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ANALYTICAL RESULTS FOR SOIL SAMPLES AND PLOTS OF RESULTS OF R-MODE FACTOR ANALYSIS OF SOIL AND SOIL-GAS DATA: DIXIE VALLEY KNOWN GEOTHERMAL RESOURCE AREA, NORTHERN DIXIE VALLEY, NEVADA

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ABSTRACT

Soil samples were collected October 16-19, 1994, from 189 sites over and near the Dixie Valley Known Geothermal Resource Area (KGRA) and along the front of the Stillwater Mountains south of the KGRA in the northern Dixie Valley, Nevada. The study was funded by the U.S. Department of Energy, and was part of a geochemical and biogeochemical survey seeking surficial evidence for subsurface features, many of which were already known from drilling, of the geothermal reservoir at Dixie Valley. Sampling and analysis of the soils are described and results of analyses are listed. Plots of percentile values of eight multielement factors determined by R-mode factor analysis of soil and soil-gas data are presented. These plots show anomalous sites related to geothermal activity, hot spring deposits, faults, and other sources in the Dixie Valley.

INTRODUCTION

The Dixie Valley Known Geothermal Resource Area (KGRA) is located in west-central Nevada, about 200 km by road northeast of the town of Fallon. Road access is by U.S. highway 50 and Nevada state road 121. The KGRA is located on the east side of the Stillwater Mountains, close to the boundary between Churchill and Pershing Counties in the northern part of Dixie Valley.

The northern part of Dixie Valley is a playa. The Humboldt Salt Marsh lies south of the playa (fig. 1). The marsh is the major groundwater discharge area of the northern Dixie Valley (Waibel, 1987; Karst and others, 1988).

The northern Dixie Valley basin consists of north-to-northeast-trending grabens bordered by elongate mountain ranges--the Stillwater Range on the west and the Clan Alpine Range on the east. The basin is asymmetrical, with the deepest portions being on the west side along the Stillwater Range where basin-filling sediments are more than 2100 meters thick as measured in some of the geothermal wells. The sediments are 600-900 meters thick toward the center and eastern part of the valley.

The geology and the structural history of the KGRA and of the whole Dixie Valley is quite varied and complex. Lithologic units encountered in the geothermal field range from Triassic marine sediments to recent basin-filling sediments. Structural features affecting the location of the geothermal activity include Mesozoic thrusting, late Tertiary normal faulting, and Quaternary to recent normal faulting (Speed, 1976; Waibel, 1987). Fumaroles along the Stillwater (rangefront) fault (one fumarole is actively depositing sulfur crystals), along with numerous hot-springs along the east side of the mountains and isolated hot springs in the center of the valley are evidence of the complex structure of the area.

Geothermal production at the Dixie Valley KGRA is related to an extended, complex network of fault and fracture permeability that varies with the physical characteristics of each rock type (Waibel, 1987). The temperature of the geothermal reservoir is about 250^{0} C. The power plant at the KGRA began operation in 1988, and currently produces about 60 megawatts of electricity from geothermal steam (Benoit, 1993).

Although many geological studies have been done in the area of the Dixie Valley KGRA, there has been only one geochemical survey prior to the one described in this report. Broad-scale (730 x 305-m grid) soil-sampling by Juncal and Bell (1981) showed that anomalous concentrations of As and Hg exist along the east side of the Stillwater Mountains. Anomalous As concentrations were found along faults near the playa, whereas anomalous Hg concentrations were found along faults close to the mountain front.

Studies by the USGS of soils, soil-gases, and plants have proved to be useful for distinguishing subsurface features of geothermal areas. For example, plots of elemental suites in soil and soil-gas samples collected over and near the Roosevelt Hot Springs KGRA identified faults associated with the geothermal field, sinter deposits, elements from geothermal sources adsorbed on clays along faults, and non-geothermal detrital elements weathering from the adjacent Mineral Mountains (Hinkle and Copp, in press). In the San Luis Valley, Colorado, a multimedia survey including soil-gases, soils, and plants identified an area where an unsuspected geothermal heat source may exist, and also other anomalies unrelated to geothermal activity (Erdman and others, 1993).

This report summarizes the results of a soil survey in the northern Dixie Valley, Nevada, concentrating on the Dixie Valley KGRA. The study was part of an integrated soil-gas, soil, and plant survey of the area. The purpose of the integrated study was to use elemental suites in the different media to try to distinguish subsurface features of the Dixie Valley geothermal system. Many of the subsurface features already had been identified by drilling. Concentrations of N_2, O_2, CO_2, and He in 189 soil-gas samples collected at the same sites as soil samples were listed by Hinkle (1995). Anomalous concentrations of He and CO_2 were found in many of the soil-gas samples collected over the producing geothermal field and also over major faults near the geothermal area.

SAMPLE COLLECTION AND ANALYSIS

A total of 189 soil samples was collected in the survey. The soils were sampled by scraping away surficial debris and collecting the soil at 0-5 cm depth. The soils were air-dried, prepared by sieving to -80 mesh (<180 um) and then pulverized to -100 mesh (<150um). The samples were analyzed for hydrogen-ion content by pH analysis and for mercury by an atomic-absorption procedure (O'Leary and others, 1990). Total element composition was determined by an Induction-Coupled Plasma (ICP) method. The soils were also analyzed by a partial-analysis ICP method that isolates and measures the secondary oxide-related metallic-element content of the sample; metal content related to the silicate lattice of common rock-forming minerals is not measured by the partial-analysis technique. The methods used for elemental analyses are summarized in table 1. Lower limits of determination for the ICP methods are listed in tables 2a and 2b.

DESCRIPTION OF THE DATA TABLES

Data from the analyses were entered into an IBM-compatible personal computer and stored on disks, using the Quattro Pro program (Borland International, Inc.) The data were converted into the U.S. Geological Survey STATPAC format for statistical analyses (Grundy and Miesch, 1987). Table 3 lists the results of the 189 soil analyses. The samples also were analyzed for extractable Au and Bi (xAu and xBi), but neither was detected in any sample; Au and Bi are not listed in the data tables. Analytical results, basic statistics, and percentiles are also listed in Quattro Pro-based formats on a floppy disk in the pocket of this report (table 3a).

Values listed as "N" (not detectable) in table 3 were converted to real numbers for statistical analyses by arbitrarily multiplying the lowest detectable value by 0.1. Table 4 shows the minimum, maximum, mean, and standard deviation of the measurements for the data (containing converted values). Table 5 lists the percentiles for the data (also containing converted values). Both tables 4 and 5 also contain soil-gas data because the combined data were used for further statistical analyses. Data from the combined data set of soil and soil-gas analyses were converted to logarithms. The log-transformed data were examined by R-mode factor analysis (Grundy and Miesch, 1987). The purpose of R-mode factor analysis is to determine suites of elements that are associated by geology or geochemistry. This method reduces a large number of chemical variables to fewer, more readily explainable relationships. An eight-factor model best separated the geological and geochemical suites in the combined data set (table 6). This model explained 73% of the variance in the combined data.

Factor scores for each of the eight factors were calculated for the 189 samples. A factor score was described by Tidball and others (1986) as "an index computed for each sample that expresses the degree of similarity between the factor composition and the association of elements (composition) in the sample. Each sample has as many scores as there are factors...and these scores define the mixture of end-member compositions that make up the sample. The scores are dimensionless numbers with a mean of zero and a standard deviation of one. A sample with a large positive score for a particular factor has a composition like that factor. A large negative score indicates the sample composition is opposite to the factor. A small score indicates the sample composition is entirely different than the factor." Percentile values of the factor scores for each of the eight factors were calculated by the STATPAC program (Grundy and Miesch, 1987) and converted into the U.S. Geological Survey GSPOST format for plotting the factor scores (Selner and Taylor, 1992).

RESULTS

Sources of the geochemical suites in the eight factors (table 6) were determined from a comparison of the geology of the area with the varimax loadings of the elements in each factor and the plots of the factor scores (figs. 2-9):

Factor-1 (fig. 2) consists of elements from detrital mafic minerals in alluvium, originating primarily from bedrock in Cottonwood Canyon. Some of the Ni probably is derived from the mines in the Bolivia area.

Factor-2 (fig. 3) consists of rare earth elements, primarily from felsic minerals from detrital sedimentary rocks and Tertiary rhyolites in alluvium along the Dixie Meadows fault.

Factor-3 (fig. 4) elements could indicate porphyry mineralization, especially at sites near the Dixie Comstock mine. However, the association of factor-3 elements with factor-6 elements (travertine-?) near Mud fault in the valley east of the producing geothermal field also suggests old hot spring deposits.

Factor-4 (fig. 5) elements contain the geothermal association of He and CO_2 in soil gases and As and Li in soils. This factor is especially strong over the producing geothermal field and over the Buckbrush fault near the producing field. A few anomalous sites are located over the Dixie Meadow fault.

Factor-5 (fig. 6) consists only of N_2 and O_2 in soil gases, indicating a high component of air in the samples. The source of this air is not known---it does not appear to be a fluke of sampling.

Factor-6 (fig. 7) elements are associated with calcareous hot spring deposits, probably travertine, and are anomalous primarily over the producing geothermal field and over Mud fault.

Factor-7 (fig. 8) elements probably are derived from oxidizing sulfide minerals containing Cu and Mo, especially, in faults which are indicated by anomalous He in soil gases.

Factor-8 (fig. 9) elements also are derived from oxidizing sulfide minerals along faults, but these elements probably are adsorbed on clays and Mn-oxides.

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Requirements: IBM or compatible PC, using MS DOS 2.0 or higher; math coprocessor; 5 1/4 inch floppy disk drive able to read 360K diskette.

Table 1. Analytical methods used for the soil samples.

Analytical Method	Reference
Hydrogen ion (ppb)	Jackson (1958)
Hg (ppb) [lower limit of determination = 20 ppb]	O'Leary and others (1990)
ICP-total (ppm)	Briggs (1990)
ICP-partial extraction (ppm)	Motooka (1990)

Table 2a. ICP-AES Detection Limits for 40 Elements

Element	Lower Limit of Determination
Al	% .005
Ca	% .005
Fe	% .005
K	% .05
Mg	% .005
Na	% .005
P	% .005
Ti	% .005
Ag	ppm 2
As	ppm 10
Au	ppm 8
Ba	ppm 1
Be	ppm 1
Bi	ppm 10
Cd	ppm 2
Ce	ppm 4
Co	ppm 1
Cr	ppm 1
Cu	ppm 1
Eu	ppm 2
Ga	ppm 4
Ho	ppm 4
La	ppm 2
Li	ppm 2
Mn	ppm 4
Mo	ppm 2
Nb	ppm 4
Nd	ppm 4
Ni	ppm 2
Pb	ppm 4
Sn	ppm 5
Sc	ppm 2
Sr	ppm 2
Ta	ppm 40
Th	ppm 4
U	ppm 100
V	ppm 2
Y	ppm 2
Yb	ppm 1
Zn	ppm 2

Table 2b. ICP-AES Detection Limits for 10 Elements: Partial-Extraction Method. (These elements have the prefix "x" in tables 3-6).

Element	Lower Limit of Determination
Ag	ppm 0.045
As	ppm 0.600
Au	ppm 0.100
Bi	ppm 0.670
Cd	ppm 0.050
Cu	ppm 0.050
Mo	ppm 0.090
Pb	ppm 0.600
Sb	ppm 0.670
Zn	ppm 0.050

x = extractable

Au, Bi: not detected
N = not detectable

Table 3. Results of soil-sample analyses (Hg and H+ in ppb, all other values in ppm).

No.	Latitude	Longitude	Hg	xAg	xAs	xCd	xCu	xMo	xPb	xSb	xZn	H+	Al	Ca	Fe	K	Mg
1	39.963	117.853	70	N	13.0	0.14	23	0.85	8.70	2.3	68	11.22	8.3	4.8	5.2	1.40	2.50
2	39.963	117.855	70	N	12.0	0.14	21	0.74	8.20	2.2	65	1.78	8.3	4.8	5.0	1.40	2.50
3	39.963	117.857	70	N	14.0	0.15	23	0.81	8.10	2.5	66	1.26	8.2	4.7	4.8	1.50	2.50
4	39.964	117.858	140	N	12.0	0.14	22	0.75	7.90	1.8	70	2.00	8.4	4.8	5.4	1.40	2.40
5	39.964	117.861	60	N	11.0	0.13	21	0.77	7.20	2.1	65	1.41	8.2	5.0	5.6	1.40	2.40
6	39.965	117.862	110	N	14.0	0.16	26	0.93	7.30	2.6	64	1.58	8.1	4.7	5.1	1.40	2.60
7	39.966	117.863	50	N	6.7	0.18	18	0.63	8.20	1.3	63	1.00	8.4	4.4	4.6	1.70	2.30
8	39.966	117.865	30	N	6.7	0.17	18	0.68	6.20	1.6	60	0.13	8.0	4.7	4.5	1.70	2.50
9	39.965	117.867	60	N	12.0	0.14	21	0.78	8.30	1.9	N	1.41	8.4	4.8	5.3	1.40	2.40
10	39.966	117.868	40	N	10.0	0.13	20	0.70	7.20	1.6	N	0.89	8.6	4.9	5.0	1.50	2.10
11	39.967	117.870	30	N	7.1	0.16	20	0.67	6.80	1.4	N	1.78	8.6	4.2	5.2	1.60	2.20
12	39.968	117.872	50	N	9.2	0.14	21	0.77	7.60	1.5	N	1.41	8.5	4.7	5.2	1.50	2.30
13	39.969	117.874	70	N	8.4	0.19	22	0.72	8.50	1.7	N	1.78	8.3	4.4	4.7	1.70	2.40
14	39.970	117.875	40	N	6.3	0.20	19	0.68	7.40	1.4	N	1.41	8.4	3.9	4.5	2.00	2.20
15	39.971	117.876	70	N	6.5	0.22	18	0.72	8.60	1.4	N	1.00	8.1	4.3	4.3	1.90	2.20
16	39.972	117.878	30	N	6.7	0.21	19	0.68	8.00	1.4	N	0.89	8.5	3.8	4.2	2.00	2.10
17	39.973	117.879	40	N	6.8	0.19	21	0.67	7.70	1.6	N	1.12	8.4	4.3	4.6	1.90	2.30
18	39.968	117.874	70	N	15.0	0.15	25	0.88	7.50	2.0	68	1.12	8.5	4.8	5.2	1.40	2.30
19	39.966	117.873	30	N	6.5	0.17	23	0.66	7.30	1.2	75	1.12	8.5	4.1	5.1	1.70	1.90
20	39.965	117.873	50	N	6.5	0.16	18	0.60	7.80	1.6	72	1.78	8.4	4.6	4.7	1.80	2.20
21	39.964	117.873	70	N	9.5	0.18	20	0.70	7.70	2.0	68	3.55	8.4	4.5	4.7	1.70	2.40
22	39.963	117.872	60	N	10.0	0.19	18	0.80	7.90	2.0	63	0.50	8.1	5.2	4.4	1.70	2.30
23	39.962	117.870	40	N	9.1	0.17	18	0.90	7.80	1.4	66	17.78	8.0	4.9	4.5	1.60	2.20
24	39.961	117.868	70	N	8.8	0.18	18	0.71	8.60	1.9	64	1.26	8.4	5.0	4.8	1.60	2.40
25	39.961	117.867	40	N	9.9	0.18	19	0.77	7.60	2.0	65	0.35	8.1	5.0	4.8	1.90	2.50
26	39.960	117.866	70	N	12.0	0.16	23	0.88	7.80	2.7	63	3.16	7.9	4.7	4.4	1.60	2.60
27	39.959	117.864	40	N	9.3	0.17	19	0.82	7.40	1.6	69	1.12	8.4	4.8	4.9	1.80	2.20
28	39.959	117.862	30	N	7.9	0.19	18	0.68	7.60	1.8	67	0.63	8.4	4.8	4.6	1.70	2.20
29	39.958	117.861	40	N	8.9	0.17	18	0.68	7.10	1.5	67	0.25	8.6	5.0	4.8	1.70	2.20
30	39.958	117.859	40	N	11.0	0.19	22	0.75	8.50	2.0	71	1.41	8.3	4.5	4.6	1.70	2.30
31	39.957	117.858	50	N	12.0	0.19	20	0.90	8.30	1.9	69	0.40	8.2	4.5	4.6	1.90	2.20
32	39.956	117.857	20	N	9.4	0.14	17	0.72	6.60	1.4	61	0.89	8.7	4.8	4.4	1.90	2.10
33	39.956	117.854	40	N	10.0	0.16	21	0.80	7.30	1.6	68	1.12	8.6	4.6	4.7	1.70	2.20
34	39.955	117.852	60	N	13.0	0.13	22	0.83	6.80	2.5	70	1.26	8.3	5.2	5.6	1.30	2.50
35	39.955	117.851	60	N	13.0	0.15	21	0.83	8.00	2.6	66	1.58	8.3	4.8	4.8	1.50	2.30
36	39.955	117.849	70	N	12.0	0.17	21	0.97	8.50	2.6	65	5.01	7.9	4.6	4.5	1.60	2.50
37	39.955	117.847	40	0.08	8.8	0.18	20	0.94	8.90	1.7	72	5.01	8.3	4.0	4.4	1.80	2.30
38	39.955	117.846	50	N	12.0	0.16	24	1.30	9.40	2.0	75	10.00	8.2	4.0	4.6	1.60	2.20
39	39.955	117.844	50	N	11.0	0.15	21	0.87	8.50	2.1	65	7.94	8.2	4.4	4.0	1.80	2.30
40	39.955	117.842	50	0.10	15.0	0.27	23	2.30	11.00	2.9	68	2.51	6.5	8.7	3.3	1.80	2.30
41	39.955	117.840	100	0.16	16.0	0.36	29	3.40	14.00	3.2	81	3.98	6.8	4.5	3.8	1.90	2.30
42	39.955	117.838	60	N	35.0	0.23	19	2.50	11.00	1.7	63	7.08	6.3	8.2	2.8	1.90	2.30
43	39.955	117.836	40	0.12	28.0	0.28	19	3.60	10.00	1.6	61	1.00	7.4	4.1	3.1	2.40	1.90
44	39.954	117.834	40	0.28	10.0	0.33	24	1.10	12.00	2.0	73	2.24	7.5	5.7	3.4	2.40	2.60
45	39.955	117.832	40	0.09	21.0	0.21	24	3.30	11.00	2.0	75	3.16	7.6	3.9	3.4	2.50	2.20
46	39.955	117.830	60	0.09	10.0	0.38	23	3.00	10.00	1.7	71	7.94	7.5	5.7	3.3	2.50	2.30
47	39.954	117.829	60	0.12	12.0	0.24	23	3.20	10.00	1.8	69	3.16	7.0	5.4	3.2	2.30	2.10
48	39.954	117.827	30	0.16	7.9	0.30	23	2.60	10.00	1.6	61	2.00	7.0	4.9	2.9	2.30	1.80
49	39.954	117.825	40	0.19	6.7	0.52	16	1.50	9.00	1.3	54	1.41	7.2	5.0	2.8	2.40	1.80
50	39.954	117.823	40	0.19	6.9	0.33	19	3.40	11.00	1.6	61	1.26	7.2	3.7	3.0	2.40	1.70
51	39.954	117.822	30	0.14	6.4	0.48	15	1.10	9.20	1.4	54	1.00	6.9	4.4	2.7	2.30	1.60

Table 3. Results of soil-sample analyses (Hg and H+ in ppb, all other values in ppm).

No.	Na	P	Ti	Mn	As	Ba	Be	Ce	Co	Cr	Cu	Ga	La	Li	Mo	Nb	Nd	Ni	Pb	Sc	Sr	Th
1	2.20	0.16	0.75	910	21	770	3	56	26	100	24	14	30	52	N	13	26	47	11	20	540	6
2	2.20	0.16	0.72	870	20	730	3	54	26	130	21	21	28	52	N	14	25	44	11	19	540	6
3	2.00	0.15	0.66	860	25	70	3	56	24	110	24	20	30	63	N	12	25	44	16	18	490	6
4	2.10	0.16	0.79	950	14	800	3	57	27	120	22	17	30	48	N	14	26	44	13	20	560	5
5	2.10	0.17	0.87	910	N	800	3	54	27	140	23	17	30	43	N	14	27	42	4	20	530	7
6	2.20	0.16	0.69	880	14	740	3	53	26	120	27	18	28	49	N	11	25	51	5	19	510	6
7	2.20	0.15	0.63	840	19	770	2	53	22	71	18	13	29	47	N	12	25	37	17	16	550	7
8	2.40	0.15	0.62	810	N	700	2	54	23	91	17	16	29	54	N	11	25	41	11	17	540	10
9	2.10	0.17	0.78	900	15	780	3	54	27	120	22	18	30	44	N	13	27	46	10	20	550	8
10	2.20	0.16	0.73	890	16	820	3	56	25	86	20	17	29	42	N	12	26	37	12	18	580	7
11	2.00	0.15	0.74	910	N	830	3	55	24	79	20	17	31	47	N	14	27	35	8	18	560	7
12	2.00	0.15	0.75	890	N	810	3	58	25	92	24	17	30	48	N	13	27	39	13	18	560	7
13	2.10	0.16	0.66	840	11	760	3	55	23	95	20	15	30	48	N	12	26	43	12	17	520	7
14	2.00	0.15	0.60	850	16	740	2	57	19	70	19	17	30	53	N	12	25	28	13	15	540	8
15	2.00	0.15	0.56	870	16	740	2	57	19	70	19	17	30	53	N	12	25	28	13	15	540	8
16	2.20	0.14	0.55	830	N	810	2	57	20	68	19	14	31	56	N	10	25	31	14	15	540	8
17	2.00	0.15	0.61	870	N	790	2	56	20	73	20	20	30	60	N	11	26	33	10	16	560	7
18	2.10	0.16	0.77	890	18	790	3	59	25	95	24	17	30	44	N	14	26	44	14	19	540	7
19	2.00	0.14	0.71	950	10	790	3	60	24	75	25	15	31	47	N	13	29	33	4	17	540	7
20	1.90	0.14	0.64	840	N	740	2	57	21	78	18	22	30	55	N	12	25	31	11	16	540	8
21	2.10	0.16	0.65	850	N	760	3	56	22	98	19	18	29	52	N	10	25	38	13	18	530	8
22	2.40	0.15	0.65	840	27	740	2	54	21	76	16	14	29	48	N	12	24	37	9	17	570	8
23	2.10	0.14	0.67	840	N	740	2	54	21	88	16	15	30	46	N	13	27	33	9	17	540	7
24	2.20	0.16	0.71	850	17	780	3	56	21	120	19	21	29	48	N	12	25	38	12	18	550	7
25	2.20	0.16	0.68	860	15	740	3	54	24	110	17	13	29	55	N	12	25	41	5	18	540	6
26	2.50	0.15	0.58	800	13	700	2	53	23	110	23	15	28	59	N	12	23	48	11	18	480	9
27	2.30	0.17	0.71	910	N	780	3	56	24	98	17	19	30	47	N	13	26	35	18	18	570	7
28	2.20	0.15	0.66	850	18	770	2	53	22	89	16	13	28	48	N	11	27	35	N	17	570	8
29	2.30	0.16	0.71	860	17	790	3	56	23	76	17	15	30	45	N	12	28	34	13	18	590	6
30	1.90	0.15	0.61	830	17	760	2	56	21	70	22	18	32	63	N	12	28	33	10	18	530	9
31	2.60	0.16	0.64	860	15	740	2	55	23	72	19	16	29	57	N	12	26	36	N	18	520	7
32	2.30	0.16	0.64	800	N	810	2	53	19	72	20	17	29	40	N	12	28	33	11	17	590	6
33	2.10	0.15	0.68	860	N	790	3	57	21	85	20	17	30	49	N	13	28	34	14	18	550	7
34	2.20	0.17	0.91	930	N	810	4	57	28	120	22	15	31	41	N	14	27	45	10	22	560	5
35	2.10	0.15	0.66	850	N	750	2	54	22	87	19	16	28	51	N	10	26	41	8	18	540	6
36	2.40	0.15	0.66	830	16	720	3	55	23	82	19	18	30	63	N	11	27	40	21	18	500	8
37	2.80	0.15	0.56	880	N	750	2	56	21	63	20	22	30	68	N	11	28	31	23	16	540	7
38	3.00	0.14	0.56	920	20	720	2	57	23	71	23	16	30	67	N	9	27	35	10	17	510	8
39	2.50	0.14	0.50	750	15	710	2	53	19	68	21	17	28	75	N	8	26	34	13	16	530	8
40	2.10	0.11	0.36	670	18	570	2	49	15	47	24	18	26	170	N	8	18	26	15	12	900	8
41	3.90	0.11	0.39	780	19	550	2	52	18	48	32	20	28	130	N	10	22	32	20	14	520	9
42	1.60	0.11	0.30	640	27	580	2	45	10	33	20	14	25	150	N	7	17	18	15	9	2100	9
43	3.30	0.13	0.35	770	23	820	2	58	11	38	22	17	30	130	3	10	24	18	18	10	730	10
44	2.20	0.11	0.35	800	15	1000	2	64	13	41	30	22	34	140	N	9	26	22	21	12	550	12
45	2.80	0.12	0.35	830	11	730	2	62	11	38	29	20	31	140	2	10	25	21	17	11	490	11
46	2.10	0.12	0.34	850	13	750	2	58	12	36	28	21	31	140	2	9	25	20	16	11	800	11
47	2.40	0.12	0.32	720	18	680	1	56	11	29	27	19	30	120	2	9	23	19	14	11	1100	9
48	4.10	0.11	0.32	740	10	760	1	56	10	33	21	18	29	90	2	10	23	16	15	10	830	9
49	4.00	0.11	0.33	750	N	810	1	56	10	35	18	15	29	84	N	9	24	16	13	9	870	10
50	4.40	0.10	0.33	750	N	730	2	59	11	34	23	20	30	82	4	9	24	16	20	10	520	11
51	4.40	0.11	0.31	730	N	770	1	55	10	33	18	19	29	72	N	8	22	15	17	9	600	10

Table 3. Results of soil-sample analyses (Hg and H+ in ppb, all other values in ppm).

No.	V	Y	Yb	Zn
1	180	25	2	89
2	180	24	3	90
3	160	24	2	84
4	190	25	2	91
5	22	25	2	89
6	170	24	2	85
7	150	23	2	84
8	150	22	2	80
9	190	25	3	88
10	160	24	2	85
11	170	24	2	93
12	170	25	3	89
13	160	23	2	85
14	130	21	2	84
15	130	21	2	84
16	130	22	2	83
17	140	21	2	89
18	180	25	2	88
19	160	24	2	92
20	140	24	3	89
21	160	24	2	87
22	160	23	2	79
23	160	23	2	82
24	170	23	2	85
25	170	23	2	81
26	150	23	2	78
27	160	24	2	89
28	150	23	2	81
29	160	24	2	82
30	150	25	2	85
31	150	24	2	85
32	140	24	2	80
33	150	25	2	85
34	220	26	3	91
35	150	24	2	81
36	160	24	2	83
37	130	23	2	87
38	120	24	2	88
39	110	22	2	78
40	91	18	2	83
41	110	20	2	97
42	88	15	2	77
43	94	19	2	82
44	86	20	2	97
45	87	19	2	94
46	79	19	2	92
47	79	18	2	88
48	68	18	2	80
49	68	18	2	77
50	68	18	2	85
51	67	17	2	76

Table 3. Results of soil-sample analyses (Hg and H+ in ppb, all other values in ppm).

No.	Latitude	Longitude	Hg	xAg	xAs	xCd	xCu	xMo	xPb	xSb	xZn	H+	Al	Ca	Fe	K	Mg
52	39.954	117.820	50	0.23	6.8	0.36	17	1.30	10.00	1.4	55	1.58	6.9	4.6	2.7	2.30	1.70
53	39.954	117.817	50	0.14	6.5	0.27	15	1.20	9.40	1.5	54	2.00	7.2	5.3	2.7	2.30	1.40
54	39.954	117.816	50	0.12	6.4	0.21	15	1.10	9.40	1.3	49	2.51	7.3	4.1	2.6	2.33	1.20
55	39.955	117.814	60	0.09	6.3	0.20	14	1.20	9.20	1.3	49	1.58	7.7	3.8	2.6	2.50	1.20
56	39.955	117.812	50	N	7.7	0.22	16	1.10	8.30	1.4	49	5.01	7.6	4.2	2.7	2.40	1.30
57	39.955	117.810	50	N	5.8	0.17	11	0.82	8.20	1.2	42	1.12	7.7	3.5	2.4	2.40	1.00
58	39.955	117.808	40	N	6.5	0.16	14	1.00	9.00	1.3	46	2.51	7.9	4.0	2.7	2.50	1.30
59	39.955	117.806	20	N	6.9	0.21	12	1.00	7.80	1.1	40	2.24	7.5	4.2	2.5	2.40	1.20
60	39.955	117.804	30	N	5.6	0.18	12	1.00	7.80	1.1	42	0.71	7.9	4.0	2.7	2.40	1.20
61	39.955	117.803	N	N	6.4	0.19	11	1.00	7.40	1.1	41	0.56	7.8	4.2	2.6	2.40	1.30
62	39.955	117.801	20	N	5.8	0.17	13	1.00	8.30	1.2	43	2.82	8.0	4.1	2.6	2.50	1.20
63	39.955	117.799	40	N	6.7	0.21	14	1.00	9.00	1.2	48	1.26	7.8	4.2	2.8	2.40	1.30
64	39.955	117.796	40	N	6.0	0.18	11	0.84	8.50	1.3	45	0.28	7.7	4.2	2.9	2.30	1.20
65	39.955	117.794	30	N	6.0	0.18	10	0.84	8.20	1.2	42	0.25	7.8	4.3	2.7	2.30	1.20
66	39.955	117.792	30	N	6.1	0.18	9	0.89	8.30	1.3	44	1.41	8.0	4.3	3.0	2.40	1.20
67	39.955	117.791	30	N	5.7	0.18	10	0.84	8.10	1.2	41	0.79	7.9	4.2	2.8	2.30	1.20
68	39.955	117.789	N	N	6.6	0.15	9	0.92	8.30	1.3	48	1.00	7.7	4.5	3.2	2.20	1.20
69	39.955	117.787	N	N	8.0	0.28	19	1.30	9.50	1.6	59	2.82	7.1	7.1	3.2	2.30	1.70
70	39.955	117.784	30	N	5.4	0.16	9	0.83	7.80	1.2	39	0.35	7.6	4.1	2.9	2.30	1.10
71	39.953	117.820	40	0.11	5.9	0.33	13	1.20	8.80	1.3	48	1.00	7.4	4.2	2.6	2.50	1.50
72	39.952	117.820	50	0.13	7.5	0.28	18	1.70	9.40	1.4	56	1.41	7.4	4.6	2.6	2.70	2.00
73	39.951	117.820	60	N	8.6	0.22	19	1.70	9.60	1.5	59	2.24	6.8	6.5	3.0	2.40	2.10
74	39.950	117.821	40	0.17	8.0	0.20	16	4.20	9.00	1.4	51	1.58	7.2	4.6	2.7	2.40	1.70
75	39.948	117.822	30	0.11	7.5	0.26	16	2.60	9.10	1.3	53	1.12	7.4	4.9	2.8	2.40	1.50
76	39.947	117.822	50	0.12	8.7	0.23	22	1.40	11.00	1.7	70	2.82	7.2	4.5	3.3	2.50	2.10
77	39.946	117.823	50	0.12	10.0	0.21	22	1.90	9.80	1.6	66	1.58	6.7	6.4	3.1	2.20	2.40
78	39.945	117.823	30	0.15	7.0	0.22	16	2.30	8.30	1.4	51	0.79	7.0	5.1	2.7	2.40	1.80
79	39.943	117.823	60	0.18	9.0	0.23	18	1.80	9.10	1.3	57	1.12	7.0	5.5	2.8	2.40	2.20
80	39.942	117.823	20	N	7.6	0.22	17	2.80	8.40	1.4	55	0.79	7.3	4.6	2.8	2.50	1.90
81	39.941	117.823	N	N	10.0	0.22	13	1.80	7.70	1.2	44	0.63	7.3	5.0	2.5	2.30	1.50
82	39.995	117.851	1300	0.16	26.0	0.16	17	2.70	5.30	4.1	39	4.47	7.9	5.2	2.9	1.80	2.20
83	39.994	117.850	440	0.11	12.0	0.20	16	1.50	8.80	2.5	48	1.00	7.7	3.2	3.0	2.00	1.80
84	39.993	117.848	220	0.13	13.0	0.36	15	1.90	7.70	2.8	49	0.56	7.5	5.3	2.7	2.30	2.00
85	39.991	117.847	350	0.09	14.0	0.23	15	1.60	6.30	2.9	46	0.63	7.3	4.0	2.8	2.10	1.90
86	39.990	117.846	350	0.09	19.0	0.18	14	2.10	6.20	3.4	40	0.50	7.6	4.1	2.8	2.10	2.00
87	39.989	117.845	230	0.09	12.0	0.25	16	1.30	6.90	2.3	51	0.71	7.5	4.2	3.0	2.10	1.90
88	39.988	117.844	490	N	12.0	0.18	13	1.10	6.70	2.1	39	0.71	6.6	3.9	2.7	1.60	1.80
89	39.987	117.843	100	N	23.0	0.13	18	1.80	7.00	3.7	42	0.50	7.5	3.0	3.3	1.80	2.30
90	39.986	117.842	140	N	29.0	0.10	15	1.90	5.20	3.6	28	0.18	6.3	3.3	2.7	1.30	1.90
91	39.985	117.841	60	0.21	94.0	0.16	23	3.90	8.70	3.9	56	0.14	7.0	2.9	3.2	2.40	2.50
92	39.985	117.838	40	0.09	18.0	0.16	14	0.99	6.60	2.5	36	0.04	6.1	3.8	2.6	1.70	1.70
93	39.984	117.837	310	0.15	37.0	0.25	23	2.10	10.00	4.8	56	0.07	8.1	4.4	3.2	2.60	2.50
94	39.984	117.835	20	N	17.0	0.39	18	0.88	10.00	1.9	52	0.03	7.1	6.8	2.8	2.80	1.80
95	39.984	117.832	N	0.09	19.0	0.44	14	2.50	8.10	1.4	42	0.08	7.0	6.2	2.3	2.30	1.40
96	39.984	117.829	30	0.11	12.0	0.46	19	1.80	13.00	2.3	67	0.07	7.2	5.4	3.0	2.60	1.70
97	39.990	117.823	N	0.19	10.0	0.31	17	2.00	6.80	1.4	39	0.03	7.8	5.1	2.2	2.30	1.20
98	39.987	117.827	N	0.08	8.1	0.40	14	1.30	8.40	1.4	46	0.04	7.3	5.9	2.5	2.30	1.40
99	39.944	117.890	30	N	15.0	0.18	18	1.20	7.60	2.0	51	0.71	7.3	4.4	3.5	2.20	2.60
100	39.953	117.889	90	N	17.0	0.17	36	1.20	7.50	5.4	58	0.13	7.5	3.9	5.8	1.60	2.30
101	39.947	117.902	100	N	7.9	0.15	16	0.84	7.20	1.4	48	0.25	7.8	3.6	3.9	2.00	1.60
102	39.946	117.941	80	0.12	6.0	0.21	17	0.79	8.30	1.2	53	1.00	8.0	3.6	3.4	2.30	1.70

Table 3. Results of soil-sample analyses (Hg and H+ in ppb, all other values in ppm).

No.	Na	P	Ti	Mn	As	Ba	Be	Ce	Co	Cr	Cu	Ga	La	Li	Mo	Nb	Nd	Ni	Pb	Sc	Sr	Th
52	3.80	0.10	0.31	690	N	750	1	54	10	26	20	18	29	74	N	9	21	15	18	9	660	9
53	2.60	0.10	0.30	690	N	780	1	54	9	22	22	18	29	57	N	9	23	15	19	9	600	11
54	3.20	0.08	0.30	690	N	820	1	55	10	29	19	18	29	53	N	9	23	14	20	8	510	8
55	3.20	0.09	0.32	660	N	840	2	58	10	32	20	19	31	50	N	10	24	14	21	9	480	11
56	2.60	0.09	0.32	670	11	810	2	59	10	30	20	20	32	52	N	10	23	14	20	9	480	10
57	2.40	0.08	0.30	640	N	890	2	60	10	22	15	19	31	41	N	9	24	13	15	8	490	9
58	2.60	0.09	0.33	670	10	860	2	60	9	25	20	22	32	50	N	10	24	15	21	9	480	11
59	2.70	0.08	0.30	620	N	860	2	57	8	31	16	21	31	47	N	10	24	13	23	8	500	11
60	2.40	0.09	0.34	670	N	870	2	61	10	35	15	20	33	42	N	11	25	13	15	9	500	10
61	3.00	0.10	0.33	670	N	890	1	58	9	34	14	20	31	47	N	10	24	13	13	8	550	9
62	2.60	0.09	0.32	660	N	870	2	57	9	22	17	20	31	49	N	10	23	14	21	9	500	9
63	2.40	0.09	0.33	700	N	860	2	60	10	34	18	19	32	53	N	10	24	15	19	9	490	10
64	2.20	0.09	0.37	700	N	880	2	60	10	37	19	19	31	42	N	10	25	14	23	9	520	13
65	2.30	0.08	0.34	730	12	880	2	61	11	34	13	20	32	39	N	10	23	14	23	9	510	12
66	2.40	0.09	0.40	740	11	920	2	63	10	36	12	21	34	35	N	10	26	13	20	9	530	9
67	2.40	0.08	0.35	740	11	910	2	62	11	35	12	20	34	39	N	11	25	13	22	9	520	8
68	2.30	0.09	0.43	760	12	890	2	64	11	36	12	21	34	36	N	11	26	13	24	9	520	9
69	2.80	0.12	0.36	750	12	700	2	61	12	26	25	15	33	72	N	9	25	18	16	9	510	10
70	2.40	0.09	0.38	720	N	930	2	61	10	27	13	20	33	37	N	10	24	13	20	8	540	10
71	4.00	0.11	0.31	690	N	820	1	55	9	28	17	21	29	59	N	9	22	14	22	9	570	9
72	3.30	0.12	0.32	760	N	730	2	57	11	35	23	24	31	86	6	11	23	17	23	9	640	11
73	2.10	0.11	0.31	710	N	670	1	55	10	32	24	19	28	100	3	9	23	18	21	10	810	10
74	3.50	0.11	0.31	730	13	810	1	55	10	25	21	18	30	87	13	10	22	15	19	9	620	11
75	3.70	0.11	0.32	710	N	770	1	55	10	28	21	23	30	74	N	10	21	15	23	9	680	10
76	3.50	0.11	0.34	790	10	630	2	61	12	24	28	19	31	100	N	9	24	20	16	11	460	10
77	2.60	0.10	0.31	690	13	580	1	53	11	23	26	15	28	120	N	8	21	19	17	10	2100	9
78	3.40	0.12	0.30	710	11	750	1	54	9	33	20	21	29	96	2	8	20	18	19	9	880	10
79	3.30	0.12	0.30	720	N	670	1	55	11	30	21	17	28	110	N	9	21	18	15	10	960	11
80	2.90	0.12	0.30	720	11	770	1	57	11	29	22	20	30	100	3	9	21	17	15	10	700	9
81	3.20	0.10	0.30	650	14	880	1	54	10	29	17	16	29	74	6	10	22	14	14	8	780	10
82	1.80	0.15	0.42	480	36	420	2	51	18	130	17	16	28	70	N	9	21	44	N	14	360	5
83	1.90	0.11	0.37	670	21	650	2	49	15	69	17	17	28	57	N	9	22	26	14	11	450	7
84	2.10	0.14	0.35	720	20	570	2	52	13	82	18	18	28	67	N	9	21	27	19	10	510	9
85	1.70	0.12	0.37	610	30	550	2	51	13	81	15	21	28	63	N	9	22	27	15	11	440	9
86	1.90	0.13	0.43	540	28	510	2	54	17	84	17	13	30	63	N	9	23	37	N	12	410	8
87	1.80	0.12	0.38	650	20	630	2	50	14	53	18	16	27	62	4	10	21	26	7	11	480	7
88	1.70	0.11	0.36	600	N	560	2	48	13	66	13	14	27	48	N	9	21	25	12	9	450	7
89	1.70	0.12	0.46	560	29	480	2	55	18	120	17	16	31	61	N	10	24	42	11	13	310	8
90	1.80	0.11	0.42	420	28	370	2	44	16	80	13	14	24	62	N	7	21	36	N	11	290	N
91	4.00	0.11	0.34	630	94	470	2	36	18	72	25	13	23	450	3	9	17	20	7	11	350	7
92	2.30	0.10	0.35	490	19	520	2	39	14	63	16	15	24	290	N	7	19	29	12	9	470	6
93	2.90	0.11	0.37	590	42	650	2	47	19	88	24	20	31	460	3	7	26	40	10	13	580	7
94	2.70	0.11	0.36	610	21	920	2	49	11	52	21	15	30	530	N	9	22	22	10	9	1000	7
95	3.40	0.10	0.30	540	31	1000	2	49	9	39	18	14	30	230	3	8	21	15	14	8	920	7
96	3.40	0.11	0.34	680	19	870	2	52	13	36	24	15	31	340	N	9	24	21	10	10	710	9
97	3.20	0.10	0.31	480	24	980	1	53	8	25	19	20	30	100	3	9	22	13	17	8	720	8
98	2.90	0.11	0.34	550	13	970	2	56	10	28	19	17	31	150	2	10	22	15	11	8	780	10
99	4.10	0.13	0.45	680	20	730	2	44	16	57	18	16	26	390	N	8	21	24	11	12	770	6
100	2.10	0.16	0.74	810	18	620	3	68	29	73	38	14	36	66	N	13	33	35	N	18	360	8
101	2.40	0.13	0.49	790	24	740	2	53	16	39	18	18	30	59	N	10	23	17	20	12	460	7
102	2.40	0.13	0.40	820	N	780	2	57	14	32	21	19	30	60	N	10	25	18	18	11	520	10

Table 3. Results of soil-sample analyses (Hg and H+ in ppb, all other values in ppm).

No.	V	Y	Yb	Zn
52	65	17	2	77
53	63	17	2	76
54	61	17	2	73
55	65	18	2	75
56	69	18	2	74
57	60	17	2	65
58	69	18	2	76
59	63	18	2	68
60	72	17	2	68
61	69	17	2	68
62	65	18	2	70
63	70	18	2	75
64	83	19	2	73
65	81	18	2	69
66	96	19	2	72
67	83	18	2	71
68	100	19	2	76
69	87	18	2	84
70	88	18	2	69
71	65	17	2	75
72	72	19	2	88
73	72	17	2	87
74	66	18	2	78
75	71	18	2	83
76	75	18	2	94
77	77	16	2	85
78	67	17	2	79
79	67	17	2	81
80	68	17	2	81
81	71	17	2	65
82	130	18	2	54
83	97	18	2	68
84	89	18	2	73
85	94	17	2	65
86	110	19	2	57
87	97	18	2	68
88	87	16	2	59
89	120	19	2	60
90	100	15	1	45
91	130	15	1	65
92	85	16	2	54
93	110	19	2	74
94	83	20	2	73
95	77	19	2	68
96	110	20	2	90
97	70	19	2	65
98	81	25	2	71
99	120	20	2	65
100	190	25	2	72
101	120	22	2	68
102	98	21	2	76

Table 3. Results of soil-sample analyses (Hg and H+ in ppb, all other values in ppm).

No.	Latitude	Longitude	Hg	xAg	xAs	xCd	xCu	xMo	xPb	xSb	xZn	H+	Al	Ca	Fe	K	Mg
103	39.944	117.940	100	N	6.7	0.10	15	0.93	4.50	1.5	26	0.63	8.2	5.5	5.8	1.30	2.00
104	39.943	117.939	60	0.09	5.5	0.12	19	0.95	5.30	1.4	35	0.71	8.3	4.4	5.1	1.40	1.90
105	39.941	117.937	60	0.11	5.2	0.13	19	0.94	5.60	1.1	37	1.12	8.2	4.4	4.7	1.50	1.80
106	39.940	117.936	110	0.09	6.8	0.10	36	0.94	4.80	0.1	47	0.79	8.3	4.3	5.6	1.40	2.10
107	39.940	117.934	50	N	10.0	0.16	35	1.00	7.50	1.2	67	2.24	8.4	4.3	5.2	1.60	2.00
108	39.939	117.934	60	N	9.7	0.15	41	1.20	6.60	1.3	63	0.89	8.5	4.4	5.4	1.50	2.10
109	39.938	117.933	50	N	8.2	0.14	36	1.00	6.20	1.1	71	2.82	8.4	4.5	5.6	1.40	2.00
110	39.937	117.932	60	N	12.0	0.14	48	1.30	5.80	1.5	60	2.00	8.4	4.3	5.4	1.40	2.00
111	39.936	117.931	40	N	10.0	0.14	49	1.10	6.70	1.2	69	2.82	8.4	4.2	5.4	1.50	1.90
112	39.935	117.931	50	N	9.7	0.13	35	1.20	7.00	1.3	57	11.22	8.4	4.4	4.8	1.70	1.90
113	39.933	117.933	20	N	14.0	0.15	39	1.60	5.70	1.2	60	4.47	8.7	4.4	5.2	1.80	2.10
114	39.932	117.933	40	N	12.0	0.15	49	1.30	7.00	1.5	63	11.22	8.2	4.1	4.8	1.60	2.20
115	39.931	117.932	30	N	10.0	0.16	36	1.40	6.00	1.2	57	7.94	8.1	4.4	4.6	1.60	2.00
116	39.930	117.930	30	N	13.0	0.12	43	4.60	7.90	1.4	67	1.58	7.8	3.9	4.4	1.80	2.20
117	39.953	117.916	5600	N	7.6	0.09	18	0.40	2.90	2.5	40	12.59	12.0	3.9	4.6	1.20	3.70
118	39.796	118.069	20	N	8.0	0.13	13	4.80	11.00	1.4	42	1.00	7.8	3.2	2.7	2.40	1.20
119	39.794	118.070	40	N	11.0	0.17	12	1.70	11.00	1.5	45	0.11	7.4	3.2	2.6	2.30	1.10
120	39.793	118.070	N	N	9.9	0.17	11	2.50	12.00	1.2	47	0.06	7.9	3.0	2.5	2.60	1.00
121	39.791	118.070	30	N	8.9	0.20	16	1.30	12.00	1.4	53	0.89	7.4	4.3	2.7	2.30	1.50
122	39.790	118.070	N	N	16.0	0.24	13	1.70	12.00	1.6	47	2.51	8.1	2.4	2.6	2.40	0.95
123	39.789	118.070	20	N	9.0	0.14	13	2.10	11.00	1.4	50	1.00	7.8	3.4	2.8	2.50	1.20
124	39.787	118.071	20	N	8.2	0.18	12	1.20	11.00	1.2	44	0.50	8.2	3.4	2.6	2.50	1.10
125	39.786	118.071	20	N	7.0	0.39	12	0.92	10.00	1.3	49	0.63	8.1	3.7	2.7	2.60	1.20
126	39.785	118.071	30	N	7.2	0.25	11	0.89	9.60	1.2	45	0.50	8.1	3.5	2.6	2.50	1.10
127	39.783	118.071	40	N	8.7	0.20	13	1.10	13.00	1.5	52	0.89	8.0	3.3	2.9	2.50	1.10
128	39.782	118.071	30	N	12.0	0.27	14	2.10	10.00	1.4	52	0.32	7.8	3.2	2.7	2.80	1.30
129	39.780	118.072	30	N	9.3	0.22	15	1.30	12.00	1.6	58	1.78	7.9	4.1	3.1	2.50	1.40
130	39.779	118.073	N	N	9.5	0.16	10	1.30	11.00	1.5	61	0.10	7.7	3.4	3.1	2.30	1.00
131	39.778	118.073	N	N	8.6	0.15	10	1.50	10.00	1.2	43	0.32	7.9	3.2	2.6	2.40	1.00
132	39.777	118.074	N	N	10.0	0.15	9	1.90	8.70	1.1	37	0.07	7.8	3.4	2.2	2.50	0.89
133	39.775	118.075	60	0.16	7.6	0.27	15	1.80	13.00	1.4	66	0.50	7.5	3.4	2.8	2.70	1.50
134	39.774	118.076	40	N	5.6	0.29	11	0.85	9.80	1.1	44	0.25	8.1	3.9	2.5	2.70	1.20
135	39.773	118.077	20	0.10	4.6	0.28	13	0.95	11.00	1.2	54	0.63	8.2	2.9	2.9	2.70	1.40
136	39.772	118.078	N	N	5.1	0.17	10	0.79	9.90	1.1	44	0.50	8.2	3.3	2.6	2.40	1.00
137	39.771	118.080	N	N	5.6	0.17	10	0.96	11.00	1.2	46	1.78	8.3	3.3	2.7	2.50	1.10
138	39.770	118.082	30	N	5.6	0.22	13	1.60	10.00	1.2	53	0.79	7.3	2.6	2.6	2.50	1.30
139	39.769	118.084	20	N	7.1	0.22	13	1.30	14.00	1.5	62	2.00	8.2	3.0	3.1	2.70	1.20
140	39.768	118.084	N	N	4.4	0.30	10	0.80	11.00	1.1	49	0.50	8.1	3.6	2.5	2.70	0.99
141	39.767	118.086	N	N	6.3	0.19	9	1.00	12.00	1.4	63	2.00	8.0	3.5	3.1	2.50	0.95
142	39.766	118.087	N	N	8.5	0.17	11	1.30	14.00	1.5	57	4.47	8.1	4.7	2.8	2.50	1.20
143	39.765	118.089	20	0.14	6.7	0.26	12	1.10	13.00	1.4	57	8.91	7.8	4.0	2.7	2.70	1.30
144	39.766	118.090	30	N	5.0	0.19	10	0.76	9.90	1.2	47	0.50	8.2	2.9	2.5	2.60	1.10
145	39.767	118.091	60	N	5.4	0.24	10	0.77	12.00	1.2	49	0.79	8.0	3.6	2.6	2.60	1.10
146	39.768	118.092	60	N	5.8	0.24	11	0.80	13.00	1.2	50	0.71	8.0	3.3	2.7	2.50	1.00
147	39.868	118.017	100	0.09	7.4	0.22	14	0.74	7.20	1.4	48	1.12	8.3	3.9	3.1	2.40	1.60
148	39.866	118.013	950	0.96	34.0	0.14	15	1.60	8.90	7.5	43	1.58	8.3	3.8	4.6	1.60	2.70
149	39.865	118.011	160	0.23	19.0	0.44	0	2.60	13.00	2.4	66	0.35	8.2	3.9	4.9	2.10	2.70
150	39.863	118.012	120	0.22	21.0	0.35	30	2.80	13.00	2.2	68	19.95	8.1	4.0	4.8	2.10	2.60
151	39.862	118.011	50	0.19	20.0	0.54	24	3.20	12.00	2.3	71	0.40	8.3	2.8	4.1	2.30	2.00
152	39.862	118.010	30	0.26	17.0	0.93	32	2.40	10.00	2.3	96	0.05	8.1	4.3	4.9	2.80	3.00
153	39.952	117.917	70	N	15.0	0.22	21	0.78	6.50	2.0	51	0.50	7.7	4.1	3.8	1.90	2.60

Table 3. Results of soil-sample analyses (Hg and H+ in ppb, all other values in ppm).

No.	Na	P	Ti	Mn	As	Ba	Be	Ce	Co	Cr	Cu	Ga	La	Li	Mo	Nb	Nd	Ni	Pb	Sc	Sr	Th
103	2.60	0.22	0.59	620	12	550	4	52	24	43	16	19	29	44	N	8	26	16	12	18	490	5
104	2.80	0.19	0.55	690	11	600	3	54	25	38	22	17	28	47	N	9	25	17	10	15	470	6
105	2.70	0.16	0.55	770	17	600	3	50	24	44	25	11	28	43	2	8	23	19	10	14	490	6
106	2.50	0.16	0.71	930	12	640	3	55	28	77	59	18	30	39	4	12	26	27	12	17	470	6
107	2.30	0.15	0.64	970	16	730	3	56	26	79	41	17	29	42	N	13	25	29	13	16	530	7
108	2.50	0.15	0.67	960	15	680	3	54	28	67	50	17	30	42	N	11	24	28	7	17	510	6
109	2.30	0.15	0.72	980	13	690	3	50	28	71	38	15	27	36	N	13	24	32	N	17	540	4
110	2.50	0.15	0.64	890	13	620	3	52	25	59	55	17	29	40	N	12	26	24	11	16	470	6
111	2.30	0.14	0.73	970	13	720	3	50	27	78	56	17	27	36	N	15	23	30	8	17	500	4
112	3.10	0.14	0.60	910	11	680	3	50	23	53	40	17	28	45	N	10	24	24	10	15	530	5
113	2.80	0.15	0.59	930	17	630	3	56	25	53	46	19	31	52	3	11	22	28	7	16	480	7
114	2.80	0.14	0.53	890	22	610	2	52	26	48	57	15	29	52	N	8	24	28	N	16	470	6
115	3.00	0.15	0.57	850	17	660	3	47	21	57	41	22	26	65	2	9	22	24	14	14	560	5
116	3.10	0.13	0.50	860	21	650	2	52	22	45	45	15	28	230	3	11	22	25	9	14	640	7
117	0.93	0.09	0.60	750	N	320	2	21	38	130	25	15	11	130	N	N	11	81	N	27	310	N
118	2.80	0.09	0.33	620	18	880	2	57	12	38	14	18	32	45	4	9	24	15	18	9	490	13
119	3.60	0.08	0.31	600	18	840	2	57	9	33	14	18	32	44	N	10	24	14	13	9	490	9
120	3.20	0.08	0.30	620	20	890	2	61	9	28	13	19	35	62	3	9	24	13	19	8	490	11
121	2.60	0.07	0.29	820	15	750	2	55	11	34	17	18	31	180	N	9	22	18	16	9	550	10
122	2.50	0.08	0.32	680	14	1000	2	63	12	30	15	17	36	69	4	9	28	16	18	9	530	12
123	3.10	0.09	0.31	660	16	810	2	57	11	36	14	18	32	53	3	8	23	16	14	9	540	12
124	2.20	0.09	0.31	630	N	870	2	63	10	39	13	21	36	44	2	10	26	16	16	9	520	15
125	2.30	0.10	0.33	650	N	870	2	61	9	31	13	22	35	47	N	10	24	16	16	9	590	12
126	2.20	0.09	0.33	610	18	890	2	63	11	36	14	17	35	42	N	9	27	17	14	9	600	16
127	1.90	0.09	0.34	670	11	860	2	65	12	31	14	18	36	45	N	10	27	18	16	9	490	13
128	4.00	0.09	0.29	690	18	770	2	57	9	27	15	20	32	72	2	10	23	16	18	9	540	11
129	2.10	0.09	0.33	670	13	750	2	56	12	40	16	20	31	62	N	10	22	18	16	10	560	13
130	2.30	0.09	0.38	660	19	900	2	74	10	29	11	16	41	42	N	12	31	16	17	9	540	12
131	2.50	0.09	0.31	570	11	850	1	59	10	30	11	16	33	42	2	11	24	15	16	8	520	12
132	3.10	0.09	0.28	500	17	870	2	62	8	23	10	17	35	63	N	9	26	13	15	7	550	11
133	3.50	0.13	0.31	750	12	720	1	57	10	29	18	21	32	130	N	8	23	16	22	9	630	12
134	2.20	0.11	0.32	650	14	900	2	58	9	35	12	21	34	44	N	10	25	14	19	8	590	13
135	3.10	0.10	0.35	700	15	680	2	57	11	27	17	20	31	64	N	12	24	14	22	9	490	10
136	2.60	0.09	0.33	640	N	790	2	59	10	29	13	21	31	42	N	11	23	14	13	8	520	10
137	2.60	0.08	0.34	650	13	800	2	57	10	27	13	19	32	43	N	11	23	14	17	9	550	12
138	4.50	0.09	0.29	630	10	620	2	55	9	24	15	20	31	64	5	12	23	12	17	8	500	10
139	2.20	0.10	0.37	770	17	910	2	65	11	30	15	17	35	59	N	11	26	17	14	9	510	14
140	2.40	0.11	0.32	730	16	930	2	61	8	30	11	23	33	43	N	9	24	12	21	7	550	10
141	2.40	0.11	0.41	740	16	950	2	73	10	33	10	24	42	40	N	12	29	13	25	8	560	14
142	1.60	0.08	0.33	710	23	930	2	62	10	20	12	17	34	50	N	11	25	14	15	9	740	14
143	3.60	0.10	0.33	690	18	890	2	59	11	28	13	17	34	53	2	11	24	14	14	8	650	13
144	2.40	0.09	0.31	640	13	860	2	59	9	32	12	24	33	43	N	11	23	14	23	8	500	13
145	2.10	0.10	0.32	710	N	920	2	63	9	30	11	20	37	45	N	10	26	13	22	8	550	13
146	2.10	0.09	0.32	700	N	920	2	62	22	22	20	20	34	44	N	9	24	13	21	8	530	11
147	2.20	0.11	0.36	770	N	740	2	50	14	50	15	20	30	57	N	9	21	21	15	12	520	10
148	2.00	0.16	0.60	770	49	630	3	42	22	73	13	22	23	57	N	9	19	23	17	23	400	7
149	1.90	0.16	0.50	1000	31	1100	2	48	26	100	30	22	27	54	N	9	21	46	21	19	350	6
150	2.60	0.14	0.47	1000	25	1000	2	46	28	99	33	19	27	57	2	7	20	47	15	19	380	7
151	2.10	0.15	0.45	880	25	790	2	51	23	64	26	19	29	53	4	10	23	34	17	13	390	7
152	2.80	0.15	0.45	1100	20	710	2	44	25	83	34	19	26	91	N	10	19	43	17	17	410	7
153	2.10	0.14	0.46	770	22	600	2	49	21	60	21	17	27	76	N	9	21	44	12	13	460	9

Table 3. Results of soil-sample analyses (Hg and H+ in ppb, all other values in ppm).

No.	V	Y	Yb	Zn
103	200	25	2	51
104	160	23	2	59
105	150	22	2	62
106	190	24	2	82
107	160	24	2	89
108	170	24	2	85
109	170	24	2	89
110	160	23	2	75
111	170	22	2	86
112	140	22	2	77
113	140	24	2	82
114	130	23	2	78
115	140	22	2	76
116	120	21	2	77
117	100	17	2	58
118	77	19	2	62
119	81	17	2	61
120	72	18	2	68
121	69	17	2	68
122	74	17	2	63
123	79	18	2	70
124	70	18	2	65
125	77	19	2	72
126	78	18	2	67
127	79	18	2	71
128	76	17	2	75
129	90	18	2	79
130	90	19	2	75
131	74	17	2	63
132	67	17	2	57
133	72	17	2	84
134	72	19	2	66
135	71	22	2	83
136	72	20	2	70
137	80	22	2	74
138	62	22	2	77
139	82	20	2	83
140	63	19	2	71
141	93	20	2	83
142	75	18	2	73
143	77	19	2	75
144	68	19	2	71
145	72	19	2	72
146	70	18	2	71
147	93	20	2	72
148	170	25	2	58
149	140	22	2	79
150	140	21	2	80
151	110	21	2	86
152	150	20	2	110
153	110	21	2	70

Table 3. Results of soil-sample analyses (Hg and H+ in ppb, all other values in ppm).

No.	Latitude	Longitude	Hg	xAg	xAs	xCd	xCu	xMo	xPb	xSb	xZn	H+	Al	Ca	Fe	K	Mg
154	39.950	117.917	70	N	8.5	0.19	18	0.97	6.60	1.4	54	0.25	7.8	4.5	3.6	2.10	2.00
155	39.949	117.917	90	N	7.2	0.21	16	0.96	8.20	1.4	57	0.63	7.8	4.2	3.3	2.20	1.90
156	39.947	117.916	100	N	7.7	0.18	16	1.00	7.80	1.3	55	0.50	7.9	4.0	3.4	2.20	1.70
157	39.946	117.916	70	N	8.6	0.17	17	1.20	6.10	1.6	54	0.40	7.8	4.4	3.8	2.00	1.80
158	39.945	117.916	50	N	9.3	0.15	16	1.60	5.10	1.8	57	1.00	7.9	4.4	4.6	1.90	1.80
159	39.974	117.878	40	N	13.0	0.13	19	0.85	4.70	3.0	67	1.58	8.0	5.3	5.1	1.30	2.30
160	39.975	117.875	80	N	7.0	0.23	16	0.75	6.70	2.1	59	0.79	7.7	3.6	3.6	1.90	2.20
161	39.975	117.873	50	0.12	4.4	0.25	12	0.59	7.10	1.2	47	0.40	8.2	4.6	3.3	2.20	2.00
162	39.976	117.871	50	0.13	5.0	0.24	16	0.66	7.50	1.4	52	0.28	8.1	4.1	3.5	2.10	1.90
163	39.976	117.870	30	0.09	7.2	0.15	12	0.68	6.00	2.4	40	1.00	7.2	4.0	3.7	1.40	2.60
164	39.976	117.868	50	0.12	5.3	0.22	14	0.69	7.60	1.3	49	0.79	8.4	3.4	3.4	2.10	1.90
165	39.977	117.867	60	0.11	6.5	0.15	17	0.97	6.30	1.7	46	0.71	7.9	4.9	4.2	1.50	2.40
166	39.977	117.866	50	0.12	7.2	0.28	16	0.95	7.60	1.8	52	0.79	8.3	3.9	3.8	1.90	2.10
167	39.977	117.863	40	0.10	9.2	0.22	14	0.77	8.20	1.6	48	0.35	8.3	3.8	3.7	1.90	2.50
168	39.978	117.861	70	0.12	11.0	0.23	15	0.80	11.00	1.9	50	0.35	8.4	4.0	4.0	1.80	2.70
169	39.978	117.860	180	0.13	18.0	0.27	10	0.74	9.10	2.2	46	0.08	8.1	5.3	3.8	1.40	3.30
170	39.978	117.858	110	0.11	15.0	0.21	13	0.70	8.60	2.3	49	0.71	8.3	4.4	4.4	1.50	3.50
171	39.978	117.857	50	0.11	13.0	0.21	13	0.68	8.60	2.2	47	0.28	8.2	4.1	4.1	1.50	3.10
172	39.978	117.855	60	0.11	12.0	0.22	14	0.74	9.00	3.2	48	0.16	8.6	4.7	4.4	1.60	3.10
173	39.977	117.853	90	0.11	9.5	0.18	14	0.96	7.50	1.9	48	0.32	8.3	4.2	4.1	1.70	2.80
174	39.977	117.851	220	0.12	8.5	0.16	14	0.72	6.90	1.8	51	0.89	8.6	4.3	4.2	1.70	2.30
175	39.977	117.849	150	0.16	6.0	0.17	19	0.58	6.80	1.6	63	1.02	8.3	4.7	4.8	1.60	2.50
176	39.977	117.847	120	N	11.0	0.16	18	0.80	7.30	2.5	61	0.79	8.7	4.8	4.6	1.50	2.20
177	39.977	117.846	20	0.10	9.1	0.15	16	0.69	6.60	2.0	55	0.56	8.0	4.9	4.4	1.70	2.50
178	39.978	117.844	20	N	15.0	0.16	12	1.00	6.50	2.7	41	0.08	7.2	5.3	4.0	1.20	2.30
179	39.979	117.842	20	N	13.0	0.15	10	0.90	5.70	2.6	31	0.02	6.8	5.1	3.5	1.10	2.40
180	39.980	117.841	N	N	10.0	0.15	14	0.72	6.50	2.2	44	0.63	8.1	4.9	3.8	1.40	2.40
181	39.981	117.840	40	0.10	18.0	0.18	11	1.50	7.00	2.7	29	0.05	6.6	4.9	2.7	1.30	2.10
182	39.983	117.838	30	0.10	14.0	0.19	9	0.83	5.40	2.6	20	0.04	5.8	5.0	2.0	1.20	1.40
183	39.975	117.846	30	0.11	13.0	0.18	21	1.70	7.40	2.8	57	2.51	8.1	5.0	4.2	1.70	2.50
184	39.975	117.848	60	0.10	13.0	0.14	22	1.50	6.70	1.7	63	5.62	8.4	4.9	4.9	1.50	2.40
185	39.973	117.849	30	0.10	7.4	0.22	15	0.66	6.90	2.3	51	0.50	8.5	4.7	4.0	1.70	2.30
186	39.972	117.850	130	0.14	8.1	0.22	21	0.65	8.00	3.0	60	5.01	8.3	4.7	4.3	1.70	2.50
187	39.971	117.851	60	0.10	8.8	0.18	19	1.50	4.20	3.0	54	2.51	8.1	5.4	4.4	1.50	2.50
188	39.970	117.853	40	0.11	9.0	0.20	18	0.76	5.50	2.7	58	0.63	8.4	4.8	4.7	1.60	2.40
189	39.966	117.857	30	0.09	6.4	0.18	18	0.69	4.70	2.0	64	0.63	8.7	3.9	5.3	1.60	2.20

Table 3. Results of soil-sample analyses (Hg and H+ in ppb, all other values in ppm).

No.	Na	P	Ti	Mn	As	Ba	Be	Ce	Co	Cr	Cu	Ga	La	Li	Mo	Nb	Nd	Ni	Pb	Sc	Sr	Th
154	2.10	0.14	0.43	860	10	690	2	50	17	36	18	15	27	56	N	9	21	22	13	12	500	8
155	2.10	0.12	0.38	860	12	710	2	48	13	32	15	18	26	57	N	9	19	19	15	11	520	9
156	2.20	0.11	0.40	830	10	770	2	47	16	35	17	18	27	53	N	9	20	20	15	11	510	9
157	2.20	0.12	0.45	880	N	760	2	47	16	40	17	18	25	49	N	9	20	21	13	12	510	9
158	2.30	0.13	0.55	1000	10	800	2	43	20	55	17	18	25	48	N	9	21	23	13	13	450	8
159	1.90	0.16	0.79	970	20	820	2	48	26	86	19	18	26	38	N	14	22	39	10	18	560	N
160	1.90	0.15	0.48	760	N	710	2	48	17	61	17	18	27	52	N	10	22	28	10	12	480	8
161	2.20	0.14	0.42	830	11	740	2	51	15	50	15	16	27	53	N	11	22	23	13	12	610	9
162	2.10	0.15	0.45	760	N	730	2	51	16	58	19	18	26	55	N	11	22	25	13	13	540	10
163	1.70	0.16	0.50	720	14	550	2	45	18	75	14	15	23	52	N	10	21	29	11	13	420	7
164	2.20	0.14	0.45	740	N	760	2	51	16	57	19	17	28	56	N	12	23	24	14	13	510	10
165	2.10	0.22	0.56	770	19	550	2	52	19	43	18	15	28	52	N	10	26	20	10	15	460	8
166	2.10	0.18	0.49	720	15	670	2	55	18	46	18	16	28	56	N	11	26	25	14	13	490	11
167	2.10	0.14	0.43	680	N	650	2	48	19	46	16	16	27	59	N	10	24	31	14	12	480	9
168	1.90	0.15	0.45	690	23	560	2	55	23	51	16	16	28	69	N	10	24	34	14	13	420	9
169	2.20	0.18	0.44	600	26	410	2	48	25	69	8	14	24	83	N	9	23	36	10	14	410	8
170	2.00	0.16	0.46	660	23	490	2	52	29	56	14	16	27	87	N	10	24	43	12	15	390	9
171	1.90	0.15	0.45	660	14	520	2	49	26	59	13	16	25	74	N	9	23	41	12	13	390	7
172	1.90	0.17	0.51	720	23	490	2	54	26	56	16	15	28	78	N	9	25	38	15	14	410	7
173	2.20	0.16	0.48	750	17	590	2	50	23	53	16	17	26	70	N	10	24	36	13	14	430	8
174	2.20	0.15	0.57	790	14	750	2	52	23	80	15	15	27	49	N	11	24	35	9	15	540	5
175	1.80	0.16	0.65	860	27	780	2	50	25	73	23	15	26	65	N	12	25	34	7	17	590	6
176	2.00	0.16	0.63	850	21	770	2	49	24	77	21	15	26	47	N	14	23	40	N	16	590	6
177	3.10	0.18	0.57	860	N	670	2	46	24	77	20	16	25	81	N	10	22	38	9	16	570	6
178	2.30	0.17	0.61	630	17	600	2	45	20	110	10	12	24	59	N	10	22	40	N	14	500	4
179	2.20	0.17	0.53	550	26	490	2	43	21	100	8	11	22	59	N	8	20	42	11	13	440	6
180	2.20	0.14	0.50	690	25	650	2	41	22	80	13	15	21	60	N	9	19	45	N	13	530	5
181	2.60	0.15	0.43	470	22	510	2	39	15	90	9	13	22	140	N	7	21	36	9	11	460	6
182	2.20	0.12	0.37	380	14	480	1	37	10	51	11	10	21	94	N	5	19	22	8	9	480	N
183	2.80	0.15	0.53	790	27	660	2	44	21	81	24	17	23	75	N	10	21	37	13	16	560	6
184	2.60	0.17	0.62	860	24	740	2	49	25	83	28	16	25	58	N	12	22	38	5	17	630	7
185	2.20	0.16	0.56	780	16	760	2	45	20	83	15	15	25	48	N	11	22	34	9	15	580	6
186	1.90	0.16	0.55	740	13	710	2	47	22	77	24	17	24	60	N	11	22	37	10	16	560	7
187	2.70	0.17	0.57	790	15	670	2	46	24	88	24	16	23	59	N	9	22	39	4	16	680	6
188	2.10	0.17	0.70	860	15	730	3	48	25	97	21	15	26	49	N	13	23	43	13	17	550	6
189	2.20	0.17	0.79	940	16	790	3	52	26	84	22	16	27	43	N	16	25	37	8	18	570	6

Table 3. Results of soil-sample analyses (Hg and H+ in ppb, all other values in ppm).

No.	V	Y	Yb	Zn
154	110	20	2	72
155	92	19	2	74
156	95	19	2	74
157	110	20	2	71
158	140	21	2	72
159	200	25	2	86
160	120	20	2	79
161	98	19	2	78
162	100	19	2	78
163	130	18	2	63
164	100	20	2	76
165	130	23	2	65
166	110	20	2	74
167	100	18	2	70
168	110	19	2	73
169	120	18	2	65
170	120	20	2	72
171	110	18	2	68
172	120	20	2	72
173	110	19	2	72
174	130	21	2	76
175	140	21	2	86
176	130	22	2	80
177	140	20	2	79
178	140	19	2	61
179	120	18	2	54
180	110	19	2	62
181	96	17	2	50
182	74	15	1	43
183	130	20	2	80
184	140	21	2	89
185	130	20	2	75
186	130	20	2	83
187	140	19	2	80
188	170	23	2	83
189	180	23	2	92

Table 4. Basic statistics for the soil-gas and soil data.

Variable	Minimum	Maximum	Mean	Deviation
N2-%	60.5	87.3	75.6	4.4
O2-%	16.1	23.4	20.0	1.2
CO2-%	0.001	9.2	0.18	0.73
He-ppb	5070	5440	5222	58
Hg-ppb	1	5600	101	423
xAg-ppm	0.01	0.96	0.06	0.09
xAs-ppm	4.40	94.00	10.85	8.11
xCd-ppm	0.09	0.93	0.21	0.09
xCu-ppm	0.3	49.0	18.0	7.5
xMo-ppm	0.4	4.8	1.3	0.8
xPb-ppm	2.9	14.0	8.5	2.1
xSb-ppm	0.1	7.5	1.8	0.8
xZn-ppm	1.0	96.0	52.0	16.0
Al-%	5.8	12.0	7.9	0.6
Ca-%	2.4	8.7	4.4	0.9
Fe-%	2.0	5.8	3.7	1.0
K-%	1.1	2.8	2.0	0.4
Mg-%	0.9	3.7	1.9	0.6
Na-%	0.9	4.5	2.5	0.6
P-%	0.1	0.2	0.1	0.0
Ti-%	0.3	0.9	0.5	0.2
Mn-ppm	380	1100	755	124
As-ppm	1	94	14	11
Ba-ppm	70	1100	738	140
Be-ppm	1	4	2	1
Ce-ppm	21	74	54	6
Co-ppm	8	38	17	7
Cr-ppm	20	140	58	29
Cu-ppm	8	59	20	9
Ga-ppm	10	24	18	3
La-ppm	11	42	29	4
Li-ppm	35	530	76	70
Mo-ppm	0	13	1	1
Nb-ppm	0	16	10	2
Nd-ppm	11	33	24	3
Ni-ppm	12	81	27	12
Pb-ppm	0	25	13	6
Sc-ppm	7	27	13	4
Sr-ppm	290	2100	562	199
Th-ppm	0	16	8	3
V-ppm	22	220	112	39
Y-ppm	15	26	20	3
Yb-ppm	1	3	2	0
Zn-ppm	43	110	76	11
H+-ppb	0.02	19.95	1.84	2.84

Table 5. Percentile values for the soil-gas and soil data.

Variable	20th	80th	95th
N2	72.3	79.6	83.0
O2	19.0	21.1	22.0
CO2	0.015	0.13	0.62
He	5200	5280	5320
Hg	30	70	220
xAg	0.01	0.12	0.19
xAs	6.55	13.00	20.50
xCd	0.15	0.25	0.39
xCu	13.0	21.5	35.5
xMo	0.8	1.7	3.1
xPb	6.8	10.0	12.5
xSb	1.3	2.3	3.1
xZn	43.5	65.0	71.0
Al	7.4	8.3	8.6
Ca	3.8	4.9	5.6
Fe	2.7	4.7	5.4
K	1.6	2.4	2.7
Mg	1.3	2.4	2.7
Na	2.1	2.9	3.9
P	0.1	0.2	0.2
Ti	0.3	0.6	0.7
Mn	660	860	950
As	1	20	28
Ba	630	860	930
Be	2	2	3
Ce	49	58	63
Co	10	24	27
Cr	31	83	115
Cu	15	24	39
Ga	15	20	22
La	27	31	35
Li	45	80	160
Mo	0	0	4
Nb	9	12	14
Nd	22	26	28
Ni	15	38	44
Pb	10	18	22
Sc	9	17	19
Sr	480	590	820
Th	6	10	13
V	72	150	180
Y	18	23	25
Yb	2	2	2
Zn	68	85	91
H+	0.38	2.24	7.94

Table 6. Eight-factor model for soil and soil-gas data.

	Factor-1		Factor-2		Factor-3		Factor-4		Factor-5		Factor-6		Factor-7		Factor-8
Fe	0.953	La	0.892	xAg	0.773	xAs	0.800	N2	0.953	Ca	0.830	Mo	0.684	H+	0.748
Ti	0.937	Ce	0.887	xCd	0.730	xSb	0.693	O2	0.935	Sr	0.806	xMo	0.630	Zn	0.555
Sc	0.936	Nd	0.817	xPb	0.378	CO2	0.690	Pb	0.187	Li	0.374	Na	0.627	Ga	0.520
Co	0.932	Nb	0.762	Pb	0.378	As	0.550	Mn	0.124	Zn	0.297	Cu	0.552	Mn	0.506
P	0.894	Th	0.649	Li	0.344	Li	0.484	Zn	0.110	xCu	0.276	xCu	0.442	Cu	0.454
V	0.876	xPb	0.542	K	0.327	xMo	0.464	Nb	0.096	Mg	0.215	Li	0.296	Yb	0.443
Ni	0.823	Ba	0.517	Th	0.310	Ni	0.285	He	0.092	Yb	0.194	As	0.262	Al	0.376
Cr	0.817	Zn	0.399	Mg	0.265	xPb	0.265	Ga	0.087	xCd	0.191	xZn	0.212	xCu	0.314
Y	0.801	K	0.356	Zn	0.260	He	0.258	xPb	0.079	Cu	0.159	He	0.208	Hg	0.263
Mg	0.777	Yb	0.353	Hg	0.259	Cr	0.255	Ba	0.077	Na	0.153	xAs	0.206	xPb	0.217
Mn	0.664	Pb	0.344	xMo	0.237	Mg	0.189	xSb	0.060	CO2	0.148	xAg	0.205	K	0.194
Be	0.632	Y	0.316	Ga	0.235	Mo	0.124	Sc	0.037	P	0.124	Sr	0.160	Y	0.179
Al	0.499	Ga	0.305	Na	0.217	xZn	0.118	Yb	0.035	Nb	0.063	K	0.153	Fe	0.179
Cu	0.473	Na	0.215	xSb	0.208	Be	0.103	Ti	0.033	H+	0.053	Zn	0.147	Sc	0.173
xCu	0.445	Mn	0.190	xZn	0.192	Hg	0.096	Na	0.028	Ba	0.051	Mn	0.113	Th	0.168
Zn	0.408	Be	0.183	P	0.112	xCd	0.094	K	0.021	xAg	0.036	H+	0.102	Ba	0.130
Hg	0.389	Sr	0.175	xAs	0.105	V	0.079	Fe	0.021	Ni	0.034	Nb	0.071	Sr	0.129
Nb	0.348	xCd	0.159	Mn	0.075	Sc	0.061	Ni	0.018	Mn	0.033	La	0.058	Ce	0.113
xSb	0.289	Al	0.057	Ca	0.073	Co	0.055	Al	0.016	Ti	0.023	Pb	0.053	Pb	0.111
Nd	0.262	O2	0.055	Mo	0.063	xCu	0.045	Th	0.015	xMo	0.021	xPb	0.048	Be	0.111
xAs	0.244	Mo	0.049	Cu	0.054	N2	0.042	Y	0.008	Fe	0.003	xCd	0.047	xZn	0.102
Ca	0.242	N2	0.042	Sr	0.040	Ca	0.039	Sr	0.007	Sc	0.000	Ba	0.029	xMo	0.086
As	0.207	As	0.017	Yb	0.039	xAg	0.035	Cr	0.005	xAs	-0.002	Ga	0.029	La	0.073
Yb	0.183	xMo	0.001	Nb	0.019	P	-0.023	xCd	-0.002	Th	-0.003	Th	0.001	Co	0.062
H+	0.153	He	-0.011	N2	0.013	Sr	-0.034	Co	-0.004	Y	-0.006	Fe	-0.001	CO2	0.061
O2	0.060	Fe	-0.015	Ni	0.009	K	-0.035	V	-0.006	N2	-0.007	Ce	-0.004	Mg	0.060
He	0.004	V	-0.016	Ba	0.001	La	-0.049	La	-0.008	xSb	-0.021	N2	-0.016	O2	0.042
xAg	-0.008	Ti	-0.017	As	-0.007	Cu	-0.053	Li	-0.011	V	-0.022	Y	-0.027	Ti	0.040
N2	-0.034	H+	-0.030	O2	-0.014	Ti	-0.053	Mg	-0.013	Pb	-0.025	CO2	-0.039	Ni	0.039
xZn	-0.101	xZn	-0.036	Ce	-0.049	O2	-0.060	Ce	-0.016	Cr	-0.029	V	-0.040	Mo	0.033
Li	-0.200	xCu	-0.067	La	-0.055	Fe	-0.066	Be	-0.019	Ce	-0.036	Mg	-0.042	xCd	0.029
Ce	-0.213	Cu	-0.084	Sc	-0.069	Th	-0.072	P	-0.020	xPb	-0.047	O2	-0.044	N2	0.003
CO2	-0.218	P	-0.101	Co	-0.072	Na	-0.090	As	-0.022	Nd	-0.070	P	-0.056	Ca	-0.014
Mo	-0.235	Ca	-0.143	Cr	-0.074	Y	-0.096	Nd	-0.033	Mo	-0.072	Ca	-0.065	Cr	-0.021
Ba	-0.250	Sc	-0.179	Fe	-0.109	H+	-0.101	Hg	-0.033	xZn	-0.077	Co	-0.067	V	-0.029
Sr	-0.262	CO2	-0.191	H+	-0.140	Nb	-0.104	H+	-0.038	K	-0.083	Nd	-0.095	Nd	-0.033
La	-0.293	Co	-0.214	V	-0.147	Nd	-0.113	Ca	-0.047	Co	-0.088	Sc	-0.096	Li	-0.058
Na	-0.324	xAs	-0.216	CO2	-0.153	Yb	-0.118	xMo	-0.063	La	-0.095	Be	-0.133	Na	-0.077
xCd	-0.330	Cr	-0.230	Nd	-0.162	Zn	-0.132	CO2	-0.077	As	-0.097	Ti	-0.144	xSb	-0.095
Ga	-0.331	xAg	-0.260	He	-0.173	Ce	-0.150	xAs	-0.082	O2	-0.110	Hg	-0.177	xAs	-0.116
Pb	-0.341	Li	-0.277	Y	-0.177	Ga	-0.186	xAg	-0.083	Hg	-0.143	Al	-0.225	He	-0.132
xMo	-0.343	xSb	-0.281	Al	-0.178	Ba	-0.236	xCu	-0.086	He	-0.223	Ni	-0.227	xAg	-0.144
Th	-0.347	Ni	-0.294	xCu	-0.199	Pb	-0.240	Cu	-0.109	Ga	-0.255	Cr	-0.240	Nb	-0.157
xPb	-0.458	Mg	-0.387	Ti	-0.254	Al	-0.272	Mo	-0.125	Be	-0.263	xSb	-0.246	P	-0.161
K	-0.751	Hg	-0.478	Be	-0.320	Mn	-0.276	xZn	-0.295	Al	-0.378	Yb	-0.298	As	-0.266

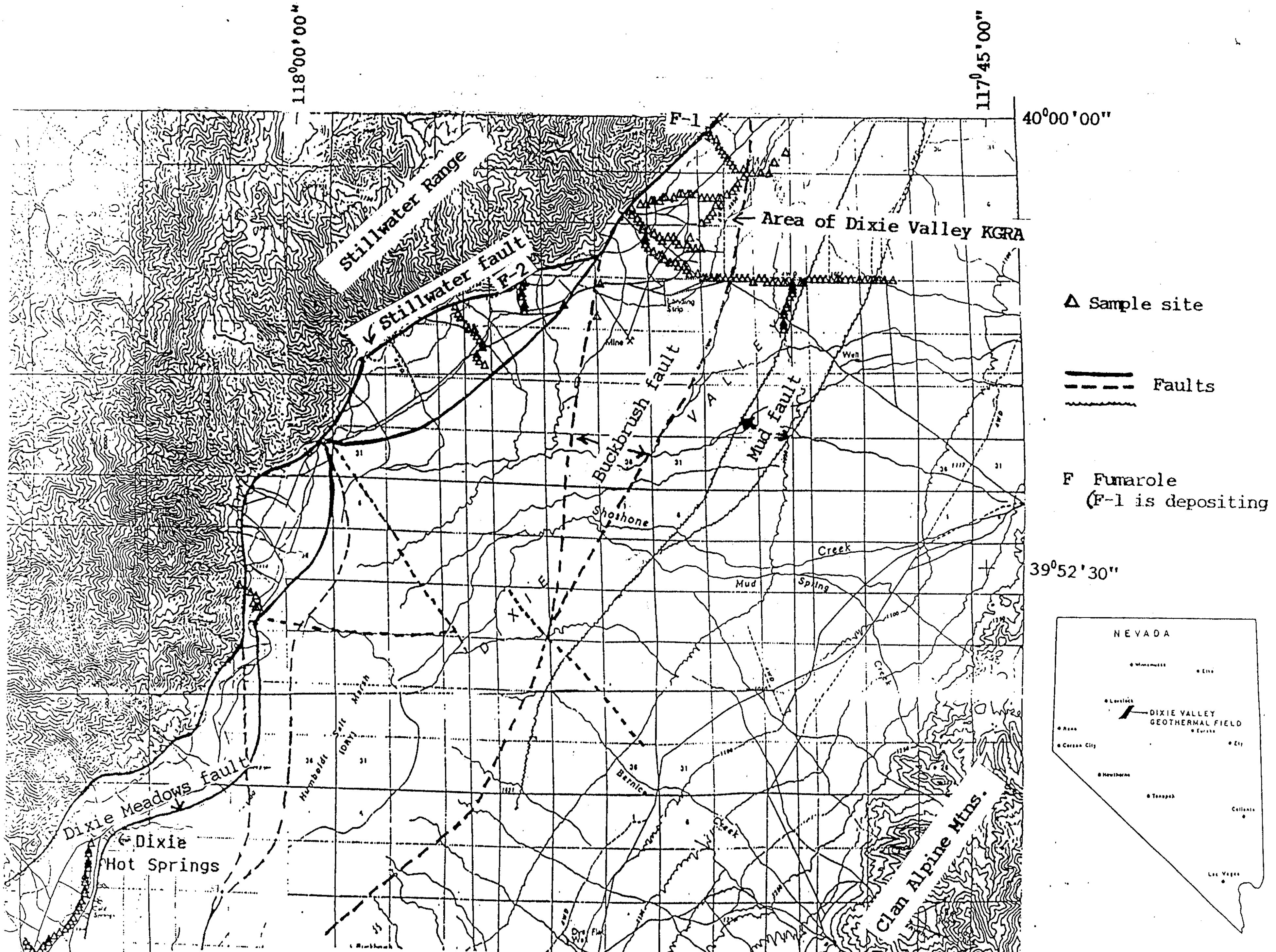

Fig.1: Locations of sample sites and major faults, Dixie Valley

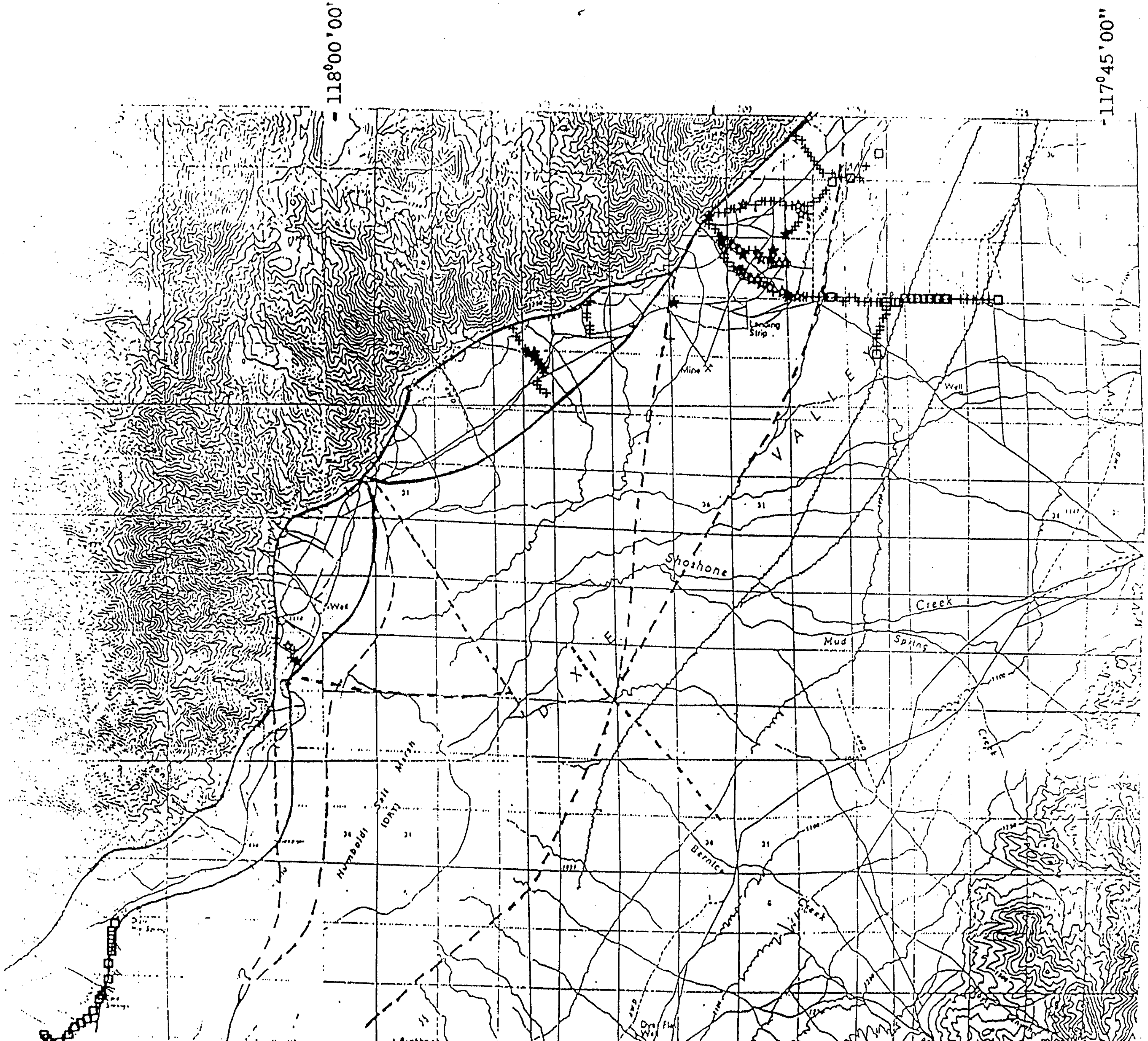

Fig.2. Factor 1 of 8 for log-transformed data: 4 percentiles

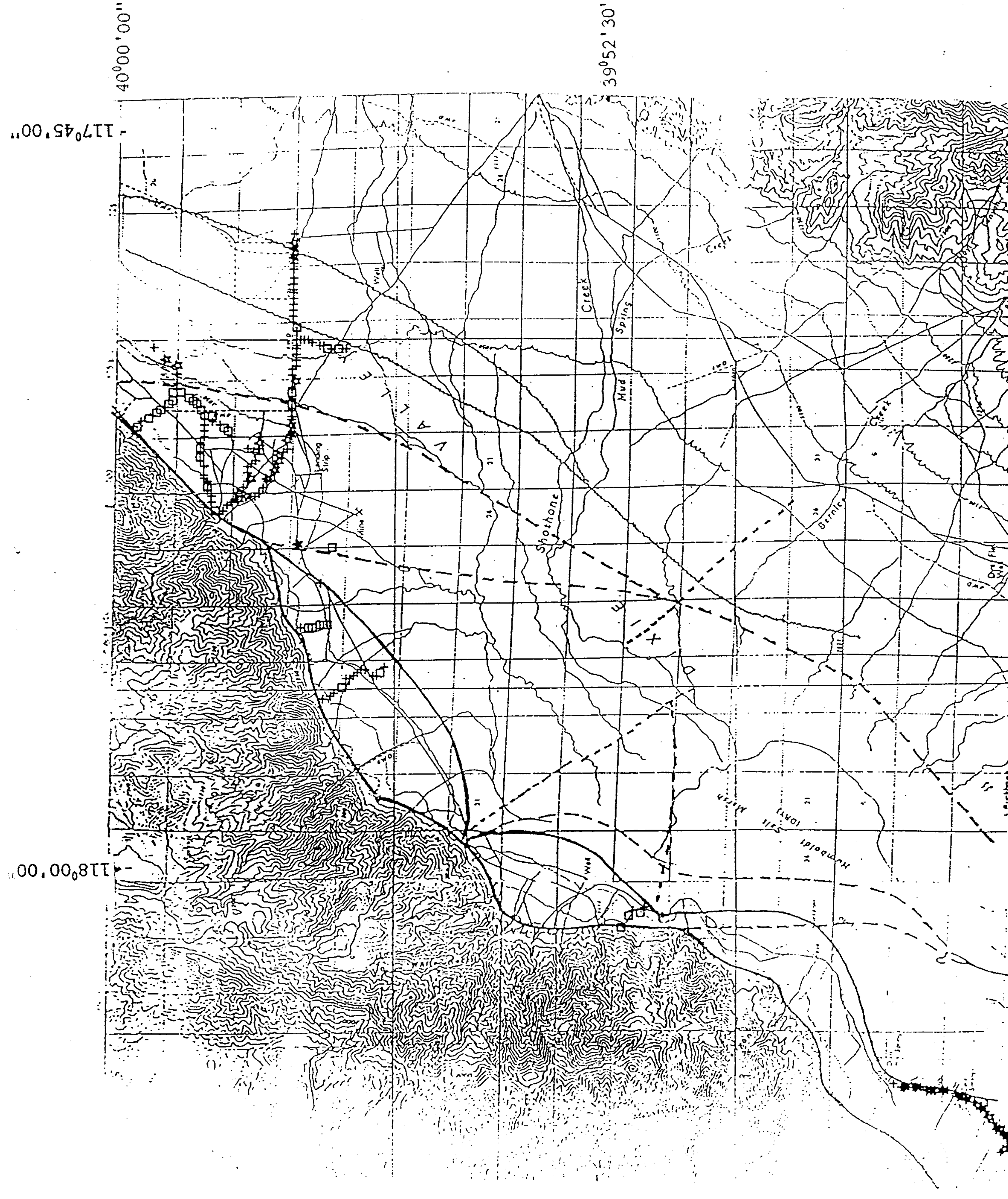

Fig.3. Factor 2 of 8 for log-transformed data: 4 percentiles

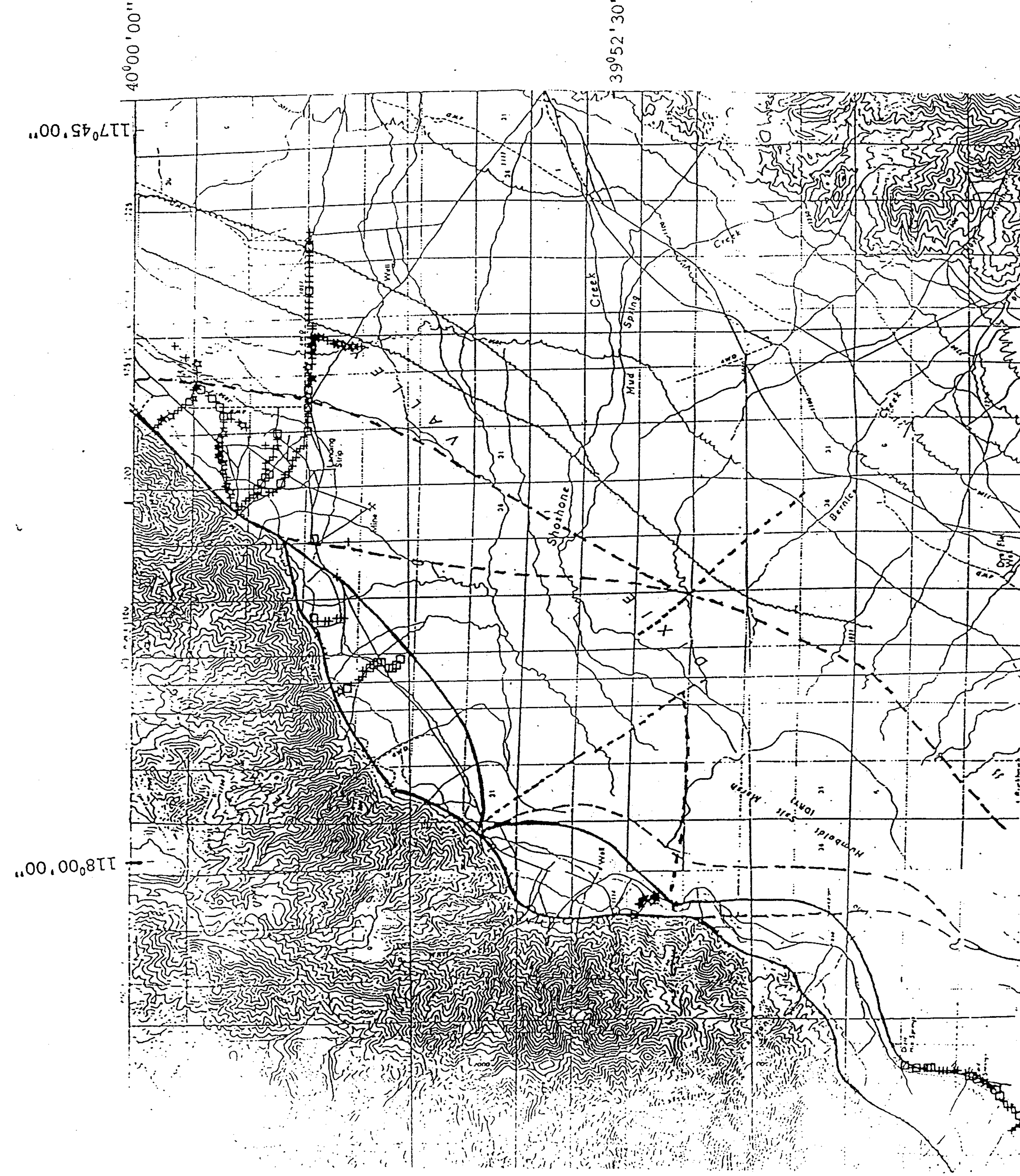

Fig. 4. Factor 3 of 8 for log-transformed data: 4 percentiles

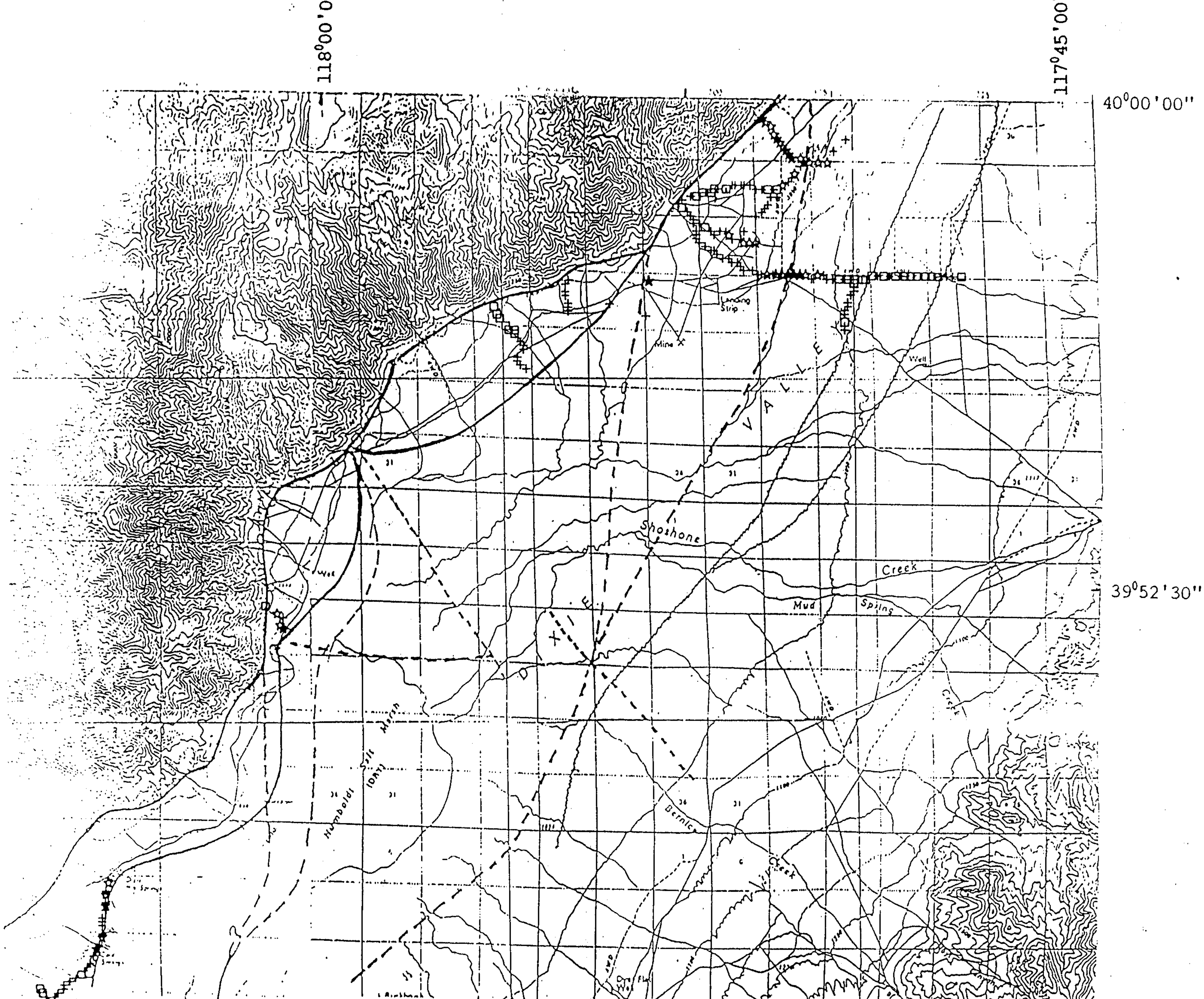

Fig.5. Factor 4 of 8 for log-transformed data: 4 percentiles

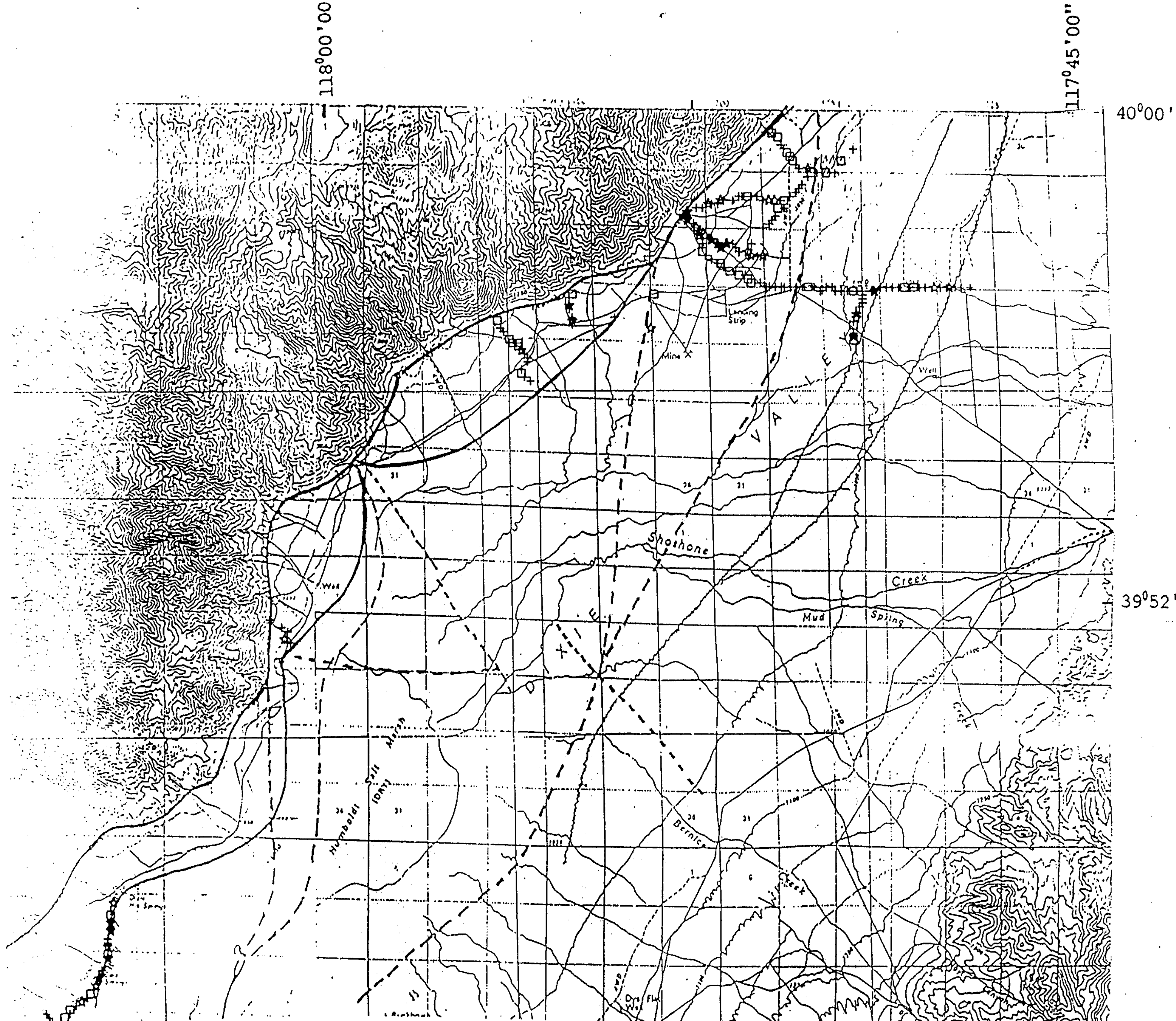

Fig 6. Factor 5 of 8 for log-transformed data: 4 percentiles

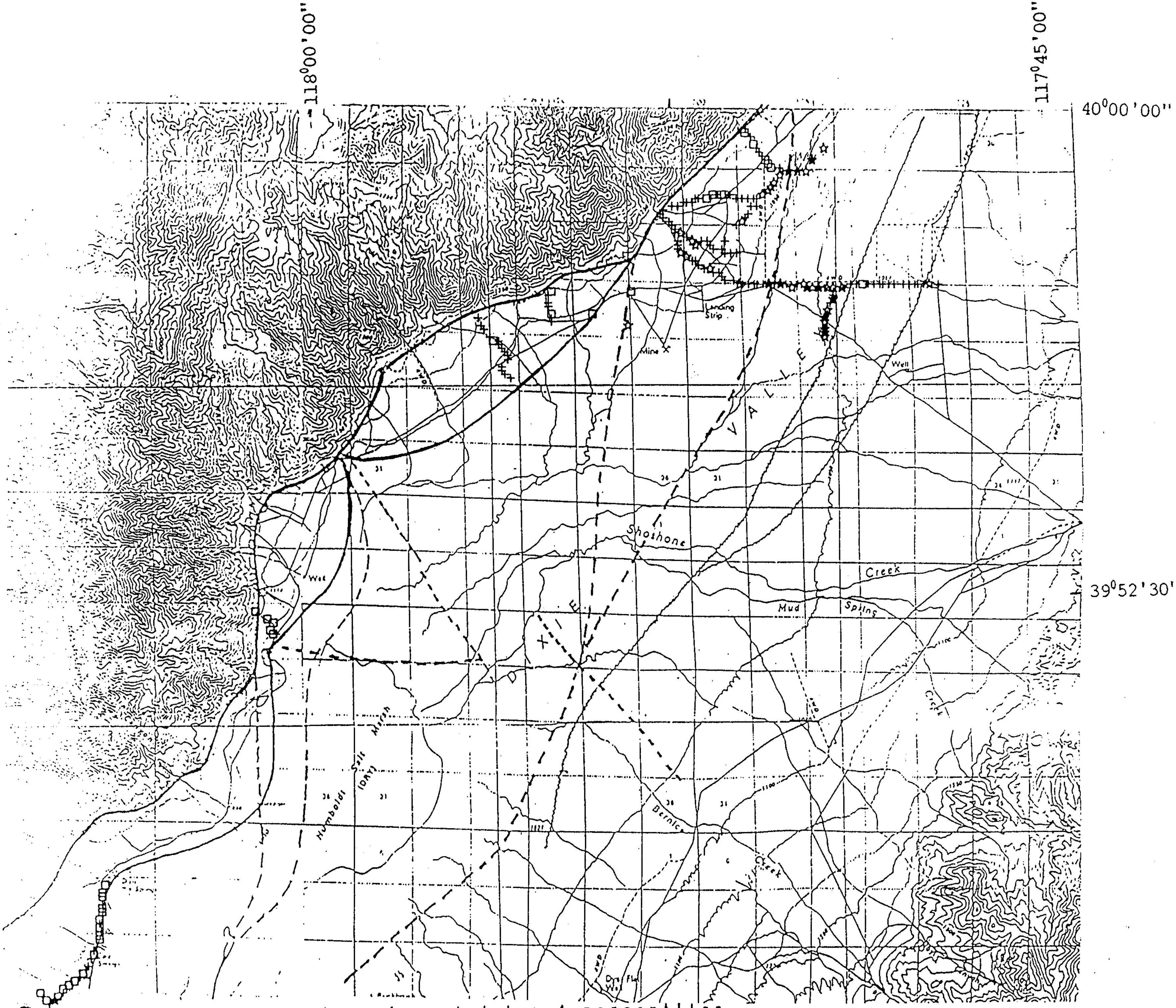

Fig. 7 Factor 6 of 8 for log-transformed data: 4 percentiles

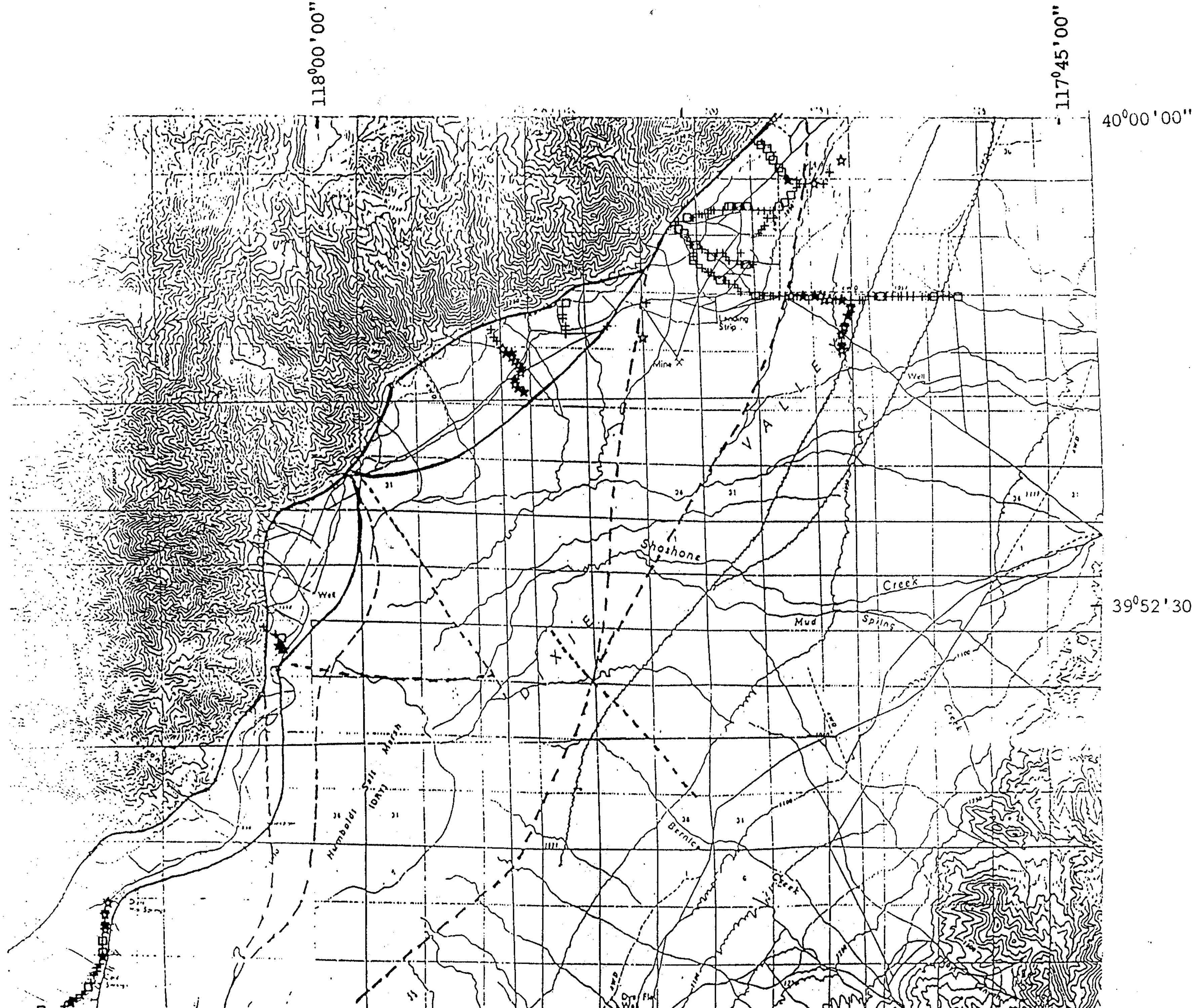

Fig.8. Factor 7 of 8 for log-transformed data: 4 percentiles

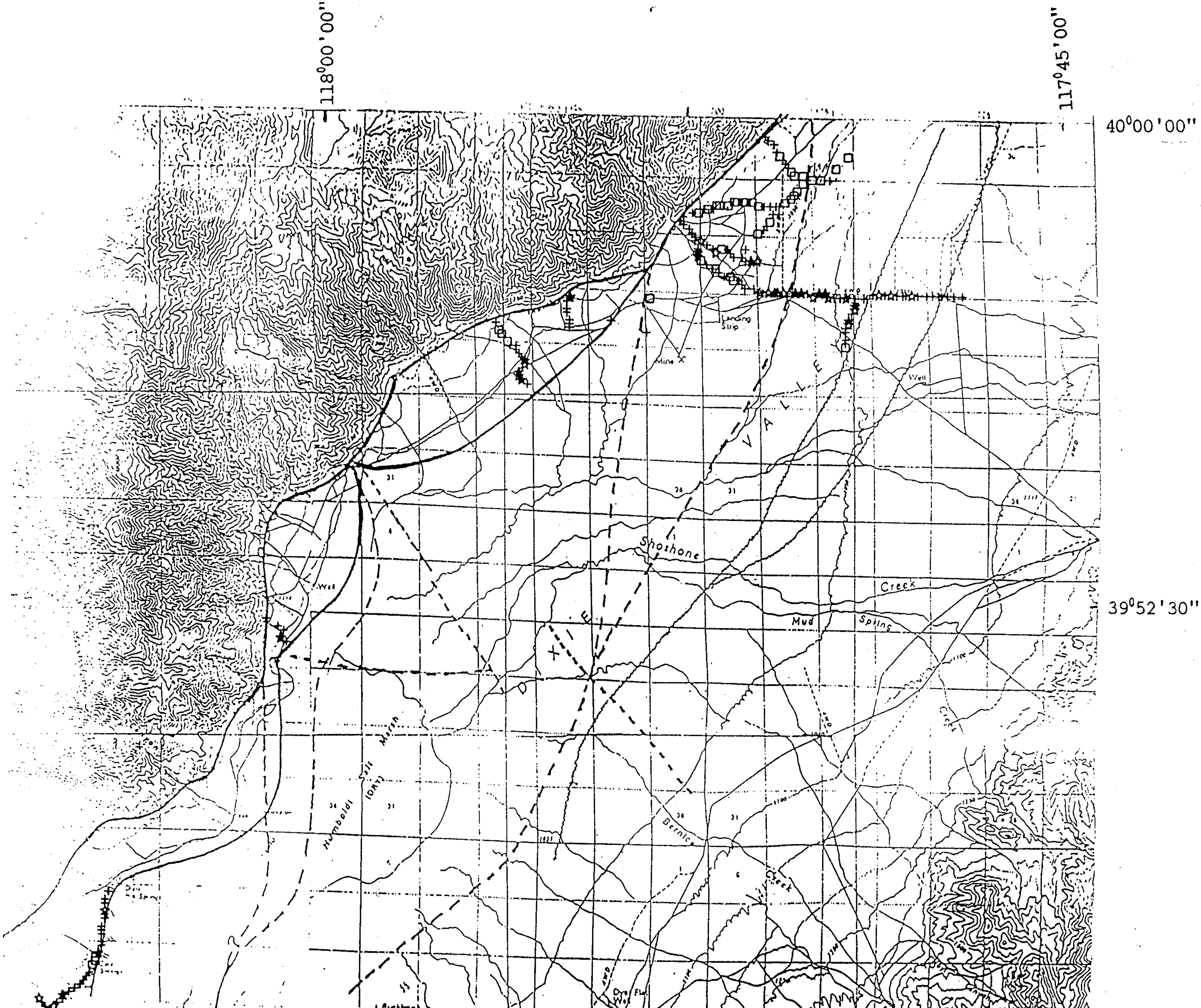

Fig.9. Factor 8 of 8 for log-transformed data: 4 percentiles