UNITED STATES DEPARTMENT OF THE INTERIOR

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Spectrographic analyses of insoluble-residue samples, Joplin 1° x 2° quadrangle, Kansas and Missouri: Drill hole nos. 43, 44, and 45

By

John H. Bullock, Jr.* and Helen A. Whitney*

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*U.S. Geological Survey, DFC, Box 25046, MS 973, Denver, CO 80225

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INTRODUCTION

Geochemical studies of the Joplin 1° x 2° quadrangle, Missouri and Kansas, were begun in 1983 as part of a multidisciplinary study of the quadrangle by the U.S. Geological Survey, the Missouri Division of Geology and Land Survey, and the Kansas Geological Survey. The purpose of the study was to assess the mineral resource potential of the area by integrated geologic, geochemical, and geophysical studies.

The geochemical work has been directed at the characterization of the sedimentary rocks in the quadrangle through spectrographic analyses of dilute-hydrochloric-acid insoluble-residue samples of whole rock from widely-spaced drill holes. Drill holes have been selected for study from the sample libraries of the Missouri Division of Geology and Land Survey and the Kansas Geological Survey (KGS). None of the holes are company confidential and none intersect economically significant mineralized ground.

The analytical results for drill hole no. 43 (#1 Marvin - KGS), drill hole no. 44 (#1 McColm - KGS),and drill hole no. 45 (#1 Geier - KGS) are given in this report. Drill hole no. 43 is located in sec. 31, T. 32 S., R. 24 E. in Cherokee County, Kansas; drill hole no. 44 is located in sec. 36, T. 30 S., R. 22 E. in Crawford County, Kansas; drill hole no. 45 is located in sec. 28, T. 30 S., R. 23 E. in Crawford County, Kansas (fig.1). Data for the insoluble-residue samples from drill holes 43, 44, and 45 are listed in tables 1, 2, and 3 respectively. Well name, well number, township, range, and county allow for identification and location of files at the Kansas Geological Survey.

PREPARATION AND ANALYSIS OF SAMPLES

Insoluble residues were prepared by dissolving approximately 80 grams of crushed carbonate rock in repeated applications of 1:5 hydrochloric acid until the carbonate was removed. The samples were then filtered and dried overnight at 50 °C.

The samples were pulverized to minus 140 mesh (0.105 mm) in a vertical grinder equipped with ceramic plates. Some insoluble-residue samples contained only a few milligrams of material, and these were hand ground with an agate mortar and pestle. A hand magnet was passed over the insoluble-residue samples before grinding to remove filings or chips of drill bit that might have been present.

Each sample was analyzed semiquantitatively for 31 elements using a six-step D.C.-arc optical-emission spectrographic method (Grimes and Marranzino, 1968).

The semiquantitative spectrographic values are reported as six steps per order of magnitude (1, 0.7, 0.5, 0.3, 0.2, and 0.15) and are approximate geometric midpoints of the concentration ranges. The precision is shown to be within one adjoining reporting interval on each side of the reported value 83 percent of the time and within two adjoining intervals on each side of the reported value 96 percent of the time (Motooka and Grimes, 1976).

The visual lower limits of determination for the 31 elements that were determined spectrographically for this report are as follows:

<u>For those given in percent</u>:

Calcium	0.05
Iron	0.05
Magnesium	0.02
Titanium	0.002

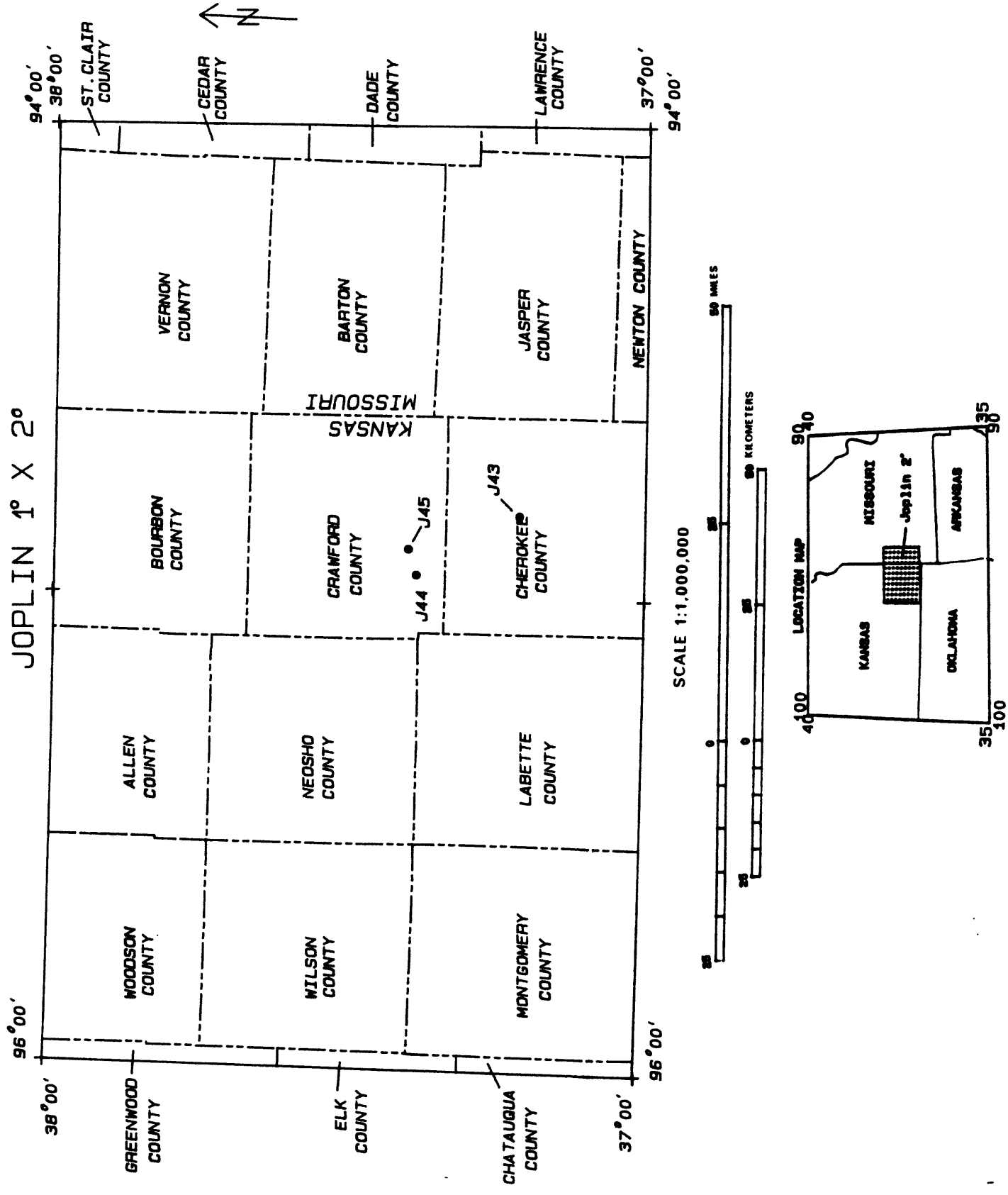

Figure 1. Locations of drill holes 43, 44, and 45, Joplin 1° x 2° quadrangle,

For those given in ppm:

Antimony	100	Molybdenum	5
Arsenic	200	Nickel	5
Barium	20	Niobium	20
Beryllium	1	Scandium	5
Bismuth	10	Silver	0.5
Boron	10	Strontium	100
Cadmium	20	Thorium	100
Chromium	10	Tin	10
Cobalt	5	Tungsten	50
Copper	5	Vanadium	10
Gold	10	Yttrium	10
Lanthanum	20	Zinc	200
Lead	10	Zirconium	10
Manganese	10		

DESCRIPTION OF DATA TABLES

Each sample is identified by an eight-character code beginning with the letter J, signifying Joplin. The next number signifies the USGS drill-hole number. The letter R appears after the drill hole number and signifies insoluble residue. The next four digits identify the depth of the sample from the drill-hole collar. Most samples are composites of approximate 10-foot intervals, dependent upon the original sample intervals and upon the amount of sample material available for analysis.

The stratigraphic unit of the sample is identified by a coded number in the last column of tables 1 through 3. The code and formation names are as follows:

Code	Formation
20	Pennsylvanian Undifferentiated
40	Mississippian Undifferentiated
60	Ordovician Undifferentiated

EXPLANATION OF DATA

The columns in tables 1 through 3 have headings of sample, elements, and formation. The letter S over the columns signifies emission-spectrographic data.

Iron, magnesium, calcium, and titanium are reported in weight percent (%); all other elements are in parts per million. Other symbols shown on the tables are:

N = Not detected at the limit of determination;
< = Detected, but below the limit of determination shown; and
> = Greater than the limit of determination shown.

Because of the formatting used in the computer program that produced tables 1-3, some of the elements listed in these tables (Fe, Mg, Ca, Ti, Ag, and Be) carry one or more nonsignificant zeros to the right of the significant digits. The analyst did not determine these elements to the accuracy suggested by the extra zeros.

RASS

Upon completion of all analytical work, the information from the samples is entered into a computer-based file called RASS (Rock Analysis Storage System). This RASS file contains both descriptive geological information and analytical data. Any or all of this information may be retrieved and placed in a standard form (STATPAC) for computerized statistical manipulation or publication (VanTrump and Miesch, 1977).

ACKNOWLEDGMENTS

The authors wish to thank the Kansas Geological Survey, Dr. Lee C. Gerhart, State Geologist, and their staffs, for making the drill-hole samples available from their sample libraries.

REFERENCES

Grimes, D.J., and Marranzino, A.P., 1968, Direct-current arc and alternating-current spark emission spectrographic field methods for the semiquantitative analysis of geologic materials: U.S. Geological Survey Circular 591, 6 p.

Motooka, J.M., and Grimes, D.J., 1976, Analytical precision of one-sixth order semiquantitative spectrographic analyses: U.S. Geological Survey Circular 738, 25 p.

VanTrump, George, Jr., and Miesch, A.T., 1977, The U.S. Geological Survey RASS-STATPAC system for management and statistical reduction of geochemical data: Computers and Geosciences, v. 3, p. 475-488.

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 43, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.

[N, not detected; <, detected but below the limit of determination shown; >, determined to be greater than the value shown.]

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s
J43R0020	37 12 42	94 49 18	3.00	.20	<.05	.500	500	N	N	N
J43R0030	37 12 42	94 49 18	10.00	.30	<.05	.500	300	N	N	N
J43R0040	37 12 42	94 49 18	3.00	.20	<.05	.500	50	N	N	N
J43R0050	37 12 42	94 49 18	3.00	.20	<.05	.300	70	N	N	N
J43R0060	37 12 42	94 49 18	5.00	.30	<.05	.500	70	.7	N	N
J43R0070	37 12 42	94 49 18	2.00	.50	<.05	.500	70	.5	N	N
J43R0080	37 12 42	94 49 18	5.00	.70	<.05	.500	100	N	N	N
J43R0090	37 12 42	94 49 18	1.50	.30	<.05	.500	50	N	N	N
J43R0100	37 12 42	94 49 18	1.00	.20	<.05	.500	50	N	N	N
J43R0110	37 12 42	94 49 18	3.00	.70	<.05	.500	100	N	N	N
J43R0120	37 12 42	94 49 18	3.00	.50	<.05	.500	200	N	N	N
J43R0130	37 12 42	94 49 18	2.00	.50	<.05	.500	70	N	N	N
J43R0140	37 12 42	94 49 18	3.00	.50	<.05	.500	70	N	N	N
J43R0150	37 12 42	94 49 18	2.00	.50	<.05	.500	70	N	N	N
J43R0160	37 12 42	94 49 18	3.00	.70	<.05	.500	100	N	N	N
J43R0170	37 12 42	94 49 18	2.00	.70	<.05	.500	70	N	N	N
J43R0180	37 12 42	94 49 18	2.00	.70	<.05	.500	100	N	N	N
J43R0190	37 12 42	94 49 18	5.00	.50	<.05	.500	100	N	N	N
J43R0200	37 12 42	94 49 18	3.00	.50	<.05	.500	50	N	N	N
J43R0210	37 12 42	94 49 18	2.00	.50	<.05	.500	50	N	N	N
J43R0220	37 12 42	94 49 18	3.00	.50	<.05	.500	70	N	N	N
J43R0230	37 12 42	94 49 18	2.00	.50	.05	.500	100	N	N	N
J43R0240	37 12 42	94 49 18	.20	.50	<.05	.500	50	N	N	N
J43R0250	37 12 42	94 49 18	.20	.30	<.05	.500	70	N	N	N
J43R0260	37 12 42	94 49 18	.20	.50	<.05	.500	100	N	N	N
J43R0270	37 12 42	94 49 18	.15	.50	<.05	.500	100	N	N	N
J43R0280	37 12 42	94 49 18	.50	.30	<.05	.300	50	N	N	N
J43R0290	37 12 42	94 49 18	.20	.15	<.05	.200	30	N	N	N
J43R0300	37 12 42	94 49 18	.30	.20	<.05	.200	50	N	N	N
J43R0310	37 12 42	94 49 18	.20	.20	.05	.300	50	N	N	N
J43R0320	37 12 42	94 49 18	.15	.20	.20	.200	50	N	N	N
J43R0330	37 12 42	94 49 18	.30	.05	<.05	.100	<10	N	N	N
J43R0340	37 12 42	94 49 18	.70	.07	<.05	.150	10	N	N	N
J43R0350	37 12 42	94 49 18	1.50	.15	<.05	.300	20	N	N	N
J43R0360	37 12 42	94 49 18	.70	.10	.05	.150	15	N	N	N
J43R0370	37 12 42	94 49 18	1.50	.10	.07	.150	20	N	N	N
J43R0380	37 12 42	94 49 18	1.00	.15	.05	.150	20	N	N	N
J43R0390	37 12 42	94 49 18	1.00	.07	.05	.150	15	N	N	N
J43R0400	37 12 42	94 49 18	1.00	.07	.15	.150	20	N	N	N
J43R0410	37 12 42	94 49 18	.20	.03	.05	.050	N	N	N	N
J43R0420	37 12 42	94 49 18	.15	.02	.10	.020	N	N	N	N
J43R0430	37 12 42	94 49 18	.15	.02	.10	.020	N	N	N	N
J43R0440	37 12 42	94 49 18	.10	<.02	.05	.010	N	N	N	N
J43R0450	37 12 42	94 49 18	.10	<.02	.05	.007	N	N	N	N
J43R0460	37 12 42	94 49 18	.10	.02	<.05	.010	N	N	N	N

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 43, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.--Continued

Sample	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s
J43R0020	100	300	1.0	N	N	10	70	15	50	N	<20	50
J43R0030	100	200	2.0	N	N	20	100	20	50	N	<20	50
J43R0040	150	150	2.0	N	N	7	150	20	50	5	<20	50
J43R0050	150	200	2.0	N	N	10	100	20	50	N	<20	50
J43R0060	200	200	2.0	N	N	70	100	30	50	N	<20	200
J43R0070	150	100	2.0	N	N	10	100	15	50	5	<20	50
J43R0080	150	200	2.0	N	N	20	100	30	50	N	<20	50
J43R0090	150	200	2.0	N	N	7	70	20	50	N	<20	30
J43R0100	50	70	<1.0	N	N	5	70	5	50	N	<20	15
J43R0110	150	200	3.0	N	N	20	100	20	50	N	<20	70
J43R0120	150	200	2.0	N	N	10	100	15	50	N	<20	50
J43R0130	100	150	2.0	N	N	10	100	10	50	N	<20	70
J43R0140	100	150	2.0	N	N	15	100	15	50	N	<20	70
J43R0150	100	100	2.0	N	N	15	100	20	50	N	<20	50
J43R0160	100	200	2.0	N	N	20	100	20	50	N	<20	50
J43R0170	100	200	3.0	N	N	15	150	15	50	N	<20	50
J43R0180	100	200	2.0	N	N	20	100	10	50	N	<20	30
J43R0190	100	200	2.0	N	N	15	100	20	50	N	<20	50
J43R0200	100	150	2.0	N	N	7	100	20	50	N	<20	50
J43R0210	100	150	2.0	N	N	7	100	20	50	N	<20	30
J43R0220	100	150	2.0	N	N	20	100	20	50	N	<20	50
J43R0230	150	200	2.0	N	N	20	100	20	50	N	<20	50
J43R0240	100	100	3.0	N	N	15	100	20	50	N	<20	70
J43R0250	100	100	2.0	N	N	15	100	20	50	5	<20	50
J43R0260	150	200	3.0	N	N	15	200	10	50	N	<20	50
J43R0270	200	200	3.0	N	N	7	150	15	30	N	<20	50
J43R0280	200	150	2.0	N	N	15	100	15	30	N	<20	70
J43R0290	100	100	1.0	N	N	10	70	10	30	N	<20	50
J43R0300	100	100	<1.0	N	N	10	70	15	30	N	N	50
J43R0310	100	100	1.0	N	N	10	70	15	30	N	N	50
J43R0320	100	100	1.0	N	N	7	70	10	N	N	N	30
J43R0330	70	20	N	N	N	N	10	<5	N	N	N	5
J43R0340	70	50	N	N	N	N	10	<5	30	N	N	7
J43R0350	150	100	1.5	N	N	10	70	15	20	N	N	50
J43R0360	70	70	N	N	N	N	15	5	20	N	N	10
J43R0370	70	70	N	N	N	5	20	7	20	N	N	20
J43R0380	100	70	N	N	N	N	30	5	20	N	N	15
J43R0390	70	150	N	N	N	N	20	10	20	N	N	15
J43R0400	100	150	N	N	N	7	30	10	20	N	N	20
J43R0410	50	20	N	N	N	N	N	<5	N	N	N	5
J43R0420	50	20	N	N	N	N	N	<5	N	N	N	5
J43R0430	100	20	N	N	N	N	N	<5	N	N	N	N
J43R0440	100	20	N	N	N	N	N	<5	N	N	N	N
J43R0450	100	20	N	N	N	N	N	<5	N	N	N	5
J43R0460	100	20	N	N	N	N	N	<5	N	N	N	5

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 43, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.--Continued

Sample	Pb-ppm s	Sb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Form.#
J43R0020	<10	N	10	N	N	100	N	30	N	500	N	20
J43R0030	20	N	15	N	150	150	N	30	N	150	N	20
J43R0040	50	N	15	N	150	150	N	20	200	150	N	20
J43R0050	50	N	10	N	200	150	N	30	200	150	N	20
J43R0060	150	N	10	N	200	150	N	30	500	100	N	20
J43R0070	20	N	10	N	150	150	N	20	<200	100	N	20
J43R0080	20	N	15	N	150	200	N	30	N	100	N	20
J43R0090	10	N	10	N	100	150	N	20	200	150	N	20
J43R0100	N	N	5	N	100	70	N	15	N	700	N	20
J43R0110	15	N	15	N	150	200	N	20	N	200	N	20
J43R0120	10	N	15	N	150	150	N	30	N	200	N	20
J43R0130	10	N	15	N	150	150	N	30	N	300	N	20
J43R0140	20	N	15	N	100	200	N	30	N	200	N	20
J43R0150	15	N	15	N	100	200	N	20	N	150	N	20
J43R0160	20	N	15	N	100	200	N	30	N	150	N	20
J43R0170	20	N	20	N	150	200	N	20	N	100	N	20
J43R0180	15	N	20	N	150	200	N	30	N	150	N	20
J43R0190	20	N	15	N	100	200	N	30	200	150	N	20
J43R0200	20	N	15	N	100	200	N	30	N	200	N	20
J43R0210	10	N	15	N	100	200	N	20	N	200	N	20
J43R0220	20	N	15	N	100	200	N	30	200	150	N	20
J43R0230	20	N	20	N	150	200	N	30	N	200	N	20
J43R0240	10	N	15	N	100	200	N	30	N	150	N	20
J43R0250	15	N	10	N	100	100	N	20	N	200	N	20
J43R0260	15	N	15	N	100	200	N	30	N	200	N	20
J43R0270	15	N	15	N	100	150	N	20	N	150	N	20
J43R0280	15	N	10	N	N	100	N	30	N	150	N	20
J43R0290	10	N	7	N	N	100	N	20	N	150	N	40
J43R0300	15	N	10	N	N	70	N	20	N	100	N	40
J43R0310	15	N	10	N	N	100	N	30	N	100	N	40
J43R0320	<10	N	5	N	N	100	N	15	N	70	N	40
J43R0330	N	N	N	N	N	10	N	N	N	30	N	40
J43R0340	N	N	<5	N	N	20	N	<10	N	50	N	40
J43R0350	10	N	10	N	N	100	N	15	N	150	N	40
J43R0360	N	N	<5	N	N	30	N	10	N	50	N	40
J43R0370	N	N	5	N	N	30	N	10	N	70	N	40
J43R0380	N	N	5	N	N	50	N	<10	N	70	N	40
J43R0390	N	N	<5	N	N	20	N	<10	N	50	N	40
J43R0400	N	N	5	N	N	30	N	<10	<200	70	N	40
J43R0410	N	N	N	N	N	N	N	N	N	15	N	40
J43R0420	N	N	N	N	N	N	N	N	N	N	N	40
J43R0430	N	N	N	N	N	N	N	N	N	N	N	40
J43R0440	N	N	N	N	N	N	N	N	N	N	N	40
J43R0450	N	N	N	N	N	N	N	N	N	N	N	40
J43R0460	N	N	N	N	N	N	N	N	N	N	N	40

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 43, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.--Continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s
J43R0470	37 12 42	94 49 18	.15	.02	.05	.020	N	N	N	N
J43R0480	37 12 42	94 49 18	.15	.03	.05	.030	N	N	N	N
J43R0490	37 12 42	94 49 18	.20	.07	.07	.030	N	N	N	N
J43R0500	37 12 42	94 49 18	.10	.03	.05	.020	N	N	N	N
J43R0510	37 12 42	94 49 18	.10	.02	.05	.020	N	N	N	N
J43R0520	37 12 42	94 49 18	.20	.05	.05	.050	10	N	N	N
J43R0530	37 12 42	94 49 18	1.50	.10	.05	.150	70	N	N	N
J43R0540	37 12 42	94 49 18	.30	.05	.05	.050	15	N	N	N
J43R0550	37 12 42	94 49 18	.50	.05	.10	.050	10	N	N	N
J43R0560	37 12 42	94 49 18	2.00	.20	.15	.200	70	N	N	N
J43R0570	37 12 42	94 49 18	2.00	.10	.20	.150	50	N	N	N
J43R0580	37 12 42	94 49 18	3.00	.15	.15	.200	100	N	N	N
J43R0590	37 12 42	94 49 18	5.00	.30	.10	.300	100	N	N	N
J43R0600	37 12 42	94 49 18	3.00	.30	.07	.200	50	N	N	N
J43R0610	37 12 42	94 49 18	1.50	.30	.05	.300	20	N	N	N
J43R0620	37 12 42	94 49 18	3.00	.70	<.05	.500	50	N	N	N
J43R0630	37 12 42	94 49 18	5.00	.50	.07	.200	30	N	N	N
J43R0640	37 12 42	94 49 18	1.00	.10	.05	.100	10	N	N	N
J43R0650	37 12 42	94 49 18	1.50	.20	.05	.150	10	N	N	N
J43R0660	37 12 42	94 49 18	.50	.10	.10	.100	<10	N	N	N

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 43, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.--Continued

Sample	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s
J43R0470	70	30	N	N	N	N	N	<5	N	N	N	5
J43R0480	70	30	N	N	N	N	N	<5	N	N	N	5
J43R0490	70	50	N	N	N	N	N	<5	N	N	N	5
J43R0500	70	30	N	N	N	N	N	<5	N	N	N	5
J43R0510	100	50	N	N	N	N	N	<5	N	N	N	5
J43R0520	70	70	N	N	N	5	10	<5	N	N	N	15
J43R0530	100	150	1.0	N	N	20	50	15	20	N	N	100
J43R0540	50	50	N	N	N	5	N	<5	N	N	N	30
J43R0550	50	50	N	N	N	5	N	5	N	N	N	20
J43R0560	150	150	1.5	N	N	100	50	20	20	N	N	700
J43R0570	100	200	<1.0	N	N	10	20	15	20	N	N	50
J43R0580	100	200	1.0	N	N	20	30	20	30	N	N	150
J43R0590	150	150	2.0	N	N	30	100	30	30	N	<20	500
J43R0600	150	200	1.5	N	N	15	70	30	30	N	N	50
J43R0610	150	100	1.5	N	N	7	100	15	20	N	<20	50
J43R0620	200	200	3.0	N	N	20	150	30	30	N	<20	150
J43R0630	150	100	2.0	N	N	10	70	50	20	N	N	50
J43R0640	70	70	N	N	N	N	10	15	N	N	N	10
J43R0650	100	100	1.5	N	N	N	30	20	N	5	N	15
J43R0660	50	100	N	N	N	N	10	10	N	N	N	7

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 43, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.--Continued

Sample	Pb-ppm s	Sb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Form.#
J43R0470	N	N	N	N	N	N	N	N	N	10	N	40
J43R0480	N	N	N	N	N	N	N	N	N	15	N	40
J43R0490	N	N	N	N	N	15	N	N	N	20	N	40
J43R0500	N	N	N	N	N	N	N	N	N	10	N	40
J43R0510	N	N	N	N	N	N	N	N	N	15	N	40
J43R0520	N	N	<5	N	N	30	N	N	N	30	N	40
J43R0530	10	N	5	N	100	50	N	10	N	100	N	40
J43R0540	N	N	N	N	N	10	N	N	N	15	N	40
J43R0550	N	N	<5	N	N	15	N	N	N	20	N	40
J43R0560	15	N	10	N	N	70	N	15	<200	100	N	40
J43R0570	10	N	5	N	N	30	N	10	200	100	N	40
J43R0580	10	N	7	N	N	70	N	20	N	70	N	40
J43R0590	30	N	15	N	N	150	N	30	<200	100	N	40
J43R0600	15	N	10	N	N	100	N	20	<200	100	N	40
J43R0610	<10	N	5	N	N	100	N	30	N	500	N	40
J43R0620	15	N	15	N	N	200	N	30	<200	200	N	40
J43R0630	30	N	7	N	N	150	N	15	<200	100	N	60
J43R0640	<10	N	N	N	N	20	N	N	N	30	N	60
J43R0650	10	N	5	N	N	70	N	N	N	70	N	60
J43R0660	N	N	N	N	N	20	N	N	N	50	N	60

TABLE 2--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 44, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.

[N, not detected; <, detected but below the limit of determination shown; >, determined to be greater than the value shown.]

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s
J44R0285	37 20 9	94 59 22	3.00	.50	<.05	.500	50	1.5	N	N
J44R0315	37 20 9	94 59 22	2.00	.50	<.05	.500	100	N	N	N
J44R0350	37 20 9	94 59 22	2.00	.50	<.05	.500	50	N	N	N
J44R0360	37 20 9	94 59 22	2.00	.30	<.05	.500	70	N	N	N
J44R0370	37 20 9	94 59 22	2.00	.30	<.05	.500	50	N	N	N
J44R0380	37 20 9	94 59 22	2.00	.50	<.05	.500	50	N	N	N
J44R0390	37 20 9	94 59 22	2.00	.50	<.05	.500	70	N	N	N
J44R0395	37 20 9	94 59 22	1.50	.50	<.05	.500	50	N	N	N
J44R0440	37 20 9	94 59 22	3.00	.50	<.05	.500	70	N	N	N
J44R0470	37 20 9	94 59 22	3.00	.50	<.05	.500	70	N	N	N
J44R0480	37 20 9	94 59 22	5.00	.50	<.05	.500	50	N	N	N
J44R0490	37 20 9	94 59 22	2.00	.10	.05	.150	20	N	N	N
J44R0500	37 20 9	94 59 22	2.00	.15	.05	.200	20	N	N	N
J44R0510	37 20 9	94 59 22	1.00	.10	.07	.200	20	N	N	N
J44R0520	37 20 9	94 59 22	2.00	.30	.05	.200	50	N	N	N
J44R0530	37 20 9	94 59 22	2.00	.30	.05	.200	50	N	N	N
J44R0540	37 20 9	94 59 22	3.00	.30	.05	.200	50	N	N	N
J44R0550	37 20 9	94 59 22	.50	.02	<.05	.030	N	N	N	N
J44R0560	37 20 9	94 59 22	1.00	.05	.05	.100	10	N	N	N
J44R0570	37 20 9	94 59 22	3.00	.30	.05	.200	50	N	N	N
J44R0580	37 20 9	94 59 22	.70	.10	.10	.100	15	N	N	N
J44R0590	37 20 9	94 59 22	1.50	.15	.07	.200	50	N	N	N
J44R0600	37 20 9	94 59 22	1.00	.10	.05	.150	20	N	N	N
J44R0610	37 20 9	94 59 22	.10	<.02	.15	.010	N	N	N	N
J44R0620	37 20 9	94 59 22	.20	.05	.07	.020	N	N	N	N
J44R0630	37 20 9	94 59 22	.70	<.02	<.05	.007	N	N	N	N
J44R0640	37 20 9	94 59 22	.30	.07	<.05	.050	N	N	N	N
J44R0650	37 20 9	94 59 22	.10	<.02	<.05	.005	N	N	N	N
J44R0660	37 20 9	94 59 22	.15	<.02	<.05	.005	N	N	N	N
J44R0670	37 20 9	94 59 22	.20	.02	<.05	.020	N	N	N	N
J44R0680	37 20 9	94 59 22	.20	.05	.20	.030	10	N	N	N
J44R0690	37 20 9	94 59 22	.30	.05	.50	.020	15	N	N	N
J44R0700	37 20 9	94 59 22	.15	.10	.30	.020	<10	N	N	N
J44R0710	37 20 9	94 59 22	.20	.03	.10	.020	30	N	N	N

TABLE 2--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 44, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.--Continued

Sample	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s
J44R0285	200	100	2.0	N	N	15	150	30	30	N	<20	70
J44R0315	150	100	1.5	N	N	10	70	20	30	N	<20	30
J44R0350	150	150	2.0	N	N	10	100	30	50	N	<20	70
J44R0360	150	150	1.5	N	N	15	100	20	30	N	<20	50
J44R0370	150	150	1.5	N	N	10	100	30	50	N	<20	50
J44R0380	150	150	1.5	N	N	15	100	20	50	N	<20	50
J44R0390	150	150	1.5	N	N	10	100	20	50	N	<20	50
J44R0395	150	150	1.5	N	N	10	100	20	50	N	<20	30
J44R0440	150	150	2.0	N	N	20	100	30	50	N	<20	100
J44R0470	200	150	2.0	N	N	7	100	30	30	N	<20	50
J44R0480	150	100	2.0	N	N	10	100	20	30	N	<20	50
J44R0490	150	70	N	N	N	N	50	10	20	N	N	20
J44R0500	150	70	<1.0	N	N	10	50	15	20	N	N	20
J44R0510	150	70	N	N	N	N	30	7	20	N	N	15
J44R0520	150	100	1.5	N	N	5	70	10	30	N	N	30
J44R0530	150	100	1.5	N	N	7	70	20	30	N	N	30
J44R0540	150	100	1.5	N	N	7	70	20	20	N	N	30
J44R0550	70	30	N	N	N	N	N	<5	N	N	N	5
J44R0560	70	30	N	N	N	N	15	5	N	N	N	10
J44R0570	100	100	1.5	N	N	5	100	10	20	N	N	20
J44R0580	100	50	N	N	N	N	20	7	N	N	N	10
J44R0590	100	70	<1.0	N	N	5	50	15	20	N	N	30
J44R0600	100	70	N	N	N	N	30	5	N	N	N	10
J44R0610	70	<20	N	N	N	N	N	<5	N	N	N	N
J44R0620	100	20	N	N	N	N	N	<5	N	N	N	N
J44R0630	100	20	N	N	N	N	N	<5	N	N	N	15
J44R0640	100	30	N	N	N	N	N	<5	N	N	N	10
J44R0650	100	20	N	N	N	N	N	N	N	N	N	5
J44R0660	100	20	N	N	N	N	N	N	N	N	N	5
J44R0670	70	20	N	N	N	N	N	N	N	N	N	5
J44R0680	100	50	N	N	N	N	N	<5	N	N	N	5
J44R0690	70	30	N	N	N	N	N	<5	N	N	N	20
J44R0700	70	50	N	N	N	N	N	<5	N	N	N	10
J44R0710	70	50	N	N	N	5	N	<5	N	N	N	15

TABLE 2--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 44, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.--Continued

Sample	Pb-ppm s	Sb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Form.#
J44R0285	20	N	15	N	100	200	N	20	200	100	N	20
J44R0315	15	N	15	N	100	200	N	30	300	200	N	20
J44R0350	20	N	20	N	100	300	N	20	N	150	N	20
J44R0360	15	N	15	N	100	150	N	20	N	200	N	20
J44R0370	10	N	15	N	100	150	N	30	N	200	N	20
J44R0380	10	N	15	N	100	200	N	30	N	200	N	20
J44R0390	15	N	15	N	100	200	N	20	<200	200	N	20
J44R0395	10	N	10	N	100	150	N	20	500	200	N	20
J44R0440	30	N	20	N	100	200	N	20	N	200	N	20
J44R0470	30	N	20	N	100	200	N	20	N	150	N	20
J44R0480	20	N	15	N	100	200	N	20	N	100	N	20
J44R0490	N	N	5	N	N	30	N	10	N	50	N	40
J44R0500	N	N	7	N	N	70	N	10	N	70	N	40
J44R0510	N	N	5	N	N	30	N	10	N	50	N	40
J44R0520	10	N	10	N	N	70	N	15	N	70	N	40
J44R0530	<10	N	10	N	N	100	N	15	N	100	N	40
J44R0540	15	N	10	N	N	100	N	15	N	100	N	40
J44R0550	N	N	N	N	N	N	N	N	N	15	N	40
J44R0560	N	N	<5	N	N	20	N	N	N	50	N	40
J44R0570	<10	N	10	N	N	70	N	15	N	70	N	40
J44R0580	10	N	5	N	N	30	N	10	N	50	N	40
J44R0590	N	N	5	N	N	70	N	15	N	50	N	40
J44R0600	N	N	5	N	N	50	N	10	N	50	N	40
J44R0610	N	N	N	N	N	N	N	N	N	N	N	40
J44R0620	N	N	N	N	N	N	N	N	N	10	N	40
J44R0630	N	N	N	N	N	N	N	N	N	N	N	40
J44R0640	N	N	N	N	N	10	N	N	N	20	N	40
J44R0650	N	N	N	N	N	N	N	N	N	N	N	40
J44R0660	N	N	N	N	N	N	N	N	N	N	N	40
J44R0670	N	N	N	N	N	N	N	N	N	10	N	40
J44R0680	N	N	N	N	N	N	N	N	N	10	N	40
J44R0690	N	N	N	N	N	N	N	N	N	10	N	40
J44R0700	N	N	N	N	N	N	N	N	200	10	N	40
J44R0710	N	N	N	N	N	N	N	N	N	15	N	40

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 45, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.

[N, not detected; <, detected but below the limit of determination shown; >, determined to be greater than the value shown.]

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s
J45R0020	37 24 12	94 52 38	2.00	.30	<.05	.500	70	N	N	N
J45R0030	37 24 12	94 52 38	2.00	.50	<.05	.500	70	N	N	N
J45R0040	37 24 12	94 52 38	2.00	.50	<.05	.500	100	N	N	N
J45R0050	37 24 12	94 52 38	2.00	.50	<.05	.500	100	N	N	N
J45R0060	37 24 12	94 52 38	2.00	.50	<.05	.500	100	N	N	N
J45R0070	37 24 12	94 52 38	2.00	.50	<.05	.500	100	N	N	N
J45R0080	37 24 12	94 52 38	2.00	.70	<.05	.500	100	N	N	N
J45R0090	37 24 12	94 52 38	3.00	.70	<.05	.500	150	N	N	N
J45R0100	37 24 12	94 52 38	3.00	.70	<.05	.500	150	N	N	N
J45R0110	37 24 12	94 52 38	5.00	.70	.05	.500	300	<.5	N	N
J45R0120	37 24 12	94 52 38	3.00	.70	.10	.500	150	.5	N	N
J45R0130	37 24 12	94 52 38	3.00	.70	.10	.300	200	1.0	N	N
J45R0140	37 24 12	94 52 38	3.00	.70	<.05	.500	100	N	N	N
J45R0150	37 24 12	94 52 38	3.00	.70	<.05	.500	100	N	N	N
J45R0160	37 24 12	94 52 38	3.00	.50	.07	.500	150	N	N	N
J45R0170	37 24 12	94 52 38	3.00	.70	<.05	.700	100	N	N	N
J45R0180	37 24 12	94 52 38	5.00	.70	.07	.700	150	N	N	N
J45R0190	37 24 12	94 52 38	3.00	.50	<.05	.700	150	N	N	N
J45R0200	37 24 12	94 52 38	3.00	.50	<.05	.500	100	N	N	N
J45R0210	37 24 12	94 52 38	3.00	.70	<.05	.500	150	N	N	N
J45R0220	37 24 12	94 52 38	3.00	.70	<.05	.500	70	N	N	N
J45R0230	37 24 12	94 52 38	3.00	1.00	.07	.500	200	1.0	N	N
J45R0240	37 24 12	94 52 38	3.00	.50	.05	1.000	70	1.0	N	N
J45R0250	37 24 12	94 52 38	2.00	.50	<.05	1.000	100	N	N	N
J45R0260	37 24 12	94 52 38	2.00	.50	<.05	1.000	100	N	N	N
J45R0270	37 24 12	94 52 38	3.00	.50	<.05	1.000	100	N	N	N
J45R0280	37 24 12	94 52 38	2.00	.50	<.05	.700	70	N	N	N
J45R0290	37 24 12	94 52 38	2.00	.50	<.05	1.000	70	N	N	N
J45R0300	37 24 12	94 52 38	3.00	.70	<.05	.700	100	N	N	N
J45R0310	37 24 12	94 52 38	2.00	.70	.07	.700	100	N	N	N
J45R0320	37 24 12	94 52 38	3.00	.50	<.05	.700	150	N	N	N
J45R0330	37 24 12	94 52 38	3.00	.70	.05	.700	150	N	N	N
J45R0340	37 24 12	94 52 38	1.50	.50	<.05	.700	70	N	N	N
J45R0350	37 24 12	94 52 38	2.00	.50	.07	.500	100	N	N	N
J45R0360	37 24 12	94 52 38	2.00	.50	<.05	.700	200	N	N	N
J45R0370	37 24 12	94 52 38	2.00	.50	<.05	.700	150	N	N	N
J45R0380	37 24 12	94 52 38	2.00	.50	<.05	.700	100	N	N	N
J45R0390	37 24 12	94 52 38	3.00	.70	<.05	.700	150	N	N	N
J45R0400	37 24 12	94 52 38	3.00	.50	<.05	.700	100	N	N	N
J45R0410	37 24 12	94 52 38	2.00	.50	<.05	.700	100	N	N	N
J45R0420	37 24 12	94 52 38	3.00	.70	<.05	.700	200	N	N	N
J45R0430	37 24 12	94 52 38	2.00	.50	<.05	.700	150	N	N	N
J45R0440	37 24 12	94 52 38	2.00	.50	<.05	.500	70	N	N	N
J45R0450	37 24 12	94 52 38	2.00	.20	<.05	.300	70	N	N	N
J45R0460	37 24 12	94 52 38	1.50	.02	.05	.030	100	N	N	N

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 45, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.--Continued

Sample	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s
J45R0020	100	100	2.0	N	N	7	70	10	30	N	<20	20
J45R0030	100	200	2.0	N	N	7	100	15	50	N	<20	20
J45R0040	100	200	2.0	N	N	10	100	20	50	N	<20	30
J45R0050	150	300	2.0	N	N	7	100	20	50	N	<20	30
J45R0060	150	300	2.0	N	N	10	100	30	50	N	<20	30
J45R0070	100	300	2.0	N	N	10	100	20	50	N	<20	30
J45R0080	100	300	2.0	N	N	15	100	20	50	N	<20	30
J45R0090	100	300	2.0	N	N	20	100	20	50	N	<20	50
J45R0100	100	300	2.0	N	N	20	100	20	50	N	<20	50
J45R0110	100	200	3.0	N	N	15	100	50	50	10	<20	50
J45R0120	200	1,000	3.0	N	N	20	200	150	50	7	<20	100
J45R0130	200	200	3.0	N	N	20	300	150	50	15	<20	150
J45R0140	150	300	2.0	N	N	20	100	20	50	N	<20	70
J45R0150	150	300	2.0	N	N	15	100	20	50	N	<20	50
J45R0160	150	500	2.0	N	N	10	100	30	50	N	<20	70
J45R0170	150	300	3.0	N	N	20	100	20	50	N	<20	70
J45R0180	200	500	3.0	N	N	15	150	30	50	7	<20	100
J45R0190	150	500	1.5	N	N	10	100	20	50	N	<20	50
J45R0200	150	300	2.0	N	N	10	100	20	50	N	<20	30
J45R0210	150	500	2.0	N	N	15	100	15	50	N	<20	30
J45R0220	150	300	2.0	N	N	15	150	20	50	N	<20	30
J45R0230	150	200	3.0	N	N	20	500	150	50	10	<20	200
J45R0240	150	200	3.0	N	N	10	300	30	50	20	<20	100
J45R0250	100	300	2.0	N	N	15	150	30	50	N	<20	50
J45R0260	150	300	2.0	N	N	10	150	20	50	N	<20	70
J45R0270	150	200	3.0	N	N	20	200	30	50	N	<20	70
J45R0280	100	200	3.0	N	N	20	100	20	50	N	<20	50
J45R0290	100	300	3.0	N	N	10	100	20	50	N	<20	30
J45R0300	150	300	3.0	N	N	15	150	20	50	N	<20	50
J45R0310	150	300	3.0	N	N	15	150	20	50	N	<20	50
J45R0320	150	200	3.0	N	N	10	150	20	50	N	<20	50
J45R0330	150	200	2.0	N	N	10	150	20	50	N	<20	50
J45R0340	150	200	2.0	N	N	10	100	15	50	N	<20	50
J45R0350	200	200	2.0	N	N	10	100	20	50	N	<20	50
J45R0360	150	300	2.0	N	N	20	150	20	50	N	<20	50
J45R0370	150	300	2.0	N	N	15	150	20	50	N	<20	50
J45R0380	200	200	3.0	N	N	10	200	30	50	N	<20	50
J45R0390	200	300	3.0	N	N	15	200	30	50	N	<20	50
J45R0400	150	300	3.0	N	N	10	200	30	50	N	<20	50
J45R0410	150	200	3.0	N	N	10	200	20	50	N	<20	50
J45R0420	150	300	3.0	N	N	15	200	30	50	N	<20	50
J45R0430	200	200	3.0	N	N	15	200	30	50	N	<20	50
J45R0440	200	300	3.0	N	N	10	200	20	50	N	<20	50
J45R0450	150	150	1.5	N	N	5	70	10	30	N	N	20
J45R0460	100	20	N	N	N	N	N	5	N	N	N	15

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 45, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.--Continued

Sample	Pb-ppm s	Sb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Form.#
J45R0020	10	N	10	N	N	100	N	20	N	300	N	20
J45R0030	10	N	15	N	100	100	N	30	N	300	N	20
J45R0040	10	N	15	N	100	150	N	30	N	300	N	20
J45R0050	10	N	15	N	100	150	N	30	N	200	N	20
J45R0060	10	N	15	N	100	200	N	20	N	200	N	20
J45R0070	15	N	15	N	100	200	N	30	N	200	N	20
J45R0080	15	N	15	N	100	200	N	30	N	200	N	20
J45R0090	<10	N	15	N	100	200	N	30	N	150	N	20
J45R0100	<10	N	20	N	100	200	N	20	N	150	N	20
J45R0110	20	N	15	N	100	200	N	15	N	100	N	20
J45R0120	30	N	15	N	100	200	N	15	500	150	N	20
J45R0130	50	N	10	N	100	200	N	30	700	100	N	20
J45R0140	20	N	15	N	300	200	N	20	N	200	N	20
J45R0150	10	N	15	N	150	200	N	30	<200	150	N	20
J45R0160	10	N	15	N	150	200	N	30	N	300	N	20
J45R0170	20	N	20	N	150	200	N	30	N	200	N	20
J45R0180	30	N	20	N	200	200	N	30	N	200	N	20
J45R0190	10	N	15	N	100	150	N	30	N	300	N	20
J45R0200	<10	N	15	N	150	150	N	30	200	200	N	20
J45R0210	<10	N	15	N	150	200	N	30	200	200	N	20
J45R0220	20	N	20	N	150	200	N	30	N	100	N	20
J45R0230	50	N	15	N	100	200	N	20	N	100	N	20
J45R0240	50	N	20	N	200	300	N	30	N	150	N	20
J45R0250	<10	N	15	N	100	150	N	30	N	200	N	20
J45R0260	15	N	15	N	150	200	N	30	N	150	N	20
J45R0270	20	N	15	N	150	200	N	20	200	150	N	20
J45R0280	15	N	15	N	100	200	N	30	N	200	N	20
J45R0290	N	N	15	N	150	200	N	30	N	200	N	20
J45R0300	20	N	15	N	100	200	N	30	200	150	N	20
J45R0310	15	N	20	N	150	200	N	50	N	200	N	20
J45R0320	20	N	20	N	100	200	N	30	N	200	N	20
J45R0330	20	N	20	N	100	200	N	50	N	200	N	20
J45R0340	N	N	10	N	100	150	N	20	N	300	N	20
J45R0350	20	N	15	N	100	200	N	30	N	150	N	20
J45R0360	10	N	20	N	100	200	N	30	200	200	N	20
J45R0370	10	N	15	N	100	150	N	30	700	300	N	20
J45R0380	30	N	20	N	100	200	N	30	N	200	N	20
J45R0390	15	N	20	N	150	200	N	30	<200	200	N	20
J45R0400	20	N	20	N	150	200	N	30	N	200	N	20
J45R0410	20	N	20	N	100	200	N	50	N	300	N	20
J45R0420	15	N	20	N	100	200	N	30	<200	200	N	20
J45R0430	10	N	20	N	100	200	N	30	N	200	N	20
J45R0440	20	N	20	N	100	200	N	30	N	200	N	20
J45R0450	N	N	10	N	100	100	N	15	N	100	N	40
J45R0460	N	N	N	N	N	N	N	N	N	15	N	40

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 45, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.--Continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s
J45R0470	37 24 12	94 52 38	.15	.02	.10	.030	<10	N	N	N
J45R0480	37 24 12	94 52 38	1.00	.15	.50	.100	50	.7	N	N
J45R0490	37 24 12	94 52 38	2.00	.20	.15	.150	70	.5	N	N
J45R0500	37 24 12	94 52 38	.10	.05	.20	.030	<10	N	N	N
J45R0510	37 24 12	94 52 38	.20	.02	.05	.030	<10	N	N	N
J45R0520	37 24 12	94 52 38	1.50	.15	.05	.150	20	N	N	N
J45R0530	37 24 12	94 52 38	.10	.02	.07	.030	<10	N	N	N
J45R0540	37 24 12	94 52 38	.07	<.02	.05	.020	<10	N	N	N
J45R0550	37 24 12	94 52 38	2.00	.30	.07	.300	50	N	N	N
J45R0560	37 24 12	94 52 38	.10	.03	.05	.030	N	N	N	N
J45R0570	37 24 12	94 52 38	.50	.05	.30	.100	20	N	N	N
J45R0580	37 24 12	94 52 38	5.00	.50	.10	.500	100	N	N	N
J45R0590	37 24 12	94 52 38	.30	.05	.05	.050	<10	N	N	N
J45R0600	37 24 12	94 52 38	.30	.03	.07	.050	<10	N	N	N
J45R0610	37 24 12	94 52 38	.10	.02	.05	.030	<10	N	N	N
J45R0620	37 24 12	94 52 38	.10	.02	<.05	.010	<10	N	N	N
J45R0630	37 24 12	94 52 38	.10	<.02	<.05	.015	<10	N	N	N
J45R0640	37 24 12	94 52 38	.10	<.02	<.05	.015	<10	N	N	N
J45R0650	37 24 12	94 52 38	.07	<.02	<.05	.010	N	N	N	N
J45R0660	37 24 12	94 52 38	.05	<.02	.05	.007	N	N	N	N
J45R0670	37 24 12	94 52 38	.30	.05	.05	.020	N	N	N	N
J45R0680	37 24 12	94 52 38	.20	.05	.20	.020	N	N	N	N
J45R0690	37 24 12	94 52 38	.70	.07	.30	.050	15	N	N	N
J45R0700	37 24 12	94 52 38	.30	.05	.30	.050	10	N	N	N
J45R0710	37 24 12	94 52 38	.30	.05	.15	.050	10	N	N	N
J45R0720	37 24 12	94 52 38	.20	.07	.50	.050	<10	N	N	N
J45R0730	37 24 12	94 52 38	.50	.05	.30	.050	<10	N	N	N
J45R0740	37 24 12	94 52 38	.30	.05	.50	.050	<10	N	N	N
J45R0750	37 24 12	94 52 38	.70	.10	.15	.100	20	N	N	N
J45R0760	37 24 12	94 52 38	.70	.10	.20	.100	15	N	N	N
J45R0770	37 24 12	94 52 38	.50	.10	.20	.100	15	N	N	N
J45R0780	37 24 12	94 52 38	.30	.07	.30	.070	10	N	N	N
J45R0785	37 24 12	94 52 38	2.00	.30	.20	.200	50	N	N	N

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 45, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.--Continued

Sample	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s
J45R0470	150	20	N	N	N	N	N	<5	N	N	N	5
J45R0480	100	70	N	N	N	N	50	7	N	N	N	20
J45R0490	150	100	1.0	N	N	N	30	15	N	N	N	30
J45R0500	100	20	N	N	N	N	N	<5	N	N	N	5
J45R0510	100	20	N	N	N	N	N	5	N	N	N	10
J45R0520	100	100	1.0	N	N	7	70	10	20	N	N	30
J45R0530	100	<20	N	N	N	N	N	<5	N	N	N	N
J45R0540	100	<20	N	N	N	N	N	<5	N	N	N	N
J45R0550	150	150	1.5	N	N	10	100	20	30	N	N	50
J45R0560	70	20	N	N	N	N	N	<5	N	N	N	5
J45R0570	70	50	N	N	N	N	20	5	N	N	N	15
J45R0580	200	200	3.0	N	N	15	200	50	50	20	<20	100
J45R0590	70	50	N	N	N	N	N	<5	N	5	N	10
J45R0600	70	30	N	N	N	N	N	<5	N	10	N	7
J45R0610	100	30	N	N	N	N	N	<5	N	N	N	5
J45R0620	100	20	N	N	N	N	N	<5	N	N	N	5
J45R0630	100	20	N	N	N	N	N	<5	N	N	N	5
J45R0640	150	20	N	N	N	N	N	<5	N	N	N	5
J45R0650	100	<20	N	N	N	N	N	N	N	N	N	5
J45R0660	100	<20	N	N	N	N	N	N	N	N	N	5
J45R0670	100	20	N	N	N	N	N	<5	N	N	N	10
J45R0680	100	30	N	N	N	N	N	<5	N	N	N	5
J45R0690	100	50	N	N	N	N	N	<5	N	N	N	15
J45R0700	100	20	N	N	N	N	N	<5	N	N	N	10
J45R0710	100	30	N	N	N	N	N	<5	N	N	N	10
J45R0720	100	30	N	N	N	N	N	<5	N	N	N	10
J45R0730	100	30	N	N	N	N	N	<5	N	N	N	7
J45R0740	100	30	N	N	N	N	N	<5	N	N	N	7
J45R0750	100	50	N	N	N	N	20	7	N	N	N	15
J45R0760	100	50	N	N	N	N	20	5	N	N	N	15
J45R0770	100	50	N	N	N	N	15	5	N	N	N	15
J45R0780	100	30	N	N	N	N	10	<5	N	N	N	20
J45R0785	150	100	2.0	N	N	10	70	15	30	N	N	30

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 45, JOPLIN 1 x 2 QUADRANGLE, MISSOURI AND KANSAS.--Continued

Sample	Pb-ppm s	Sb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Form.#
J45R0470	N	N	N	N	N	N	N	N	N	20	N	40
J45R0480	N	N	<5	N	N	70	N	N	N	50	N	40
J45R0490	N	N	5	N	N	100	N	10	N	70	N	40
J45R0500	N	N	N	N	N	N	N	N	N	20	N	40
J45R0510	N	N	N	N	N	N	N	N	N	10	N	40
J45R0520	<10	N	<5	N	N	70	N	10	N	70	N	40
J45R0530	N	N	N	N	N	N	N	N	N	10	N	40
J45R0540	N	N	N	N	N	N	N	N	N	N	N	40
J45P0550	15	N	15	N	150	100	N	20	N	100	N	40
J45R0560	N	N	N	N	N	N	N	N	N	N	N	40
J45R0570	N	N	N	N	N	15	N	N	N	20	N	40
J45R0580	50	N	20	N	150	200	N	20	200	150	N	40
J45R0590	N	N	N	N	N	15	N	N	700	15	N	40
J45R0600	N	N	N	N	N	10	N	N	N	15	N	40
J45R0610	N	N	N	N	N	N	N	N	N	10	N	40
J45R0620	N	N	N	N	N	N	N	N	N	N	N	40
J45R0630	N	N	N	N	N	N	N	N	N	10	N	40
J45R0640	N	N	N	N	N	N	N	N	N	10	N	40
J45R0650	N	N	N	N	N	N	N	N	N	N	N	40
J45R0660	N	N	N	N	N	N	N	N	N	N	N	40
J45R0670	N	N	N	N	N	15	N	N	N	15	N	40
J45R0680	N	N	N	N	N	<10	N	N	N	10	N	40
J45R0690	N	N	N	N	N	20	N	N	300	20	N	40
J45R0700	N	N	N	N	N	10	N	N	N	15	N	40
J45R0710	N	N	N	N	N	15	N	N	N	20	N	40
J45R0720	N	N	N	N	N	10	N	N	N	20	N	40
J45R0730	N	N	N	N	N	10	N	N	N	30	N	40
J45R0740	N	N	N	N	N	10	N	N	N	15	N	40
J45R0750	N	N	N	N	N	30	N	N	N	30	N	40
J45R0760	N	N	N	N	N	30	N	N	N	30	N	40
J45R0770	N	N	N	N	N	20	N	N	N	50	N	40
J45R0780	N	N	N	N	N	10	N	N	N	20	N	40
J45R0785	20	N	10	N	100	100	N	15	N	100	N	40