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Geochemical analyses of samples of rock, stream sediment, and panned heavy-mineral concentrate, southern part of the Walker River Indian Reservation, Mineral County, Nevada

by

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INTRODUCTION

Geochemical sampling was conducted by the U.S. Geological Survey in the part of the Walker River Indian Reservation south of the 39th parallel, in Mineral County, Nevada, during the summer of 1978. The analyses included in this report are part of a broader geological, geochemical, and geophysical study of the Walker Lake 1° x 2° quadrangle. This report includes a map showing the locations of sites sampled in this program (fig. 1) and a tabulation of chemical analyses for samples of rock, stream sediment, and panned heavy-mineral concentrate collected at each sample site (tables 2, 3, and 4, respectively).

SAMPLE COLLECTION AND PREPARATION

A set of three samples was collected at most sites shown on figure 1; a complete set consisted of a rock sample, a stream-sediment sample, and a bulk stream-sediment sample for later panning. At two sites (WL-0129 and WL-0191) no rock sample was collected. A total of 38 rock samples, 40 stream-sediment samples, and 40 bulk-sediment samples were collected.

Rock Samples

All rock samples were collected from outcrops that were considered to be representative of the general area sampled. Wherever necessary each sample was hand cobbed to remove any obviously weathered material. All samples were crushed and pulverized before analysis.

Stream-Sediment Samples

Samples of alluvium in active streams were collected and sieved using a 0.25-mm (60-mesh) stainless steel screen in an aluminum frame, and the minus 0.25-mm (60-mesh) fraction was pulverized and saved for analysis.

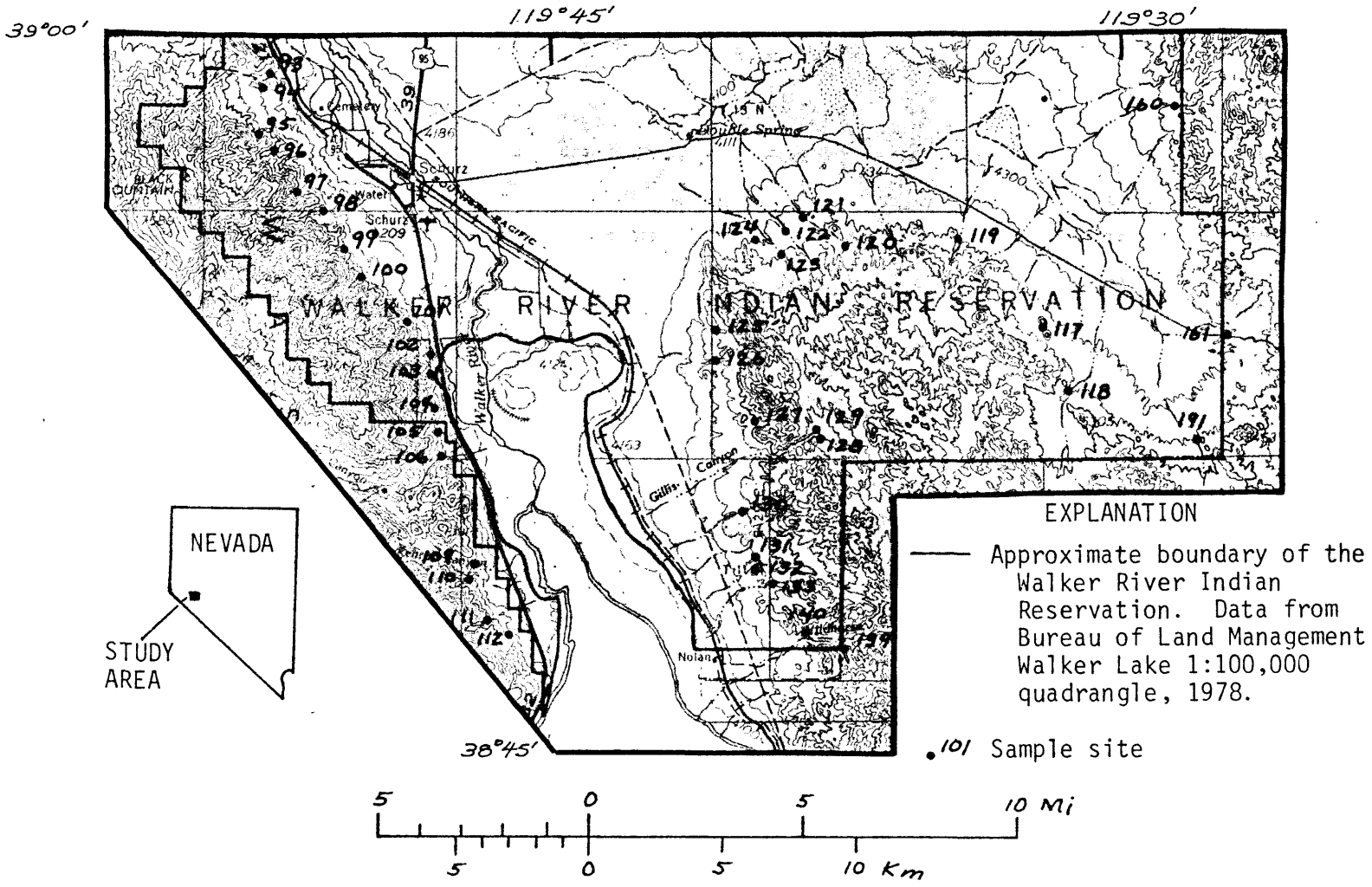

FIGURE 1.--LOCATION OF GEOCHEMICAL SAMPLE SITES, SOUTHERN PART OF THE WALKER RIVER INDIAN RESERVATION, MINERAL COUNTY, NEVADA

Panned Heavy-Mineral-Concentrate Samples

The bulk sample of active stream-sediment material was passed through a 2.0-mm (10-mesh) screen to remove the coarsest material. The material passing through the screen was wet-panned until most of the quartz, feldspar, organic material, and clay-sized material was removed. The sample was air dried, and the highly magnetic material was removed using a hand magnet. Any light material remaining in the concentrate was then separated by allowing the heavier fraction of the sample to settle through bromoform (specific gravity 2.86). The resulting heavy-mineral fraction was then separated into a magnetic and a nonmagnetic fraction using a Franz Isodynamic Separator[1/] at a setting of 0.6 amps, with 15° forward and 15° side settings. The resulting nonmagnetic fraction was pulverized in an agate mortar before analysis.

1/ The use of trade names in this report is for descriptive purposes only and does not constitute endorsement by the U.S. Geological Survey.

GEOCHEMICAL ANALYSIS

All three types of samples were analyzed for Fe, Mg, Ca, Ti, Mn, Ag, As, Au, B, Ba, Be, Bi, Cd, Co, Cr, Cu, La, Mo, Nb, Ni, Pb, Sc, Sn, Sr, V, W, Y, Zn, Zr, and Th using a six-step semiquantitative emission spectrographic method (Grimes and Marranzino, 1968). Because of the enhancement effects caused by high concentrations of iron, titanium, and zircon in heavy-mineral concentrates, an analytical modification was necessary for this sample type. The samples were mixed with equal amounts of spectrographically pure quartz to reduce spectral interferences. As a result the lower limits of detection for this type of sample are all raised two reporting values above the normal lower limit value (table 1). The rock and stream-sediment samples were also analyzed for As using a colorimetric method (Ward and others, 1963), for Zn by atomic-absorption spectrometry (Ward and others, 1969), for Sb by atomic-absorption spectrometry (Welsch and Chao, 1975), and for Cd and Bi by a single digestion atomic-absorption spectrometric technique (Viets, 1978). Because of a limited amount of sample material, the panned heavy-mineral concentrates were only analyzed spectrographically. Analysis of all three sample types was done partly in the field and partly in U.S. Geological Survey laboratories in Denver.

Because they were not detected in any of the rock samples by spectrographic analyses (table 2), the elements As, Au, Bi, Cd, Sb, Sn, W, Zn, and Th have been deleted; the elements Ag, As, Au, Bi, Cd, Nb, Sb, Sn, W, Zn, and Th have likewise been deleted from the stream-sediment samples (table 3). The elements Ag, Au, and Cd were also not detected in any of the samples of panned heavy-mineral concentrate. Because of the formatting used in the computer program that produced tables 2 through 4, some of the elements listed in these tables (Fe, Mg, Ca, Ti, Be, AA-Cd, and AA-Bi) carry one or more nonsignificant digits to the right of the significant digits. The analysts did not determine these elements to the accuracy suggested by the nonsignificant digits.

Table 1.--*Lower limits of analytical detection for samples of rock, stream sediment, and panned heavy-mineral concentrate, southern part of the Walker River Indian Reservation, Mineral County, Nevada*

[(---) indicates no 'N' (not detected) values, all 'N' values, or not analyzed. AA indicates atomic absorption analysis; CM indicates colorimetric analysis; all other elements are spectrographic analysis. Elements shown in Tables 2, 3, and 4 but not listed here do not have any reported values below their respective lower limits of detection.]

	Lower limit of detection (ppm)	
Element	Rock and stream sediment	Heavy-mineral concentrate
Ag	0.5	---
As	---	500
Au	---	---
B	10	20
Be	1	---
Bi	---	20
Cd	---	---
Co	5	10
Cr	10	20
Cu	5	10
La	20	---
Mo	5	10
Nb	20	50
Ni	5	10
Pb	10	20
Sb	---	200
Sc	5	---
Sn	---	20
Sr	---	200
V	10	---
W	---	100
Y	10	---
Zn	---	500
Th	---	500
AA-Cd	.05	---
AA-Bi	.5	---
CM-As	10	---

DESCRIPTION OF TABLES 2-4

For the three sample sets the data are arranged so that column 1 contains the U.S. Geological Survey assigned sample numbers. These numbers coincide with the numbers on the site location map (fig. 1). Rock samples are suffixed by RK, stream sediments by SS, and concentrates by KN. Latitude and longitude (in degrees, minutes, and seconds) are given in columns 2 and 3. Columns in which the element headings (denoted in capital letters) are preceded by an S are emission spectrographic data. Columns in which the element headings (denoted in capital letters) are preceded by AA are atomic absorption data. Column 29 in table 2 and column 27 in table 3 are colorimetric determinations for arsenic (CM-AS). The suffix P in the element headings for the four elements analyzed by atomic-absorption spectrometry is merely a bookkeeping entry that refers to the analytical method used. All element concentrations are given in parts per million (ppm), except for Fe, Mg, Ca, and Ti, which are given in percent.

If a given element was not detected in a sample, then the letter "N" is entered in place of an analytical value. The lower limit of detection for each element for which "N" values have been reported is given in table 1.

ACKNOWLEDGMENTS

We were assisted in the field and (or) laboratory by D. L. Fey, A. D. McCollaum, R. B. Tripp, J. E. Tucker, and R. L. Tucker. The cooperation of the Walker River Indian Tribe is greatly appreciated.

Table 2.--Data for rock samples, southern part of the Walker River Indian Reservation, Nevada

sample	LATITUDE	LONGITUD	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-AG	S-B	S-BA
WL0093RK	38 59 10	118 52 17	1.50	.70	2.0	.30	500	N	10	1,500
WL0094RK	38 59 2	118 52 18	7.00	2.00	5.0	.50	1,000	N	10	2,000
WL0095RK	38 58 0	118 52 36	5.00	2.00	5.0	.50	1,000	N	10	1,500
WL0096RK	38 57 41	118 52 0	5.00	2.00	5.0	.70	1,000	N	20	700
WL0097RK	38 56 54	118 51 20	5.00	2.00	5.0	.50	1,000	N	10	1,000
WL0098RK	38 56 23	118 50 46	2.00	.70	2.0	.20	700	N	10	3,000
WL0099RK	38 55 40	118 50 24	7.00	3.00	5.0	.50	1,000	N	<10	1,500
WL0100RK	38 54 58	118 49 57	5.00	3.00	10.0	.50	1,500	N	<10	2,000
WL0101RK	38 54 14	118 48 32	.50	.15	.5	.10	700	N	N	1,500
WL0102RK	38 53 21	118 48 20	1.00	.30	.2	.10	500	N	50	1,000
WL0103RK	38 52 58	118 48 17	1.50	.20	2.0	.15	700	N	N	1,500
WL0104RK	38 52 12	118 47 56	5.00	1.50	7.0	.50	1,000	N	<10	700
WL0105RK	38 51 45	118 47 52	5.00	7.00	10.0	.50	2,000	N	20	2,000
WL0106RK	38 51 16	118 47 51	5.00	2.00	5.0	.30	1,000	N	<10	3,000
WL0109RK	38 48 57	118 47 0	1.50	1.00	1.0	.20	500	N	N	700
WL0110RK	38 48 45	118 47 3	2.00	1.00	3.0	.20	1,500	N	<10	2,000
WL0111RK	38 47 56	118 46 28	2.00	.20	2.0	.15	500	N	N	1,500
WL0112RK	38 47 24	118 45 52	1.00	.70	3.0	.15	700	N	N	1,500
WL0117RK	38 53 54	118 32 1	5.00	2.00	7.0	.50	1,000	N	30	1,500
WL0118RK	38 52 33	118 31 27	.15	.50	>20.0	.05	300	1.0	10	150
WL0119RK	38 55 47	118 34 16	2.00	.50	3.0	.20	700	N	30	1,500
WL0120RK	38 56 9	118 37 9	1.00	.20	1.0	.30	200	N	20	1,500
WL0121RK	38 56 8	118 38 17	2.00	.30	1.5	.20	500	N	50	1,000
WL0122RK	38 56 0	118 38 43	1.00	.15	1.0	.20	500	<.5	100	700
WL0123RK	38 55 28	118 38 58	3.00	1.50	5.0	.50	300	N	20	1,500
WL0124RK	38 55 40	118 39 24	1.50	.20	1.0	.15	200	<.5	50	1,500
WL0125RK	38 53 58	118 41 5	1.00	.20	2.0	.10	200	N	70	300
WL0126RK	38 53 11	118 41 5	.50	.10	.7	.10	300	<.5	70	300
WL0127RK	38 51 57	118 39 33	.30	>10.00	>20.0	.01	1,000	N	N	50
WL0128RK	38 51 40	118 38 1	.10	.50	>20.0	.02	1,000	N	N	50
WL0130RK	38 50 11	118 39 59	1.50	.70	2.0	.30	500	N	N	1,000
WL0131RK	38 49 10	118 39 40	2.00	.20	2.0	.20	200	N	50	1,500
WL0132RK	38 49 1	118 39 40	3.00	.50	3.0	.50	500	N	50	2,000
WL0133RK	38 48 35	118 39 32	5.00	.70	3.0	.50	700	N	50	1,500
WL0139RK	38 47 22	118 37 32	5.00	1.50	2.0	.50	2,000	N	20	1,000
WL0140RK	38 47 33	118 38 9	2.00	1.50	.3	.50	500	N	20	1,500
WL0160RK	38 58 31	118 28 42	3.00	1.50	3.0	.50	700	N	70	1,500
WL0161RK	38 53 44	118 27 27	1.50	.30	1.5	.20	500	N	70	1,000

Table 2.--Data for rock samples, southern part of the Walker River Indian Reservation, Nevada

sample	S-BE	S-CO	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI	S-PB	S-SC
WL0093RK	2	5	<10	5	50	N	N	5	30	5
WL0094RK	2	20	15	30	50	N	N	5	20	20
WL0095RK	2	20	20	50	30	N	N	20	30	15
WL0096RK	2	30	30	200	30	N	N	20	20	30
WL0097RK	2	15	20	50	30	N	N	10	20	20
WL0098RK	2	5	10	20	50	N	N	5	20	7
WL0099RK	2	20	20	70	30	N	N	15	15	20
WL0100RK	3	20	200	30	30	N	N	30	30	20
WL0101RK	7	N	N	30	50	N	N	<5	50	5
WL0102RK	5	N	N	5	30	N	N	N	30	5
WL0103RK	5	<5	<10	5	50	N	N	N	30	7
WL0104RK	2	20	15	100	30	N	N	7	30	20
WL0105RK	3	20	150	50	50	N	N	30	30	30
WL0106RK	3	20	50	30	50	N	N	10	20	15
WL0109RK	2	10	<10	5	30	N	N	<5	<10	10
WL0110RK	3	10	N	<5	30	N	N	<5	30	7
WL0111RK	3	<5	N	<5	70	N	N	N	30	7
WL0112RK	3	N	10	5	50	N	N	N	30	7
WL0117RK	2	20	20	20	50	N	N	10	30	20
WL0118RK	N	N	50	5	N	N	N	10	N	5
WL0119RK	3	5	15	7	30	<5	N	<5	30	10
WL0120RK	5	N	N	<5	70	N	N	N	30	5
WL0121RK	5	N	<10	5	50	N	N	N	30	7
WL0122RK	5	N	N	<5	50	N	<20	N	50	5
WL0123RK	2	10	20	20	50	N	N	5	30	10
WL0124RK	5	N	N	<5	50	N	N	N	50	7
WL0125RK	10	N	10	<5	50	N	<20	<5	50	5
WL0126RK	7	N	N	<5	50	N	N	N	30	5
WL0127RK	N	N	N	10	N	N	N	N	N	N
WL0128RK	<1	N	N	N	N	N	N	N	N	N
WL0130RK	5	5	N	5	30	N	N	<5	30	5
WL0131RK	5	<5	10	5	50	N	N	N	30	10
WL0132RK	5	5	N	5	50	N	N	N	30	10
WL0133RK	2	15	100	20	50	N	N	30	30	15
WL0139RK	3	15	20	15	50	N	N	7	50	15
WL0140RK	2	N	<10	5	50	N	N	N	20	15
WL0160RK	3	10	20	10	30	<5	N	5	30	10
WL0161RK	5	5	15	10	50	5	N	5	50	7

Table 2.--Data for rock samples, southern part of the Walker River Indian Reservation, Nevada

sample	S-SR	S-V	S-Y	S-ZR	AA-ZN-P	AA-CD-P	AA-BI-P	AA-SB-P	CM-AS
WL0093RK	1,000	100	10	100	60	<.05	<.5	2	<10
WL0094RK	500	500	30	200	40	N	N	2	N
WL0095RK	1,000	500	20	150	40	.05	.5	2	N
WL0096RK	700	1,500	20	50	30	.08	<.5	2	N
WL0097RK	700	500	30	150	60	<.05	N	2	<10
WL0098RK	1,000	150	15	150	55	<.05	<.5	2	<10
WL0099RK	1,000	700	30	200	60	<.05	<.5	1	<10
WL0100RK	1,000	500	30	70	30	<.05	<.5	2	N
WL0101RK	150	20	20	100	20	.05	.5	2	N
WL0102RK	200	50	20	100	30	.05	.5	2	<10
WL0103RK	200	50	20	150	20	<.05	<.5	2	N
WL0104RK	500	1,000	30	100	45	.10	<.5	2	<10
WL0105RK	1,500	1,000	30	100	20	.05	.5	3	N
WL0106RK	1,000	500	20	150	45	<.05	.5	2	N
WL0109RK	300	100	20	100	30	.07	.5	3	N
WL0110RK	700	70	20	150	30	N	<.5	2	N
WL0111RK	300	50	20	100	20	<.05	<.5	<1	<10
WL0112RK	500	100	30	300	25	<.05	.5	2	<10
WL0117RK	2,000	200	20	150	30	<.05	.5	3	N
WL0118RK	>5,000	500	20	70	30	4.10	<.5	2	<10
WL0119RK	500	70	20	200	15	.05	<.5	<1	<10
WL0120RK	500	50	20	200	10	.05	.5	<1	N
WL0121RK	300	100	20	200	30	.10	.5	2	<10
WL0122RK	100	10	30	200	15	.10	.5	2	N
WL0123RK	1,000	500	20	150	70	.14	<.5	2	N
WL0124RK	300	70	30	150	20	.05	<.5	5	<10
WL0125RK	100	N	20	100	25	<.05	<.5	3	<10
WL0126RK	200	30	20	100	10	<.05	N	1	<10
WL0127RK	100	10	10	500	15	1.20	.5	2	20
WL0128RK	500	10	N	50	5	.07	1.0	2	<10
WL0130RK	1,000	100	10	100	55	<.05	.5	2	<10
WL0131RK	500	70	30	300	35	.10	.5	1	<10
WL0132RK	1,000	100	20	200	25	.05	.5	3	N
WL0133RK	1,500	100	20	150	25	.06	N	2	<10
WL0139RK	500	300	20	200	100	.08	<.5	2	N
WL0140RK	200	150	30	200	40	<.05	.5	2	<10
WL0160RK	500	200	20	200	20	<.05	.5	4	N
WL0161RK	500	100	20	150	10	.05	.5	2	<10

Table 3.--Data for stream-sediment samples, southern part of the Walker River Indian Reservation, Nevada

sample	LATITUDE	LONGITUD	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-B	S-BA	S-BE	S-CO	S-CR	S-CU	S-LA
WL0093SS	38 59 10	118 52 17	3.0	1.5	2	.5	1,000	50	700	1.5	15	30	100	20
WL0094SS	38 59 2	118 52 18	5.0	1.5	3	.5	1,000	70	1,000	5.0	20	30	100	50
WL0095SS	38 58 0	118 52 36	5.0	2.0	5	.7	1,000	20	1,000	3.0	15	30	200	50
WL0096SS	38 57 41	118 52 0	3.0	1.5	3	.5	500	20	700	3.0	20	50	50	50
WL0097SS	38 56 54	118 51 20	5.0	1.5	2	.5	1,000	20	700	1.5	15	30	30	50
WL0098SS	38 56 23	118 50 46	3.0	1.5	2	.5	700	30	700	2.0	10	50	15	50
WL0099SS	38 55 40	118 50 24	5.0	1.5	3	.5	1,000	20	700	3.0	20	30	30	50
WL0100SS	38 54 58	118 49 57	3.0	1.5	3	.5	1,000	30	1,000	5.0	15	30	50	50
WL0101SS	38 54 14	118 48 32	3.0	1.0	2	.5	1,000	50	1,000	5.0	10	30	50	50
WL0102SS	38 53 21	118 48 20	3.0	1.0	2	.3	1,000	30	1,000	3.0	10	30	30	50
WL0103SS	38 52 58	118 48 17	2.0	1.5	2	.5	1,000	50	1,000	5.0	10	50	20	50
WL0104SS	38 52 12	118 47 56	3.0	2.0	3	.5	1,000	30	1,000	1.5	20	70	50	30
WL0105SS	38 51 45	118 47 52	5.0	1.5	3	.5	1,000	30	1,000	5.0	20	50	50	50
WL0106SS	38 51 16	118 47 51	3.0	1.5	3	.5	1,000	50	1,000	2.0	15	30	20	50
WL0109SS	38 48 57	118 47 0	3.0	1.5	2	.5	1,000	20	700	3.0	10	30	20	50
WL0110SS	38 48 45	118 47 3	5.0	1.5	5	.5	1,000	15	700	3.0	15	50	20	30
WL0111SS	38 47 56	118 46 28	5.0	1.5	3	.5	1,000	30	1,000	3.0	15	50	15	50
WL0112SS	38 47 24	118 45 52	3.0	1.0	2	.3	1,000	20	700	2.0	10	20	15	50
WL0117SS	38 53 54	118 32 1	2.0	1.0	3	.5	700	50	1,000	5.0	10	30	10	50
WL0118SS	38 52 33	118 31 27	2.0	1.0	2	.3	1,000	50	1,000	5.0	10	20	20	50
WL0119SS	38 55 47	118 34 16	3.0	1.0	3	.5	1,000	30	1,000	3.0	10	20	15	30
WL0120SS	38 56 9	118 37 9	3.0	1.5	3	.7	1,000	50	1,500	5.0	10	30	15	50
WL0121SS	38 56 8	118 38 17	1.5	1.0	2	.2	700	20	700	3.0	5	20	7	30
WL0122SS	38 56 0	118 38 43	2.0	1.0	2	.3	700	70	1,000	5.0	7	20	10	30
WL0123SS	38 55 28	118 38 58	2.0	1.0	3	.5	500	20	1,000	2.0	10	30	7	50
WL0124SS	38 55 40	118 39 24	2.0	1.0	2	.5	1,000	70	1,000	5.0	10	30	10	50
WL0125SS	38 53 58	118 41 5	2.0	1.0	2	.5	500	50	700	2.0	7	30	5	30
WL0126SS	38 53 11	118 41 5	2.0	1.0	3	.5	1,000	50	1,000	5.0	10	20	10	50
WL0127SS	38 51 57	118 39 33	2.0	1.5	10	.2	700	70	700	3.0	7	20	10	30
WL0128SS	38 51 40	118 38 1	2.0	.7	2	.2	700	50	1,000	5.0	5	15	15	50
WL0129SS	38 51 44	118 38 4	2.0	1.0	2	.2	700	50	1,000	5.0	7	20	10	50
WL0130SS	38 50 11	118 39 59	2.0	1.5	3	.3	700	50	700	2.0	10	20	30	30
WL0131SS	38 49 10	118 39 40	2.0	1.0	2	.2	700	50	1,000	5.0	5	20	7	50
WL0132SS	38 49 1	118 39 40	2.0	1.0	5	.2	1,000	70	1,000	5.0	10	20	20	50
WL0133SS	38 48 35	118 39 32	1.0	1.0	3	.2	500	30	1,000	3.0	N	20	5	50
WL0139SS	38 47 22	118 37 32	2.0	1.0	3	.3	700	30	1,000	3.0	10	30	15	50
WL0140SS	38 47 33	118 38 9	2.0	.5	2	.2	700	50	700	3.0	5	15	5	30
WL0160SS	38 58 31	118 28 42	2.0	1.0	2	.3	700	30	1,500	5.0	7	30	5	50
WL0161SS	38 53 44	118 27 27	3.0	1.5	3	.5	1,000	50	1,000	5.0	15	30	20	50
WL0191SS	38 51 33	118 28 2	2.0	1.5	3	.3	1,000	50	1,000	5.0	10	30	20	50

Table 3.--Data for stream-sediment samples, southern part of the Walker River Indian Reservation, Nevada

sample	S-MO	S-NI	S-PB	S-SC	S-SR	S-V	S-Y	S-ZR	AA-ZN-P	AA-CD-P	AA-BI-P	AA-SB-P	CM-AS
WL0093SS	N	10	30	15	500	200	20	150	50	.13	1.0	1	<10
WL0094SS	5	10	50	15	500	500	30	200	45	.13	1.0	2	N
WL0095SS	N	15	50	15	500	700	30	500	40	.06	.5	2	N
WL0096SS	N	7	30	20	500	200	30	200	25	.05	1.0	1	N
WL0097SS	N	7	30	15	500	200	30	200	55	.10	1.0	1	<10
WL0098SS	N	10	50	10	500	150	30	200	40	.12	.5	2	N
WL0099SS	N	20	30	15	500	200	30	200	50	.08	1.0	<1	N
WL0100SS	N	15	50	20	700	500	30	500	50	.15	1.0	1	N
WL0101SS	<5	20	50	15	300	200	30	150	55	.22	1.0	1	N
WL0102SS	N	15	50	15	500	100	30	200	50	.15	1.5	2	N
WL0103SS	N	20	50	15	500	150	30	200	40	.10	1.0	<1	N
WL0104SS	N	15	30	20	500	200	30	150	50	.10	<.5	1	N
WL0105SS	N	15	30	20	700	700	30	300	40	<.05	1.0	2	N
WL0106SS	N	10	20	15	700	200	30	300	25	.05	1.0	<1	N
WL0109SS	N	10	30	15	300	200	30	300	50	<.05	.5	1	N
WL0110SS	N	20	30	20	300	300	30	150	35	.05	1.0	1	N
WL0111SS	N	20	30	20	500	200	30	200	60	.05	1.5	<1	N
WL0112SS	N	7	30	15	300	200	30	300	50	.10	1.0	<1	N
WL0117SS	5	7	30	10	500	150	30	200	30	.10	.5	1	N
WL0118SS	5	10	50	10	500	150	20	150	30	.10	1.5	2	N
WL0119SS	5	5	30	10	500	200	20	700	40	.13	1.0	1	N
WL0120SS	<5	5	70	10	1,000	500	30	700	35	.05	1.0	1	N
WL0121SS	N	<5	30	5	500	100	15	150	30	.10	1.5	2	N
WL0122SS	5	5	50	7	500	100	20	200	30	.08	.5	N	N
WL0123SS	N	N	30	10	500	200	20	300	30	.08	1.5	<1	N
WL0124SS	5	10	50	10	700	200	20	200	20	<.05	.5	1	N
WL0125SS	N	7	20	7	500	100	20	150	20	.08	1.0	1	N
WL0126SS	N	5	50	10	1,000	200	20	300	25	.05	<.5	<1	N
WL0127SS	N	5	30	7	500	100	20	200	20	.14	1.0	<1	<10
WL0128SS	5	<5	50	7	500	70	30	300	25	.13	<.5	<1	N
WL0129SS	5	5	30	10	500	100	20	300	30	.08	.5	1	N
WL0130SS	10	7	30	10	500	200	20	150	50	.50	1.5	1	N
WL0131SS	7	5	20	7	500	100	20	200	30	.30	1.0	<1	<10
WL0132SS	10	15	70	10	700	200	20	200	60	.90	1.5	1	10
WL0133SS	N	5	30	7	500	100	20	150	15	.05	1.0	1	N
WL0139SS	N	7	50	10	700	150	20	150	30	.07	.5	2	N
WL0140SS	N	<5	30	7	500	100	20	150	15	.10	1.5	<1	N
WL0160SS	<5	10	30	7	700	300	20	200	20	<.05	1.0	2	N
WL0161SS	N	10	30	15	1,000	300	20	200	40	.08	<.5	1	N
WL0191SS	<5	10	50	10	700	200	20	300	40	<.05	.5	3	<10

Table 4.--Data for heavy-mineral concentrate samples, southern part of the Walker River Indian Reservation, Nevada

sample	LATITUDE	LONGITUD	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-AS	S-B	S-BA	S-BE
WL0093KN	38 59 10	118 52 17	2.0	1.0	7	>2.0	1,500	N	500	1,500	3
WL0094KN	38 59 2	118 52 18	3.0	1.5	7	>2.0	1,500	N	300	1,000	3
WL0095KN	38 58 0	118 52 36	1.0	.5	10	>2.0	1,000	N	N	500	2
WL0096KN	38 57 41	118 52 0	2.0	2.0	10	>2.0	1,000	N	200	1,000	5
WL0097KN	38 56 54	118 51 20	1.5	1.0	10	>2.0	1,500	N	20	1,500	3
WL0098KN	38 56 23	118 50 46	1.5	1.0	10	>2.0	2,000	N	100	1,000	3
WL0099KN	38 55 40	118 50 24	1.0	2.0	10	>2.0	1,500	500	200	1,000	3
WL0100KN	38 54 58	118 49 57	.5	.5	10	>2.0	1,000	N	N	700	2
WL0101KN	38 54 14	118 48 32	2.0	2.0	7	>2.0	1,500	N	100	1,000	<2
WL0102KN	38 53 21	118 48 20	3.0	2.0	5	2.0	2,000	N	50	1,000	3
WL0103KN	38 52 58	118 48 17	5.0	3.0	7	2.0	2,000	N	20	1,000	3
WL0104KN	38 52 12	118 47 56	3.0	3.0	10	2.0	2,000	N	30	2,000	5
WL0105KN	38 51 45	118 47 52	5.0	2.0	7	2.0	1,500	N	N	1,500	5
WL0106KN	38 51 16	118 47 51	5.0	2.0	7	1.5	1,500	N	500	5,000	5
WL0109KN	38 48 57	118 47 0	5.0	2.0	10	2.0	2,000	N	50	2,000	5
WL0110KN	38 48 45	118 47 3	5.0	3.0	15	1.5	2,000	N	100	1,000	5
WL0111KN	38 47 56	118 46 28	2.0	2.0	7	1.5	2,000	N	20	1,000	3
WL0112KN	38 47 24	118 45 52	2.0	.7	7	2.0	1,500	N	20	1,500	3
WL0117KN	38 53 54	118 32 1	3.0	3.0	5	>2.0	3,000	N	200	2,000	3
WL0118KN	38 52 33	118 31 27	5.0	3.0	10	2.0	2,000	N	150	10,000	5
WL0119KN	38 55 47	118 34 16	.5	2.0	7	2.0	1,500	N	150	10,000	3
WL0120KN	38 56 9	118 37 9	1.0	3.0	7	>2.0	1,000	N	150	2,000	2
WL0121KN	38 56 8	118 38 17	.5	2.0	10	>2.0	1,000	N	100	5,000	2
WL0122KN	38 56 0	118 38 43	2.0	2.0	7	>2.0	2,000	N	150	3,000	2
WL0123KN	38 55 28	118 38 58	1.0	3.0	7	2.0	2,000	N	50	>10,000	3
WL0124KN	38 55 40	118 39 24	1.0	3.0	10	>2.0	2,000	N	500	2,000	2
WL0125KN	38 53 58	118 41 5	1.0	3.0	10	>2.0	2,000	N	300	700	3
WL0126KN	38 53 11	118 41 5	1.0	3.0	15	>2.0	2,000	N	100	700	2
WL0127KN	38 51 57	118 39 33	1.0	10.0	20	1.0	1,500	N	<20	500	<2
WL0128KN	38 51 40	118 38 1	2.0	3.0	15	2.0	2,000	N	100	1,500	<2
WL0129KN	38 51 44	118 38 4	1.0	5.0	10	2.0	2,000	N	50	2,000	2
WL0130KN	38 50 11	118 39 59	1.0	3.0	15	>2.0	2,000	N	70	2,000	3
WL0131KN	38 49 10	118 39 40	1.5	2.0	10	>2.0	2,000	N	150	>10,000	5
WL0132KN	38 49 1	118 39 40	2.0	3.0	15	2.0	5,000	N	700	5,000	5
WL0133KN	38 48 35	118 39 32	1.0	3.0	15	>2.0	2,000	N	100	1,000	3
WL0139KN	38 47 22	118 37 32	2.0	2.0	10	>2.0	2,000	N	150	3,000	5
WL0140KN	38 47 33	118 38 9	.5	.7	7	>2.0	1,500	N	200	>10,000	2
WL0160KN	38 58 31	118 28 42	1.5	3.0	10	>2.0	3,000	N	500	2,000	2
WL0161KN	38 53 44	118 27 27	5.0	5.0	15	>2.0	2,000	N	100	2,000	2
WL0191KN	38 51 33	118 28 2	1.0	1.0	5	2.0	1,000	N	70	>10,000	2

Table 4.--Data for heavy-mineral concentrate samples, southern part of the Walker River Indian Reservation, Nevada

sample	S-BI	S-CO	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI	S-PB	S-SB
WL0093KN	20	15	20	70	200	20	<50	N	20	N
WL0094KN	100	<10	70	20	200	10	50	<10	70	N
WL0095KN	N	<10	N	100	500	10	70	<10	N	N
WL0096KN	N	<10	30	50	300	N	100	N	30	N
WL0097KN	N	15	30	50	300	N	150	N	70	N
WL0098KN	N	20	50	10	500	N	150	N	50	N
WL0099KN	N	50	30	10	700	N	150	<10	100	N
WL0100KN	N	<10	N	<10	500	N	70	<10	200	N
WL0101KN	N	<10	100	70	2,000	15	70	20	100	N
WL0102KN	N	10	50	10	1,500	N	50	50	100	N
WL0103KN	N	20	300	15	1,000	N	<50	100	50	N
WL0104KN	N	20	50	15	200	15	<50	50	30	N
WL0105KN	N	10	50	20	70	N	<50	N	50	N
WL0106KN	N	<10	150	20	100	N	<50	N	20	N
WL0109KN	70	50	50	20	200	10	50	N	150	N
WL0110KN	N	20	100	20	100	<10	N	N	20	N
WL0111KN	30	10	70	10	150	N	<50	50	50	N
WL0112KN	200	15	20	10	200	<10	70	N	70	N
WL0117KN	N	<10	200	<10	300	N	100	N	50	N
WL0118KN	N	<10	200	15	200	N	70	N	30	N
WL0119KN	N	<10	70	N	500	N	50	<10	N	N
WL0120KN	N	<10	100	N	300	N	50	N	N	N
WL0121KN	N	10	50	N	500	N	70	N	<20	N
WL0122KN	N	<10	100	N	300	N	50	<10	50	N
WL0123KN	N	N	30	N	200	N	<50	20	30	N
WL0124KN	N	15	200	N	500	N	50	<10	N	N
WL0125KN	<20	<10	70	N	700	N	100	N	N	N
WL0126KN	N	10	100	<10	500	N	70	<10	20	N
WL0127KN	N	N	50	<10	150	N	<50	N	N	N
WL0128KN	N	N	50	10	200	15	<50	20	N	N
WL0129KN	N	N	50	10	300	N	50	N	N	N
WL0130KN	<20	<10	50	10	1,000	70	100	N	200	N
WL0131KN	N	<10	70	N	500	N	100	<10	200	N
WL0132KN	N	<10	200	50	300	10	70	50	150	N
WL0133KN	N	<10	70	N	300	N	200	N	50	N
WL0139KN	N	15	100	50	500	15	150	N	50	N
WL0140KN	N	<10	50	N	500	N	100	N	50	N
WL0160KN	N	20	500	N	1,000	N	150	30	20	N
WL0161KN	N	20	200	10	500	N	70	N	20	<200
WL0191KN	N	10	50	10	300	N	<50	N	20	N

Table 4.--Data for heavy-mineral concentrate samples, southern part of the Walker River Indian Reservation, Nevada

sample	S-SC	S-SN	S-SR	S-V	S-W	S-Y	S-ZN	S-ZR	S-TH
WL0093KN	30	N	1,000	1,000	100	100	N	>2,000	<500
WL0094KN	30	N	1,000	700	<100	150	N	>2,000	N
WL0095KN	30	20	500	1,000	100	200	N	>2,000	<200
WL0096KN	50	30	1,000	1,000	300	500	N	2,000	5,000
WL0097KN	30	20	1,000	700	N	500	N	>2,000	>5,000
WL0098KN	30	20	700	700	150	500	N	>2,000	>5,000
WL0099KN	20	N	700	500	<100	700	N	2,000	>5,000
WL0100KN	30	30	500	700	500	500	N	>2,000	700
WL0101KN	50	N	500	500	2,000	500	N	>2,000	2,000
WL0102KN	50	N	700	500	700	300	N	>2,000	2,000
WL0103KN	50	N	700	500	100	300	N	>2,000	1,000
WL0104KN	30	N	700	700	100	100	N	2,000	<500
WL0105KN	30	N	1,500	700	150	100	N	2,000	N
WL0106KN	30	N	1,000	700	N	150	N	2,000	N
WL0109KN	20	N	700	500	100	300	N	>2,000	1,500
WL0110KN	30	N	700	500	N	100	N	2,000	N
WL0111KN	30	N	500	500	N	200	N	2,000	1,000
WL0112KN	30	N	700	500	200	500	N	>2,000	>5,000
WL0117KN	30	N	1,000	500	N	300	N	>2,000	<500
WL0118KN	30	N	1,000	500	N	200	N	>2,000	N
WL0119KN	30	N	500	500	N	500	<500	>2,000	700
WL0120KN	50	50	500	500	N	500	N	>2,000	700
WL0121KN	50	20	500	500	N	300	N	>2,000	1,000
WL0122KN	30	<20	500	300	N	300	N	>2,000	500
WL0123KN	30	30	500	300	N	300	N	>2,000	<500
WL0124KN	50	30	500	500	N	300	N	>2,000	500
WL0125KN	30	20	700	1,000	N	300	N	>2,000	500
WL0126KN	20	N	700	1,000	N	500	N	>2,000	500
WL0127KN	10	N	N	150	N	100	N	2,000	N
WL0128KN	50	N	500	700	200	200	N	>2,000	<200
WL0129KN	20	<20	500	300	N	200	N	>2,000	500
WL0130KN	20	30	500	1,500	1,500	200	N	>2,000	500
WL0131KN	30	20	700	700	300	500	N	>2,000	<200
WL0132KN	30	N	500	1,000	N	150	N	2,000	N
WL0133KN	20	20	500	1,000	N	300	N	>2,000	700
WL0139KN	20	30	700	700	<100	300	N	>2,000	700
WL0140KN	30	N	1,500	500	N	300	N	>2,000	<500
WL0160KN	50	50	700	700	N	500	N	>2,000	500
WL0161KN	50	N	500	1,000	N	300	N	>2,000	<500
WL0191KN	50	<20	1,000	300	N	300	<500	>2,000	<200

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