., Mont. Great Falls Reduction Works, Great Falls, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-17.

MON-7-2---Copper cake from zinc plant, grab sample. Zinc concentrates from Butte mines, Silver Bow Co., Mont. and custom concentrates. Great Falls Reduction Works, Great Falls, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-13.

MON-7-3---Zinc plant residue, grab sample. Zinc concentrates from Butte mines, Silver Bow Co., Mont. and custom concentrates. Great Falls Reduction Works, Great Falls, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-15.

MON-7-4---Lead-copper tailings from upper tailings pond, grab sample. Ore from Silver Dyke mine, Montana district, Cascade Co., Mont. Silver Dyke mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-SIL-1.

Table 21.—Analyses and descriptions of samples from Montana—Continued

	MON-7-5	MON-7-6	MON-7-7	MON-7-8	MON-7-9	MON-7-10	MON-7-11	MON-7-12	MON-7-13	MON-7-14	MON-7-15	MON-7-16	
Ag	-	0.3	0.01	0.0007	-	-	-	-	-	-	-	0.1	Ag
BeO	0	0	0	.0002	0	0	0	0	0	0	0	0	BeO
Bi_2O_3	0.01	.05	.002	0	-	-	-	-	-	0	0	.01	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0	.03	.3	0	-	-	-	-	-	0	0	0	CdO
CoO	.002	0	.001	.0008	-	-	-	-	-	0.04	0.01	0	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	.002	Ga_2O_3
GeO_2	.001	.003	.003	0	0	0	0	0	0	0	0	.002	GeO_2
HgO	0	0	0	0	-	-	-	-	-	0	0	0	HgO
In_2O_3	0	.004	.007	0	0	0	0	0	0	0	0	.002	In_2O_3
La_2O_3	-	0	0	0	-	-	-	-	-	-	-	0	La_2O_3
MoO_3	.006	.002	.002	0	-	-	-	-	-	.005	.001	.002	MoO_3
NiO	.004	.0002	.0007	.0008	0.1	0.3	0.06	0.08	-	.2	.01	.0002	NiO
Pt	0	0	0	0	-	-	-	-	-	0	0	0	Pt
Re	0	0	0	0	-	-	-	-	-	0	0	0	Re
Sb_2O_3	.009	.08	.01	0	-	-	-	-	-	0	0	.08	Sb_2O_3
SnO	0	.003	.002	.001	-	-	-	-	-	.005	.001	.001	SnO
Ta_2O_5	0	0	0	0	-	-	-	-	-	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	-	-	-	-	-	0	0	0	Tl_2O_3
V_2O_5	.006	.001	.002	.02	-	-	-	-	-	.01	.03	.002	V_2O_5
WO_3	0	0	0	0	-	-	-	-	-	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	B	B	B	A	A	A	A	A	A	A	B	

1/ See table 2 for limits of detection reported by spectrographers.

MON-7-5---Lead-copper tailings from lower tailings pond, grab sample. Ore from Silver Dyke mine, Montana district, Cascade Co., Mont. Silver Dyke mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-SIL-2.

MON-7-6---Lead-copper concentrate, composite mill sample. Ore from Mike Horse mine, Heddleston district, Lewis and Clark Co., Mont. Mike Horse mill, Mike Horse, Mont. Sampled in 1944. Sample no. 172-MH-1.

MON-7-7---Zinc concentrate, composite mill sample. Ore from Mike Horse mine, Heddleston district, Lewis and Clark Co., Mont. Mike Horse mill, Mike Horse, Mont. Sampled in 1944. Sample no. 172-MH-2.

MON-7-8---Lead-copper-zinc tailings, composite mill sample. Ore from Mike Horse mine, Heddleston district, Lewis and Clark Co., Mont. Mike Horse mill, Mike Horse, Mont. Sampled in 1944. Sample no. 172-MH-3.

MON-7-9---Copper ore (chalcocite), chip sample. Ore from Green Mountain mine, Sanders Co., Mont. Green Mountain Copper Company mill, near Dixon, Mont. Sampled in 1944. Sample no. 165-JOH-44-71.

MON-7-10--Copper ore (chalcocite), chip sample. Ore from Green Mountain mine, Sanders Co., Mont. Green Mountain Copper Company mill, near Dixon, Mont. Sampled in 1944. Sample no. 165-JOH-44-72.

MON-7-11--Chalcocite from working face, lower level. Green Mountain mine, Sanders Co., Mont. Sampled in 1944. Sample no. 165-JOH-44-74.

MON-7-12--Altered gabbro with copper minerals from working face, lower level. Green Mountain mine, Sanders Co., Mont. Sampled in 1944. Sample no. 165-JOH-44-73.

MON-7-13--Siliceous altered gabbro with chryscolla from hanging wall. Green Mountain mine, Sanders Co., Mont. Sampled in 1944. Sample no. 165-JOH-44-75.

MON-7-14--Copper ore from the Trade Dollar, Eagle, and Lucky Strike claims, Revais Creek district, Sanders Co., Mont. Green Mountain Copper mill, near Dixon, Mont. Sampled in 1943. Sample no. 92-GRE-2.

MON-7-15--Gabbro dike rock, core sample, from the Trade Dollar, Eagle, and Lucky Strike claims, Revais Creek district, Sanders Co., Mont. Green Mountain Copper mill, near Dixon, Mont. Sampled in 1943. Sample no. 92-GRE-1.

MON-7-16--Lead concentrate, grab sample. Ore from Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1945. Sample no. 310-ACM-18.

Table 21.—Analyses and descriptions of samples from Montana—Continued

	MON-7-17	MON-7-18	MON-7-19	MON-7-20	MON-7-21	MON-7-22	MON-7-23	MON-7-24	MON-7-25	MON-7-26	MON-7-27	MON-7-28	
Ag	0.02	0.0X	0.008	0.00X	0.02	0.0X	0.0004	0.0002	0.00X	0.005	0.08	0	Ag
BeO	0	0	.0008	.0004	0	0	0	.0002	0	0	.0002	.0002	BeO
Bi_2O_3	0	.0X	0	0	.005	.0X	0	0	0	.04	.6	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	.1	.0X	0	0	0	0	0	0	0	.05	.5	0	CdO
CoO	.0008	.000X	.002	.000X	.002	.00X	.003	0	.000X	0	.001	.003	CoO
Ga_2O_3	.05	.0X	.007	.00X	-	0	-	-	0	-	-	-	Ga_2O_3
GeO_2	.002	.0X	0	0	.008	0	0	0	0	.008	.2	.01	GeO_2
HgO	.00002	-	0	-	0	-	0	0	-	.001	0	0	HgO
In_2O_3	.01	.0X	0	0	0	0	0	0	0	0	.03	0	In_2O_3
La_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	La_2O_3
MoO_3	0	0	.002	0	0	0	0	0	0	.002	.009	.003	MoO_3
NiO	.0002	.000X	.002	.00X	.001	.00X	.001	.0002	.000X	0	.001	.0004	NiO
Pt	0	-	0	-	0	-	0	0	-	0	0	0	Pt
Re	0	-	0	-	0	-	0	0	-	0	0	0	Re
Sb_2O_3	0	0	0	0	.03	0	0	0	0	.2	.6	.04	Sb_2O_3
SnO	.001	0	.001	0	.01	.00X	.002	0	0	.01	.2	.01	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	0	.02	0	Tl_2O_3
V_2O_5	.002	0	.007	.00X	.01	.00X	.002	.004	.00X	.004	.03	.04	V_2O_5
WO_3	.02	-	.05	-	.008	-	.07	0	-	0	.02	.02	WO_3
ZrO_2	-	0	-	.0X	-	.0X	-	-	.0X	-	-	-	ZrO_2
Limits of detection 1/	B	F	B	F	B	F	B	B	F	B	B	B	

1/ See table 2 for limits of detection reported by spectrographers.

MON-7-17--Zinc concentrate, grab sample. Ore from Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1945. Sample no. 310-ACM-20.

MON-7-18--Zinc concentrate. Ore from Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1949. Sample no. 1546-328-989.

MON-7-19--Lead-zinc tailings, grab sample. Ore from Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1945. Sample no. 310-ACM-19.

MON-7-20--Lead-zinc tailings, grab sample. Ore from Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1949. Sample no. 1546-328-963.

MON-7-21--Copper concentrate, grab sample. Ore from the Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-4.

MON-7-22--Copper agitair concentrate. Ore from Butte mines, Silver Bo Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Company. Sampled in 1949. Sample no. 1546-328-988.

MON-7-23--Iron table concentrates, grab sample. Ore from the Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-8.

MON-7-24--Copper flotation tailings, grab sample. Ore from the Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Company, Sampled in 1945. Sample no. 310-ACM-3.

MON-7-25--Copper agitair tailings, plant sample. Ore from the Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Company. Sampled in 1949. Sample no. 1546-328-952.

MON-7-26--Copper flue dust (heads for arsenic plant), grab sample. Ore from the Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-9.

MON-7-27--Arsenic roaster residue, grab sample. Ore from the Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-5.

MON-7-28--Granulated copper reverberatory slag, grab sample. Ore from the Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-6.

Table 21.—Analyses and descriptions of samples from Montana—Continued

	MON-10-1	MON-10-2	MON-10-3	MON-10-4	MON-10-5	MON-10-6	MON-10-7	MON-10-8	MON-10-9	MON-10-10	MON-10-11	MON-10-12	
Ag	-	-	-	-	-	-	0	0.0002	0	0.8	0.0002	0.05	Ag
BeO	0	0	0	0.001	0.001	0	0.0003	.0003	0.0003	0	.0003	0	BeO
Bi_2O_3	0	0.01	0.02	0	0	0	0	0	0	.05	0	.01	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	0	-	CdO
CoO	0.004	.004	.003	.002	.004	0.001	0	0	0	0	.002	0	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0	.008	0	GeO_2
HgO	0	0	0	0	0	0	0	.00004	0	0	0	-	HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0	.02	.01	In_2O_3
La_2O_3	-	-	-	-	-	-	0	0	0	0	0	0	La_2O_3
MoO_3	0	.004	.006	.002	.002	0	0	0	0	0	.004	.003	MoO_3
NiO	.005	.003	.003	.004	.005	.003	.0002	.0005	.0003	0	.0004	0	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	0	.004	.01	0	0	0	0	.01	0	.2	.01	.05	Sb_2O_3
SnO	0	0	0	0	0	0	0	0	0	0	.02	.01	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	.02	.02	.02	0	0	.04	Tl_2O_3
V_2O_5	.002	.004	.006	.008	.008	.01	.02	.05	.009	0	.003	.001	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	B	B	B	B	B	B	

1/ See table 2 for limits of detection reported by spectrographers.

MON-10-1--Altered wall rock on E side of granite stock at Bannock. Grab sample from mine waste dump, Excelsior Extension mine, Bannock district, Beaverhead Co., Mont. Sampled in 1943. Sample no. 111-EX-3.

MON-10-2--Gold tailings from tailing pile, grab sample. Ore from Golden Leaf and adjacent mines, Bannock district, Beaverhead Co., Mont. Golden Leaf mill, Bannock, Mont. Sampled in 1943. Sample no. 111-GL-5.

MON-10-3--Gold tailings from tailings pond, grab sample. Ore from Graeter mine, Bannock district, Beaverhead Co., Mont. Graeter mill, Bannock, Mont. Sampled in 1943. Sample no. 111-GRA-4.

MON-10-4--Altered wall rock from mine waste dump, Pioneer mine, Bannock district, Beaverhead Co., Mont. Sampled in 1943. Sample no. 111-PIO-1.

MON-10-5--Altered wall rock from mine waste dump, Pioneer mine, Bannock district, Beaverhead Co., Mont. Sampled in 1943. Sample no. 111-PIO-2.

MON-10-6--Gold tailings from tailings dump. Ore from Spotted Horse mine, Judith Mountains district, Fergus Co., Mont. Spotted Horse mine mill, Maiden, Mont. Sampled in 1943. Sample no. 75-GS-7943-1.

MON-10-7--Gold tailings, mill grab sample. Ore from Barnes-King (North Moccasin or Kendall) open-cut mine, North Moccasin district, Fergus Co., Mont. Barnes-King mill, Kendall, Mont. Sampled in 1944. Sample no. 172-NM-1.

MON-10-8--Gold tailings, mill grab sample. Ore from Barnes-King (North Moccasin or Kendall) open-cut mine, North Moccasin district, Fergus Co., Mont. Barnes-King mill, Kendall, Mont. Sampled in 1944. Sample no. 172-NM-2.

MON-10-9--Gold tailings, mill grab sample. Ore from Barnes-King (North Moccasin or Kendall) open-cut mine, North Moccasin district, Fergus Co., Mont. Barnes-King mill, Kendall, Mont. Sampled in 1944. Sample no. 172-NM-3.

MON-10-10-Lead bullion, smelter sample. Coeur d'Alene ores, Montana custom ores, and Anaconda zinc plant residues. East Helena smelter, East Helena, Mont. American Smelting and Refining Company. Sampled in 1944. Sample no. 172-EH-1.

MON-10-11-Lead slag, smelter sample. Coeur d'Alene ores, Montana custom ores, and Anaconda zinc plant residues. East Helena smelter, East Helena, Mont. American Smelting and Refining Company. Sampled in 1944. Sample no. 172-EH-2.

MON-10-12-Lead smelter Cottrell dust, smelter sample. Coeur d' Alene ores, Montana custom ores, and Anaconda zinc plant residues. East Helena smelter, East Helena, Mont. American Smelting and Refining Company. Sampled in 1944. Sample no. 172-EH-3.

Table 21.—Analyses and descriptions of samples from Montana—Continued

	MON-10-13	MON-10-14	MON-10-15	MON-10-16	MON-10-17	MON-10-18	MON-10-19	MON-10-20	MON-10-21	MON-10-22	MON-10-23	MON-10-24	
Ag	0.009		0.05	0.04	0.04	0.04	0	0	0.009	0.002	0	0.0005	Ag
BeO	0		0	.0001	0	0	0.0004	0.0001	.0001	0	0.0001	.0001	BeO
Bi_2O_3	.007		0	.02	.007	.009	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	0		0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	-	See MON-7-6	.01	.01	.4	.1	0	0	.3	.005	0	0	CdO
CoO	0		0	.003	.008	.006	.001	.001	.009	0	.008	.04	CoO
Ga_2O_3	-		-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0		0	0	0	0	0	0	0	0	0	0	GeO_2
HgO	.0002		.003	-	-	.001	.001	.001	-	.00002	-	-	HgO
In_2O_3	.1		0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	0		0	0	.02	0	0	0	0	0	.04	0	La_2O_3
MoO_3	.001		0	.004	0	0	0	0	0	0	0	0	MoO_3
NiO	0		0	.001	.008	.004	0	.002	.0002	.0005	.001	.006	NiO
Pt	0		0	0	0	0	0	0	0	0	0	0	Pt
Re	0		0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	.06		.02	.02	.02	.02	0	0	0	0	0	0	Sb_2O_3
SnO	.3		.001	.001	0	0	0	0	0	.001	0	.002	SnO
Ta_2O_5	0		0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	.03		0	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.001		0	.004	.002	0	.01	.02	0	.003	.004	.01	V_2O_5
WO_3	0		.05	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-		-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection [1]	B		B	B	B	B	B	B	B	B	B	B	

[1] See table 2 for limits of detection reported by spectrographers.

MON-10-13--Lead smelter baghouse dust, smelter sample. Coeur d'Alene ores, Montana custom ores, and Anaconda zinc plant residues. East Helena smelter, East Helena, Mont. American Smelting and Refining Company. Sampled in 1944. Sample no. 172-EH-4.

MON-10-14--(For analysis see 7-6). Lead-copper concentrate, composite mill sample. Ore from Mike Horse mine, Heddleston district, Lewis and Clark Co., Mont. Mike Horse mill, Mike Horse, Mont. Sampled in 1944. Sample no. 172-MH-1.

MON-10-15--Lead-silver-zinc ore, gossan sample. Liberty mine, Troy district, Lincoln Co., Mont. Sampled in 1944. Sample no. 180-LM-8.

MON-10-16--Lead-silver-zinc ore from bins and dumps. Ore from Liberty mine, Troy district, Lincoln Co., Mont. Liberty Metals Company mill, Troy Mont. Sampled in 1944. Sample no. 180-LM-1.

MON-10-17--Lead-silver-zinc ore from 300 foot level, Liberty mine, Troy district, Lincoln Co., Mont. Sampled in 1944. Sample no. 180-LM-6.

MON-10-18--Lead-silver-zinc ore from 1100 foot level, Liberty mine, Troy district, Lincoln Co., Mont. Sampled in 1944. Sample no. 180-LM-7.

MON-10-19--Basic dike rock, 1100 foot level, Liberty mine, Troy district, Lincoln Co., Mont. Sampled in 1944. Sample no. 180-LM-3.

MON-10-20--Basic sill rock, Liberty mine, Troy district, Lincoln Co., Mont. Sampled in 1944. Sample no. 180-LM-4.

MON-10-21--Zinc concentrate, grab sample. Ore from Liberty mine, Troy district, Lincoln Co., Mont. Liberty Metals Company mill, Troy, Mont. Sampled in 1944. Sample no. 180-LM-2.

MON-10-22--Lead-zinc-gold-silver ore, Boaz mine, Norris district, Madison Co., Mont. Sampled in 1944. Sample no. 172-BM-1.

MON-10-23--Gold heads, grab sample. Ore from Gold Hill mine, Cedar Creek district, Mineral Co., Mont. Gold Mountain mill, S of Superior, Mont. Sampled in 1944. Sample no. 180-GM-2.

MON-10-24--Gold concentrate, grab sample. Ore from Gold Hill mine, Cedar Creek district, Mineral Co., Mont. Gold Mountain mill, S of Superior, Mont. Sampled in 1944. Sample no. 180-GM-1.

Table 21.—Analyses and descriptions of samples from Montana—Continued

	MON-10-25	MON-10-26	MON-13-1	MON-13-2	MON-13-3	MON-13-4	MON-13-5	MON-13-6	MON-13-7	MON-13-8	MON-13-9	MON-13-10	
Ag	-	-				-	-	-	-	-	-	-	Ag
BeO	0	0				0	0	0	0	0	0	0	BeO
Bi_2O_3	0	0				0.002	0.01	0.003	0.001	0.002	0.01	0.001	Bi_2O_3
Nb_2O_5	0	0				0	0	0	0	0	0	0	Nb_2O_5
CdO	0	0	See MON-7-1	See MON-7-2	See MON-7-3	.005	.02	.2	0	.004	.1	0	CdO
CoO	0.001	0.002				.005	.008	.01	.003	.003	.01	.002	CoO
Ga_2O_3	-	-				-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0				.003	.001	.008	.001	.002	.006	.001	GeO_2
HgO	0	0				0	0	0	0	0	0	0	HgO
In_2O_3	0	0				0	0	.005	0	0	.001	0	In_2O_3
La_2O_3	-	-				-	-	-	-	-	-	-	La_2O_3
MoO_3	.005	.005				.008	.02	.02	.006	.006	.01	.005	MoO_3
NiO	.01	.01				.007	.01	.02	.003	.006	.02	.005	NiO
Pt	0	0				0	0	0	0	0	0	0	Pt
Re	0	0				0	0	0	0	0	0	0	Re
Sb_2O_3	0	0				.006	.02	.01	.003	.006	.02	.004	Sb_2O_3
SnO	0	0				.005	0	.001	.006	0	.002	0	SnO
Ta_2O_5	0	0				0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0				0	0	.003	0	0	.001	0	Tl_2O_3
V_2O_5	.2	.01				.01	.004	.005	.02	.005	.001	.006	V_2O_5
WO_3	0	0				0	0	0	0	0	0	0	WO_3
ZrO_2	-	-				-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A				A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

MON-10-25--Gold tailings from tailings dump. Ore from Little Ben mine, Little Rockies district, Phillips Co., Mont. Little Ben mine mill, Landusky, Mont. Sample no. 75-GS-7943-3.

MON-10-26--Gold tailings from tailings dump. Ore from Ruby Gulch mine, Little Rockies district, Phillips Co., Mont. Ruby Gulch mine mill, Zortman, Mont. Sampled in 1943. Sample no. 75-GS-7943-2.

MON-13-1---(For analysis see 7-1). Zinc concentrates, grab sample. Ore from Butte mines, Silver Bow Co., Mont. Great Falls Reduction Works, Great Falls, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-17.

MON-13-2---(For analysis see 7-2). Copper cake from zinc plant, grab sample. Zinc concentrates from Butte mines, Silver Bow Co., Mont. and custom concentrates. Great Falls Reduction Works, Great Falls, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-13.

MON-13-3---(For analysis see 7-3). Zinc plant residue, grab sample. Zinc concentrates from Butte mines, Silver Bow Co., Mont. and custom concentrates. Great Falls Reduction Works, Great Falls, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-15.

MON-13-4---Lead-zinc heads, composite mill sample. Ore from Broadwater mine, Montana district, Cascade Co., Mont. Klies mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-NEI-9.

MON-13-5---Lead concentrate. Ore from Broadwater mine, Montana district, Cascade Co., Mont. Klies mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-NEI-12.

MON-13-6---Zinc concentrate, composite mill sample. Ore from Broadwater mine, Montana district, Cascade Co., Mont. Klies mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-NEI-11.

MON-13-7---Lead-zinc tailings, composite mill sample. Ore from Broadwater mine, Montana district, Cascade Co., Mont. Klies mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-NEI-10.

MON-13-8---Lead-zinc heads, mill sample. Ore from Lexington, Benton and Snowdrift mines, Montana district, Cascade Co., Mont. Lexington mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-LEX-3.

MON-13-9---Lead-zinc bulk concentrate. Ore from Lexington, Benton and Snowdrift mines, Montana district, Cascade Co., Mont. Lexington mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-LEX-5.

MON-13-10--Lead-zinc tailings, mill sample. Ore from Lexington, Benton and Snowdrift mines, Montana district, Cascade Co., Mont. Lexington mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-LEX-4.

Table 21.—Analyses and descriptions of samples from Montana—Continued

	MON-13-11	MON-13-12	MON-13-13	MON-13-14	MON-13-15	MON-13-16	MON-13-17	MON-13-18	MON-13-19	MON-13-20	MON-13-21	MON-13-22	
Ag			-	-	-	0.007							Ag
BeO			0	0	0	0							BeO
Bi_2O_3			0.001	0.006	0	0							Bi_2O_3
Nb_2O_5			0	0	0	0							Nb_2O_5
CdO	See MON-7-4	See MON-7-5	.004	.1	0	0	See MON-10-10	See MON-10-11	See MON-10-12	See MON-10-13	See MON-7-6	See MON-7-7	CdO
CoO			.004	.01	0.002	.0008							CoO
Ga_2O_3			-	-	-	.002							Ga_2O_3
GeO_2			.002	.005	.001	.05							GeO_2
HgO			0	0	0	0							HgO
In_2O_3			0	.001	0	.06							In_2O_3
La_2O_3			-	-	-	0							La_2O_3
MoO_3			.003	.001	.002	0							MoO_3
NiO			.006	.02	.003	0							NiO
Pt			0	0	0	0							Pt
Re			0	0	0	0							Re
Sb_2O_3			.007	.02	.004	.07							Sb_2O_3
SnO			.01	.002	.01	.05							SnO
Ta_2O_5			0	0	0	0							Ta_2O_5
Tl_2O_3			0	.001	0	0							Tl_2O_3
V_2O_5			.01	.004	.02	0							V_2O_5
WO_3			0	0	0	0							WO_3
ZrO_2			-	-	-	-							ZrO_2
Limits of detection [1]			A	A	A	B							

[1] See table 2 for limits of detection reported by spectrographers.

MON-13-11--(For analysis see 7-4). Lead-copper tailings from upper tailings pond, grab sample. Ore from Silver Dyke mine, Montana district, Cascade Co., Mont. Silver Dyke mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-SIL-1.

MON-13-12--(For analysis see 7-5). Lead-copper tailings from lower tailings pond, grab sample. Ore from Silver Dyke mine, Montana district, Cascade Co., Mont. Silver Dyke mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-SIL-2.

MON-13-13--Lead-zinc heads, mill sample. Ore from Star (Evening Star) and London mines, Montana district, Cascade Co., Mont. Star mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-ST-6.

MON-13-14--Lead-zinc bulk concentrate. Ore from Star (Evening Star) and London mines, Montana district, Cascade Co.. Mont. Star mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-ST-8.

MON-13-15--Lead-zinc tailings, mill sample. Ore from Star (Evening Star) and London mines, Montana district, Cascade Co., Mont. Star mill, near Neihart, Mont. Sampled in 1943. Sample no. 112-ST-7.

MON-13-16--Fume from East Helena, Mont. zinc plant, grab sample. Custom ores. American Smelting and Refining Company. Sampled in 1945. Sample no. 310-ACM-14.

MON-13-17--(For analysis see 10-10). Lead bullion, smelter sample. Coeur d'Alene ores, Montana custom ores, and Anaconda zinc plant residues. East Helena smelter, East Helena, Mont. American Smelting and Refining Company. Sampled in 1944. Sample no. 172-EH-1.

MON-13-18--(For analysis see 10-11). Lead slag, smelter sample. Coeur d'Alene ores, Montana custom ores, and Anaconda zinc plant residues. East Helena smelter, East Helena, Mont. American Smelting and Refining Company. Sampled in 1944. Sample no. 172-EH-2.

MON-13-19--(For analysis see 10-12). Lead smelter Cottrell dust, smelter sample. Coeur d'Alene ores, Montana custom ores, and Anaconda zinc plant residues. East Helena smelter, East Helena, Mont. American Smelting and Refining Company. Sampled in 1944. Sample no. 172-EH-3.

MON-13-20--(For analysis see 10-13). Lead smelter baghouse dust, smelter sample. Coeur d'Alene ores, Montana custom ores, and Anaconda zinc plant residues. East Helena smelter, East Helena, Mont. American Smelting and Refining Company. Sampled in 1944. Sample no. 172-EH-4.

MON-13-21--(For analysis see 7-6). Lead-copper concentrate, composite mill sample. Ore from Mike Horse mine, Heddleston district, Lewis and Clark Co., Mont. Mike Horse mill, Mike Horse, Mont. Sampled in 1944. Sample no. 172-MH-1.

MON-13-22--(For analysis see 7-7). Zinc concentrate, composite mill sample. Ore from Mike Horse mine, Heddleston district, Lewis and Clark Co., Mont. Mike Horse mill, Mike Horse, Mont. Sampled in 1944. Sample no. 172-MH-2.

Table 21.—Analyses and descriptions of samples from Montana—Continued

	MON-13-23	MON-13-24	MON-13-25	MON-13-26	MON-13-27	MON-13-28	MON-13-29	MON-13-30	MON-13-31	MON-13-32	MON-13-33	MON-13-34	
Ag		0.009	0.08	0.02	0.001								Ag
BeO		0	0	0	.0001								BeO
Bi_2O_3		0	0	0	0								Bi_2O_3
Nb_2O_5		0	0	0	0								Nb_2O_5
CdO	See MON-7-8	.03	.03	.6	.01	See MON-10-15	See MON-10-16	See MON-10-17	See MON-10-18	See MON-10-19	See MON-10-20	See MON-10-21	CdO
CoO		.001	.005	.001	0								CoO
Ga_2O_3		-	-	-	-								Ga_2O_3
GeO_2		0	0	0	0								GeO_2
HgO		.01	.0005	.003	.01								HgO
In_2O_3		0	0	0	0								In_2O_3
La_2O_3		0	0	0	0								La_2O_3
MoO_3		0	0	0	0								MoO_3
NiO		.0002	.002	.0006	.0002								NiO
Pt		0	0	0	0								Pt
Re		0	0	0	0								Re
Sb_2O_3		.009	.02	0	0								Sb_2O_3
SnO		.002	.001	0	.002								SnO
Ta_2O_5		0	0	0	0								Ta_2O_5
Tl_2O_3		0	0	0	0								Tl_2O_3
V_2O_5		.001	0	0	.001								V_2O_5
WO_3		0	0	0	0								WO_3
ZrO_2		-	-	-	-								ZrO_2
Limits of detection 1/		B	B	B	B								

1/ See table 2 for limits of detection reported by spectrographers.

MON-13-23--(For analysis see 7-8). Lead-copper-zinc tailings, composite mill sample. Ore from Mike Horse mine, Heddleston district, Lewis and Clark Co., Mont. Mike Horse mill, Mike Horse, Mont. Sampled in 1944. Sample no. 172-MH-3.

MON-13-24--Lead-zinc mill feed. Ore from Snowshoe mine, Libby district, Lincoln Co., Mont. Standard Silver-Lead mill, near Libby, Mont. Samplad in 1944. Sample no. 180-SS-4426.

MON-13-25--Lead concentrate. Ore from Snowshoe mine, Libby district, Lincoln Co., Mont. Standard Silver-Lead mill, near Libby, Mont. Sampled in 1944. Sample no. 180-SS-4424.

MON-13-26--Zinc concentrate. Ore from Snowshoe mine, Libby district, Lincoln Co., Mont. Standard Silver-Lead mill, near Libby, Mont. Sampled in 1944. Sample no. 180-SS-4425.

MON-13-27--Lead-zinc tailings, mill sample. Ore from Snowshoe mine, Libby district, Lincoln Co., Mont. Standard Silver-Lead mill, near Libby, Mont. Sampled in 1944. Sample no. 180-SS-4427.

MON-13-28--(For analysis see 10-15). Lead-silver-zinc ore, gossan sample. Liberty mine, Troy district, Lincoln Co., Mont. Sampled in 1944. Sample no. 180-LM-8.

MON-13-29--(For analysis see 10-16). Leed-silver-zinc ore from bins and dumps. Ore from Liberty mine, Troy district, Lincoln Co., Mont. Liberty Metals Company mill, Troy Mont. Sampled in 1944. Sample no. 180-LM-1.

MON-13-30--(For analysis see 10-17). Lead-silver-zinc ore from 1100 foot level, Liberty mine, Troy district, Lincoln Co., Mont. Sampled in 1944. Sample no. 180-LM-7.

MON-13-31--(For analysis see 10-18). Lead-silver-zinc ore from 1100 foot level, Liberty mine, Troy district, Lincoln Co., Mont. Sampled in 1944. Sample no. 180-LM-7.

MON-13-32--(For analysis see 10-19). Basic dike rock, 1100 foot level, Liberty mine, Troy district, Lincoln Co., Mont. Sampled in 1944. Sample no. 180-LM-3.

MON-13-33--(For analysis see 10-20). Basic sill rock, Liberty mine, Troy district, Lincoln Co., Mont. Sampled in 1944. Sample no. 180-LM-4.

MON-13-34--(For analysis see 10-21). Zinc concentrate, grab sample. Ore from Liberty mine, Troy district, Lincoln Co., Mont. Liberty Metals Company mill, Troy, Mont. Sampled in 1944. Sample no. 180-LM-2.

Table 21.—Analyses and descriptions of samples from Montana—Continued

	MON-13-35	MON-13-36	MON-13-37	MON-13-38	MON-13-39	MON-13-40	MON-13-41	MON-13-42	MON-15-1	MON-15-2	MON-15-3	MON-15-4	
Ag							0.07	0.002			0	0.000X	Ag
BeO							.0002	.0002			0.0004	0	BeO
Bi_2O_3							0	0			0	0	Bi_2O_3
Nb_2O_5							0	0			0	0	Nb_2O_5
CdO	See MON-10-22	See MON-7-16	See MON-7-17	See MON-7-18	See MON-7-19	See MON-7-20	.04	0	See MON-13-41	See MON-13-42	0	0	CdO
CoO							.003	0			0	0	CoO
Ga_2O_3							-	-			-	0	Ga_2O_3
GeO_2							.003	0			0	0	GeO_2
HgO							0	0			.003	-	HgO
In_2O_3							0	0			0	0	In_2O_3
La_2O_3							0	0			0	0	La_2O_3
MoO_3							.002	0			0	0	MoO_3
NiO							.002	0			0	0	NiO
Pt							0	0			0	-	Pt
Re							0	0			0	-	Re
Sb_2O_3							.02	0			0	0	Sb_2O_3
SnO							.001	0			0	0	SnO
Ta_2O_5							0	0			0	0	Ta_2O_5
Tl_2O_3							0	0			0	0	Tl_2O_3
V_2O_5							.002	.003			0	0	V_2O_5
WO_3							0	0			0	-	WO_3
ZrO_2							-	-			-	.00X	ZrO_2
Limits of detection 1/							B	B			B	F	

1/ See table 2 for limits of detection reported by spectrographers.

MON-13-35--(For analysis see 10-22). Lead-zinc-gold-silver ore, Boaz mine, Norris district, Madison Co., Mont. Sampled in 1944. Sample no. 172-BM-1.

MON-13-36--(For analysis see 7-16). Lead concentrate, grab sample. Ore from Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1945. Sample no. 310-ACM-18.

MON-13-37--(For analysis see 7-17). Zinc concentrate, grab sample. Ore from Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1945. Sample no. 310-ACM-20.

MON-13-38--(For analysis see 7-18). Zinc concentrate. Ore from Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1949. Sample no. 1546-328-989.

MON-13-39--(For analysis see 7-19). Lead-zinc tailings, grab sample. Ore from Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1945. Sample no. 310-ACM-19.

MON-13-40--(For analysis see 7-20). Lead-zinc tailings, grab sample. Ore from Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1949. Sample no. 1546-328-963.

MON-13-41--Sulfide concentrate, pyrite and sphalerite, grab sample. Ore from Emma Mine, Butte, Montana. Manganese plant, Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1945. Sample no. 310-ACM-1.

MON-13-42--Sulfide tailings. Ore from Emma Mine, Butte, Montana. Manganese plant, Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1945. Sample no. 310-ACM-2.

MON-15-1---(For analysis see 13-41). Sulfide concentrate, pyrite and sphalerite, grab sample. Ore from Emma Mine, Butte, Montana. Manganese plant, Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1945. Sample no. 310-ACM-1.

MON-15-2---(For analysis see 13-42). Sulfide tailings. Ore from Emma Mine, Butte, Montana. Manganese plant, Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Co. Sampled in 1945. Sample no. 310-ACM-2.

MON-15-3---Manganese ore (rhodochrosite) from Silver Prince mine, Flint Creek district, Granite Co., Mont. Sampled in 1944. Sample no. 180-CM-1.

MON-15-4---Manganese concentrates. Ore from Emma mine, Butte district, Silver Bow Co., Mont. Anaconda Copper Mining Company. Sampled in 1949. Sample no. 1546-328-966.

Table 21.—Analyses and descriptions of samples from Montana—Continued

	MON-15-5	MON-15-6	MON-42-1	MON-73-1	MON-90-1	MON-90-2	MON-90-3	MON-93-1	MON-93-2	MON-93-3	MON-93-4	MON-93-5	
Ag . . .	0.000X	0.00X											. . . Ag
BeO. . .	.001	0											. . .BeO
Bi_2O_3. .	0	0											. .Bi_2O_3
Nb_2O_5. .	0	0											. .Nb_2O_5
CdO. . .	0	0	See MON-7-27	See MON-7-23	See MON-10-19	See MON-10-20	See MON-7-15	See MON-10-1	See MON-10-4	See MON-10-5	See MON-7-12	See MON-7-13	. . .CdO
CoO. . .	0	.00X											. . .CoO
Ga_2O_3. .	0	0											. .Ga_2O_3
GeO_2 . .	0	0											. . GeO_2
HgO. . .	-	-											. . .HgO
In_2O_3. .	0	0											. .In_2O_3
La_2O_3. .	0	0											. .La_2O_3
MoO_3 . .	0	0											. . MoO_3
NiO. . .	.00X	.00X											. . .NiO
Pt . . .	-	-											. . . Pt
Re . . .	-	-											. . . Re
Sb_2O_3. .	0	0											. .Sb_2O_3
SnO. . .	0	0											. . .SnO
Ta_2O_5. .	0	0											. .Ta_2O_5
Tl_2O_3. .	0	0											. .Tl_2O_3
V_2O_5 . .	.00X	.0X											. . V_2O_5
WO_3. . .	-	-											. . .WO_3
ZrO_2 . .	.00X	.00X											. . ZrO_2
Limits of detection 1/	F	F											

1/ See table 2 for limits of detection reported by spectrographers.

MON-15-5---Manganese tailings, mill sample. Ore from Emma mine, Butte district, Silver Bow Co., Mont. Anaconda Copper Mining Company. Sampled in 1949. Sample no. 1546-328-975.

MON-15-6---Ferromanganese metal, plant sample. Ore from Butte mines, Silver Bow Co., Mont. Anaconda Copper Mining Company. Sampled in 1949. Sample no. 1546-328-977.

MON-42-1---(For analysis see 7-27). Arsenic roaster residue, grab sample. Ore from the Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-5.

MON-73-1---(For analysis see 7-23). Iron table concentrates, grab sample. Ore from the Butte mines, Silver Bow Co., Mont. Washoe Reduction Works, Anaconda, Mont. Anaconda Copper Mining Company. Sampled in 1945. Sample no. 310-ACM-8.

MON-90-1---(For analysis see 10-19). Basic dike rock, 1100 foot level, Liberty mine, Troy district, Lincoln Co., Mont. Sampled in 1944. Sample no. 180-LM-3.

MON-90-2---(For analysis see 10-20). Basic sill rock, Liberty mine, Troy district, Lincoln Co., Mont. Sampled in 1944. Sample no. 180-LM-4.

MON-90-3---(For analysis see 7-15). Gabbro dike rock, core sample, from the Trade Dollar, Eagle, and Lucky Strike claims, Revais Creek district, Sanders Co., Mont. Green Mountain Copper mill, near Dixon, Mont. Sampled in 1943. Sample no. 92-GRE-1.

MON-93-1---(For analysis see 10-1). Altered wall rock on E side of granite stock at Bannock. Grab sample from mine waste dump, Excelsior Extension mine, Bannock district, Beaverhead Co., Mont. Sampled in 1943. Sample no. 111-EX-3.

MON-93-2---(For analysis see 10-4). Altered wall rock from mine waste dump, Pioneer mine, Bannock district, Beaverhead Co., Mont. Sampled in 1943. Sample no. 111-PIO-1.

MON-93-3---(For analysis see 10-5). Altered wall rock from mine waste dump, Pioneer mine, Bannock district, Beaverhead Co., Mont. Sampled in 1943. Sample no. 111-PIO-2.

MON-93-4---(For analysis see 7-12). Altered gabbro with copper minerals from working face, lower level. Green Mountain mine, Sanders Co., Mont. Sampled in 1944. Sample no. 165-JOH-44-73.

MON-93-5---(For analysis see 7-13). Siliceous altered gabbro with chryscolla from hanging wall. Green Mountain mine, Sanders Co., Mont. Sampled in 1944. Sample no. 165-JOH-44-75.

Table 22.—Analyses and descriptions of samples from Nevada

	NEV-10-1	NEV-10-2	NEV-27-1	NEV-27-2	NEV-27-3	NEV-27-4	NEV-27-5	NEV-27-6	NEV-27-7	NEV-27-8	NEV-27-9	NEV-27-10	
Ag	-	-	0	0.0003	0	0	0	0.002	0	-	-	-	Ag
BeO	0.0001	0.0001	0.005	.0007	0.004	0.0003	0	0	0.0003	0.001	0.002	0.003	BeO
Bi_2O_3	0	0	.006	.07	.006	.001	0.05	.1	.002	.5	-	-	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	.01	.004	.005	Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	.003	.05	.06	CdO
CoO	0	0	0	0	0	0	0	.004	0	0	.01	.01	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	.005	.01	.005	.01	0	0	.01	.001	0	.002	GeO_2
HgO	.0002	-	0	0	0	0	0	.0006	0	0	0	0	HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	0	0	0	0	0	0	0	0	0	-	-	-	La_2O_3
MoO_3	.001	.001	.04	.5	.04	.01	.1	.5	.005	.3	.1	.1	MoO_3
NiO	.0005	.001	.0003	.0001	.0003	0	0	.007	.0003	0	.01	.01	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	.01	.02	0	0	0	0	0	0	0	.03	0	0	Sb_2O_3
SnO	0	0	.01	.01	.01	.002	0	.001	.001	.03	.02	.03	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	.003	0	0	Ta_2O_5
Tl_2O_3	0	.005	0	0	0	0	0	0	0	.002	.003	.003	Tl_2O_3
V_2O_5	.007	.02	.01	.01	.01	.007	.003	.007	.03	.08	.008	.01	V_2O_5
WO_3	0	0	.1	-	.1	.05	-	.04	.01	-	-	-	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	B	B	B	B	B	B	B	B	B	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

NEV-10-1---Gold tailings, mill sample. Ore from Getchell mine, Potosi district, Humboldt Co., Nev. Getchell mill, Red House, Nev. Sampled in 1944. Sample no. 169-H5-A.

NEV-10-2---Flue dust from gold-arsenic ore roaster (Cottrell precipitator). Ore from Getchell mine, Potosi district, Humboldt Co., Nev. Getchell mill, Red House, Nev. Sampled in 1944. Additional analysis: 0.01 Se. Sample no. 169-H5-B.

NEV-27-1---Tungsten heads (scheelite), mill sample. Ore from Star Tungsten (Ogilvie) mine, Elko Co., Nev. Star Tungsten mill, Harrison Pass, Nev. Sampled in 1944. Sample no. 169-H3-A.

NEV-27-2---Tungsten (scheelite) concentrates. Ore from Star Tungsten (Ogilvie) mine, Elko Co., Nev. Star Tungsten mill, Harrison Pass, Nev. Sampled in 1944. Sample no. 169-H3-C.

NEV-27-3---Tungsten (scheelite) tailings, mill sample. Ore from Star Tungsten (Ogilvie) mine, Elko Co., Nev. Star Tungsten mill, Harrison Pass, Nev. Sampled in 1944. Sample no. 169-H3-B.

NEV-27-4---Tungsten (scheelite) heads, mill sample. Ore from Riley mine, Potosi district, Humboldt Co., Nev. Getchell mill, Red House, Nev. Sampled in 1944. Sample no. 169-H4-A.

NEV-27-5---Tungsten (scheelite) concentrates. Ore from mines in Potosi district, Humboldt Co., Nev. Getchell mill, Red House, Nev. Sampled in 1944. Sample no. 169-H4-D.

NEV-27-6---Copper and iron sulfide concentrate. Ore from mines in Potosi district, Humboldt Co., Nev. Getchell mill, Red House, Nev. Sampled in 1944. Sample no. 169-H4-C.

NEV-27-7---Tungsten tailings, mill sample. Ore from mines in Potosi district, Humboldt Co., Nev. Getchell mill, Red House, Nev. Sampled in 1944. Sample no. 169-H4-B.

NEV-27-8---Scheelite concentrate, composite mill sample. Ore from Tem-Piute-Lincoln and Schofield mines, Tem-Piute district, Lincoln Co., Nev. Lincoln Mines, Inc., mill, Hiko, Nev. Sampled in 1943. Sample no. 49-DGW-23.

NEV-27-9---Tungsten tailings (sulfide float tails), mill grab sample. Ore from Tem-Piute mine, Tem-Piute district, Lincoln Co., Nev. Lincoln Mines, Inc., mill, Hiko, Nev. Sampled in 1943. Sample no. 49-DGW-20.

NEV-27-10--Tungsten tailings (sulfide float tails), mill grab sample. Ore from Tem-Piute mine, Tem-Piute district, Lincoln Co., Nev. Lincoln Mines, Inc., mill, Hiko, Nev. Sampled in 1943. Sample no. 49-DGW-21.

Table 22.—Analyses and descriptions of samples from Nevada—Continued

	NEV-27-11	NEV-27-12	NEV-27-13	NEV-27-14	NEV-27-15	NEV-27-16	NEV-27-17	NEV-27-18	NEV-27-19				
Ag . . .	-	-	0.0001	0.005	0.003	0.001	0.01	0.1	0				. . . Ag
BeO. . .	0.01	0	.0001	0	0	0	0	0	0				. . .BeO
Bi_2O_3. .	.05	0.01	.001	0	0	0	0	0	0				. .Bi_2O_3
Nb_2O_5. .	0	0	0	0	0	0	0	0	0				. .Nb_2O_5
CdO. . .	.001	0	0	0	0	0	0	0	0				. . .CdO
CoO. . .	0	.004	0	0	0	0	0	0	0				. . .CoO
Ga_2O_3. .	-	-	-	-	-	-	-	-	-				. .Ga_2O_3
GeO_2 . .	0	.01	.003	0	0	0	0	0	0				. . GeO_2
HgO. . .	0	0	0	0	0	0	.0006	.001	0				. . .HgO
In_2O_3. .	0	0	0	0	0	0	0	0	0				. .In_2O_3
La_2O_3. .	-	-	0	0	0	0	0	0	0				. .La_2O_3
MoO_3 . .	.05	.01	.002	0	0	0	.001	.002	0				. . MoO_3
NiO. . .	.001	.002	.0007	0	0	0	0	0	0				. . .NiO
Pt . . .	0	0	0	0	0	0	0	0	0				. . . Pt
Re . . .	0	0	0	0	0	0	0	0	0				. . . Re
Sb_2O_3. .	0	0	0	.02	.01	.01	.01	.04	0				. .Sb_2O_3
SnO. . .	.08	.01	.001	0	.002	0	0	0	0				. . .SnO
Ta_2O_5. .	0	0	0	0	0	0	0	0	0				. .Ta_2O_5
Tl_2O_3. .	0	0	0	0	0	0	0	0	0				. .Tl_2O_3
V_2O_5 . .	.04	.1	.01	0	0	0	.001	.002	0				. . V_2O_5
WO_3. . .	.03	.05	.01	.2	.04	.03	.2	-	0.01				. . .WO_3
ZrO_2 . .	-	-	-	-	-	-	-	-	-				. . ZrO_2
1/ Limits of detection	A	A	B	B	B	B	B	B	B				

1/ See table 2 for limits of detection reported by spectrographers.

NEV-27-11---Tungsten tailings, grab sample of test mill run on mill tailings. Ore from Tem-Piute mine, Tem-Piute district, Lincoln Co., Nev. Lincoln Mines, Inc., mill, Hiko, Nev. Sampled in 1943. Sample no. 49-DGW-22.

NEV-27-12---Tungsten tailings from tailings pile, composite sample. Ore from Nevada Scheelite mine, Regent district, Mineral Co., Nev. Nevada Scheelite mill, Rawhide, Nev. Sampled in 1943. Sample no. 56-NEV-1.

NEV-27-13---Tungsten tailings. Ore probably from Nightingale mine, Nightingale district, Pershing Co., Nev. Sampled in 1944. Sample no. 169-2G-1.

NEV-27-14---Tungsten heads (scheelite), mill sample. Ore from Bay State mine, White Pine Co., Nev. Cherry Creek mill, Cherry Creek, Nev. Sampled in 1944. Sample no. 169-H2-A.

NEV-27-15---Tungsten tailings, mill sample. Ore from Bay State mine, White Pine Co., Nev. Cherry Creek mill, Cherry Creek, Nev. Sampled in 1944. Sample no. 169-H2-B.

NEV-27-16---Tungsten tailings from dump. Ore from Bay State mine, White Pine Co., Nev. Cherry Creek mill, Cherry Creek, Nev. Sampled in 1944. Sample no. 169-H2-B2.

NEV-27-17---Tungsten (scheelite) heads, mill sample. Ore from Ticup (Cherry Creek) mine, White Pine Co., Nev. Cherry Creek mill, Cherry Creek, Nev. Sampled in 1944. Sample no. 169-H1-A.

NEV-27-18---Tungsten (scheelite) concentrate. Ore from Ticup (Cherry Creek) mine, White Pine Co., Nev. Cherry Creek mill, Cherry Creek, Nev. Sampled in 1944. Sample no. 169-H1-C.

NEV-27-19---Tungsten tailings, mill sample. Ore from Ticup (Cherry Creek) mine, White Pine Co., Nev. Cherry Creek mill, Cherry Creek, Nev. Sampled in 1944. Sample no. 169-H1-B.

Table 23.—Analyses and descriptions of samples from New Hampshire

	NH-13-1	NH-13-2	NH-13-3										
Ag	-	-	-										Ag
BeO	0	0.006	0.006										BeO
Bi_2O_3	0	0	.008										Bi_2O_3
Nb_2O_5	0	0	0										Nb_2O_5
CdO	0.2	.3	.2										CdO
CoO	.008	.01	.01										CoO
Ga_2O_3	-	-	-										Ga_2O_3
GeO_2	.002	.005	.003										GeO_2
HgO	0	0	0										HgO
In_2O_3	0	0	0										In_2O_3
La_2O_3	-	-	-										La_2O_3
MoO_3	.01	.008	.02										MoO_3
NiO	.01	.02	.02										NiO
Pt	0	0	0										Pt
Re	0	0	0										Re
Sb_2O_3	0	.005	.02										Sb_2O_3
SnO	.08	.01	.008										SnO
Ta_2O_5	0	0	0										Ta_2O_5
Tl_2O_3	0	0	0										Tl_2O_3
V_2O_5	.01	.005	.01										V_2O_5
WO_3	0	0	0										WO_3
ZrO_2	-	-	-										ZrO_2
Limits of detection 1/	A	A	A										

1/ See table 2 for limits of detection reported by spectrographers.

NH-13-1---Lead-zinc ore from Shelburne Lead mine, Shelburne Township, Coos Co., N. H. Sampled in 1943. Sample no. 82-SL-1.

NH-13-2---Lead-zinc ore from Orchard vein, Lyman Township, Grafton Co., N. H. Sample no. 82-OV-3.

NH-13-3---Zinc-lead ore from Ore Hill (Warren) mine, Warren Township, Grafton Co., N. H. Sampled in 1943. Sample no. 82-OH-2.

Table 24.—Analyses and descriptions of samples from New Mexico

	NM-7-1	NM-7-2	NM-7-3	NM-7-4	NM-7-5	NM-7-6	NM-7-7	NM-7-8	NM-7-9	NM-7-10	NM-7-11	NM-7-12	
Ag	0	0.00X	0	0	0.00X	0	0	0.00X	0.00X	0.00X	0.00X	0.00X	Ag
BeO	0	0	0	0	0	0	0	0	0	0	0	0	BeO
Bi_2O_3	0	0	0.00X	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	0	0	CdO
CoO	0.0X	.00X	.0X	0.0X	.00X	0	0.00X	.0X	.0X	.0X	.0X	.0X	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	-	0	0	-	-	-	-	-	-	-	-	GeO_2
HgO	0	-	0	0	-	-	-	-	-	-	-	-	HgO
In_2O_3	0	-	0	0	-	-	-	-	-	-	-	-	In_2O_3
La_2O_3	0	-	0	0	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.00X	.0X	-	.00X	.00X	0.00X	.00X	.00X	.00X	.00X	.00X	.00X	MoO_3
NiO	.0X	0	0	.00X	0	0	.00X	0	0	.0X	.0X	.00X	NiO
Pt	0	-	0	0	-	-	-	-	-	-	-	-	Pt
Re	0	-	0	0	-	-	-	-	-	-	-	-	Re
Sb_2O_3	0	-	0	0	-	-	-	-	-	-	-	-	Sb_2O_3
SnO	.00X	0	0	.00X	0	0	0	.00X	.00X	.0X	.0X	.0X	SnO
Ta_2O_5	0	-	0	0	-	-	-	-	-	-	-	-	Ta_2O_5
Tl_2O_3	0	-	0	0	-	-	-	-	-	-	-	-	Tl_2O_3
V_2O_5	.00X	.00X	.00X	.00X	.00X	.00X	.00X	.00X	.00X	.00X	.00X	.00X	V_2O_5
WO_3	0	-	0	0	-	-	-	-	-	-	-	-	WO_3
ZrO_2	.00X	.00X	0	.00X	.00X	.0X	.0X	.00X	.00X	.0X	.0X	.0X	ZrO_2
1/ Limits of detection	D	D	D	D	D	D	D	D	D	D	D	D	

1/ See table 2 for limits of detection reported by spectrographers.

NM-7-1---Copper mill heads. Ore from Chino mine, Central district, Grant Co., N. Mex. Hurley mill, Hurley, N. Mex. Kennecott Copper Corporation. Sampled in 1948. Sample no. 382-KCC-2.

NM-7-2---Copper concentrate. Ore from Chino mine, Central district, Grant Co., N. Mex. Hurley mill, Hurley, N. Mex. Kennecott Copper Corporation. Sampled in 1948. Sample no. 382-KCC-5.

NM-7-3---Molybdenum concentrate. Ore from Chino mine, Central district, Grant Co., N. Mex. Hurley mill, Hurley, N. Mex. Kennecott Copper Corporation. Sampled in 1948. Sample no. 382-KCC-4.

NM-7-4---Copper tailings, sand. Ore from Chino mine, Central district, Grant Co., N. Mex. Hurley mill, Hurley, N. Mex. Kennecott Copper Corporation. Sampled in 1948. Sample no. 382-KCC-3.

NM-7-5---Molybdenum tailings, sand. Ore from Chino mine, Central district, Grant Co., N. Mex. Hurley mill, Hurley, N. Mex. Kennecott Copper Corporation. Sampled in 1948. Sample no. 382-KCC-6.

NM-7-6---Copper ore flux. Beartooth quartzite containing streaks of chalcocite, from Lee Hill, Grant Co., N. Mex. Hurley mill, Hurley, N. Mex. Sampled in 1948. Additional analyses: 0.00X Cr_2O_3, .X CuO, .0X MnO_2, .X TiO_2. Sample no. 382-KCC-15.

NM-7-7---Copper ore flux. Beartooth quartzite containing streaks of chalcocite. From old dump, Hurley mill, Hurley, N. Mex. Sampled in 1948. Sample no. 382-KCC-16.

NM-7-8---Copper matte. Hurley mill, Hurley, N. Mex. Sampled in 1948. Sample no. 382-KCC-7.

NM-7-9---Copper flue dust from waste heat boiler. Hurley mill, Hurley, N. Mex. Sampled in 1948. Sample no. 382-KCC-8.

NM-7-10--Heavy copper flue dust from converter. Hurley mill, Hurley, N. Mex. Sampled in 1948. Sample no. 382-KCC-9.

NM-7-11--Light copper flue dust from converter. Hurley mill, Hurley, N. Mex. Sampled in 1948. Sample no. 382-KCC-10.

NM-7-12--Cottrell flue dust from converter and reverberatory furnace. Hurley mill, Hurley, N. Mex. Sampled in 1948. Sample no. 382-KCC-11.

Table 24.—Analyses and descriptions of samples from New Mexico—Continued

	NM-7-13	NM-7-14	NM-7-15	NM-7-16	NM-7-17	NM-7-18	NM-7-19	NM-7-20	NM-7-21	NM 7-22	NM-7-23	NM-10-1	
Ag	0.000X	0.000X	0.00X	-	-	-	-	-	-	-	-		Ag
BeO	0	0	0	0	0	0	0	0	0	0	0		BeO
Bi_2O_3	0	0	0	0.2	0.008	0.002	0.1	0.04	0.05	0.002	0.02		Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0		Nb_2O_5
CdO	0	0	0	.008	0	0	0	0	0	0	0	See NM-7-16	CdO
CoO	.0X	.0X	.0X	.02	.006	.008	.08	.07	.05	.003	.008		CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-		Ga_2O_3
GeO_2	-	-	-	.008	0	0	0	0	0	0	0		GeO_2
HgO	-	-	-	0	0	0	0	0	0	0	0		HgO
In_2O_3	-	-	-	0	0	0	0	0	0	0	0		In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-		La_2O_3
MoO_3	.0X	.00X	.00X	.2	.01	.002	.01	.01	.004	.002	.003		MoO_3
NiO	.00X	0	.0X	.01	.008	.003	.008	.02	.002	.001	.001		NiO
Pt	-	-	-	0	0	0	0	0	0	0	0		Pt
Re	-	-	-	0	0	0	0	0	0	0	0		Re
Sb_2O_3	-	-	-	0	0	0	0	.004	0	0	0		Sb_2O_3
SnO	.00X	.00X	.00X	0	0	0	0	.007	.001	0	0		SnO
Ta_2O_5	-	-	-	0	0	0	0	0	0	0	0		Ta_2O_5
Tl_2O_3	-	-	-	0	0	0	0	0	0	0	0		Tl_2O_3
V_2O_5	.00X	.00X	.00X	.008	.03	.006	.02	.001	.004	.005	.01		V_2O_5
WO_3	-	-	-	0	0	0	0	0	0	0	0		WO_3
ZrO_2	.0X	.00X	.00X	-	-	-	-	-	-	-	-		ZrO_2
Limits of detection 1/	D	D	D	A	A	A	A	A	A	A	A		

1/ See table 2 for limits of detection reported by spectrographers.

NM-7-13--Copper slag from reverberatory furnace. Hurley mill, Hurley, N. Mex. Sampled in 1948. Sample no. 382-KCC-12.

NM-7-14--Copper slag from converter. Hurley mill, Hurley, N. Mex. Sampled in 1948. Sample no. 382-KCC-13.

NM-7-15--Copper slag from refining furnace. Hurley mill, Hurley, N. Mex. Sampled in 1948. Sample no. 382-KCC-14.

NM-7-16--Copper-gold-silver concentrate. Ore from Bonney and Anita No. 1 mines, Lordsburg district, Hidalgo Co., N. Mex. Banner mill, Lordsburg, N. Mex. Sampled in 1943. Sample no. 64-BAN-2.

NM-7-17--Copper-gold-silver tailings, mill sample. Ore from Bonney and Anita No. 1 mines, Lordsburg district, Hidalgo Co., N. Mex. Banner mill, Lordsburg, N. Mex. Sampled in 1943. Sample no. 64-BAN-1.

NM-7-18--Copper-gold-silver heads, composite mill sample. Ore from Snake-Opportunity-Litelking group of mines and the Golden Era and Biglow mines, Las Animas district, Sierra Co., N. Mex. Horseshoe mill, (dismantled), 1 mile E of Hillsboro, N. Mex. Black Dome Mining Corp. Sampled in 1944. Sample no. 132-HO-22.

NM-7-19--Copper-gold-silver flotation concentrate. Ore from Snake-Opportunity-Litelking group of mines and the Golden Era and Biglow mines, Las Animas district, Sierra Co., N. Mex. Horseshoe mill, (dismantled), 1 mile E of Hillsboro, N. Mex. Black Dome Mining Corp. Sampled in 1944. Sample no. 132-HO-1.

NM-7-20--Copper-gold-silver concentrate. Ore from Snake-Opportunity-Litelking group of mines and the Golden Era and Biglow mines, Las Animas district, Sierra Co., N. Mex. Horseshoe mill, (dismantled), 1 mile E of Hillsboro, N. Mex. Black Dome Mining Corp. Sampled in 1944. Sample no. 132-HO-10.

NM-7-21--Copper-gold-silver pulps, composite mill sample. Ore from Snake-Opportunity-Litelking group of mines and the Golden Era and Biglow mines, Las Animas district, Sierra Co., N. Mex. Horseshoe mill, (dismantled), 1 mile E of Hillsboro, N. Mex. Black Dome Mining Corp. Sampled in 1944. Sample no. 132-HO-13.

NM-7-22--Copper-gold-silver tailings, mill sample. Ore from Snake-Opportunity-Litelking group of mines and the Golden Era and Biglow mines, Las Animas district, Sierra Co., N. Mex. Horseshoe mill, (dismantled), 1 mile E of Hillsboro, N. Mex. Black Dome Mining Corp. Sampled in 1944. Sample no. 132-HO-14.

NM-7-23--Copper-gold-silver tailings, mill sample. Ore from Snake-Opportunity-Litelking group of mines and the Golden Era and Biglow mines, Las Animas district, Sierra Co., N. Mex. Horseshoe mill, (dismantled), 1 mile E of Hillsboro, N. Mex. Black Dome Mining Corp. Sampled in 1944. Sample no. 132-HO-15

NM-10-1--(For analysis see 7-16). Copper-gold-silver concentrate. Ore from Bonney and Anita No. 1 mines, Lordsburg district, Hidalgo Co., N. Mex. Banner mill, Lordsburg, N. Mex. Sampled in 1943. Sample no. 64-BAN-2.

Table 24.—Analyses and descriptions of samples from New Mexico—Continued

	NM-10-2	NM-10-3	NM-10-4	NM-10-5	NM-10-6	NM-10-7	NM-10-8	NM-13-1	NM-13-2	NM-13-3	NM-13-4	NM-13-5	
Ag								0.0002	0.00X	0.0007	0.0002	0	Ag
BeO								.0003	0	.0006	.0002	0.0003	BeO
Bi_2O_3								0	.00X	0	0	0	Bi_2O_3
Nb_2O_5								0	0	0	0	0	Nb_2O_5
CdO	See NM-7-17	See NM-7-18	See NM-7-19	See NM-7-20	See NM-7-21	See NM-7-22	See NM-7-23	.01	0	.01	.01	0	CdO
CoO								0	.0X	.006	0	0	CoO
Ga_2O_3								-	-	-	-	-	Ga_2O_3
GeO_2								0	0	0	0	0	GeO_2
HgO								0	0	0	0	0	HgO
In_2O_3								.001	0	0	0	0	In_2O_3
La_2O_3								0	0	0	0	0	La_2O_3
MoO_3								0	0	0	0	0	MoO_3
NiO								0	.0X	.0005	.0004	0	NiO
Pt								0	0	0	0	0	Pt
Re								0	0	0	0	0	Re
Sb_2O_3								0	0	0	0	0	Sb_2O_3
SnO								0	0	0	0	0	SnO
Ta_2O_5								0	0	0	0	0	Ta_2O_5
Tl_2O_3								0	0	0	0	0	Tl_2O_3
V_2O_5								.003	.00X	0	.004	.005	V_2O_5
WO_3								0	0	0	0	0	WO_3
ZrO_2								-	0	-	-	-	ZrO_2
Limits of detection 1/								B	C	B	B	B	

1/ See table 2 for limits of detection reported by spectrographers.

NM-10-2--(For analysis see 7-17). Copper-gold-silver tailings, mill sample. Ore from Bonney and Anita No. 1 mines, Lordsburg district, Hidalgo Co., N. Mex. Banner mill, Lordsburg, N. Mex. Sampled in 1943. Sample no. 64-BAN-1.

NM-10-3--(For analysis see 7-18). Copper-gold-silver heads, composite mill sample. Ore from Snake-Opportunity-Litelking group of mines and the Golden Era and Biglow mines, Las Animas district, Sierra Co., N. Mex. Horseshoe mill, (dismantled), 1 mile E. of Hillsboro, N. Mex. Black Dome Mining Corp. Sampled in 1944. Sample no. 132-HO-22.

NM-10-4--(For analysis see 7-19). Copper-gold-silver flotation concentrate. Ore from Snake-Opportunity-Litelking group of mines and the Golden Era and Biglow mines, Las Animas district, Sierra Co., N. Mex. Horseshoe mill, (dismantled), 1 mile E of Hillsboro, N. Mex. Black Dome Mining Corp. Sampled in 1944. Sample no. 132-HO-1.

NM-10-5--(For analysis see 7-20). Copper-gold-silver concentrate. Ore from Snake-Opportunity-Litelking group of mines and the Golden Era and Biglow mines, Las Animas district, Sierra Co., N. Mex. Horseshoe mill, (dismantled), 1 mile E of Hillsboro, N. Mex. Black Dome Mining Corp. Sampled in 1944. Sample no. 132-HO-10.

NM-10-6--(For analysis see 7-21). Copper-gold-silver pulps, composite mill sample. Ore from Snake-Opportunity-Litelking group of mines and the Golden Era and Biglow mines, Las Animas district, Sierra Co., N. Mex. Horseshoe mill, (dismantled), 1 mile E of Hillsboro, N. Mex. Black Dome Mining Corp. Sampled in 1944. Sample no. 132-HO-13.

NM-10-7--(For analysis see 7-22). Copper-gold-silver tailings, mill sample. Ore from Snake-Opportunity-Litelking group of mines and the Golden Era and Biglow mines, Las Animas district, Sierra Co., N. Mex. Horseshoe mill, (dismantled), 1 mile E of Hillsboro, N. Mex. Black Dome Mining Corp. Sampled in 1944. Sample no. 132-HO-14.

NM-10-8--(For analysis see 7-23). Copper-gold-silver tailings, mill sample. Ore from Snake-Opportunity-Litelking group of mines and the Golden Era and Biglow mines, Las Animas district, Sierra Co., N. Mex. Horseshoe mill, (dismantled), 1 mile E of Hillsboro, N. Mex. Black Dome Mining Corp. Sampled in 1944. Sample no. 132-HO-15.

NM-13-1--Zinc-lead ore from Bullfrog and Luzt mines, Central district, Grant Co., N. Mex. U. S. Smelting, Refining and Mining Co. Sampled in 1944. Sample no. 252-USS-10.

NM-13-2--Zinc ore, composite sample, from 350-ft. level, Oswaldo mine, Central district, Grant Co., N. Mex. Kennecott Copper Corp. Sample no. 382-KCC-1.

NM-13-3--Zinc-lead ore from Pearson shaft, Central district, Grant Co., N. Mex. U. S. Smelting, Refining and Mining Company. Sampled in 1944. Sample no. 252-USS-13.

NM-13-4--Zinc-lead ore from Shingle Canyon mine, Central district, Grant Co., N. Mex. U. S. Smelting, Refining and Mining Company. Sampled in 1944. Sample no. 252-USS-12.

NM-13-5--Zinc-lead ore from Slate mine, Central district, Grant Co., N. Mex. U. S. Smelting, Refining and Mining Company. Sampled in 1944. Sample no. 252-USS-11.

Table 24.--Analyses and descriptions of samples from New Mexico—Continued

	NM-13-6	NM-13-7	NM-13-8	NM-13-9	NM-17-1	NM-17-2							
Ag	0.007	0.06	0	-									Ag
BeO	0	0	0.0002	0									BeO
Bi_2O_3	0	.03	0	0									Bi_2O_3
Nb_2O_5	0	0	0	0									Nb_2O_5
CdO	0	.02	0	0.008									CdO
					See NM-7-3	See NM-7-5							
CoO	.1	0	0	.008									CoO
Ga_2O_3	-	-	-	-									Ga_2O_3
GeO_2	0	0	0	0									GeO_2
HgO	0	0	0	0									HgO
In_2O_3	.003	0	0	0									In_2O_3
La_2O_3	0	0	0	-									La_2O_3
MoO_3	0	.004	0	.001									MoO_3
NiO	0	.0001	0	.002									NiO
Pt	-	0	0	0									Pt
Re	0	0	0	0									Re
Sb_2O_3	0	0	0	0									Sb_2O_3
SnO	0	0	0	.001									SnO
Ta_2O_5	0	0	0	0									Ta_2O_5
Tl_2O_3	0	0	0	0									Tl_2O_3
V_2O_5	0	0	.007	.002									V_2O_5
WO_3	0	0	0	0									WO_3
ZrO_2	-	-	-	-									ZrO_2
Limits of detection 1/	B	B	B	A									

1/ See table 2 for limits of detection reported by spectrographers.

NM-13-6---Zinc concentrate. Ore from Bullfrog, Lutz, Slate, and Shingle Canyon mines, Central district, Grant Co., N. Mex. Bullfrog mill, Bayard, N. Mex. U. S. Smelting, Refining and Mining Company. Sampled in 1944. Sample no. 252-USS-8.

NM-13-7---Lead concentrate. Ore from Bullfrog, Lutz, Slate, and Shingle Canyon mines, Central district, Grant Co., N. Mex. Bullfrog mill, Bayard, N. Mex. U. S. Smelting, Refining and Mining Company. Sampled in 1944. Sample no. 252-USS-7.

NM-13-8---Zinc-lead tailings, mill sample. Ore from Bullfrog, Lutz, Slate, and Shingle Canyon mines, Central district, Grant Co., N. Mex. Bullfrog mill, Bayard, N. Mex. U. S. Smelting, Refining and Mining Company. Sampled in 1944. Sample no. 252-USS-9.

NM-13-9---Lead-zinc tailings from tailings pile. Ore from McGhee mine, San Simon district, Hidalgo Co., N. Mex. McGhee mill, near Steins, N. Mex. Sampled in 1944. Sample no. 135-MC-1.

NM-17-1-(For analysis see 7-3). Molybdenum concentrate. Ore from Chino mine, Central district, Grant Co., N. Mex. Hurley mill, Hurley, N. Mex. Kennecott Copper Corporation. Sampled in 1948. Sample no. 382-KCC-4.

NM-17-2-(For analysis see 7-5). Molybdenum tailings, sand. Ore from Chino mine, Central district, Grant Co., N. Mexi Hurley mill, Hurley, N. Mex. Kennecott Copper Corporatior Sampled in 1948. Sample no. 382-KCC-6.

Table 25.—Analyses and descriptions of samples from New York

	NY-12-1	NY-13-1	NY-13-2	NY-26-1	NY-29-1								
Ag . . .	-	-	-										. . . Ag
BeO. . .	0	0	0										. . .BeO
Bi_2O_3. .	0	0	0										. .Bi_2O_3
Nb_2O_5. .	0	-	-										. .Nb_2O_5
CdO. . .	0	0.1	0	See NY-12-1	See NY-12-1								. . .CdO
CoO. . .	0.04	0	0										. . .CoO
Ga_2O_3. .	-	.03	0.001										. .Ga_2O_3
GeO_2 . .	0	.001	0										. . GeO_2
HgO. . .	0	0	0										. . .HgO
In_2O_3. .	.001	.005	0										. .In_2O_3
La_2O_3. .	-	-	-										. .La_2O_3
MoO_3 . .	.001	.005	.004										. . MoO_3
NiO. . .	.02	0	0										. . .NiO
Pt . . .	0	-	-										. . . Pt
Re . . .	0	-	-										. . . Re
Sb_2O_3. .	0	0	0										. .Sb_2O_3
SnO. . .	.001	.002	.001										. . .SnO
Ta_2O_5. .	0	0	0										. .Ta_2O_5
Tl_2O_3. .	.002	.001	0										. .Tl_2O_3
V_2O_5 . .	.04	.005	.004										. . V_2O_5
WO_3. . .	0	0	0										. . .WO_3
ZrO_2 . .	-	.002	.01										. . ZrO_2
Limits of detection 1/	A	A	A										

1/ See table 2 for limits of detection reported by spectrographers.

NY-12-1---Titanium-iron-vanadium tailings, mill sample. Ore from Sanford Hill mine, Sanford Lake district, Essex Co., N. Y. MacIntyre Development mill, Tahawus, N. Y. National Lead Company. Sampled in 1943. Sample no. 46-NLC-1.

NY-13-1---Zinc concentrates, grab sample. Ore from Hyatt mine, Edwards district, St. Lawrence Co., N. Y. Hyatt mill, Gouverneur, N. Y. Universal Exploration Company. Sampled in 1943. Sample no. 20-H-1.

NY-13-2---Zinc tailings, grab sample. Ore from Hyatt mine, Edwards district, St. Lawrence Co., N. Y. Hyatt mill, Gouverneur, N. Y. Universal Exploration Company. Sampled in 1943. Sample no. 20-H-2.

NY-26-1---(For analysis see 12-1). Titanium-iron-vanadium tailings, mill sample. Ore from Sanford Hill mine, Sanford Lake district, Essex Co., N. Y. MacIntyre Development mill, Tahawus, N. Y. National Lead Company. Sampled in 1943. Sample no. 46-NCL-1.

NY-29-1---(For analysis see 12-1). Titanium-iron-vanadium tailings, mill sample. Ore from Sanford Hill mine, Sanford Lake district, Essex Co., N. Y. MacIntyre Development mill, Tahawus, N. Y. National Lead Company. Sampled in 1943. Sample no. 46-NCL-1.

Table 26.—Analyses and descriptions of samples from North Carolina

	NC-7-1	NC-10-1	NC-26-1	NC-26-2	NC-27-1	NC-27-2	NC-27-3	NC-41-1	NC-41-2	NC-41-3	NC-41-4	NC-41-5	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0	0	0	0	0.008	0.008	0.004	0	0	0	0	0	BeO
Bi_2O_3	0	0	0	0	.008	.008	.008	0	0	0	0	0	Bi_2O_3
Nb_2O_5	-	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	0	0	CdO
CoO	0.05	0.001	0.01	0.02	0	0	0	0.008	0	0.01	0.01		CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	-	0	0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.01	0	0	0	.001	.002	.002	.001	0	.002	.002	0	MoO_3
NiO	.002	.01	.01	.005	0	0	0	.01	0	.02	.02	0.004	NiO
Pt	-	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	-	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Sb_2O_3
SnO	.002	0	0	0	0	0	0	.002	.01	.001	.001	.01	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.01	.01	.02	.03	.002	.006	.008	.03	.05	.01	.01	.03	V_2O_5
WO_3	0	0	0	0	-	.03	.04	0	0	0	0	0	WO_3
ZrO_2	.08	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

NC-7-1---Copper slag from dump. Ore from Ore Knob mine, Ashe Co., N. C. Sampled in 1943. Sample no. 27-OK-1.

NC-10-1--Gold-silver tailings from tailings pile. Ore from Condor (old Howie) mine, Union Co., N. C. Condor Gold Mines mill, Waxhaw, N. C. Sampled in 1943. Sample no. 48-C-71A.

NC-26-1--Ilmenite heads, grab sample. Ore from open pit mine, Finley, Caldwell Co., N. C. Yadkin Valley Ilmenite mill, Finley, N. C. Sampled in 1944. Sample no. 139-YAD-2.

NC-26-2--Ilmenite concentrate, mill sample. Ore from open pit mine, Finley, Caldwell Co., N. C. Yadkin Valley Ilmenite mill, Finley, N. C. Sampled in 1944. Sample no. 139-YAD-1.

NC-27-1--Tungsten tailings from upper 40 feet of tailings pile. Ore from Hamm Tungsten mine, Vance Co., N. C. Hamm Tungsten mine mill, Townsville, N. C. Sampled in 1943. Sample no. 84-H-1.

NC-27-2--Tungsten tailings from middle 40 feet of tailings pile. Ore from Hamm Tungsten mine, Vance Co., N. C. Hamm Tungsten mine mill, Townsville, N. C. Sampled in 1943. Sample no. 84-H-2.

NC-27-3---Tungsten tailings from lower 75 feet of tailings pile. Ore from Hamm Tungsten mine, Vance Co., N. C. Hamm Tungsten mine mill, Townsville, N. C. Sampled in 1943. Sample no. 84-H-3.

NC-41-1---Crude kyanite ore from Cleo Mountain district, Yancey Co., N. C. Yancey Cyanite Company mill, Burnsville, N. C. Sampled in 1943. Sample no. 62-YAN-6.

NC-41-2---Kyanite concentrate, mill sample. Ore from Cleo Mountain district, Yancey Co., N. C. Yancey Cyanite Company mill, Burnsville, N. C. Sampled in 1943. Sample no. 62-YAN-1.

NC-41-3---Coarse garnet concentrate. Ore from Cleo Mountain district, Yancey Co., N. C. Yancey Cyanite Company mill, Burnsville, N. C. Sampled in 1943. Sample no. 62-YAN-2.

NC-41-4---Fine garnet concentrate. Ore from Cleo Mountain district, Yancey Co., N. C. Yancey Cyanite Company mill, Burnsville, N. C. Sampled in 1943. Sample no. 62-YAN-3.

NC-41-5---Low intensity magnetic rejects. Ore from Cleo Mountain district, Yancey Co., N. C. Yancey Cyanite Company mill, Burnsville, N. C. Sampled in 1943. Sample no. 62-YAN-5.

Table 26.—Analyses and descriptions of samples from North Carolina—Continued

	NC-41-6	NC-59-1	NC-59-2	NC-59-3	NC-59-4	NC-59-5	NC-59-6						
Ag	-												. . . Ag
BeO	0												. . .BeO
Bi_2O_3	0												. .Bi_2O_3
Nb_2O_5	0												. .Nb_2O_5
CdO	0	See NC-41-1	See NC-41-2	See NC-41-3	See NC-41-4	See NC-41-5	See NC-41-6						. . .CdO
CoO	0.005												. . .CoO
Ga_2O_3	-												. .Ga_2O_3
GeO_2	0												. . GeO_2
HgO	0												. . .HgO
In_2O_3	0												. .In_2O_3
La_2O_3	-												. .La_2O_3
MoO_3	.001												. . MoO_3
NiO	.01												. . .NiO
Pt	0												. . . Pt
Re	0												. . . Re
Sb_2O_3	0												. .Sb_2O_3
SnO	0												. . .SnO
Ta_2O_5	0												. .Ta_2O_5
Tl_2O_3	0												. .Tl_2O_3
V_2O_5	.04												. . V_2O_5
WO_3	0												. . .WO_3
ZrO_2	-												. . ZrO_2
Limits of detection 1/	A												

1/ See table 2 for limits of detection reported by spectrographers.

NC-41-6---Flotation tails, mill sample. Ore from Cleo Mountain district, Yancey Co., N. C. Yancey Cyanite Company mill, Burnsville, N. C. Sampled in 1943. Sample no. 62-YAN-4.

NC-59-1---(For analysis see 41-1). Crude kyanite ore from Cleo Mountain district, Yancey Co., N. C. Yancey Cyanite Company mill, Burnsville, N. C. Sampled in 1943. Sample no. 62-YAN-6.

NC-59-2---(For analysis see 41-2). Kyanite concentrate, mill sample. Ore from Cleo Mountain district, Yancey Co., N. C. Yancey Cyanite Company mill, Burnsville, N. C. Sampled in 1943. Sample no. 62-YAN-1.

NC-59-3---(For analysis see 41-3). Coarse garnet concentrate. Ore from Cleo Mountain district, Yancey Co., N. C. Yancey Cyanite Company mill, Burnsville, N. C. Sampled in 1943. Sample no. 62-YAN-2.

NC-59-4---(For analysis see 41-4). Fine garnet concentrate. Ore from Cleo Mountain district, Yancey Co., N. C. Yancey Cyanite Company mill, Burnsville, N. C. Sampled in 1943. Sample no. 62-YAN-3.

NC-59-5---(For analysis see 41-5). Low intensity magnetic rejects. Ore from Cleo Mountain district, Yancey Co., N. C. Yancey Cyanite Company mill, Burnsville, N. C. Sampled in 1943. Sample no. 62-YAN-5.

NC-59-6---(For analysis see 41-6). Flotation tails, mill sample. Ore from Cleo Mountain district, Yancey Co., N. C. Yancey Cyanite Company mill, Burnsville, N. C. Sampled in 1943. Sample no. 62-YAN-4.

Table 27.—Analyses and descriptions of samples from Ohio

	OH-12-1	OH-12-2	OH-12-3	OH-12-4	OH-12-5	OH-12-6	OH-12-7	OH-13-1	OH-94-1	OH-94-2	OH-94-3	OH-94-4	
Ag	-	-	-	-	-	-	-	-					Ag
BeO	0	0	0	0	0	0	0	0					BeO
Bi_2O_3	0	0	0	0	0	0	0	0					Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0					Nb_2O_5
CdO	0	0	0	0	0	0	0	0					CdO
CoO	0.006	0.002	0.002	0.002	0.001	0.002	0.002	0.008	See OH-12-1	See OH-12-2	See OH-12-3	See OH-12-4	CoO
Ga_2O_3	-	-	-	-	-	-	-	-					Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0					GeO_2
HgO	0	0	0	0	0	0	0	0					HgO
In_2O_3	0	0	0	0	0	0	0	0					In_2O_3
La_2O_3	-	-	-	-	-	-	-	-					La_2O_3
MoO_3	.002	.002	.001	0	0	0	.002	.004					MoO_3
NiO	.001	.002	.006	.005	.006	.006	.002	.02					NiO
Pt	0	0	0	0	0	0	0	0					Pt
Re	0	0	0	0	0	0	0	0					Re
Sb_2O_3	0	0	0	0	0	0	0	0					Sb_2O_3
SnO	0	0	.001	.001	0	0	0	.008					SnO
Ta_2O_5	0	0	0	0	0	0	0	0					Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0					Tl_2O_3
V_2O_5	.004	.004	.01	.01	.008	.008	.005	.08					V_2O_5
WO_3	0	0	0	0	0	0	0	0					WO_3
ZrO_2	-	-	-	-	-	-	-	-					ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A					

1/ See table 2 for limits of detection reported by spectrographers.

OH-12-1---Black-band ore (siderite), grab sample. Bliss (or Blayford) property, 1 mile S of Newcomerstown, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OBL-1.

OH-12-2---Upper black-band ore (siderite), grab sample. Bliss (or Blayford) property, 1 mile S of Newcomerstown, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OBL-3.

OH-12-3---Black-band ore (siderite) and shale, channel sample 1.6 feet. McCain property, 2 miles SE of Newcomerstown, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OM-1.

OH-12-4---Black-band ore (siderite) and shale, channel sample 1.6 feet. McCain property, 2 miles SE of Newcomerstown, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OM-2.

OH-12-5---Black-band ore (siderite) and shale, channel sample 1.7 feet. McCain property, 2 miles SE of Newcomserstown, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OM-3.

OH-12-6---Black-band ore (siderite) and shale, channel sample 2.3 feet. McCain property, 2 miles SE of Newcomerstown, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OM-4.

OH-12-7---Black-band ore (siderite). Harmon property, 2 miles W of Stone Creek, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OH-1.

OH-13-1---Zinc oxide clinker. Ore from Mascot, Tenn. American Zinc Oxide Company plant, Columbus, Ohio. Sampled in 1943. Sample no. 63-AMZ-2.

OH-94-1---(For analysis see 12-1). Black-band ore (siderite), grab sample. Bliss (or Blayford) property, 1 mile S of Newcomerstown, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OBL-1.

OH-94-2---(For analysis see 12-2). Upper black-band ore (siderite), grab sample. Bliss (or Blayford) property, 1 mile S of Newcomerstown, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OBL-3.

OH-94-3---(For analysis see 12-3). Black-band ore (siderite) and shale, channel sample 1.6 feet. McCain property, 2 miles SE of Newcomerstown, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OM-1.

OH-94-4---(For analysis see 12-4). Black-band ore (siderite) and shale, channel sample 1.6 feet. McCain property, 2 miles SE of Newcomerstown, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OM-2.

Table 27.—Analyses and descriptions of samples from Ohio—Continued

	OH-94-5	OH-94-6	OH-94-7									
Ag . . .												. . . Ag
BeO. . .												. . .BeO
Bi_2O_3. .												. .Bi_2O_3
Nb_2O_5. .												. .Nb_2O_5
CdO. . .	See OH-12-5	See OH-12-6	See OH-12-7									. . .CdO
CoO. . .												. . .CoO
Ga_2O_3. .												. .Ga_2O_3
GeO_2 . .												. . GeO_2
HgO. . .												. . .HgO
In_2O_3. .												. .In_2O_3
La_2O_3. .												. .La_2O_3
MoO_3 . .												. . MoO_3
NiO. . .												. . .NiO
Pt . . .												. . . Pt
Re . . .												. . . Re
Sb_2O_3. .												. .Sb_2O_3
SnO. . .												. . .SnO
Ta_2O_5. .												. .Ta_2O_5
Tl_2O_3. .												. .Tl_2O_3
V_2O_5 . .												. . V_2O_5
WO_3. . .												. . .WO_3
ZrO_2 . .												. . ZrO_2
Limits of detection 1/												

1/ See table 2 for limits of detection reported by spectrographers.

OH-94-5---(For analysis see 12-5). Black-band ore (siderite) and shale, channel sample 1.7 feet. McCain property, 2 miles SE of Newcomerstown, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OM-3.

OH-94-6---(For analysis see 12-6). Black-band ore (siderite) and shale, channel sample 2.3 feet. McCain property, 2 miles SE of Newcomerstown, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OM-4.

OH-94-7---(For analysis see 12-7). Black-band ore (siderite). Harmon property, 2 miles W of Stone Creek, Tuscarawas Co., Ohio. Sampled in 1943. Sample no. 113-OH-1.

Table 28.—Analyses and descriptions of samples from Oklahoma

	OKL-13-1	OKL-13-2	OKL-13-3	OKL-13-4	OKL-13-5	OKL-13-6	OKL-13-7	OKL-13-8	OKL-13-9	OKL-13-10	OKL-13-11	OKL-13-12	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0.002	0	0	0	0	0	0.001	0.002	0.002	0	0	0	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	.08	0.02	0.6	0.05	0.5	0.01	.6	.008	.03	0.4	0.6	0.4	CdO
CoO	0	0	.008	.002	.007	0	.005	0	.001	.006	.003	.006	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	.001	.02	.006	.02	0	.01	.001	.002	.01	.02	.02	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	.001	.001	.004	.001	.003	0	.003	0	.001	.005	.005	.004	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.001	.001	.008	.002	.007	.001	.006	0	.001	.006	.003	.006	MoO_3
NiO	.008	.008	.02	.01	.02	.008	.01	.005	.004	.02	.01	.02	NiO
Pt	0	0	0	0	0	0	0	-	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	-	-	-	-	-	Re
Sb_2O_3	0	.001	0	.002	0	.001	0	0	0	0	0	0	Sb_2O_3
SnO	.001	.001	.004	.002	.002	0	.002	0	.001	.003	.002	.003	SnO
Ta_2O_5	0	0	0	0	0	0	0	-	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	.001	0	0	0	0	.002	0	0	0	0	Tl_2O_3
V_2O_5	.003	.001	.008	.002	.007	.001	.005	0	.002	.005	.007	.004	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

OKL-13-1---Coarse lead-zinc feed. Ore from Evans-Wallower No. 7 mine, Tri-State district, Ottawa Co., Okla. Evans-Wallower No. 7 mill, Cardin, Okla. Sampled in 1942. Sample no. 25-EW-12A.

OKL-13-2---Lead jig concentrate. Ore from Evans-Wallower No. 7 mine, Tri-State district, Ottawa Co., Okla. Evans-Wallower No. 7 mill, Cardin, Okla. Sampled in 1942. Sample no. 25-EW-12C.

OKL-13-3---Zinc jig concentrate. Ore from Evans-Wallower No. 7 mine, Tri-State district, Ottawa Co., Okla. Evans-Wallower No. 7 mill, Cardin, Okla. Sampled in 1942. Sample no. 25-EW-12B.

OKL-13-4---Lead sludge table concentrate. Ore from Evans-Wallower No. 7 mine, Tri-State district, Ottawa Co., Okla. Evans-Wallower No. 7 mill, Cardin, Okla. Sampled in 1942. Sample no. 25-EW-12D.

OKL-13-5---Zinc sludge table concentrate. Ore from Evans-Wallower No. 7 mine, Tri-State district, Ottawa Co., Okla. Evans-Wallower No. 7 mill, Cardin, Okla. Sampled in 1942. Sample no. 25-EW-12E.

OKL-13-6---Lead flotation concentrate. Ore from Evans-Wallower No. 7 mine, Tri-State district, Ottawa Co., Okla. Evans-Wallower No. 7 mill, Cardin, Okla. Sampled in 1942. Sample no. 25-EW-12F.

OKL-13-7---Zinc flotation concentrate. Ore from Evans-Wallower No. 7 mine, Tri-State district, Ottawa Co., Okla. Evans-Wallower No. 7 mill, Cardin, Okla. Sampled in 1942. Sample no. 25-EW-12G.

OKL-13-8---Zinc-lead tailings from tailings pile. Ore from Evans-Wallower No. 7 mine, Tri-State district, Ottawa Co., Okla. Evans-Wallower No. 7 mill, Cardin, Okla. Sampled in 1942. Sample no. 25-EW-12H.

OKL-13-9---Coarse zinc-lead feed. Ore from Rialto No. 3 mine, Tri-State district, Ottawa Co., Okla. Rialto No. 3 mill, Picher, Okla. Sampled in 1942. Sample no. 25-RM-19A.

OKL-13-10--Coarse zinc concentrate. Ore from Rialto No. 3 mine, Tri-State district, Ottawa Co., Okla. Rialto No. 3 mill, Picher, Okla. Sampled in 1942. Sample no. 25-RM-19B.

OKL-13-11--Zinc flotation concentrate. Ore from Rialto No. 3 mine, Tri-State district, Ottawa Co., Okla. Rialto No. 3 mill, Picher, Okla. Sampled in 1942. Sample no. 25-RM-19C.

OKL-13-12--Zinc sludge concentrate. Ore from Rialto No. 3 mine, Tri-State district, Ottawa Co., Okla. Rialto No. 3 mill, Picher, Okla. Sampled in 1942. Sample no. 25-RM-19D.

Table 28.—Analyses and descriptions of samples from Oklahoma—Continued

	OKL-13-13	OKL-13-14	OKL-13-15	OKL-13-16	OKL-13-17	OKL-13-18							
Ag	-	-	-	-	-	-							. . . Ag
BeO	0	0.002	0.002	0	0.001	0.002							. . .BeO
Bi_2O_3	0	0	0	0	0	0							. .Bi_2O_3
Nb_2O_5	0	0	0	0	0	0							. .Nb_2O_5
CdO	0.02	.004	.03	0.4	.03	.002							. . .CdO
CoO	0	0	.001	.004	.002	0							. . .CoO
Ga_2O_3	-	-	-	-	-	-							. .Ga_2O_3
GeO_2	.002	.001	.001	.01	.005	0							. . GeO_2
HgO	0	0	0	0	0	0							. . .HgO
In_2O_3	0	0	0	.004	.001	0							. .In_2O_3
La_2O_3	-	-	-	-	-	-							. .La_2O_3
MoO_3	.001	0	0	.003	.001	0							. . MoO_3
NiO	.01	.003	.006	.03	.01	.005							. . .NiO
Pt	0	0	0	0	0	0							. . . Pt
Re	-	-	0	0	0	0							. . . Re
Sb_2O_3	.001	0	0	0	.002	0							. .Sb_2O_3
SnO	.002	0	.001	.003	.001	0							. . .SnO
Ta_2O_5	0	0	0	0	0	0							. .Ta_2O_5
Tl_2O_3	0	0	0	.001	0	0							. .Tl_2O_3
V_2O_5	.002	.002	.003	.01	.002	.002							. . V_2O_5
WO_3	0	0	0	0	0	0							. . .WO_3
ZrO_2	-	-	-	-	-	-							. . ZrO_2
Limits of detection 1/	A	A	A	A	A	A							

1/ See table 2 for limits of detection reported by spectrographers.

OKL-13-13--Mixed lead concentrate. Ore from Rialto No. 3 mine, Tri-State district, Ottawa Co., Okla. Rialto No. 3 mill, Picher, Okla. Sampled in 1942. Sample no. 25-RM-19E.

OKL-13-14--Zinc-lead tailings, mill sample. Ore from Rialto No. 3 mine, Tri-State district, Ottawa Co., Okla. Rialto No. 3 mill, Picher, Okla. Sampled in 1942. Sample no. 25-RM-19F.

OKL-13-15--Coarse zinc-lead feed. Ore from Scott mine, Tri-State district, Ottawa Co., Okla. Scott mill, Hockerville, Okla. Sampled in 1942. Sample no. 25-SM-35A.

OKL-13-16--Zinc table concentrate. Ore from Scott mine, Tri-State district, Ottawa Co., Okla. Scott mill, Hockerville, Okla. Sampled in 1942. Sample no. 25-SM-35C.

OKL-13-17--Mixed lead concentrate. Ore from Scott mine, Tri-State district, Ottawa Co., Okla. Scott mill, Hockerville, Okla. Sampled in 1942. Sample no. 25-SM-35D.

OKL-13-18--Zinc-lead tailings, mill sample. Ore from Scott mine, Tri-State district, Ottawa Co., Okla. Scott mill, Hockerville, Okla. Sampled in 1942. Sample no. 25-SM-35B.

Table 29.—Analyses and descriptions of samples from Oregon

	ORE-5-1	ORE-5-2	ORE-5-3	ORE-5-4	ORE-5-5	ORE-5-6	ORE-5-7	ORE-5-8	ORE-5-9	ORE-5-10	ORE-5-11	ORE-5-12	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0	0	0	0	0	0	0	0	0	0	0	0	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	0	0	CdO
CoO	0.008	0.02	0.003	0.006	0.01	0.02	0.004	0.02	0.06	0.07	0.005	0.004	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.002	.001	.003	.001	.001	.001	.002	.001	.003	.003	0	0	MoO_3
NiO	.3	.5	.03	.02	.2	.5	.04	.3	.4	.4	.04	.01	NiO
Pt	0	0	0	-	0	0	0	0	0	0	-	-	Pt
Re	0	0	0	-	0	0	0	0	0	0	-	-	Re
Sb_2O_3	-	-	.1	0	-	-	.4	-	-	-	0	0	Sb_2O_3
SnO	.1	.2	.01	.02	.04	.1	.02	.08	.09	.09	.04	.03	SnO
Ta_2O_5	0	0	0	-	0	0	0	0	0	0	-	-	Ta_2O_5
Tl_2O_3	0	0	0	-	0	0	0	0	0	0	-	-	Tl_2O_3
V_2O_5	.2	.4	.06	.04	.1	.2	.08	.2	.2	.2	.02	.006	V_2O_5
WO_3	0	0	0	-	0	0	0	0	0	0	-	-	WO_3
ZrO_2	-	-	.4	-	-	-	.3	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

ORE-5-1---Chromite heads, mill sample. Ore from Lagoons gold tailings deposits, Coos district, Coos Co., Ore. Humphreys Gold Corp. mill, Bandon, Ore. Sampled in 1943. Sample no. 74-CR43-3.

ORE-5-2---Chromite concentrate. Ore from Lagoons gold tailings deposits, Coos district, Coos Co., Ore. Humphreys Gold Corp. mill, Bandon, Ore. Sampled in 1943. Sample no. 74-CR43-2.

ORE-5-3---Chromite tailings, mill sample. Ore from Lagoons gold tailings deposits, Coos district, Coos Co., Ore. Humphreys Gold Corp. mill, Bandon, Ore. Sampled in 1943. Sample no. 74-CR43-4.

ORE-5-4---Chromite ore, 4 foot channel sample across chromiferous zone near base of sand. Seven Devils mine, Coos district, Coos Co., Ore. Sampled in 1945. Sample no. 304-C12-94.

ORE-5-5---Chromite heads, mill sample. Ore from Seven Devils mine, Coos district, Coos Co., Ore. Krome Corp. rough concentrating plant, Marshfield, Ore. Sampled in 1943. Sample no. 74-CR43-6.

ORE-5-6---Chromite concentrate. Ore from Seven Devils mine, Coos district, Coos Co., Ore. Krome Corp. rough concentrating plant, Marshfield, Ore. Sampled in 1943. Sample no. 74-CR43-5.

ORE-5-7---Chromite tailings, mill sample. Ore from Seven Devils mine, Coos district, Coos Co., Ore. Krome Corp. rough concentrating plant, Marshfield, Ore. Sampled in 1943. Sample no. 74-CR43-7.

ORE-5-8---Chromite mill heads, magnetic, from Krome Corp. and Humphreys Gold Corp. mills, Coos district, Coos Co., Ore. Sampled in 1943. Sample no. 127-CR-43-8.

ORE-5-9---Chromite flotation concentrate. Heads from Krome Corp. and Humphreys Gold Corp. mills, Coos district, Coos Co., Ore. Magnetic separator plant of Defense Plant Corp., Beaverhill, Ore. Sampled in 1943. Sample no. 127-CR-43-14.

ORE-5-10--Primary chromite concentrate used as heads for secondary concentrator. Primary heads from Seven Devils mine, Coos district, Coos Co., Ore. Magnetic separator plant, Defense Plant Corp., Beaverhill, Ore. Sampled in 1943. Sample no. 127-CR-43-16.

ORE-5-11--Chromite heads from Seven Devils mine (Krome Corp.) and Lagoon tailings deposits (Humphreys Gold Corp.), Coos district, Coos Co., Ore. U. S. Plancor No. 1501 plant, 3 miles N of Coquille, Ore. Sampled in 1945. Sample no. 304-C13-96.

ORE-5-12--Zircon concentrates. Heads from Seven Devils mine (Krome Corp.) and Lagoon tailings deposits (Humphreys Gold Corp.), Coos district, Coos Co., Ore. U. S. Plancor No. 1501 plant, 3 miles N of Coquille, Ore. Sampled in 1945. Sample no. 304-C13-98.

Table 29.—Analyses and descriptions of samples from Oregon—Continued

	ORE-5-13	ORE-13-1	ORE-13-2	ORE-13-3	ORE-16-1	ORE-16-2	ORE-16-3	ORE-30-1					
Ag	-	-	-	-	0	0	0						Ag
BeO	0	0	0	0	0.0004	0.0003	0.0004						BeO
Bi_2O_3	0	0.01	0.01	0.01	0	0	0						Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0						Nb_2O_5
CdO	0	.02	.02	.02	0	0	0	See ORE-5-12					CdO
CoO	0.007	.02	.03	.03	.006	.004	.004						CoO
Ga_2O_3	-	-	-	-	-	-	-						Ga_2O_3
GeO_2	0	0	0	0	0	0	0						GeO_2
HgO	0	0	0	0	-	-	-						HgO
In_2O_3	0	.001	.001	.001	0	0	0						In_2O_3
La_2O_3	-	-	-	-	0	0	0						La_2O_3
MoO_3	.001	.006	.008	.006	0	0	0						MoO_3
NiO	.02	.008	.008	.008	.008	.006	.005						NiO
Pt	-	0	0	0	0	0	0						Pt
Re	-	0	0	0	0	0	0						Re
Sb_2O_3	0	0	0	0	0	0	0						Sb_2O_3
SnO	.02	.002	.002	.002	0	0	0						SnO
Ta_2O_5	-	0	0	0	0	0	0						Ta_2O_5
Tl_2O_3	-	0	0	0	0	0	0						Tl_2O_3
V_2O_5	.03	.04	.04	.04	.07	.05	.05						V_2O_5
WO_3	-	0	0	0	0	0	0						WO_3
ZrO_2	-	-	-	-	-	-	-						ZrO_2
Limits of detection 1/	A	A	A	A	B	B	B						

1/ See table 2 for limits of detection reported by spectrographers.

ORE-5-13--Chromite tailings. Seven Devils mine (Krome Corp.) and Lagoon tailings deposits (Humphreys Gold Corp.), Coos district, Coos Co., Ore. U. S. Plancor No. 1501 plant, 3 miles N of Coquille, Ore. Sampled in 1945 Sample no. 304-C13-95.

ORE-13-1--Zinc-bearing material. Ruth (old Amalgamated) mine, Little North Santiam River district, Marion Co., Ore. Sampled in 1943. Sample no. 61-RM-12.

ORE-13-2--Zinc-bearing material. Ruth (old Amalgamated) mine, Little North Santiam River district, Marion Co., Ore. Sampled in 1943. Sample no. 61-RM-14.

ORE-13-3--Zinc-bearing material. Ruth (old Amalgamated) mine, Little North Santiam River district, Marion Co., Ore. Sampled in 1943. Sample no. 61-RM-9.

ORE-16-1--Mercury furnace heads, composite sample. Ore from Bonanza mine, Douglas Co., Ore. Bonanza Mines, Inc. furnace, Sutherlin, Ore. Sampled in 1944. Sample no. 180-BM-3.

ORE-16-2--Mercury furnace heads, composite sample. Ore from Bonanza mine, Douglas Co., Ore. Bonanza Mines, Inc. furnace, Sutherlin, Ore. Sampled in 1944. Sample no. 180-BM-4.

ORE-16-3--Mercury tailings, plant sample. Ore from Bonanza mine, Douglas Co., Ore. Bonanza Mines, Inc. furnace, Sutherlin, Ore. Sampled in 1944. Sample no. 180-BM-2.

ORE-30-1--(For analysis see 5-12). Zircon concentrates. Heads from Seven Devils mine (Krome Corp.) and Lagoon tailings deposits (Humphreys Gold Corp.), Coos district Coos Co., Ore. U. S. Plancor No. 1501 plant, 3 miles N of Coquille, Ore. Sampled in 1945. Sample no. 304-C13-98.

Table 30.—Analyses and descriptions of samples from South Carolina

	SC-10-1												
Ag	-												Ag
BeO	0												BeO
Bi_2O_3	0												Bi_2O_3
Nb_2O_5	0												Nb_2O_5
CdO	0												CdO
CoO	0												CoO
Ga_2O_3	-												Ga_2O_3
GeO_2	0												GeO_2
HgO	0												HgO
In_2O_3	0												In_2O_3
La_2O_3	-												La_2O_3
MoO_3	0												MoO_3
NiO	0.008												NiO
Pt	0												Pt
Re	0												Re
Sb_2O_3	0												Sb_2O_3
SnO	0												SnO
Ta_2O_5	0												Ta_2O_5
Tl_2O_3	0												Tl_2O_3
V_2O_5	.01												V_2O_5
WO_3	0												WO_3
ZrO_2	-												ZrO_2
Limits of detection 1/	A												

1/ See table 2 for limits of detection reported by spectrographers.

SC-10-1---Gold-silver tailings, used as filling for open-cuts. Ore from Haile Gold mine, Lancaster Co., S. C. Haile Gold mine mill, Kershaw, S. C. Sampled in 1943. Sample no. 48-H-53B.

Table 31.—Analyses and descriptions of samples from South Dakota

	SD-10-1	SD-10-2	SD-10-3	SD-10-4	SD-10-5	SD-10-6	SD-10-7	SD-10-8	SD-10-9	SD-10-10	SD-10-11	SD-10-12	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0	0	0	0	0	0.01	0.02	0.02	0.01	0.02	0	0	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	-	-	-	-	0	-	-	-	-	-	-	-	Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	0	0	CdO
CoO	0	0.01	0	0	0.001	.02	.01	.02	.03	.01	0.08	0.08	CoO
Ga_2O_3	0	0	0	0	-	0	0	0	0	0	0	0	Ga_2O_3
GeO_2	0	0	0	0	0	0	0	.006	.008	.005	.02	.02	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	0	.01	0	0.002	.001	.01	.01	.01	.01	.01	.01	.01	MoO_3
NiO	0	.01	0	.01	.004	.02	.01	.03	.04	.02	.08	.08	NiO
Pt	-	-	-	-	0	-	-	-	-	-	-	-	Pt
Re	-	-	-	-	0	-	-	-	-	-	-	-	Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Sb_2O_3
SnO	0.008	.01	0.01	.01	0	0	0	0	0	0	0	0	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	.001	0	0	0	0	0	.01	.01	Tl_2O_3
V_2O_5	.06	.06	.06	.06	.003	.1	.08	.05	.05	.05	.008	.008	V_2O_5
WO_3	-	-	-	-	0	0	0	0	0	0	0	0	WO_3
ZrO_2	.01	.01	.02	.02	-	.03	.04	.05	.04	.05	.02	.02	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

SD-10-1---Gold cyanide charge (sand). Ore from Homestake mine, Lead district, Lawrence Co., S. D. South mill, Lead, S. D. Homestake Mining Co. Sampled in 1942. Sample no. 10-H-1.

SD-10-2---Gold cyanide charge (slime). Ore from Homestake mine, Lead district, Lawrence Co., S. D. South mill, Lead, S. D. Homestake Mining Co. Sampled in 1942. Sample no. 10-H-2.

SD-10-3---Gold tailings (slimes residue), mill sample. Ore from Homestake mine, Lead district, Lawrence Co., S. D. South mill, Lead, S. D. Homestake Mining Co. Sampled in 1942. Sample no. 10-H-4.

SD-10-4---Gold tailings (sand residue), mill sample. Ore from Homestake mine, Lead district, Lawrence Co., S. D. South mill, Lead, S. D. Homestake Mining Co. Sampled in 1942. Sample no. 10-H-3.

SD-10-5---Gold tailings (stope filling), mill sample. Ore from Homestake mine, Lead district, Lawrence Co., S. D. Homestake Mining Company mill, Lead, S. D. Sampled in 1943. Sample no. 59-H-1.

SD-10-6---Gold heads, -4 mesh, grab sample. Ore from Maitland mine, Maitland district, Lawrence Co., S. D. Maitland mill, Maitland, S. D. Sample no. 10-M-2.

SD-10-7--Gold tailings (70 percent -200 mesh) from agitation tank discharge to tailings dump. Ore from Maitland mine, Maitland district, Lawrence Co., S. D. Maitland mill, Maitland, S. D. Sample no. 10-M-1.

SD-10-8--Gold heads, oxidized ore, from Bald Mountain Mining Company mine, Trojan district, Lawrence Co., S. D. Trojan mill, Trojan, S. D. Sampled in 1942. Sample no. 10-BM-3.

SD-10-9--Gold heads (unoxidized "blue" ore), grab sample. Ore from Bald Mountain Mining Company mine, Trojan district, Lawrence Co., S. D. Trojan mill, Trojan, S. D. Sampled in 1942. Sample no. 10-BM-2.

SD-10-10-Gold tailings from tailings pond. Ore from Bald Mountain Mining Company mine, Trojan district, Lawrence Co., S. D. Trojan mill, Trojan, S. D. Sampled in 1942. Sample no. 10-BM-1.

SD-10-11-Gold-arsenopyrite concentrate. Ore from Bullion Gold mine, Keystone district, Pennington Co., S. D. Bullion Gold mine mill (burned). Sampled in 1942. Sample no. 10-BG-1.

SD-10-12-Gold-arsenopyrite concentrate. Ore from Bullion Gold mine, Keystone district, Pennington Co., S. D. Bullion Gold mine mill (burned). Sampled in 1942. Sample no. 10-BG-2.

Table 31.—Analyses and descriptions of samples from South Dakota—Continued

	SD-10-13	SD-10-14											
Ag	-	-											Ag
BeO	0	0											BeO
Bi_2O_3	0	0											Bi_2O_3
Nb_2O_5	-	-											Nb_2O_5
CdO	0	0											CdO
CoO	0.1	0.2											CoO
Ga_2O_3	0	0											Ga_2O_3
GeO_2	.02	.02											GeO_2
HgO	0	0											HgO
In_2O_3	0	0											In_2O_3
La_2O_3	-	-											La_2O_3
MoO_3	.05	.05											MoO_3
NiO	.2	.4											NiO
Pt	-	-											Pt
Re	-	-											Re
Sb_2O_3	0	0											Sb_2O_3
SnO	0	.01											SnO
Ta_2O_5	0	0											Ta_2O_5
Tl_2O_3	.01	.01											Tl_2O_3
V_2O_5	.01	.01											V_2O_5
WO_3	.01	.01											WO_3
ZrO_2	.08	.08											ZrO_2
Limits of detection 1/	A	A											

1/ See table 2 for limits of detection reported by spectrographers.

SD-10-13---Gold table concentrate. Ore from Holy Terror mine, Keystone district, Pennington Co., S. D. Keystone-Holy Terror mill. Sampled in 1942. Sample no. 10-KH-1.

SD-10-14---Gold table and jig concentrate. Ore from Holy Terror mine, Keystone district, Pennington Co., S. D. Keystone-Holy Terror mill. Sampled in 1942. Sample no. 10-KH-2.

Table 32.—Analyses and descriptions of samples from Tennessee

	TEN-13-1	TEN-13-2	TEN-13-3	TEN-13-4	TEN-13-5	TEN-13-6	TEN-13-7	TEN-13-8	TEN-13-9	TEN-13-10	TEN-13-11	TEN-13-12	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0	0	0	0	0	0	0	0	0	0	0	0.01	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	-	Nb_2O_5
CdO	0.05	0.003	0.001	0.1	0.2	0	0.37	0.385	0.001	0.001	0.001	0	CdO
CoO	0	0	0	0	0	0	.01	.01	0	0	0	.005	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	.001	Ga_2O_3
GeO_2	0	0	0	.003	.005	0	-	-	-	-	-	0	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	0	0	0	.002	.003	0	.002	.002	.001	.001	.001	.001	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.006	.002	.002	.02	.01	0.002	.002	.002	.001	-	.001	.005	MoO_3
NiO	.001	.005	.005	.01	.01	.001	.02	.02	.002	0	.001	.02	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	-	Pt
Re	0	0	0	0	0	0	0	0	0	0	0	-	Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Sb_2O_3
SnO	0	0	0	.005	.004	0	.005	.004	0	0	0	.005	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.003	.004	.003	.004	.005	.002	.005	.005	.003	.004	.004	.01	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	.03	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

TEN-13-1---Zinc-lead heads from old jig concentrates. Ore from Bunche's Hollow mine, Powell River district, Claiborne Co., Tenn. Bunche's Hollow mill, Goin, Tenn. Sampled in 1943. Sample no. 70-BUN-1.

TEN-13-2---Zinc-lead heads from old zinc-lead jig tailings. Ore from Bunche's Hollow mine, Powell River district, Claiborne Co., Tenn. Bunche's Hollow mill, Goin, Tenn. Sampled in 1943. Sample no. 70-BUN-2.

TEN-13-3---Zinc-lead heads from old jig tailing dump and current jig concentration. Ore from Bunche's Hollow mine, Powell River district, Claiborne Co., Tenn. Bunche's Hollow mill, Goin, Tenn. Sampled in 1943. Sample no. 70-BUN-3.

TEN-13-4---Lead flotation concentrate. Ore from Bunche's Hollow mine, Powell River district, Claiborne Co., Tenn. Bunche's Hollow mill, Boin, Tenn. Sampled in 1943. Sample no. 70-BUN-5.

TEN-13-5---Zinc flotation concentrate. Ore from Bunche's Hollow mine, Powell River district, Claiborne Co., Tenn. Bunche's Hollow mill, Goin, Tenn. Sampled in 1943. Sample no. 70-BUN-4.

TEN-13-6---Zinc-lead slimes from waste bin. Ore from Bunche's Hollow mine, Powell River district, Claiborne Co., Tenn. Bunche's Hollow mill, Goin, Tenn. Sampled in 1943. Sample no. 70-BUN-6.

TEN-13-7---Zinc jig concentrate. Ore from Mascot mine, Mascot district, Knox Co., Tenn. Mascot No. 2 mill, Mascot, Tenn. American Zinc Company of Tennessee. Sampled in 1943. Sample no. 42-MAS-5.

TEN-13-8---Zinc flotation concentrate. Ore from Mascot mine, Mascot district, Knox Co., Tenn. Mascot No. 2 mill, Mascot, Tenn. American Zinc Company of Tennessee. Sampled in 1943. Sample no. 42-MAS-6.

TEN-13-9---Zinc slime overflow, mill sample. Ore from Mascot mine, Mascot district, Knox Co., Tenn. Mascot No. 2 mill, Mascot, Tenn. American Zinc Company of Tennessee. Sampled in 1943. Sample no. 42-MAS-2.

TEN-13-10--Coarse zinc tailings, mill sample. Ore from Mascot mine, Mascot district, Knox Co., Tenn. Mascot No. 2 mill, Mascot, Tenn. American Zinc Company of Tennessee. Sampled in 1943. Sample no. 42-MAS-1.

TEN-13-11--Zinc flotation tailings, mill sample. Ore from Mascot mine, Mascot district, Knox Co., Tenn. Mascot No. 2 mill, Mascot, Tenn. American Zinc Company of Tennessee. Sampled in 1943. Sample no. 42-MAS-3.

TEN-13-12--Lead concentrates from carbonate ore, grab sample. Ore from Embree mine, Bumpass Cove district, Unicoi and Washington Cos., Tenn. Embree mill, Embreeville, Tenn. Sampled in 1943. Sample no. 16-EM-3.

Table 32.—Analyses and descriptions of samples from Tennessee—Continued

	TEN-13-13	TEN-13-14	TEN-13-15	TEN-13-16	TEN-13-17	TEN-15-1	TEN-15-2	TEN-15-3	TEN-45-1	TEN-45-2	TEN-45-3	TEN-45-4	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0.05	0.06	0.01	0.03	0.08	0.005	0.02	0.01	0	0	0	0	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	-	-	-	-	-	-	-	-	0	0	0	0	Nb_2O_5
CdO	.05	.006	0	0	0	0	0	0	0	0	0	0	CdO
CoO	.005	.004	.002	.05	.003	.1	.08	.08	0.001	0.002	0.001	0	CoO
Ga_2O_3	.006	0	0	0	0	.001	0	0	-	-	-	-	Ga_2O_3
GeO_2	.004	.001	0	0	0	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	.006	.001	0	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.001	0	.003	.005	.004	.008	.006	.006	.001	0	.001	0	MoO_3
NiO	.05	.04	.01	.02	.03	.04	.02	.03	.004	.001	.001	0	NiO
Pt	-	-	-	-	-	-	-	-	0	0	0	0	Pt
Re	-	-	-	-	-	-	-	-	0	0	0	0	Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Sb_2O_3
SnO	0	.008	0	.01	.01	.05	.03	.03	0	0	0	0	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	.006	0	0	.001	0	.004	.001	.001	0	0	0	0	Tl_2O_3
V_2O_5	.01	.02	.01	.03	.03	.06	.03	.04	.001	.001	.001	0.001	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	.005	.05	.04	.02	.01	.01	.02	.01	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

TEN-13-13--Zinc concentrate from carbonate ore. Ore from Embree mine, Bumpass Cove district, Unicoi and Washington Cos., Tenn. Embree mill, Embreeville, Tenn. Sampled in 1943. Sample no. 16-EM-1.

TEN-13-14--Zinc slimes from old tailings pond. Ore from Embree mine, Bumpass Cove district, Unicoi and Washington Cos., Tenn. Embree mill, Embreeville, Tenn. Sampled in 1943. Sample no. 16-EM-2.

TEN-13-15--Lead slimes from old tailings pond. Ore from Embree mine, Bumpass Cove district, Unicoi and Washington Cos., Tenn. Embree mill, Embreeville, Tenn. Sampled in 1943. Sample no. 16-EM-5.

TEN-13-16--Lead-zinc tailings slimes, mill sample. Ore from Embree mine, Bumpass Cove district, Unicoi and Washington Cos., Tenn. Embree mill, Embreeville, Tenn. Sampled in 1943. Sample no. 16-EM-9.

TEN-13-17--Lead jig tailings from dump. Ore from Embree mine, Bumpass Cove district, Unicoi and Washington Cos., Tenn. Embree mill, Embreeville, Tenn. Sampled in 1943. Sample no. 16-EM-4.

TEN-15-1---Manganese concentrates, metallurgical grade. Manganese ore from Washington and Unicoi counties, Tenn. Embree mill, Embreeville, Tenn. Sampled in 1943. Sample no. 16-EM-6.

TEN-15-2---Manganese concentrate from dump, low-grade. Manganese ore from Washington and Unicoi counties, Tenn. Embree mill, Embreeville, Tenn. Sampled in 1943. Sample no. 16-EM-8.

TEN-15-3---Manganese jig tailings from dump. Manganese ore from Washington and Unicoi counties, Tenn. Embree mill, Embreeville, Tenn. Sampled in 1943. Sample no. 16-EM-7.

TEN-45-1---Barite ore from stockpile, grab sample. Ore from Garrison mine, Sweetwater district, McMinn Co., Tenn. L. A. Wood Barite mill, Sweetwater, Tenn. Sampled in 1944. Sample no. 131-BA-4.

TEN-45-2---Barite jig concentrate from stockpile, grab sample. Ore from Spring Creek mine, Sweetwater district, McMinn Co., Tenn. L. A. Wood Barite mill, Sweetwater, Tenn. Sampled in 1944. Sample no. 131-BA-2.

TEN-45-3---Barite concentrate, chemical grade. Ore from Stevens mine, Sweetwater district, McMinn Co., Tenn. L. A. Wood Barite mill, Sweetwater, Tenn. Sampled in 1944. Sample no. 131-BA-1.

TEN-45-4---Magnetic separation waste from dump, grab sample. Ore from Stevens mine, Sweetwater district, McMinn Co., Tenn. L. A. Wood Barite mill, Sweetwater, Tenn. Sampled in 1944. Sample no. 131-BA-3.

Table 33.—Analyses and descriptions of samples from Texas

	TEX-10-1	TEX-13-1	TEX-13-2	TEX 13-3	TEX 13-4	TEX-13-5	TEX-13-6	TEX-55-1	TEX-55-2	TEX-68-1	TEX-68-2	TEX-73-1	
Ag . . .	-	-	-	-	-	-		0	0		0		. . . Ag
BeO. . .	0	0	0	0	0	0		0	0		0		. . .BeO
Bi_2O_3. .	0	0.07	0	0.6	0.5	0.5		0	0		0		. . Bi_2O_3
Nb_2O_5. .	0	0	0	0	0	0		0	0		0		. . Nb_2O_5
CdO. . .	0.003	.3	0.3	.8	-	-	See TEX-10-1	0	0	See TEX-55-1	0	See TEX-55-1	. . . CdO
CoO. . .	0	.07	.01	0	0	0		0	0		0		. . . CoO
Ga_2O_3. .	-	-	-	-	-	-		-	-		-		. . Ga_2O_3
GeO_2 . .	0	.01	.01	.01	.001	.001		0	0		0		. . GeO_2
HgO. . .	0	0	0	0	.001	.001		0	0		0		. . . HgO
In_2O_3. .	0	.01	.01	.4	-	.4		0	0		0		. . In_2O_3
La_2O_3. .	-	-	-	-	-	-		0	0		0		. . La_2O_3
MoO_3 . .	.004	.02	.01	.01	.01	.03		0	0		0		. . MoO_3
NiO. . .	.001	.01	.008	0	0	0		0.00X	0.00X		0.00X		. . . NiO
Pt . . .	0	0	0	0	0	0		0	0		0		. . . Pt
Re . . .	0	0	0	0	0	0		0	0		0		. . . Re
Sb_2O_3. .	0	0	.002	.04	.3	.02		0	0		0		. . Sb_2O_3
SnO. . .	0	.01	.01	.03	-	.02		0	0		0		. . . SnO
Ta_2O_5. .	0	0	0	0	0	0		0	0		0		. . Ta_2O_5
Tl_2O_3. .	0	0	0	.001	.003	.004		0	0		0		. . Tl_2O_3
V_2O_5 . .	.02	.006	.006	.006	.005	.004		.00X	.0X		.0X		. . V_2O_5
WO_3. . .	0	0	0	0	0	0		-	0		0		. . . WO_3
ZrO_2 . .	-	-	-	-	-	-		0	0		0		. . ZrO_2
Limits of detection 1/	A	A	A	A	A	A		C	C		C		

1/ See table 2 for limits of detection reported by spectrographers.

TEX-10-1---Silver-lead-gold tailings from old tailings pond. Ore from Presidio mine, Presidio district, Presidio Co., Tex. American Metal Company mill, Shaffer, Texas. Sampled in 1944. Additional analysis: 0.0003 Se. Sample no. 144-AMM-1.

TEX-13-1---Zinc concentrate, probably from Tri-State district. Dumas smelter, Dumas, Moore Co., Texas. Peru Mining Company. Sampled in 1943. Sample no. 44-DS-3679.

TEX-13-2---Zinc concentrate from El Potosi mine, Santa Eulalia, Mexico. Dumas smelter, Dumas, Moore Co., Texas. Peru Mining Company. Sampled in 1943. Sample no. 44-DS-3680.

TEX-13-3---Lead sludge from cadmium plant. Dumas smelter, Dumas, Moore Co., Texas. Peru Mining Company. Sampled in 1943. Sample no. 44-DS-3676.

TEX-13-4---Zinc Cottrell dust from Dwight-Lloyd sintering machine of the Blackwell Zinc Company, Inc. smelter at Blackwell, Oklahoma. Dumas smelter, Dumas, Moore Co., Texas. Peru Mining Company. Sampled in 1943. Sample no. 44-DS-3678.

TEX-13-5---Zinc Cottrell dust from Dwight-Lloyd sintering machine. Dumas smelter, Dumas, Moore Co., Texas. Peru Mining Company. Sampled in 1943. Sample no. 44-DS-3677.

TEX-13-6---(For analysis see 10-1). Silver-lead-gold tailings from old tailings pond. Ore from Presidio mine, Presidio district, Presidio Co., Tex. American Metal Company mill, Shaffer, Texas. Sampled in 1944. Sample no. 144-AMM-1.

TEX-55-1---Sulfur-bearing gypsum, anhydrite and salt. Texas Gulf Sulphur Company, Newgulf, Texas. Sampled in 1947. Sample no. 374-TGS-A1.

TEX-55-2---Sulfur-bearing gypsum, core sample. Texas Gulf Sulphur Company, Newgulf, Texas. Sampled in 1947. Sample no. 374-TGS-A3.

TEX-68-1---(For analysis see 55-1). Sulfur-bearing gypsum, anhydrite and salt. Texas Gulf Sulphur Company, Newgulf, Texas. Sampled in 1947. Sample no. 374-TGS-A1.

TEX-68-2---Salt. Texas Gulf Sulphur Company, Newgulf, Texas. Sampled in 1947. Sample no. 374-TGS-A4.

TEX-73-1---(For analysis see 55-1). Sulfur-bearing gypsum, anhydrite and salt. Texas Gulf Sulphur Company, Newgulf, Texas. Sampled in 1947. Sample no. 374-TGS-A1.

Table 33.—Analyses and descriptions of samples from Texas—Continued

	TEX-73-2	TEX-73-3	TEX-73-4	TEX-73-5	TEX-73-6							
Ag		0	0.00X	0	0							Ag
BeO		0	0	0	0							BeO
Bi_2O_3		0	0	0	0							Bi_2O_3
Nb_2O_5		0	0	0	0							Nb_2O_5
CdO	See TEX-55-2	0	0	0	0							CdO
CoO		0	0	0	0							CoO
Ga_2O_3		-	-	-	-							Ga_2O_3
GeO_2		0	0	0	0							GeO_2
HgO		0	0	0	0							HgO
In_2O_3		0	0	0	0							In_2O_3
La_2O_3		0	0	0	0							La_2O_3
MoO_3		0	0	0	0							MoO_3
NiO		0.00X	.00X	0.00X	0.00X							NiO
Pt		0	0	0	0							Pt
Re		0	0	0	0							Re
Sb_2O_3		0	0	0	0							Sb_2O_3
SnO		0	0	0	0							SnO
Ta_2O_5		0	0	0	0							Ta_2O_5
Tl_2O_3		0	0	0	0							Tl_2O_3
V_2O_5		.0X	.0X	.0X	.0X							V_2O_5
WO_3		0	0	0	0							WO_3
ZrO_2		0	0	0	0							ZrO_2
Limits of detection 1/		C	C	C	C							

1/ See table 2 for limits of detection reported by spectrographers.

TEX-73-2---(For analysis see 55-2). Sulfur-bearing gypsum, core sample. Texas Gulf Sulphur Company, Newgulf, Texas. Sampled in 1947. Sample no. 374-TGS-A3.

TEX-73-3---Sulfur; core from vat 51. Texas Gulf Sulphur Company, Newgulf, Texas. Sampled in 1947. Sample no. 374-TGS-A2.

TEX-73-4---Input water of heater discharge. Contains 428 ppm solids. Texas Gulf Sulphur Company, Newgulf, Texas. Sampled in 1947. Sample no. 374-TGS-B2.

TEX-73-5---Sulfur-bearing bleed water from well 558T. Contains 43,000 ppm solids. Sampled in 1947. Sample no. 374-TGS-C3.

TEX-73-6---De-sulfurized water from B. W. T. A. discharge. Contains 23,000 ppm solids. Texas Gulf Sulphur Company, Newgulf, Texas. Sampled in 1947. Sample no. 374-TGS-D4.

Table 34.—Analyses and descriptions of samples from Utah

	UT-7-1	UT-7-2	UT-7-3	UT-7-4	UT-7-5	UT-7-6	UT-7-7	UT-7-8	UT-7-9	UT-7-10	UT-7-11	UT-7-12	
Ag	0.00X	0	0.00X	0	0.00X	0	0	0	0	0	0	0	Ag
BeO	0	0	0	0	0	0	0	0	0	0	0	0	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	0	0	CdO
CoO	0	0.00X	.0X	0.00X	.0X	0	0	0.00X	0.00X	0	0.00X	0.0X	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	-	-	-	-	-	-	-	-	-	-	-	-	GeO_2
HgO	-	-	-	-	-	-	-	-	-	-	-	-	HgO
In_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.0X	0	0	0	0	0	0	.00X	.00X	0.00X	.00X	.00X	MoO_3
NiO	.00X	.00X	.0X	.00X	.0X	0	0.00X	-	0	0	0	0	NiO
Pt	-	-	-	-	-	-	-	-	-	-	-	-	Pt
Re	-	-	-	-	-	-	-	-	-	-	-	-	Re
Sb_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Sb_2O_3
SnO	0	0	0	0	0	0	0	0	0	0	0	0	SnO
Ta_2O_5	-	-	-	-	-	-	-	-	-	-	-	-	Ta_2O_5
Tl_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Tl_2O_3
V_2O_5	.00X	.00X	.00X	.00X	.00X	0	.00X	0	0	0	.00X	0	V_2O_5
WO_3	-	-	-	-	-	-	-	-	-	-	-	-	WO_3
ZrO_2	0	.0X	.0X	.0X	.0X	0	.0X	.0X	.0X	.0X	.0X	.0X	ZrO_2
Limits of detection 1/	D	D	D	D	D	D	D	D	D	D	D	D	

1/ See table 2 for limits of detection reported by spectrographers.

UT-7-1---Copper ore, grab sample from mine. Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-12.

UT-7-2---Copper ore, grab sample from mine. Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-11.

UT-7-3---Copper ore, grab sample from mine. Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-2.

UT-7-4---Copper ore, grab sample from mine. Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-4.

UT-7-5---Copper ore, grab sample from mine. Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-1.

UT-7-6---Copper ore, grab sample from mine. Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-14.

UT-7-7---Copper ore, composite sample from mine. Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-50.

UT-7-8---Copper ore, composite sample from mine. Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-80.

UT-7-9---Copper ore, composite sample from mine. Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-83.

UT-7-10--Copper ore, composite sample from mine. Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-77.

UT-7-11--Copper ore, composite sample from mine. Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-78.

UT-7-12--Copper ore, composite sample from mine. Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-79.

Table 34.—Analyses and descriptions of samples from Utah—Continued

	UT-7-13	UT-7-14	UT-7-15	UT-7-16	UT-7-17	UT-7-18	UT-7-19	UT-7-20	UT-7-21	UT-7-22	UT-7-23	UT-10-1	
Ag	0.000X	0.00X	0.000X	0	0.000X	0.00X	0.00X	0.00X	0.00X	0.00X	0.000X		Ag
BeO	0	0	0	0	0	0	0	0	0	0	0		BeO
Bi_2O_3	0	.00X	.00X	0	.00X	.00X	.00X	.00X	0	.00X	.00X		Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0		Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0	0	See UT-23	CdO
CoO	0	.0X	.00X	0	.00X	.0X	.0X	.0X	.00X	.0X	.0X		CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-		Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0	0		GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0		HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0	0		In_2O_3
La_2O_3	0	0	0	0	0	0	0	0	0	0	0		La_2O_3
MoO_3	.00X	.X	X.	0.000X	.X	X.	.X	.0X	X.	.X	.X		MoO_3
NiO	.00X	.0X	.0X	.00X	.0X	.X	.X	.0X	.0X	.0X	.0X		NiO
Pt	0	0	0	0	0	0	0	0	0	0	0		Pt
Re	0	0	0	0	0	0	0	0	0	0	0		Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0	0		Sb_2O_3
SnO	0	.0X	0	0	0	.0X	.0X	.00X	0	.0X	.0X		SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0		Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0	0	0	0		Tl_2O_3
V_2O_5	.0X	.00X	.0X	.0X	.0X	.0X	.0X	.0X	.0X	.0X	.0X		V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0		WO_3
ZrO_2	0	0	0	0	0	0	0	0	0	0	.X		ZrO_2
Limits of detection 1/	C	C	C	C	C	C	C	C	C	C	C		

1/ See table 2 for limits of detection reported by spectrographers.

UT-7-13--Mill heads, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-21.

UT-7-14--Copper concentrate, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-23.

UT-7-15--Molybdenite concentrate, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-24.

UT-7-16--General tailings, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-22.

UT-7-17--Siliceous concentrate from molybdenite plant. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-25.

UT-7-18--Air wash sediment from molybdenite plant, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-26.

UT-7-19--Roaster flue dust from molybdenite plant. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-27.

UT-7-20--Unit "C" molybdenite tailings, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-28.

UT-7-21--Filtrate from leach of molybdenite plant, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-29.

UT-7-22--Ash from burlap from concentrate discharge weirs (flat cells), composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur Plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-30.

UT-7-23--Concentrate from gold launders, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur Plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-31.

UT-10-1--(For analysis see 7-23). Concentrate from gold launders, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur Plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-31.

Table 34.—Analyses and descriptions of samples from Utah—Continued

	UT-10-2	UT-10-3	UT-12-1	UT-12-2	UT-12-3	UT-12-4	UT-12-5	UT-13-1	UT-13-2	UT-17-1	UT-17-2	UT-17-3	
Ag	0	0	-	-	-	-	-	0.01	-				Ag
BeO	0	0	0	0	0	0	0	0	0				BeO
Bi_2O_3	0	0	0	0	0	0	0	.003	0				Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0				Nb_2O_5
CdO	0	0	0	0	0	0	0	.3	0	See UT-7-15	See UT-7-17	See UT-7-18	CdO
CoO	0	0	0.07	0.02	0.03	0.04	0.01	.0008	0				CoO
Ga_2O_3	-	-	-	-	-	-	-	.002	-				Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0				GeO_2
HgO	0.0001	0.0006	0	0	0	0	0	.0001	0				HgO
In_2O_3	0	0	0	0	0	0	0	.002	0				In_2O_3
La_2O_3	0	0	-	-	-	-	-	0	-				La_2O_3
MoO_3	0	0	.004	.002	.003	.003	.01	0	0.01				MoO_3
NiO	.0007	.0005	.02	.01	.02	.01	.03	.0002	.005				NiO
Pt	0	0	0	0	0	0	0	0	0				Pt
Re	0	0	0	0	0	0	0	0	0				Re
Sb_2O_3	0	0	0	0	0	0	0	0	.1				Sb_2O_3
SnO	0	0	0	0	0	.008	0	0	.001				SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0				Ta_2O_5
Tl_2O_3	.02	.01	0	0	0	0	0	0	0				Tl_2O_3
V_2O_5	.003	.003	.001	.3	.2	.001	.3	.002	.03				V_2O_5
WO_3	0	0	0	0	0	0	0	0	0				WO_3
ZrO_2	-	-	-	-	-	-	-	-	-				ZrO_2
Limits of detection 1/	B	B	A	A	A	A	A	B	A				

1/ See table 2 for limits of detection reported by spectrographers.

UT-10-2---Gold tailings from tailings pile, grab sample. Ore from Ophir and adjacent mines, Camp Floyd district, Tooele Co., Utah. Snyder Bros. mill, Mercur, Utah. Sampled in 1944. Sample no. 169-3G-1.

UT-10-3---Gold tailings from tailings pile, grab sample. Ore from Ophir and adjacent mines, Camp Floyd district, Tooele Co., Utah. Snyder Bros. mill, Mercur, Utah. Sampled in 1944. Sample no. 169-3G-2.

UT-12-1---Iron ore (magnetite), grab sample. Iron Mountain mine (Burke orebody), Iron Mountain district, Iron Co., Utah. Sampled in 1944. Sample no. 134-CSC-A.

UT-12-2---Iron ore (magnetite), grab sample. Iron Mountain mine (Burke orebody), Iron Mountain district, Iron Co., Utah. Sampled in 1944. Sample no. 134-CSC-B.

UT-12-3---Iron (magnetite) from vein, Great Western orebody, Iron Mountain district, Iron Co., Utah. Sampled in 1944. Sample no. 134-CSC-C.

UT-12-4---Iron ore (magnetite), grab sample. Burke orebody, main pit, Iron Mountain mine, Iron Mountain district, Iron Co., Utah. Sampled in 1944. Sample no. 134-CSC-D.

UT-12-5---Flue dust, steel plant. Ore from Iron Mountain mine, Iron Mountain district, Iron Co., Utah. Provo plant, Provo, Utah. Columbia Geneva Steel Division, U. S. Steel Co. Sampled in 1943. Additional analysis: 0.0008 Se. Sample no. 96-COL-1.

UT-13-1---Zinc concentrate, grab sample. Concentrate from Apex-Delaware mine, West Mountain district, Salt Lake Co., Utah. Sample collected at Great Falls Reduction Works, Great Falls, Mont. Sampled in 1945. Sample no. 310-ACM-16.

UT-13-2---Copper-lead-gold-silver tailings from dump. Ore from Tintic Standard mine and others, Tintic district, Utah Co., Utah. Harold mill, Harold, Utah. Tintic Standard Mining Company. Sampled in 1943. Sample no. 60-OH-1.

UT-17-1---(For analysis see 7-15). Molybdenite concentrate, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-24.

UT-17-2---(For analysis see 7-17). Siliceous concentrate from molybdenite plant. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-25.

UT-17-3---(For analysis see 7-18). Air wash sediment from molybdenite plant, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-26.

Table 34.—Analyses and descriptions of samples from Utah—Continued

	UT-17-4	UT-17-5	UT-17-6	UT-17-7	UT-51-1	UT-51-2	UT-51-3	UT-51-4	UT-51-5	UT-51-6	UT-93-1		
Ag					-	-	-	-	-	-			Ag
BeO					0	0	0	0.001	0.0003	0.0004			BeO
Bi_2O_3					0	0	0	0	0	0			Bi_2O_3
Nb_2O_5					0	0	0	0	0	0			Nb_2O_5
CdO	See UT-7-19	See UT-7-20	See UT-7-21	See UT-7-22	0	0	0	0	0	0	See UT-51-4		CdO
CoO					0.003	0	0.005	0	0	0			CoO
Ga_2O_3					-	-	-	-	-	-			Ga_2O_3
GeO_2					0	0	0	0	0	0			GeO_2
HgO					0	0	0	0	0	0			HgO
In_2O_3					0	0	0	0	0	0			In_2O_3
La_2O_3					-	-	-	-	0	0			La_2O_3
MoO_3					.006	0.01	.03	.02	0	0			MoO_3
NiO					0	0	.003	0	0	0			NiO
Pt					-	-	-	-	0	0			Pt
Re					-	-	-	-	0	0			Re
Sb_2O_3					0	0	0	0	0	0			Sb_2O_3
SnO					.003	0	0	.02	0	0			SnO
Ta_2O_5					-	-	-	-	0	0			Ta_2O_5
Tl_2O_3					-	-	-	-	0	0			Tl_2O_3
V_2O_5					.004	.003	.006	.002	-	-			V_2O_5
WO_3					-	-	-	-	0	0			WO_3
ZrO_2					-	-	-	-	-	-			ZrO_2
Limits of detection 1/					A	A	A	A	B	B			

1/ See table 2 for limits of detection reported by spectrographers.

UT-17-4---(For analysis see 7-19). Roaster flue dust from molybdenite plant. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-27.

UT-17-5---(For analysis see 7-20). Unit "C" molybdenite tailings, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-28.

UT-17-6---(For analysis see 7-21). Filtrate from leach of molybdenite plant, composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-29.

UT-17-7---(For analysis see 7-22). Ash from burlap from concentrate discharge weirs (flat cells), composite sample. Ore from Utah Copper mine, West Mountain district, Salt Lake Co., Utah. Arthur plant, Arthur, Utah. Kennecott Copper Corp. Sampled in 1948. Sample no. 380-KCC-30.

UT-51-1---Fluorspar, 5.0-ft channel sample of vein, upper workings, Staats Fluorspar mine, Beaver Co., Utah. Sampled in 1945. Additional analyses: 0 As_2O_3, .006 Cr_2O_3, .007 CuO, .003 PbO, 0 ThO_2. Sample no. 303-C11-90.

UT-51-2---Fluorspar, grab sample from lenses that contain irritating gas. Staats Fluorspar mine, Beaver Co., Utah. Sampled in 1945. Additional analyses: 0 As_2O_3, .006 Cr_2O_3, .008 CuO, .002 PbO, .01 ThO_2. Sample no. 303-C11-92.

UT-51-3---Fluorspar, 5.0-ft channel sample across fractured vein. Lower workings, Staats Fluorspar mine, Beaver Co., Utah. Sampled in 1945. Additional analyses: 0 As_2O_3, .005 Cr_2O_3, .01 CuO, .003 PbO, .1 ThO_2. Sample no. 303-C11-93.

UT-51-4---Wallrock of fluorspar vein; 5.0-ft channel sample of altered rhyolite. Lower workings, Staats Fluorspar mine, Beaver Co., Utah. Sampled in 1945. Additional analyses: 0 As_2O_3, .02 Cr_2O_3, .01 CuO, .02 PbO, .02 ThO_2. Sample no. 303-C11-91.

UT-51-5---Fluorite heads, mill sample. Ore from Joy-Bee mine, Beaver Co., Utah. Western Fluorite mill, Milford, Utah. Sampled in 1944. Additional analysis: 0.003 Y_2O_3. Sample no. 169-IG-2.

UT-51-6---Fluorite tailings. Ore from mines in Beaver Co., Utah. Western Fluorite mill, Milford, Utah. Sampled in 1944. Additional analysis: 0 Y_2O_3. Sample no. 169-IG-1.

UT-93-1---(For analysis see 51-4). Wallrock of fluorspar vein; 5.0-ft channel samples of altered rhyolite. Lower workings, Staats Fluorspar mine, Beaver Co., Utah. Sampled in 1945. Sample no. 303-C11-91.

Table 35.—Analyses and descriptions of samples from Vermont

	VT-7-1	VT-7-2	VT-7-3										
Ag . . .	-	-	-										. . . Ag
BeO. . .	0	0	0										. . .BeO
Bi_2O_3. .	0	0.002	0										. .Bi_2O_3
Nb_2O_5. .	0	0	0										. .Nb_2O_5
CdO. . .	0	0	0										. . .CdO
CoO. . .	0.05	.1	0.03										. . .CoO
Ga_2O_3. .	-	-	-										. .Ga_2O_3
GeO_2 . .	0	0	0										. . GeO_2
HgO. . .	0	0	0										. . .HgO
In_2O_3. .	0	0	0										. .In_2O_3
La_2O_3. .	-	-	-										. .La_2O_3
MoO_3 . .	.006	.01	.003										. . MoO_3
NiO. . .	.03	.06	.02										. . .NiO
Pt . . .	0	0	0										. . . Pt
Re . . .	0	0	0										. . . Re
Sb_2O_3. .	0	.002	0										. .Sb_2O_3
SnO. . .	.001	.006	0										. . .SnO
Ta_2O_5. .	0	0	0										. .Ta_2O_5
Tl_2O_3. .	0	0	0										. .Tl_2O_3
V_2O_5 . .	.006	.004	.007										. . V_2O_5
WO_3. . .	0	0	0										. . .WO_3
ZrO_2 . .	-	-	-										. . ZrO_2
Limits of detection 1/	A	A	A										

1/ See table 2 for limits of detection reported by spectrographers.

VT-7-1---Copper heads, mill sample. Ore from Elizabeth mine, Orange Co., Vt. Vermont Copper Company mill, South Stafford, Vt. Sampled in 1943. Sample no. 118-ELIZ-2.

VT-7-2---Copper concentrate. Ore from Elizabeth mine, Orange Co., Vt. Vermont Copper Company mill, South Stafford, Vt. Sampled in 1943. Sample no. 118-ELIZ-1.

VT-7-3---Copper tailings, mill sample. Ore from Elizabeth mine, Orange Co., Vt. Vermont Copper Company mill, South Stafford, Vt. Sampled in 1943. Sample no. 118-ELIZ-3.

Table 36.—Analyses and descriptions of samples from Virginia

	VA 7-1	VA 7-2	VA 7-3	VA 7-4	VA 10-1	VA 13-1	VA 13-2	VA 13-3	VA 13-4	VA 15-1	VA 15-2	VA 15-3	
Ag	-	-	-	-	-					-	-	-	Ag
BeO	0	0	0	0	0					0.005	0.006	0.01	BeO
Bi_2O_3	0.02	0.1	0.03	0.003	0					0	0	0	Bi_2O_3
Nb_2O_5	0	0	0	0	-					-	-	-	Nb_2O_5
CdO	.01	.04	.4	.001	0	See VA 7-1	See VA 7-2	See VA 7-3	See VA 7-4	0	0	0	CdO
CoO	.006	.004	.008	.004	0.01					.2	.2	.3	CoO
Ga_2O_3	-	-	-	-	0					.004	.001	.004	Ga_2O_3
GeO_2	0	0	0	0	0					0	0	0	GeO_2
HgO	0	0	0	0	0					0	0	0	HgO
In_2O_3	0	0	.002	0	0					0	0	0	In_2O_3
La_2O_3	-	-	-	-	-					-	-	-	La_2O_3
MoO_3	.003	.006	.001	.002	.001					.02	.01	.03	MoO_3
NiO	.004	.002	.004	.003	.01					.08	.1	.1	NiO
Pt	0	0	0	0	-					-	-	-	Pt
Re	0	0	0	0	-					-	-	-	Re
Sb_2O_3	.005	.08	.01	.001	0					0	0	0	Sb_2O_3
SnO	.002	.008	.003	.001	0					.03	.03	.02	SnO
Ta_2O_5	0	0	0	0	0					0	0	0	Ta_2O_5
Tl_2O_3	0	0	.002	0	0					0	0	0	Tl_2O_3
V_2O_5	.004	.001	.001	.003	.1					.1	.1	.08	V_2O_5
WO_3	0	0	0	0	0					0	0	0	WO_3
ZrO_2	-	-	-	-	.1					.1	.1	.08	ZrO_2
Limits of detection 1/	A	A	A	A	A					A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

VA-7-1---Lead-zinc-copper heads, mill sample, 10-day run. Ore from Valzinco mine, Spotsylvania Co., Va. Valzinco Operation mill, Paytes, Va. Sampled in 1943. Sample no. 123-PAN-1.

VA-7-2---Lead-zinc-copper concentrates, 1-month run. Ore from Valzinco mine, Spotsylvania Co., Va. Valzinco Operation mill, Paytes, Va. Sampled in 1943. Sample no. 123-PAN-4.

VA-7-3---Zinc concentrates, 1-month run. Ore from Valzinco mine, Spotsylvania Co., Va. Valzinco Operation mill, Paytes, Va. Sampled in 1943. Sample no. 123-PAN-3.

VA-7-4---Lead-zinc-copper tailings, mill sample, 10-day run. Ore from Valzinco mine, Spotsylvania Co., Va. Valzinco Operation mill, Paytes, Va. Sampled in 1943. Sample no. 123-PAN-2.

VA-10-1--Gold tailings from tailings pond. Ore from Red Bank Gold mine, Virgilina district, Halifax Co., Va. Red Bank Gold mill, Virgilina, Va. Sampled in 1942. Sample no. 8-RB-1.

VA-13-1--(For analysis see 7-1). Lead-zinc-copper heads, mill sample, 10-day run. Ore from Valzinco mine, Spotsylvania Co., Va. Valzinco Operation mill, Paytes, Va. Sampled in 1943. Sample no. 123-PAN-1.

VA-13-2--(For analysis see 7-2). Lead-zinc-copper concentrates, 1-month run. Ore from Valzinco mine, Spotsylvania Co., Va. Valzinco Operation mill, Paytes, Va. Sampled in 1943. Sample no. 123-PAN-4.

VA-13-3--(For analysis see 7-3). Zinc concentrates, 1-month run. Ore from Valzinco mine, Spotsylvania Co., Va. Valzinco Operation mill, Paytes, Va. Sampled in 1943. Sample no. 123-PAN-3.

VA-13-4--(For analysis see 7-4). Lead-zinc-copper tailings, mill sample, 10-day run. Ore from Valzinco mine, Spotsylvania Co., Va. Valzinco Operation mill, Paytes, Va. Sampled in 1943. Sample no. 123-PAN-2.

VA-15-1--Manganese jig concentrates, Appalachian district, Bland Co., Va. Biggam Manganese Mining Company mill, Bland, Va. Sampled in 1942. Sample no. 15-BI-1.

VA-15-2--Manganese jig concentrates, Appalachian district, Bland Co., Va. Conley mill, Hollybrook, Va. Sampled in 1942. Sample no. 15-CM-2.

VA-15-3--Manganese jig concentrates. Ore from Round Mountain mine, Appalachian district, Bland Co., Va. Virginia Hardwood Lumber Company mill, Bastian Va. Sampled in 1943. Sample no. 13-RM-3.

Table 36.—Analyses and descriptions of samples from Virginia—Continued

	VA 15-4	VA 15-5	VA 70-1	VA 70-2									
Ag	-	-	-	-									Ag
BeO	0.02	0.01	0	0									BeO
Bi_2O_3	0	0	0	0									Bi_2O_3
Nb_2O_5	-	-	0	0									Nb_2O_5
CdO	0	0	0	0									CdO
CoO	.4	.1	0.002	0									CoO
Ga_2O_3	0	0	-	-									Ga_2O_3
GeO_2	0	0	0	0									GeO_2
HgO	0	0	0	0									HgO
In_2O_3	0	0	0	0									In_2O_3
La_2O_3	-	-	-	-									La_2O_3
MoO_3	.005	0	.002	0.004									MoO_3
NiO	.03	.02	0	.001									NiO
Pt	-	-	0	0									Pt
Re	-	-	0	0									Re
Sb_2O_3	0	0	.03	0									Sb_2O_3
SnO	.05	.001	.02	.002									SnO
Ta_2O_5	0	0	0	0									Ta_2O_5
Tl_2O_3	0	0	0	0									Tl_2O_3
V_2O_5	.005	.001	.2	.03									V_2O_5
WO_3	0	0	0	0									WO_3
ZrO_2	.03	.01	-	-									ZrO_2
Limits of detection 1/	A	A	A	A									

1/ See table 2 for limits of detection reported by spectrographers.

VA-15-4--Coarse manganese concentrate from bins, 1 week's run. Ore from Glade Mountain mine, Smythe Co., Va. Glade Mountain Corp. mill, Marion, Va. Sampled in 1942. Sample no. 7-GMC-1.

VA-15-5--Manganese concentrate (fines), 1 week's run. Ore from Glade Mountain mine, Smythe Co., Va. Glade Mountain Corp. mill, Marion, Va. Sampled in 1942. Sample no. 7-GMC-2.

VA-70-1--Kyanite concentrate, -35 mesh. Kyanite Products Corp. mill, near Pamplin, Va. Sampled in 1943. Sample no. 57-KY-2.

VA-70-2--Kyanite flotation tails. Kyanite Products Corp. mill, near Pamplin, Va. Sampled in 1943. Sample no. 57-KY-1.

Table 37.—Analyses and descriptions of samples from Washington

	WAS-5-1	WAS-7-1	WAS-7-2	WAS-7-3	WAS-7-4	WAS-10-1	WAS-10-2	WAS-10-3	WAS-10-4	WAS-10-5	WAS-10-6	WAS-10-7	
Ag	-	-	-	-	-	-	0.0001	0.003	0.0002	0.0001	0.005	0.5	Ag
BeO	0	0	0.001	0.001	0	0	.0003	.0003	.0001	.0002	.0001	0	BeO
Bi_2O_3	0	0.03	0	0	0	0	0	0	0	0	.008	.4	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0	.02	.6	.004	0	0.003	0	0	0	0	0	.01	CdO
CoO	0.02	.01	.01	.008	0.008	.004	0	.002	0	0	0	0	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	0	0	.005	0	0	0	0	0	0	0	0	0	GeO_2
HgO	0	0	0	0	0	0	.0005	-	.005	.001	.001	.0003	HgO
In_2O_3	0	.002	.008	0	0	0	0	0	0	0	0	0	In_2O_3
La_2O_3	-	-	-	-	-	-	0	0	0	0	0	0	La_2O_3
MoO_3	.001	.04	.03	.02	.01	.01	0	0	0	0	0	.04	MoO_3
NiO	.1	.002	.001	.001	.004	.008	.0004	.004	.0004	.0002	.0003	.0002	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	.5	0	0	0	0	0	0	0	0	0	0	0	Sb_2O_3
SnO	.04	.03	.03	.01	.006	0	0	.002	0	0	.001	.006	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	.003	.006	.001	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.1	.006	.008	.02	.02	.005	.004	.005	.002	.002	.006	.002	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	.01	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	B	B	B	B	B	B	

1/ See table 2 for limits of detection reported by spectrographers.

WAS-5-1---Heavy sand concentrate, pan sample. Placer on Jack's Creek, Cle Elum district, Kittitas Co., Wash. Contains 53 percent chromite, 25 percent hypersthene, 11 percent serpentine, and 8 percent plagioclase. Sb is in chromite. Sample no. 77-JA-1.

WAS-7-1---Copper concentrate, mill sample. Ore from Holden mine, Chelan Lake district, Chelan Co., Wash. Howe Sound Company. Sampled in 1943. Sample no. 52-HOL-1.

WAS-7-2---Zinc concentrate, mill sample. Ore from Holden mine, Chelan Lake district, Chelan Co., Wash. Holden mill, Holden, Wash. Howe Sound Company. Sampled in 1943. Sample no. 52-HOL-2.

WAS-7-3---Copper-zinc tailings, mill sample. Ore from Holden mine, Chelan Lake district, Chelan Co., Wash. Howe Sound Company. Sampled in 1943. Sample no. 52-HOL-3.

WAS-7-4---Copper-gold slag from slag pile. Ore from the Rossland district, British Columbia. Northport smelter, Northport, Wash. (closed). Sampled in 1944. Sample no. 141-NOS-1.

WAS-10-1--Gold heads, composite mill sample. Ore from Knob Hill open-cut mine, Republic district, Ferry Co., Wash. Knob Hill mill, Republic, Wash. Knob Hill Mines, Inc. Sampled in 1943. Additional analysis: 0.008 Se. Sample no. 121-KNO-1.

WAS-10-2---Gold heads, grab sample from old ore bin. Ore from Bodie (Northern Gold) mine, Cascade district, Okanagan Co., Wash. Toroda Gold Mines Corp. mill (dismantled), Wanconda, Wash. Sampled in 1944. Sample no. 213-TG-4.

WAS-10-3---Concentrate, grab sample from old concentrate bin. Ore from Bodie (Northern Gold) mine, Cascade district, Okanagan Co., Wash. Toroda Gold Mines Corp. mill (dismantled), Waconda, Wash. Sampled in 1944. Additional analysis: 0.002 Au. Sample no. 213-TG-1.

WAS-10-4---Gold tailings, grab sample from last few weeks of production in 1940. Ore from Bodie (Northern Gold) mine, Cascade district, Okanagan Co., Wash. Toroda Gold Mines Corp. mill (dismantled), Waconda, Wash. Sampled in 1944. Sample no. 213-TG-2.

WAS-10-5---Gold tailings, composite sample from dump. Ore from Bodie (Northern Gold) mine, Cascade district, Okanagan Co., Wash. Toroda Gold Mines Corp. mill (dismantled), Waconda, Wash. Sampled in 1944. Sample no. 213-TG-3.

WAS-10-6---Lead-zinc heads, mill sample. Ore from Kaaba mine, Loomis-Oroville (Nighthawk) district, Okanagan Co., Wash. Kaaba-Texas Mining Company mill, Nighthawk, Wash. Sampled in 1944. Sample no. 213-KT-3.

WAS-10-7---Lead concentrates, 72-hour run. Ore from Kaaba mine, Loomis-Oroville (Nighthawk) district, Okanagan Co., Wash. Kaaba-Texas Mining Company mill, Nighthawk, Wash. Sampled in 1944. Sample no. 213-KT-1.

Table 37.—Analyses and descriptions of samples from Washington—Continued

	WAS-10-8	WAS-10-9	WAS-10-10	WAS-13-1	WAS-13-2	WAS-13-3	WAS-13-4	WAS-13-5	WAS-13-6	WAS-13-7	WAS-13-8	WAS-13-9	
Ag	0.02	0.0004									-	-	Ag
BeO	0	.0002									0	0	BeO
Bi_2O_3	.01	0									0	0	Bi_2O_3
Nb_2O_5	0	0									0	0	Nb_2O_5
CdO	.5	0									0.01	0.01	CdO
			See WAS-7-4	See WAS-7-1	See WAS-7-2	See WAS-7-3	See WAS-10-6	See WAS-10-7	See WAS-10-8	See WAS-10-9			
CoO	0	0									.001	.002	CoO
Ga_2O_3	-	-									-	-	Ga_2O_3
GeO_2	0	0									.002	0	GeO_2
HgO	.001	.0008									0	0	HgO
In_2O_3	0	0									.002	0	In_2O_3
La_2O_3	0	0									-	-	La_2O_3
MoO_3	.004	0									.02	.03	MoO_3
NiO	.001	.0004									.008	.02	NiO
Pt	0	0									0	0	Pt
Re	0	0									0	0	Re
Sb_2O_3	0	0									0	.005	Sb_2O_3
SnO	.005	.001									.003	.001	SnO
Ta_2O_5	0	0									0	0	Ta_2O_5
Tl_2O_3	0	0									0	0	Tl_2O_3
V_2O_5	.001	.007									.003	.001	V_2O_5
WO_3	0	.01									0	0	WO_3
ZrO_2	-	-									-	-	ZrO_2
Limits of detection 1/	B	B									A	A	

1/ See table 2 for limits of detection reported by spectrographers.

WAS-10-8---Zinc concentrates, 72-hour run. Ore from Kaaba mine, Loomis-Oroville (Nighthawk) district, Okanagan Co., Wash. Kaaba-Texas Mining Company mill, Nighthawk, Wash. Sampled in 1944. Sample no. 213-KT-2.

WAS-10-9---Lead-zinc tailings, mill sample. Ore from Kaaba mine, Loomis-Oroville (Nighthawk) district, Okanagan Co., Wash. Kaaba-Texas Mining Company mill, Nighthawk, Wash. Sampled in 1944. Sample no. 213-KT-4.

WAS-10-10--(For analysis see 7-4). Copper-gold slag from slag pile. Ore from the Rossland district, British Columbia. Northport smelter, Northport, Wash. (closed). Sampled in 1944. Sample no. 141-NOS-1.

WAS-13-1---(For analysis see 7-1). Copper concentrate, mill sample. Ore from Holden mine, Chelan Lake district, Chelan Co., Wash. Howe Sound Company. Sampled in 1943. Sample no. 52-HOL-1.

WAS-13-2---(For analysis see 7-2). Zinc concentrate, mill sample. Ore from Holden mine, Chelan Lake district, Chelan Co., Wash. Holden mill, Holden, Wash. Howe Sound Company. Sampled in 1943. Sample no. 52-HOL-2.

WAS-13-3---(For analysis see 7-3). Copper-zinc tailings, mill sample. Ore from Holden mine, Chelan Lake district, Chelan Co., Wash. Howe Sound Company. Sampled in 1943. Sample no. 52-HOL-3.

WAS-13-4---(For analysis see 10-6). Lead-zinc heads, mill sample. Ore from Kaaba mine, Loomis-Oroville (Nighthawk) district, Okanagan Co., Wash. Kaaba-Texas Mining Company mill, Nighthawk, Wash. Sampled in 1944. Sample no. 213-KT-3.

WAS-13-5---(For analysis see 10-7). Lead concentrates, 72-hour run. Ore from Kaaba mine, Loomis-Oroville (Nighthawk) district, Okanagan Co., Wash. Kaaba-Texas Mining Company mill, Nighthawk, Wash. Sampled in 1944. Sample no. 213-KT-1.

WAS-13-6---(For analysis see 10-8). Zinc concentrates, 72-hour run. Ore from Kaaba mine, Loomis-Oroville (Nighthawk) district, Okanagan Co., Wash. Kaaba-Texas Mining Company mill, Nighthawk, Wash. Sampled in 1944. Sample no. 213-KT-2.

WAS-13-7---(For analysis see 10-9). Lead-zinc tailings, mill sample. Ore from Kaaba mine, Loomis-Oroville (Nighthawk) district, Okanagan Co., Wash. Kaaba-Texas Mining Company mill, Nighthawk, Wash. Sampled in 1944. Sample no. 213-KT-4.

WAS-13-8---Zinc-lead heads, mill sample. Ore from Grandview and Bella May mines, Metaline district, Pend Oreille Co., Wash. Grandview mill, Metaline Falls, Wash. Metaline Mining and Leasing Company. Sampled in 1943. Sample no. 71-GR-1.

WAS-13-9---Lead concentrate. Ore from Grandview and Bella May mines, Metaline district, Pend Oreille Co., Wash. Grandview mill, Metaline Falls, Wash. Metaline Mining and Leasing Company. Sampled in 1943. Sample no. 71-GR-4.

Table 37.—Analyses and descriptions of samples from Washington—Continued

	WAS-13-10	WAS-13-11	WAS-13-12	WAS-13-13	WAS-13-14	WAS-13-15	WAS-13-16	WAS-13-17	WAS-13-18	WAS-13-19	WAS-13-20	WAS-13-21	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0	0	0	0	0	0	0	0	0	0	0	0	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0.006	0.4	0.08	Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Nb_2O_5
CdO	0.6	0	0.004	0.3	0	0.2	0.1	0.2	0.2	.01	.03	.7	CdO
CoO	.008	0	.001	.001	0	.002	0	0	.008	0	.001	.004	CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	Ga_2O_3
GeO_2	.02	0.001	0	.02	0.001	.001	.001	0	.003	.002	0	.01	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	.02	0	0	.005	0	0	0	0	0	.003	0	.01	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.05	.01	.1	.06	.04	.001	.001	0	.008	0	.003	.001	MoO_3
NiO	.03	.004	.03	.03	.003	.004	.005	0	.006	0	.001	.001	NiO
Pt	0	0	0	0	0	0	0	0	0	0	0	0	Pt
Re	0	0	0	0	0	0	0	0	0	0	0	0	Re
Sb_2O_3	0	0	.01	0	0	0	0	0	0	0	.002	0	Sb_2O_3
SnO	.008	.001	.006	.008	.002	.006	.008	.006	.008	.005	.002	.004	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	.003	0	0	.004	0	0	0	0	0	0	0	0	Tl_2O_3
V_2O_5	.001	.005	.02	.008	.006	.002	.002	.001	.003	.002	0	0	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-	-	-	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

WAS-13-10--Zinc concentrate. Ore from Grandview and Bella May mines, Metaline district, Pend Oreille Co., Wash. Grandview mill, Metaline Falls, Wash. Metaline Mining and Leasing Company. Sampled in 1943. Sample no. 71-GR-3.

WAS-13-11--Zinc-lead tailings, mill sample. Ore from Grandview and Bella May mines, Metaline district, Pend Oreille Co., Wash. Grandview mill, Metaline Falls, Wash. Metaline Mining and Leasing Company. Sampled in 1943. Sample no. 71-GR-2.

WAS-13-12--Lead flotation concentrate, 2-weeks run. Ore from Pend Oreille mine, Metaline district, Pend Oreille Co., Wash. Pend Oreille mill, Metaline Falls, Wash. Sampled in 1943. Sample no. 97-PO-2.

WAS-13-13--Zinc flotation concentrate, 2-weeks run. Ore from Pend Oreille mine, Metaline district, Pend Oreille Co., Wash. Pend Oreille mill, Metaline Falls, Wash. Sampled in 1943. Sample no. 97-PO-1.

WAS-13-14--Zinc-lead tailings, mill sample. Ore from Pend Oreille mine, Metaline district, Pend Oreille Co., Wash. Pend Oreille mill, Metaline Falls, Wash. Sampled in 1943. Sample no. 97-PO-3.

WAS-13-15--Zinc ore from dump, selected sample. Black Rock mine, Northport district, Stevens Co., Wash. Sampled in 1943. Sample no. 87-KH-2.

WAS-13-16--Zinc ore from dump, selected sample. Black Rock mine, Northport district, Stevens Co., Wash. Sampled in 1943. Sample no. 87-BR-3.

WAS-13-17--Zinc ore (smithsonite) from dump. Black Rock mine, Northport district, Stevens Co., Wash. Sampled in 1943. Sample no. 87-BR-4.

WAS-13-18--Zinc ore from dump, New England lease, Northport district, Stevens Co., Wash. Sampled in 1943. Sample no. 87-NE-1.

WAS-13-19--Lead-zinc heads, mill sample. Ore from Sierra Zinc mine, Northport district, Stevens Co., Wash. Blue Ridge mill, near Alladin, Wash. Goldfield Consolidated Mines Company. Sampled in 1943. Sample no. 120-SIE-2.

WAS-13-20---Lead concentrates, 24-hour run. Ore from Sierra Zinc mine, Northport district, Stevens Co., Wash. Blue Ridge mill, near Alladin, Wash. Goldfield Consolidated Mines Company. Sampled in 1943. Sample no. 120-SIE-4.

WAS-13-21---Zinc concentrates, 24-hour run. Ore from Sierra Zinc mine, Northport district, Stevens Co., Wash. Blue Ridge mill, near Alladin, Wash. Goldfield Consolidated Mines Company. Sampled in 1943. Sample no. 120-SIE-3.

Table 37.—Analyses and descriptions of samples from Washington—Continued

	WAS-13-22	WAS-13-23	WAS-13-24	WAS-27-1	WAS-27-2	WAS-27-3	WAS-27-4	WAS-27-5	WAS-94-1				
Ag	-	-	-	0.01	0.0002	-	-	0					Ag
BeO	0	0	0	0	.0007	0.0005	0.0001	0.0003					BeO
Bi_2O_3	0	0	0	.8	.04	.01	.04	.01					Bi_2O_3
Nb_2O_5	0	0	0	.04	.002	0	.03	0					Nb_2O_5
CdO	0.004	0.05	0	0	0	0	0	0					CdO
CoO	0	0	0.008	0	0	0	0	0	See WAS-5-1				CoO
Ga_2O_3	-	-	-	-	-	-	-	-					Ga_2O_3
GeO_2	0	.001	0	0	0	0	.0008	.00004					GeO_2
HgO	0	0	0	0	.001	0	0	0					HgO
In_2O_3	0	0	0	0	0	0	0	0					In_2O_3
La_2O_3	-	-	-	0	0	0	.001	.004					La_2O_3
MoO_3	0	.001	.01	.05	.01	.009	0	0					MoO_3
NiO	0	.004	.004	.001	.0003	0	0	0					NiO
Pt	0	0	0	0	0	0	0	0					Pt
Re	0	0	0	0	0	0	0	0					Re
Sb_2O_3	0	0	0	0	0	0	.01	0					Sb_2O_3
SnO	.004	0	.001	0	.003	0	.005	0					SnO
Ta_2O_5	0	0	0	0	0	0	0	0					Ta_2O_5
Tl_2O_3	0	0	0	0	0	0	0	0					Tl_2O_3
V_2O_5	.003	.003	.01	0	.003	.002	.001	0					V_2O_5
WO_3	0	0	0	-	.04	.02	1.0	.01					WO_3
ZrO_2	-	-	-	-	-	-	-	-					ZrO_2
Limits of detection 1/	A	A	A	B	B	B	B	B					

1/ See table 2 for limits of detection reported by spectrographers.

WAS-13-22--Zinc-lead tailings, composite sample. Ore from Sierra Zinc mine, Northport district, Stevens Co., Wash. Blue Ridge mill, near Alladin, Wash. Goldfield Consolidated Mines Company. Sampled in 1943. Sample no. 120-SIE-1.

WAS-13-23--Zinc-lead ore from dump, Van Stone mine, Northport district, Stevens Co., Wash. Sampled in 1943. Sample no. 110-VAN-1.

WAS-13-24--Lead-zinc slag. Ores from Coeur d'Alene, Ida. district and Northport, Wash. district. Northport smelter, Northport, Wash. (closed). Sampled in 1944. Sample no. 141-NOS-2.

WAS-27-1---Tungsten concentrate, 2-weeks run. Ore from Deer Lake Tungsten mine, Stevens Co., Wash. Deer Lake mill, Deer Park, Wash. Sampled in 1944. Sample no. 180-DL-1.

WAS-27-2---Tungsten slimes. Ore from Deer Lake Tungsten mine, Stevens Co., Wash. Deer Lake mill, Deer Park, Wash. Sampled in 1944. Sample no. 180-DL-3.

WAS-27-3---Tungsten tailings, mill sample. Ore from Deer Lake Tungsten mine, Stevens Co., Wash. Deer Lake mill, Deer Park, Wash. Sampled in 1944. Sample no. 180-DL-2.

WAS-27-4---Tungsten concentrates. Ore from Keith (Van Horne) Tungsten mine, Deer Trail district, Steven Co., Wash. Keith Tungsten mill, Spokane Indian Reservation, Wash. Sampled in 1944. Sample no. 180-KT-1.

WAS-27-5---Tungsten tailings from tailings dump, grab sample. Ore from Keith (Van Horne) Tungsten mine, Deer Trail district, Steven Co., Wash. Keith Tungsten mill, Spokane Indian Reservation, Wash. Sampled in 1944. Sample no. 180-KT-2.

WAS-94-1---(For analysis see 5-1). Heavy sand concentrate, pan sample. Placer on Jack's Creek, Cle Elum district, Kittitas Co., Wash. Contains 53 percent chromite, 25 percent hypersthene, 11 percent serpentine, and 8 percent plagioclase. Sb is in chromite. Sample no. 77-JA-1.

Table 38.—Analyses and descriptions of samples from Wisconsin

	WIS-13-1	WIS-13-2	WIS-13-3	WIS-13-4	WIS-13-5	WIS-13-6	WIS-13-7	WIS-13-8	WIS-13-9	WIS-13-10	WIS-13-11	WIS-13-12	
Ag	-	-	-	-	-	-	-	-	-	-	-	-	Ag
BeO	0	0	0	0	0	0	0	0	0	0	0	0	BeO
Bi_2O_3	0	0	0	0	0	0	0	0	0	0	0	0	Bi_2O_3
Nb_2O_5	-	-	0	0	0	0	0	0	0	0	0	-	Nb_2O_5
CdO	0.3	0.001	0.004	0.002	0.003	0.01	0.006	0.01	0.01	0.01	0.01	0.02	CdO
CoO	.04	.005	.01	.005	.006	.01	.008	.004	.01	.01	.01	.004	CoO
Ga_2O_3	.01	0	-	-	-	-	-	-	-	-	-	.01	Ga_2O_3
GeO_2	.01	0	0	0	0	0	0	0	0	0	0	.001	GeO_2
HgO	0	0	0	0	0	0	0	0	0	0	0	0	HgO
In_2O_3	.004	.001	0	0	0	0	0	.001	.001	.001	0	.005	In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-	-	-	La_2O_3
MoO_3	.001	.001	.008	.01	.01	.01	.008	.008	.01	.01	.01	.001	MoO_3
NiO	-	.005	.02	.01	.01	.02	.02	.01	.03	.03	.03	.004	NiO
Pt	-	-	0	0	0	0	0	0	0	0	0	-	Pt
Re	-	-	0	0	0	0	0	0	0	0	0	-	Re
Sb_2O_3	0	0	0	0	0	-	0	0	0	0	0	0	Sb_2O_3
SnO	.005	0	.001	0	0	.001	0	0	0	.001	0	0	SnO
Ta_2O_5	0	0	0	0	0	0	0	0	0	0	0	0	Ta_2O_5
Tl_2O_3	0	0	.001	0	0	.001	0	.002	.002	.002	0	0	Tl_2O_3
V_2O_5	.005	.004	.006	.008	.006	.005	.004	.01	.006	.006	.005	.005	V_2O_5
WO_3	0	0	0	0	0	0	0	0	0	0	0	0	WO_3
ZrO_2	.01	.001	-	-	-	-	-	-	-	-	-	.004	ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A	A	A	

1/ See table 2 for limits of detection reported by spectrographers.

WIS-13-1---Zinc concentrates. Ores from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1942. Sample 11-V-1.

WIS-13-2---Zinc flotation tailings from tailings pond. Ores from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1942. Sample no. 11-V-2.

WIS-13-3---Iron sulfide and oxide magnetic roast (roasted once). Zinc-iron jig concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-1.

WIS-13-4---Iron sulfide and oxide magnetic roast (roasted twice). Zinc-iron jig concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-2.

WIS-13-5---Iron oxide calcines of zinc-iron concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-3.

WIS-13-6---Iron oxide calcines of zinc-iron concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-4.

WIS-13-7---Iron oxide calcines of zinc-iron concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-5.

WIS-13-8---Iron oxide calcines of zinc-iron concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-6.

WIS-13-9---Iron oxide calcines from flash roasted flotation concentrate of iron sulfide. Zinc-iron jig concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-7.

WIS-13-10---Iron oxide calcines from flash roasted flotation concentrate of iron sulfide. Zinc-iron jig concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-8.

WIS-13-11--Iron oxide calcines from flash roasted flotation concentrate of iron sulfide. Zinc-iron jig concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-9.

WIS-13-12--Zinc-lead jig concentrate, grab sample. Dodgeville Mining Company mill, Iowa Co., Wisc. Sampled in 1942. Sample no. 11-D-1.

Table 38.—Analyses and descriptions of samples from Wisconsin—Continued

	WIS-13-13	WIS-13-14	WIS-13-15	WIS-13-16	WIS-13-17	WIS-73-1	WIS-73-2	WIS-73-3	WIS-73-4	WIS-73-5	WIS-73-6	WIS-73-7	
Ag	-	-	-	-	-								Ag
BeO	0	0	0	0	0								BeO
Bi_2O_3	0	0	0	0	0								Bi_2O_3
Nb_2O_5	-	-	-	0	0								Nb_2O_5
CdO	0.001	0.01	.4	0.006	0.002	See WIS-13-3	See WIS-13-4	See WIS-13-5	See WIS-13-6	See WIS-13-7	See WIS-13-8	See WIS-13-9	CdO
CoO	.002	.008	.02	.002	.001								CoO
Ga_2O_3	.001	.001	.02	-	-								Ga_2O_3
GeO_2	0	.002	.01	.002	0								GeO_2
HgO	0	0	0	0	0								HgO
In_2O_3	0	.001	.006	0	0								In_2O_3
La_2O_3	-	-	-	-	-								La_2O_3
MoO_3	.001	.001	.001	0	0								MoO_3
NiO	.002	.003	.005	.005	.004								NiO
Pt	-	-	-	0	0								Pt
Re	-	-	-	0	0								Re
Sb_2O_3	0	0	0	0	0								Sb_2O_3
SnO	0	0	0	0	.005								SnO
Ta_2O_5	0	0	0	0	0								Ta_2O_5
Tl_2O_3	0	0	0	.001	0								Tl_2O_3
V_2O_5	.003	.001	.004	.006	.005								V_2O_5
WO_3	0	0	0	0	0								WO_3
ZrO_2	.003	.001	.005	-	-								ZrO_2
Limits of detection 1/	A	A	A	A	A								

1/ See table 2 for limits of detection reported by spectrographers.

WIS-13-13--Zinc-lead jig tailings, mill grab sample. Dodgeville Mining Company mill, Iowa Co., Wisc. Sampled in 1942. Sample no. 11-D-2.

WIS-13-14--Zinc heads, grab sample. Reworked Champion mine tailings, Lafayette Co., Wisc. W. E. Faithorn mill, New Diggins, Wisc. Sampled in 1942. Sample no. 11-F-2.

WIS-13-15--Zinc concentrate, grab sample. Reworked Champion mine tailings, Lafayette Co., Wisc. W. E. Faithorn mill, New Diggins, Wisc. Sampled in 1942. Sample no. 11-F-1.

WIS-13-16--Zinc-lead feed, 24-hour sample. Ore from Kittoe mine, Lafayette Co., Wisc. Kittoe tailings mill, Benton, Wisc. Sampled in 1943. Sample no. 54-B-1.

WIS-13-17--Zinc-lead tailings from tailings pile, grab sample. Ore from Kittoe mine, Lafayette Co., Wisc. Kittoe tailings mill, Benton, Wisc. Sampled in 1943. Sample no. 54-B-2.

WIS-73-1---(For analysis see 13-3). Iron sulfide and oxide magnetic roast (roasted once). Zinc-iron jig concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-1.

WIS-73-2---(For analysis see 13-4). Iron sulfide and oxide magnetic roast (roasted twice). Zinc-iron jig concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-2.

WIS-73-3---(For analysis see 13-5). Iron oxide calcines of zinc-iron concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-3.

WIS-73-4---(For analysis see 13-6). Iron oxide calcines of zinc-iron concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-4.

WIS-73-5---(For analysis see 13-7). Iron oxide calcines of zinc-iron concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-5.

WIS-73-6---(For analysis see 13-8). Iron oxide calcines of zinc-iron concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-6.

WIS-73-7---(For analysis see 13-9). Iron oxide calcines from flash roasted flotation concentrate of iron sulfide. Zinc-iron jig concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-7.

Table 38.—Analyses and descriptions of samples from Wisconsin—Continued

	WIS-73-8	WIS-73-9											
Ag													Ag
BeO													BeO
Bi_2O_3													Bi_2O_3
Nb_2O_5													Nb_2O_5
CdO	See WIS-13-10	See WIS-13-11											CdO
CoO													CoO
Ga_2O_3													Ga_2O_3
GeO_2													GeO_2
HgO													HgO
In_2O_3													In_2O_3
La_2O_3													La_2O_3
MoO_3													MoO_3
NiO													NiO
Pt													Pt
Re													Re
Sb_2O_3													Sb_2O_3
SnO													SnO
Ta_2O_5													Ta_2O_5
Tl_2O_3													Tl_2O_3
V_2O_5													V_2O_5
WO_3													WO_3
ZrO_2													ZrO_2
Limits of detection 1/													

1/ See table 2 for limits of detection reported by spectrographers.

WIS-73-8---(For analysis see 13-10). Iron oxide calcines from flash roasted flotation concentrate of iron sulfide. Zinc-iron jig concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-8.

WIS-73-9---(For analysis see 13-11). Iron oxide calcines from flash roasted flotation concentrate of iron sulfide. Zinc-iron jig concentrates from Wisconsin and northern Illinois. Vinegar Hill Custom mill, Cuba City, Grant Co., Wisc. Sampled in 1943. Sample no. 54-V-9.

Table 39.—Analyses and descriptions of samples from Wyoming

	WYO-15-1	WYO-15-2	WYO-15-3	WYO-15-4	WYO-15-5	WYO-15-6	WYO-15-7	WYO-15-8	WYO-15-9	WYO-15-10			
Ag	-	-	-	-	-	-	-	-	-	-			Ag
BeO	0	0	0	0	0	0	0	0	0	0			BeO
Bi_2O_3	0	0	0	0	0	0	0	0.002	0	0			Bi_2O_3
Nb_2O_5	0	0	0	0	0	0	0	0	0	0			Nb_2O_5
CdO	0	0	0	0	0	0	0	0	0	0			CdO
CoO	0.05	0	0.004	0.003	0	0	0	.005	0	0			CoO
Ga_2O_3	-	-	-	-	-	-	-	-	-	-			Ga_2O_3
GeO_2	0	0	0	0	0	0	0	0	0	0			GeO_2
HgO	0	0	0	0	0	0	0	0	0	0			HgO
In_2O_3	0	0	0	0	0	0	0	0	0	0			In_2O_3
La_2O_3	-	-	-	-	-	-	-	-	-	-			La_2O_3
MoO_3	.02	0	0	0	0	0	0	0	0	0			MoO_3
NiO	.006	.01	.007	.01	.01	.01	.01	.005	.01	.01			NiO
Pt	-	-	-	-	-	-	-	-	-	-			Pt
Re	-	-	-	-	-	-	-	-	-	-			Re
Sb_2O_3	0	0	0	0	0	0	0	0	0	0			Sb_2O_3
SnO	0	0	0	0	0	0	0	0	0	0			SnO
Ta_2O_5	-	-	-	-	-	-	-	-	-	-			Ta_2O_5
Tl_2O_3	-	-	-	-	-	-	-	-	-	-			Tl_2O_3
V_2O_5	.05	.01	.01	.03	.01	.03	.01	.02	.01	.02			V_2O_5
WO_3	-	-	-	-	-	-	-	-	-	-			WO_3
ZrO_2	-	-	-	-	-	-	-	-	-	-			ZrO_2
Limits of detection 1/	A	A	A	A	A	A	A	A	A	A			

1/ See table 2 for limits of detection reported by spectrographers.

WYO-15-1---Manganese ore, high-grade, from dump. Ore from mine on W flank of Laramie Mountains, 7 miles south of Marshall, Albany Co., Wyo. Additional analyses: greater than 2.0 Ba, .004 Cr_2O_3, .01 CuO, .007 Pb. Sample no. 297-W4-45.

WYO-15-2---Manganese vein material, Black Rock mine, Crook Co., Wyo. Sampled in 1945. Sample no. 291-BH-14.

WYO-15-3---Altered porphyry, wall rock of manganese vein. Black Rock mine, Crook Co., Wyo. Sampled in 1945. Sample no. 291-BH-16.

WYO-15-4---Crushed and stained porphyry in hanging wall of vein, Black Rock mine, Crook Co., Wyo. Sampled in 1945. Sample no. 291-BH-15.

WYO-15-5---Monzonite porphyry with manganese veinlets, adit portal, Black Rock mine, Crook Co., Wyo. Sampled in 1945. Sample no. 291-BH-11.

WYO-15-6---Copper-stained porphyry from dump, Black Rock mine, Crook Co., Wyo. Sampled in 1945. Sample no. 291-BH-12.

WYO-15-7---Porphyry with manganese stains, chip sample from face of cut. Black Rock mine, Crook Co., Wyo. Sampled in 1945. Sample no. 291-BH-10.

WYO-15-8---Highly manganiferous material in monzonite porphyry, from pit. Black Rock mine, Crook Co., Wyo. Sampled in 1945. Sample no. 291-BH-9.

WYO-15-9---Pegmatitic granite with manganese coatings and veinlets, Black Rock mine, Crook Co., Wyo. Sampled in 1945. Sample no. 291-BH-7.

WYO-15-10--Finely-broken manganese- and copper-stained porphyry from dump, grab sample. Black Rock mine, Crook Co., Wyo. Sampled in 1945. Sample no. 291-BH-13.