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Spectrographic analyses of insoluble-residue samples, within and adjacent to the Joplin 1° x 2° quadrangle, Missouri and Kansas: Drill hole nos. 109, 110, and 111

By

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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 (MGLS) 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. 109 (#28470 - MGLS), drill hole no. 110 (#12606 - MGLS), and drill hole no. 111 (Wilbur P-34 - KGS) are given in this report. Drill hole no. 109 is located in sec. 22, T. 31 S., R. 20 E. in Labette County, Kansas; drill hole no. 110 is located in sec. 20, T. 24 S., R. 25 E. in Bourbon County, Kansas; drill hole no. 111 is located in sec. 14, T. 35 S., R. 23 E. in Cherokee County, Kansas (fig. 1). Data for the insoluble-residue samples from drill holes 109, 110, and 111 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 Missouri Division of Geology and Land Survey and 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:

Figure 1. Locations of drill holes 109, 110, and 111, Joplin 1° x 2° quadrangle, Missouri and Kansas.

For those given in percent:

Calcium	0.05
Iron	0.05
Magnesium	0.02
Titanium	0.002

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 three digits signify the USGS drill-hole number. The last 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
31	Chattanooga Shale
40	Mississippian Undifferentiated
57	Powell
65	Cotter Dolomite
66	Jefferson City Dolomite
67	Roubidoux Formation
68	Gasconade Dolomite
69	Gunter Sandstone Member
70	Jefferson City and Cotter Dolomite
81	Emminence
83	Derby / Doerun
83	Lamotte Sandstone
87	Post Bonneterre Cambrian Undifferentiated
90	Precambrian 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) may 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 Missouri Division of Geology and Land Survey--Dr. Wallace B. Howe, former Director, and Dr. J. Hadley Williams, Director--and the Kansas Geological survey, Dr. Lee C. Gerhard, State Geologist, and their staffs, for making these drill-hole samples available from their sample libraries.

REFERENCES

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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. 109, 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
J1090680	37 19 42	95 12 29	5.00	.20	.05	.200	200	<.5	N	N
J1090690	37 19 42	95 12 29	1.50	.15	.15	.100	150	N	N	N
J1090710	37 19 42	95 12 29	.70	.02	<.05	.070	70	N	N	N
J1090720	37 19 42	95 12 29	1.00	.05	<.05	.070	100	N	N	N
J1090730	37 19 42	95 12 29	5.00	.30	.05	.150	300	<.5	N	N
J1090740	37 19 42	95 12 29	2.00	.30	.05	.300	150	N	N	N
J1090750	37 19 42	95 12 29	.50	.02	<.05	.050	30	N	N	N
J1090760	37 19 42	95 12 29	.70	.05	<.05	.070	50	N	N	N
J1090770	37 19 42	95 12 29	.70	.05	<.05	.050	70	N	N	N
J1090780	37 19 42	95 12 29	.70	.05	<.05	.070	70	N	N	N
J1090790	37 19 42	95 12 29	.70	.05	<.05	.070	70	N	N	N
J1090800	37 19 42	95 12 29	.50	.02	<.05	.050	30	N	N	N
J1090810	37 19 42	95 12 29	.30	.02	<.05	.030	15	N	N	N
J1090820	37 19 42	95 12 29	.70	.05	<.05	.150	30	N	N	N
J1090850	37 19 42	95 12 29	5.00	.70	.20	.500	500	.7	N	N
J1090860	37 19 42	95 12 29	5.00	.30	.10	.300	150	N	N	N
J1090870	37 19 42	95 12 29	3.00	.50	.05	.300	200	N	N	N
J1090880	37 19 42	95 12 29	3.00	.70	.30	.500	300	N	N	N
J1090890	37 19 42	95 12 29	5.00	.50	.20	.300	200	N	N	N
J1090900	37 19 42	95 12 29	5.00	.30	.30	.200	500	N	N	N
J1090910	37 19 42	95 12 29	5.00	2.00	1.00	.500	150	N	N	N
J1090920	37 19 42	95 12 29	2.00	.70	.20	.150	30	N	N	N
J1090930	37 19 42	95 12 29	2.00	1.00	1.00	.300	150	N	N	N
J1090940	37 19 42	95 12 29	2.00	1.00	1.00	.300	100	N	N	N
J1090950	37 19 42	95 12 29	2.00	1.00	.70	.200	70	N	N	N
J1090960	37 19 42	95 12 29	1.00	.70	.30	.150	30	N	N	N
J1090970	37 19 42	95 12 29	2.00	1.00	1.50	.200	150	N	N	N
J1090980	37 19 42	95 12 29	1.00	.70	.70	.070	20	N	N	N
J1090990	37 19 42	95 12 29	2.00	.70	.50	.100	20	N	N	N
J1091000	37 19 42	95 12 29	1.00	.70	.70	.070	15	N	N	N
J1091010	37 19 42	95 12 29	1.00	.20	.15	.050	15	N	N	N
J1091020	37 19 42	95 12 29	1.00	.50	.50	.070	20	N	N	N
J1091030	37 19 42	95 12 29	.50	.50	.30	.050	15	N	N	N
J1091040	37 19 42	95 12 29	3.00	1.00	.50	.200	150	N	N	N
J1091050	37 19 42	95 12 29	3.00	1.50	1.00	.300	150	N	N	N
J1091060	37 19 42	95 12 29	3.00	.50	.30	.050	30	N	N	N
J1091070	37 19 42	95 12 29	3.00	.20	.15	.070	700	N	N	N
J1091080	37 19 42	95 12 29	3.00	.70	.30	.200	150	<.5	N	N
J1091090	37 19 42	95 12 29	.50	.20	.15	.050	20	N	N	N
J1091100	37 19 42	95 12 29	.70	.10	.15	.050	15	N	N	N
J1091110	37 19 42	95 12 29	.20	.20	.15	.050	10	N	N	N
J1091120	37 19 42	95 12 29	.70	.10	.30	.030	15	N	N	N
J1091130	37 19 42	95 12 29	.50	.02	.05	.030	10	N	N	N
J1091140	37 19 42	95 12 29	.10	.10	.20	.030	10	N	N	N
J1091150	37 19 42	95 12 29	.10	.05	.10	.020	<10	N	N	N

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 109, 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
J1090680	100	100	1.5	N	N	15	50	15	N	N	N	50
J1090690	70	70	N	N	N	20	30	5	N	<5	N	20
J1090710	70	70	N	N	N	5	<10	<5	N	<5	N	20
J1090720	70	70	N	N	N	10	N	<5	N	5	N	20
J1090730	100	100	1.5	N	N	70	30	15	N	7	N	70
J1090740	150	150	2.0	N	N	15	70	20	N	5	N	50
J1090750	70	50	N	N	N	N	N	<5	N	<5	N	15
J1090760	70	30	N	N	N	N	10	<5	N	<5	N	30
J1090770	70	50	N	N	N	10	N	5	N	<5	N	10
J1090780	100	70	N	N	N	N	N	5	N	<5	N	10
J1090790	100	50	N	N	N	N	N	<5	N	<5	N	10
J1090800	100	50	N	N	N	N	N	<5	N	<5	N	10
J1090810	100	30	N	N	N	N	N	<5	N	N	N	5
J1090820	70	70	1.0	N	N	7	15	<5	N	N	N	20
J1090850	200	150	3.0	N	N	30	100	30	20	5	<20	100
J1090860	150	150	1.0	N	N	7	50	30	20	N	N	50
J1090870	100	100	1.5	N	N	15	70	15	20	5	N	70
J1090880	200	200	5.0	N	N	20	100	50	70	N	N	70
J1090890	150	300	1.5	N	N	15	50	30	20	<5	N	70
J1090900	100	500	1.0	N	N	20	30	30	N	<5	N	70
J1090910	150	200	3.0	N	N	30	70	20	30	N	N	150
J1090920	100	150	2.0	N	N	15	20	15	N	N	N	20
J1090930	200	200	3.0	N	N	10	70	15	N	N	N	20
J1090940	150	150	3.0	N	N	10	70	15	N	N	N	20
J1090950	150	150	2.0	N	N	15	50	20	N	<5	N	20
J1090960	100	100	1.5	N	N	5	30	5	N	N	N	15
J1090970	150	200	3.0	N	N	7	70	15	N	N	N	20
J1090980	70	100	1.0	N	N	5	<10	10	N	N	N	15
J1090990	50	70	1.0	N	N	5	<10	10	N	<5	N	15
J1091000	50	100	N	N	N	N	<10	7	N	<5	N	10
J1091010	70	70	N	N	N	N	N	7	N	<5	N	10
J1091020	50	100	N	N	N	N	N	7	N	7	N	20
J1091030	30	70	N	N	N	N	N	5	N	<5	N	10
J1091040	200	150	3.0	N	N	15	70	50	20	7	N	30
J1091050	150	150	2.0	N	N	15	50	15	N	5	N	30
J1091060	100	100	N	N	N	10	20	100	N	<5	N	20
J1091070	70	150	N	N	N	10	15	30	N	<5	N	15
J1091080	150	150	2.0	N	N	15	50	100	20	<5	N	30
J1091090	50	70	N	N	N	N	N	5	N	N	N	5
J1091100	50	70	N	N	N	N	70	5	N	7	N	15
J1091110	70	100	N	N	N	N	N	30	N	<5	N	5
J1091120	50	70	N	N	N	5	N	10	N	<5	N	10
J1091130	50	70	N	N	N	N	N	5	N	<5	N	5
J1091140	30	150	N	N	N	N	N	15	N	N	N	N
J1091150	50	70	N	N	N	N	N	N	N	N	N	N

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 109, 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 #
J1090680	10	N	5	N	N	70	50	10	N	70	N	40
J1090690	N	N	N	N	N	30	70	N	N	50	N	40
J1090710	N	N	N	N	N	20	<50	N	N	30	N	40
J1090720	N	N	N	N	N	20	300	N	N	30	N	40
J1090730	20	N	5	N	N	70	300	10	200	70	N	40
J1090740	20	N	7	N	N	70	N	10	<200	150	N	40
J1090750	N	N	N	N	N	10	N	N	N	15	N	40
J1090760	N	N	N	N	N	30	N	N	N	20	N	40
J1090770	N	N	N	N	N	20	<50	N	N	20	N	40
J1090780	N	N	N	N	N	30	N	N	N	20	N	40
J1090790	N	N	N	N	N	30	N	N	N	30	N	40
J1090800	N	N	N	N	N	10	N	N	700	15	N	40
J1090810	N	N	N	N	N	10	N	N	N	30	N	40
J1090820	N	N	N	N	N	30	N	<10	N	70	N	40
J1090850	20	N	15	N	N	100	N	20	200	300	N	40
J1090860	20	N	7	N	N	70	N	15	N	150	N	40
J1090870	10	N	7	N	N	70	<50	15	<200	100	N	40
J1090880	200	N	15	N	N	150	N	20	<200	300	N	40
J1090890	30	N	10	N	N	70	70	15	200	200	N	40
J1090900	1,000	N	5	N	N	50	N	10	N	150	N	40
J1090910	30	N	15	<10	N	300	N	20	N	150	N	40
J1090920	70	N	5	N	N	70	N	N	N	70	N	57
J1090930	30	N	5	N	N	70	N	15	N	100	N	57
J1090940	15	N	5	N	N	100	N	10	N	150	N	57
J1090950	10	N	5	N	N	70	N	N	N	70	N	57
J1090960	10	N	<5	N	N	70	N	N	N	70	N	65
J1090970	N	N	5	N	N	70	N	10	N	100	N	65
J1090980	N	N	N	N	N	50	N	N	N	50	N	65
J1090990	N	N	N	N	N	30	N	N	N	50	N	65
J1091000	N	N	N	N	N	20	N	N	N	50	N	65
J1091010	10	N	N	N	N	10	N	N	N	30	N	65
J1091020	N	N	N	N	N	20	N	N	N	30	N	65
J1091030	N	N	N	N	N	10	N	N	N	20	N	65
J1091040	20	N	7	N	N	70	<50	15	<200	100	N	65
J1091050	500	N	7	N	N	100	<50	20	<200	100	N	65
J1091060	N	N	N	N	N	15	N	N	N	20	N	65
J1091070	1,000	N	N	N	N	30	<50	N	N	50	N	65
J1091080	70	N	5	N	N	50	N	N	<200	70	N	65
J1091090	N	N	N	N	N	20	N	N	N	50	N	65
J1091100	N	N	N	N	N	10	N	N	N	20	N	65
J1091110	N	N	N	N	N	15	N	N	N	30	N	65
J1091120	N	N	N	N	N	<10	70	N	N	20	N	65
J1091130	N	N	N	N	N	10	N	N	N	30	N	65
J1091140	N	N	N	N	N	N	N	N	700	30	N	65
J1091150	N	N	N	N	N	N	N	N	N	30	N	65

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 109, 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
J1091160	37 19 42	95 12 29	.15	.05	.15	.030	15	N	N	N
J1091170	37 19 42	95 12 29	.10	.10	.15	.050	<10	N	N	N
J1091180	37 19 42	95 12 29	.05	.10	.30	.010	<10	N	N	N
J1091190	37 19 42	95 12 29	.10	.10	.20	.030	<10	N	N	N
J1091200	37 19 42	95 12 29	.70	.02	.15	.030	15	N	N	N
J1091210	37 19 42	95 12 29	.70	.05	.10	.050	10	N	N	N
J1091220	37 19 42	95 12 29	.15	.02	.10	.020	10	N	N	N
J1091230	37 19 42	95 12 29	.10	.05	.15	.030	10	N	N	N
J1091240	37 19 42	95 12 29	.10	.05	.10	.030	<10	N	N	N
J1091250	37 19 42	95 12 29	.05	.02	.10	.020	<10	N	N	N
J1091260	37 19 42	95 12 29	.20	.05	.30	.015	<10	N	N	N
J1091270	37 19 42	95 12 29	.10	.05	.20	.020	10	N	N	N
J1091280	37 19 42	95 12 29	.20	.05	.20	.050	10	N	N	N
J1091290	37 19 42	95 12 29	.50	.10	.20	.030	15	N	N	N
J1091300	37 19 42	95 12 29	.10	.05	.20	.050	<10	N	N	N
J1091310	37 19 42	95 12 29	.50	.30	.15	.150	15	N	N	N
J1091320	37 19 42	95 12 29	.15	.20	.10	.070	<10	N	N	N
J1091330	37 19 42	95 12 29	.10	.10	.15	.100	10	N	N	N
J1091340	37 19 42	95 12 29	.20	.05	.05	.030	<10	N	N	N
J1091350	37 19 42	95 12 29	.50	.50	.20	.200	20	N	N	N
J1091360	37 19 42	95 12 29	.50	.50	.30	.150	15	N	N	N
J1091370	37 19 42	95 12 29	.50	.20	.15	.050	15	N	N	N
J1091380	37 19 42	95 12 29	.20	.20	.10	.030	10	N	N	N
J1091390	37 19 42	95 12 29	.10	.20	.10	.030	10	N	N	N
J1091400	37 19 42	95 12 29	.20	.20	.15	.030	15	N	N	N
J1091410	37 19 42	95 12 29	.15	.20	.15	.030	10	N	N	N
J1091415	37 19 42	95 12 29	.15	.20	.10	.030	10	N	N	N
J1091450	37 19 42	95 12 29	.20	.20	.07	.100	15	N	N	N
J1091460	37 19 42	95 12 29	.15	.10	.05	.030	10	N	N	N
J1091470	37 19 42	95 12 29	.10	.10	.10	.015	15	N	N	N
J1091480	37 19 42	95 12 29	.20	.05	.05	.020	15	N	N	N
J1091490	37 19 42	95 12 29	.10	.02	<.05	.010	15	N	N	N
J1091500	37 19 42	95 12 29	.05	.02	<.05	.010	<10	N	N	N
J1091510	37 19 42	95 12 29	.10	.05	.10	.015	10	N	N	N
J1091530	37 19 42	95 12 29	.05	.05	.07	.007	<10	N	N	N
J1091540	37 19 42	95 12 29	.10	.02	.05	.007	10	N	N	N
J1091550	37 19 42	95 12 29	.10	.05	.10	.007	10	N	N	N
J1091560	37 19 42	95 12 29	.07	.05	.05	.007	10	N	N	N
J1091570	37 19 42	95 12 29	.05	.05	.05	.015	<10	N	N	N
J1091580	37 19 42	95 12 29	.05	.02	.05	<.002	<10	N	N	N
J1091590	37 19 42	95 12 29	.05	.02	.05	.005	<10	N	N	N
J1091600	37 19 42	95 12 29	.05	.02	<.05	.007	<10	N	N	N
J1091610	37 19 42	95 12 29	.05	.10	.20	.010	10	N	N	N
J1091620	37 19 42	95 12 29	.05	.05	.10	.002	<10	N	N	N
J1091630	37 19 42	95 12 29	.05	.05	.10	.005	<10	N	N	N

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 109, 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
J1091160	70	100	N	N	N	N	N	70	N	N	N	<5
J1091170	70	70	N	N	N	N	N	N	N	N	N	<5
J1091180	50	50	N	N	N	N	N	N	N	N	N	5
J1091190	70	70	N	N	N	N	N	N	N	N	N	N
J1091200	70	70	N	N	N	N	N	<5	N	N	N	<5
J1091210	50	70	N	N	N	N	N	<5	N	N	N	<5
J1091220	50	100	N	N	N	N	N	N	N	N	N	<5
J1091230	70	100	N	N	N	N	N	N	N	N	N	N
J1091240	50	70	N	N	N	N	N	10	N	N	N	5
J1091250	50	70	N	N	N	N	N	10	N	N	N	N
J1091260	30	70	N	N	N	N	N	N	N	N	N	N
J1091270	50	100	N	N	N	N	N	5	N	N	N	10
J1091280	50	70	N	N	N	N	N	N	N	N	N	<5
J1091290	50	70	N	N	N	N	N	<5	N	N	N	<5
J1091300	50	100	N	N	N	N	N	200	N	N	N	N
J1091310	100	150	1.0	N	N	N	20	10	N	N	N	5
J1091320	50	100	<1.0	N	N	N	10	<5	N	N	N	<5
J1091330	100	200	<1.0	N	N	N	10	5	N	N	N	<5
J1091340	70	70	N	N	N	5	<10	<5	N	N	N	<5
J1091350	70	150	1.0	N	N	10	30	50	N	<5	N	10
J1091360	70	150	<1.0	N	N	N	20	5	N	N	N	<5
J1091370	50	100	<1.0	N	N	5	<10	<5	N	<5	N	30
J1091380	70	100	N	N	N	N	N	5	N	N	N	<5
J1091390	50	50	N	N	N	N	N	5	N	N	N	N
J1091400	50	100	N	N	N	N	N	<5	N	N	N	5
J1091410	50	70	N	N	N	N	N	<5	N	N	N	N
J1091415	30	50	N	N	N	N	N	<5	N	N	N	N
J1091450	70	150	<1.0	N	N	N	20	<5	N	<5	N	<5
J1091460	30	100	N	N	N	N	<10	20	N	N	N	N
J1091470	50	70	N	N	N	N	<10	<5	N	N	N	N
J1091480	50	50	N	N	N	N	<10	15	N	N	N	N
J1091490	30	30	N	N	N	5	<10	5	N	N	N	N
J1091500	30	70	N	N	N	N	N	N	N	N	N	N
J1091510	50	100	N	N	N	N	N	<5	N	N	N	N
J1091530	30	30	N	N	N	N	N	N	N	N	N	N
J1091540	50	50	N	N	N	N	N	10	N	N	N	N
J1091550	70	70	N	N	N	N	N	10	N	N	N	5
J1091560	50	30	N	N	N	N	N	N	N	N	N	<5
J1091570	50	50	N	N	N	N	N	<5	N	N	N	N
J1091580	50	30	N	N	N	N	N	<5	N	N	N	N
J1091590	50	30	N	N	N	15	N	N	N	N	N	N
J1091600	50	30	N	N	N	15	N	N	N	N	N	<5
J1091610	50	30	N	N	N	15	N	N	N	N	N	N
J1091620	30	30	N	N	N	15	N	N	N	N	N	<5
J1091630	50	30	N	N	N	15	N	N	N	N	N	<5

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 109, 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 #
J1091160	N	N	N	N	200	N	N	N	500	15	N	65
J1091170	N	N	N	N	200	N	N	N	N	50	N	65
J1091180	N	N	N	N	N	N	N	N	N	10	N	65
J1091190	N	N	N	N	N	N	N	N	N	10	N	65
J1091200	N	N	N	N	N	N	<50	N	N	<10	N	66
J1091210	N	N	N	N	N	N	N	N	N	<10	N	66
J1091220	N	N	N	N	N	N	N	N	N	<10	N	66
J1091230	N	N	N	N	N	N	N	N	N	10	N	66
J1091240	N	N	N	N	N	N	100	N	N	10	N	66
J1091250	N	N	N	N	N	N	70	N	N	<10	N	66
J1091260	N	N	N	N	N	N	N	N	N	N	N	66
J1091270	N	N	N	N	N	N	N	N	N	N	N	66
J1091280	N	N	N	N	N	N	N	N	N	<10	N	66
J1091290	N	N	N	N	N	N	<50	N	N	20	N	66
J1091300	30	N	N	N	N	N	<50	N	N	10	N	66
J1091310	N	N	N	N	N	50	N	N	N	30	N	66
J1091320	N	N	N	N	N	20	N	N	N	10	N	66
J1091330	N	N	N	N	N	30	50	N	N	20	N	67
J1091340	N	N	N	N	N	10	70	N	N	<10	N	67
J1091350	20	N	N	N	N	50	70	N	N	70	N	67
J1091360	30	N	N	N	N	50	N	N	N	70	N	67
J1091370	N	N	N	N	N	15	N	N	N	30	N	67
J1091380	N	N	N	N	N	10	N	N	N	100	N	67
J1091390	10	N	N	N	N	N	N	N	N	30	N	67
J1091400	200	N	N	N	N	N	N	N	N	70	N	67
J1091410	N	N	N	N	N	N	N	N	N	20	N	67
J1091415	N	N	N	N	N	N	N	N	N	50	N	67
J1091450	20	N	N	N	N	20	N	N	N	70	N	67
J1091460	30	N	N	N	N	N	N	N	N	30	N	67
J1091470	50	N	N	N	N	N	N	N	N	20	N	67
J1091480	20	N	N	N	N	N	N	N	N	100	N	68
J1091490	N	N	N	N	N	N	<50	N	N	15	N	68
J1091500	N	N	N	N	N	N	N	N	N	30	N	68
J1091510	N	N	N	N	N	N	N	N	N	N	N	68
J1091530	N	N	N	N	N	N	N	N	N	N	N	68
J1091540	N	N	N	N	N	N	N	N	200	20	N	68
J1091550	N	N	N	N	N	N	N	N	N	N	N	68
J1091560	N	N	N	N	N	N	N	N	N	N	N	68
J1091570	N	N	N	N	N	N	N	N	N	N	N	68
J1091580	N	N	N	N	N	N	N	N	N	N	N	68
J1091590	N	N	N	N	N	N	N	N	N	N	N	68
J1091600	N	N	N	N	N	N	N	N	N	N	N	68
J1091610	N	N	N	N	N	N	N	N	N	N	N	68
J1091620	N	N	N	N	N	N	N	N	N	N	N	68
J1091630	N	N	N	N	N	N	N	N	N	N	N	68

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 109, 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
J1091640	37 19 42	95 12 29	.05	.02	<.05	.002	<10	N	N	N
J1091650	37 19 42	95 12 29	1.00	.07	.30	.010	10	N	N	N
J1091660	37 19 42	95 12 29	.20	.05	.15	.010	10	N	N	N
J1091670	37 19 42	95 12 29	.30	.05	<.05	.030	15	N	N	N
J1091710	37 19 42	95 12 29	.05	.02	.05	.005	<10	N	N	N
J1091720	37 19 42	95 12 29	.05	.03	.10	.007	10	N	N	N
J1091730	37 19 42	95 12 29	.10	.02	.05	.010	10	N	N	N
J1091740	37 19 42	95 12 29	1.00	.07	.15	.070	20	N	N	N
J1091750	37 19 42	95 12 29	.70	.05	.10	.050	30	N	N	N
J1091760	37 19 42	95 12 29	.70	.05	.07	.050	150	N	N	N
J1091770	37 19 42	95 12 29	3.00	.15	.20	.030	150	<.5	N	N
J1091780	37 19 42	95 12 29	7.00	<.02	<.05	.020	500	.5	200	N
J1091790	37 19 42	95 12 29	1.00	.05	.05	.050	20	N	N	N
J1091800	37 19 42	95 12 29	1.00	.10	.05	.050	20	N	N	N
J1091810	37 19 42	95 12 29	1.50	.15	<.05	.150	150	N	N	N
J1091816	37 19 42	95 12 29	3.00	.15	.05	.100	50	<.5	N	N

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 109, 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
J1091640	50	20	N	N	N	15	N	N	N	N	N	N
J1091650	50	20	N	N	N	15	N	20	N	N	N	<5
J1091660	70	30	N	N	N	15	N	7	N	N	N	N
J1091670	50	100	N	N	N	15	<10	<5	N	<5	N	<5
J1091710	30	30	N	N	N	15	N	N	N	N	N	<5
J1091720	30	150	N	N	N	15	N	N	N	N	N	<5
J1091730	30	70	N	N	N	15	N	<5	N	N	N	<5
J1091740	70	500	<1.0	N	N	15	15	10	N	5	N	10
J1091750	50	100	<1.0	N	N	15	10	10	N	7	N	5
J1091760	50	100	<1.0	N	N	15	10	7	N	<5	N	10
J1091770	100	150	<1.0	N	N	15	15	50	N	20	N	10
J1091780	30	30	N	N	N	7	20	70	N	70	N	30
J1091790	30	150	<1.0	N	N	N	<10	20	N	5	N	30
J1091800	50	150	<1.0	N	N	N	<10	7	N	15	N	10
J1091810	70	500	<1.0	N	N	5	15	150	N	30	N	30
J1091816	70	100	1.0	N	N	7	10	30	N	70	N	20

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 109, 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 #
J1091640	N	N	N	N	N	N	N	N	N	N	N	68
J1091650	N	N	N	N	N	N	N	N	N	N	N	68
J1091660	N	N	N	N	N	N	N	N	N	10	N	68
J1091670	N	N	N	N	N	<10	N	N	N	30	N	69
J1091710	N	N	N	N	N	N	N	N	N	N	N	81
J1091720	N	N	N	N	N	N	N	N	N	15	N	81
J1091730	N	N	N	N	N	N	N	N	N	30	N	81
J1091740	200	N	N	N	N	20	N	N	N	200	N	81
J1091750	10	N	N	N	N	20	N	N	N	70	N	81
J1091760	N	N	N	N	N	15	N	N	N	50	N	81
J1091770	20	N	N	N	200	10	N	N	N	100	N	81
J1091780	30	N	N	N	N	15	N	N	N	15	N	81
J1091790	10	N	N	N	N	N	N	N	N	50	N	81
J1091800	10	N	N	N	N	10	N	N	N	30	N	81
J1091810	10	N	<5	N	N	50	50	N	N	70	N	81
J1091816	100	N	<5	N	N	30	N	N	N	50	N	83

TABLE 2--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 110, 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.	Mg-pct.	Ca-pct.	Ti-pct.	Mn-ppm	Ag-ppm	As-ppm	Au-ppm
			s	s	s	s	s	s	s	s
J1100470	37 56 29	94 41 10	3.00	.30	<.05	.200	100	.5	N	N
J1100480	37 56 29	94 41 10	1.50	.50	.15	.150	30	N	N	N
J1100490	37 56 29	94 41 10	3.00	.50	.05	.300	150	<.5	N	N
J1100500	37 56 29	94 41 10	3.00	.50	<.05	.200	70	<.5	N	N
J1100510	37 56 29	94 41 10	2.00	.10	.05	.100	50	N	N	N
J1100520	37 56 29	94 41 10	.70	.05	.10	.030	150	N	N	N
J1100530	37 56 29	94 41 10	.50	.05	.15	.020	15	N	N	N
J1100540	37 56 29	94 41 10	1.00	.05	<.05	.050	30	N	N	N
J1100550	37 56 29	94 41 10	3.00	.30	.10	.300	150	.7	N	N
J1100560	37 56 29	94 41 10	2.00	.15	.10	.100	100	<.5	N	N
J1100570	37 56 29	94 41 10	.70	.02	.15	.020	30	N	N	N
J1100580	37 56 29	94 41 10	1.00	.03	.15	.030	70	N	N	N
J1100590	37 56 29	94 41 10	.20	<.02	.10	.010	15	N	N	N
J1100600	37 56 29	94 41 10	.10	<.02	.20	.007	10	N	N	N
J1100610	37 56 29	94 41 10	.15	<.02	.15	.005	10	N	N	N
J1100620	37 56 29	94 41 10	.30	<.02	.15	.010	10	N	N	N
J1100630	37 56 29	94 41 10	2.00	.15	.05	.150	150	N	N	N
J1100640	37 56 29	94 41 10	1.00	.02	<.05	.030	30	N	N	N
J1100650	37 56 29	94 41 10	.20	<.02	<.05	.020	15	N	N	N
J1100660	37 56 29	94 41 10	.30	<.02	<.05	.030	15	N	N	N
J1100670	37 56 29	94 41 10	.30	.02	<.05	.030	15	N	N	N
J1100680	37 56 29	94 41 10	1.00	.05	.05	.070	30	N	N	N
J1100690	37 56 29	94 41 10	.20	.02	<.05	.015	15	N	N	N
J1100700	37 56 29	94 41 10	.15	<.02	.15	.020	10	N	N	N
J1100710	37 56 29	94 41 10	1.00	.03	.10	.100	70	N	N	N
J1100720	37 56 29	94 41 10	1.00	.05	<.05	.150	50	N	N	N
J1100730	37 56 29	94 41 10	.70	.02	<.05	.030	30	N	N	N
J1100740	37 56 29	94 41 10	2.00	.02	.05	.050	100	<.5	N	N
J1100750	37 56 29	94 41 10	.50	.02	.15	.050	300	N	N	N
J1100760	37 56 29	94 41 10	.70	.15	.20	.500	15	N	N	N
J1100770	37 56 29	94 41 10	1.50	.20	.15	.500	20	N	N	N
J1100780	37 56 29	94 41 10	.10	.02	.05	.050	10	N	N	N
J1100790	37 56 29	94 41 10	.20	.03	.05	.070	10	N	N	N
J1100800	37 56 29	94 41 10	.20	.03	.07	.070	15	N	N	N
J1100810	37 56 29	94 41 10	.20	.05	.15	.100	15	N	N	N
J1100820	37 56 29	94 41 10	1.00	.05	.05	.100	30	N	N	N
J1100830	37 56 29	94 41 10	1.00	.05	.10	.050	70	N	N	N
J1100840	37 56 29	94 41 10	5.00	.70	.05	.200	150	<.5	N	N
J1100850	37 56 29	94 41 10	5.00	.50	.05	.200	100	<.5	N	N
J1100860	37 56 29	94 41 10	1.50	.20	.05	.070	20	<.5	N	N
J1100870	37 56 29	94 41 10	.70	.30	.07	.070	15	N	N	N
J1100880	37 56 29	94 41 10	1.50	.30	<.05	.070	10	N	N	N
J1100890	37 56 29	94 41 10	.70	.20	<.05	.050	15	N	N	N
J1100900	37 56 29	94 41 10	.70	.15	<.05	.050	20	N	N	N
J1100910	37 56 29	94 41 10	2.00	.30	<.05	.150	100	N	N	N

TABLE 2--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 110, 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
J1100470	150	100	1.0	N	N	10	50	20	20	N	N	50
J1100480	100	70	1.0	N	N	5	30	10	20	N	N	15
J1100490	200	150	1.5	N	N	10	70	50	50	<5	N	30
J1100500	150	100	1.5	N	N	10	50	30	N	5	N	50
J1100510	100	500	<1.0	N	N	5	20	20	N	<5	N	20
J1100520	70	50	N	N	N	N	20	10	N	N	N	5
J1100530	70	50	N	N	N	N	N	5	N	N	N	5
J1100540	100	20	N	N	N	<5	10	20	N	<5	N	50
J1100550	150	150	1.5	N	N	15	300	100	30	15	N	150
J1100560	100	70	<1.0	N	N	5	30	30	20	<5	N	50
J1100570	70	20	N	N	N	N	15	10	N	N	N	10
J1100580	50	100	N	N	N	N	20	15	N	N	N	15
J1100590	50	20	N	N	N	N	<10	5	N	N	N	<5
J1100600	50	20	N	N	N	N	N	5	N	N	N	N
J1100610	50	<20	N	N	N	N	N	<5	N	N	N	N
J1100620	30	20	N	N	N	N	N	5	N	N	N	5
J1100630	100	150	1.0	N	N	7	50	20	20	<5	N	50
J1100640	70	100	N	N	N	N	N	10	N	N	N	20
J1100650	70	30	N	N	N	N	N	5	N	N	N	<5
J1100660	70	20	N	N	N	N	N	5	N	N	N	5
J1100670	70	150	N	N	N	N	N	<5	N	N	N	<5
J1100680	100	30	N	N	N	N	<10	7	N	<5	N	15
J1100690	50	20	N	N	N	N	N	N	N	7	N	<5
J1100700	50	50	N	N	N	N	N	N	N	N	N	<5
J1100710	70	100	<1.0	N	N	N	20	10	N	N	N	20
J1100720	50	50	<1.0	N	N	5	10	15	N	N	N	20
J1100730	30	30	N	N	N	N	<10	7	N	<5	N	15
J1100740	100	70	N	N	N	5	10	30	N	5	N	20
J1100750	70	50	N	N	N	N	N	5	N	N	N	10
J1100760	150	150	<1.0	N	N	N	30	7	N	N	<20	10
J1100770	150	150	<1.0	N	N	N	50	10	N	N	<20	7
J1100780	50	100	N	N	N	N	N	N	N	N	N	<5
J1100790	50	50	N	N	N	N	<10	7	N	N	N	N
J1100800	30	30	N	N	N	N	N	<5	N	N	N	<5
J1100810	50	70	N	N	N	N	<10	<5	N	N	N	<5
J1100820	50	150	<1.0	N	N	N	15	15	N	N	N	7
J1100830	50	100	<1.0	N	N	N	N	7	N	N	N	15
J1100840	200	100	1.5	N	N	15	70	20	<20	N	N	50
J1100850	150	150	1.5	N	N	15	70	30	20	7	N	50
J1100860	70	50	<1.0	N	N	5	N	15	N	<5	N	15
J1100870	150	200	N	N	N	<5	<10	5	N	N	N	5
J1100880	100	70	N	N	N	<5	<10	5	N	<5	N	10
J1100890	50	70	N	N	N	<5	<10	7	N	<5	N	5
J1100900	70	50	N	N	N	<5	<10	5	N	N	N	15
J1100910	100	100	<1.0	N	N	7	50	15	N	5	N	30

TABLE 2--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 110, 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 #
J1100470	15	N	7	N	N	70	N	10	1,000	150	N	40
J1100480	N	N	5	N	N	50	N	<10	300	70	N	40
J1100490	20	N	10	N	200	70	N	15	300	100	N	40
J1100500	30	N	7	N	N	70	N	10	500	100	N	40
J1100510	<10	N	N	N	N	20	N	N	300	30	N	40
J1100520	N	N	N	N	N	N	N	N	N	15	N	40
J1100530	N	N	N	N	N	N	N	N	N	15	N	40
J1100540	N	N	N	N	N	10	N	N	<200	30	N	40
J1100550	20	N	7	N	100	100	N	15	1,000	150	N	40
J1100560	N	N	N	N	N	30	N	N	<200	70	N	40
J1100570	N	N	N	N	N	N	N	N	N	N	N	40
J1100580	N	N	N	N	N	10	N	N	300	15	N	40
J1100590	N	N	N	N	N	N	N	N	700	N	N	40
J1100600	N	N	N	N	N	N	N	N	N	N	N	40
J1100610	N	N	N	N	N	N	N	N	<200	N	N	40
J1100620	N	N	N	N	N	N	N	N	<200	N	N	40
J1100630	10	N	<5	N	N	50	N	N	1,000	70	N	40
J1100640	<10	N	N	N	N	10	N	N	N	70	N	40
J1100650	N	N	N	N	N	N	N	N	N	10	N	40
J1100660	N	N	N	N	N	N	N	N	N	50	N	40
J1100670	N	N	N	N	N	N	N	N	N	10	N	40
J1100680	N	N	N	N	N	15	N	N	N	20	N	40
J1100690	N	N	N	N	N	N	N	N	N	N	N	40
J1100700	N	N	N	N	N	N	N	N	N	20	N	40
J1100710	N	N	<5	N	N	30	N	N	N	30	N	40
J1100720	N	N	N	N	N	30	N	N	<200	30	N	40
J1100730	N	N	N	N	N	N	N	N	500	15	N	40
J1100740	20	N	N	N	N	20	N	N	<200	20	N	40
J1100750	N	N	N	N	N	N	N	N	N	15	N	40
J1100760	<10	N	N	N	N	30	N	20	N	700	N	40
J1100770	<10	N	N	N	N	50	N	20	N	500	N	40
J1100780	N	N	N	N	N	N	N	N	N	20	N	40
J1100790	15	N	N	15	N	N	N	N	N	30	N	40
J1100800	N	N	N	N	N	N	N	N	200	30	N	40
J1100810	N	N	N	N	N	10	N	N	200	30	N	40
J1100820	N	N	N	N	N	10	N	N	<200	20	N	40
J1100830	N	N	N	N	N	10	N	N	N	15	N	40
J1100840	15	N	7	N	N	150	N	10	N	100	N	40
J1100850	30	N	5	N	N	70	N	15	N	150	N	31
J1100860	N	N	N	N	N	15	N	N	N	30	N	66
J1100870	N	N	N	N	N	10	N	N	N	70	N	66
J1100880	N	N	N	N	N	10	N	N	N	50	N	66
J1100890	N	N	N	N	N	10	N	N	N	70	N	66
J1100900	N	N	N	N	N	15	N	N	N	20	N	66
J1100910	N	N	<5	N	N	70	N	N	200	50	N	66

TABLE 2--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 110, 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
J1100920	37 56 29	94 41 10	2.00	.30	<.05	.150	100	<.5	N	N
J1100930	37 56 29	94 41 10	2.00	.20	.05	.070	70	<.5	N	N
J1100940	37 56 29	94 41 10	.70	.05	<.05	.030	15	N	N	N
J1100950	37 56 29	94 41 10	.70	.07	<.05	.030	15	N	N	N
J1100960	37 56 29	94 41 10	2.00	.30	<.05	.150	100	<.5	N	N
J1100970	37 56 29	94 41 10	.70	.07	.05	.030	30	N	N	N
J1100980	37 56 29	94 41 10	.20	.02	<.05	.007	10	N	N	N
J1100990	37 56 29	94 41 10	.70	.05	<.05	.070	15	N	N	N
J1101000	37 56 29	94 41 10	2.00	.20	.05	.200	100	<.5	N	N
J1101010	37 56 29	94 41 10	1.00	.10	<.05	.100	50	N	N	N
J1101020	37 56 29	94 41 10	2.00	.20	<.05	.100	100	<.5	N	N
J1101030	37 56 29	94 41 10	1.50	.15	.05	.070	30	N	N	N
J1101040	37 56 29	94 41 10	1.50	.15	<.05	.070	30	N	N	N
J1101050	37 56 29	94 41 10	1.00	.10	<.05	.070	30	N	N	N
J1101053	37 56 29	94 41 10	.15	.07	.05	.007	<10	N	N	N

TABLE 2--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 110, 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
J1100920	70	150	<1.0	N	N	7	50	20	N	5	N	30
J1100930	50	70	N	N	N	5	20	15	N	7	N	20
J1100940	30	50	N	N	N	N	N	5	N	N	N	7
J1100950	30	70	N	N	N	N	N	<5	N	N	N	5
J1100960	100	150	1.0	N	N	7	70	30	N	15	N	70
J1100970	50	70	N	N	N	N	50	7	N	N	N	7
J1100980	50	30	N	N	N	N	N	N	N	N	N	N
J1100990	30	30	N	N	N	N	50	<5	N	N	N	7
J1101000	70	150	N	N	N	5	50	15	N	5	N	30
J1101010	50	100	N	N	N	<5	30	7	N	N	N	15
J1101020	50	1,000	<1.0	N	N	5	30	20	N	<5	N	30
J1101030	50	300	N	N	N	N	<10	7	N	<5	N	15
J1101040	50	70	N	N	N	<5	<10	7	N	N	N	20
J1101050	50	100	N	N	N	N	N	7	N	N	N	10
J1101053	30	50	N	N	N	N	N	N	N	N	N	N

TABLE 2--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 110, 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 #
J1100920	20	N	<5	N	N	50	N	N	<200	100	N	66
J1100930	10	N	N	N	N	20	N	N	300	50	N	66
J1100940	N	N	N	N	N	N	N	N	N	15	N	66
J1100950	N	N	N	N	N	N	N	N	N	20	N	66
J1100960	20	N	5	N	N	100	N	N	700	150	N	66
J1100970	N	N	N	N	N	N	N	30	N	30	N	66
J1100980	N	N	N	N	N	N	N	N	N	N	N	66
J1100990	N	N	N	N	N	10	N	N	<200	20	N	66
J1101000	N	N	<5	N	N	70	N	N	<200	70	N	66
J1101010	N	N	N	N	N	15	N	N	<200	50	N	66
J1101020	N	N	N	N	N	50	N	N	200	100	N	66
J1101030	N	N	N	N	N	20	N	N	N	50	N	66
J1101040	N	N	N	N	N	30	N	N	<200	50	N	66
J1101050	N	N	N	N	N	10	N	N	N	30	N	66
J1101053	N	N	N	N	N	N	N	N	N	N	N	67

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 111, 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
J1110110	36 59 47	94 51 13	10.00	.50	.07	.200	150	N	N	N
J1110130	36 59 47	94 51 13	5.00	1.00	<.05	.500	100	N	N	N
J1110150	36 59 47	94 51 13	.70	.10	.50	.070	20	N	N	N
J1110181	36 59 47	94 51 13	1.00	.20	<.05	.150	20	N	N	N
J1110200	36 59 47	94 51 13	1.50	.30	<.05	.200	20	N	N	N
J1110220	36 59 47	94 51 13	.70	.15	<.05	.100	10	N	N	N
J1110240	36 59 47	94 51 13	.10	.02	<.05	.007	N	N	N	N
J1110260	36 59 47	94 51 13	.70	.03	<.05	.015	10	N	N	N
J1110280	36 59 47	94 51 13	.20	.02	<.05	.007	N	N	N	N
J1110305	36 59 47	94 51 13	.20	.03	<.05	.010	<10	N	N	N
J1110360	36 59 47	94 51 13	.15	.03	<.05	.010	<10	N	N	N
J1110440	36 59 47	94 51 13	.30	.03	.10	.015	10	N	N	N
J1110470	36 59 47	94 51 13	.50	.05	.30	.020	30	N	N	N
J1110490	36 59 47	94 51 13	1.00	.20	.05	.150	20	N	N	N
J1110520	36 59 47	94 51 13	1.00	.10	<.05	.100	15	N	N	N
J1110550	36 59 47	94 51 13	2.00	.15	.07	.070	20	N	N	N
J1110580	36 59 47	94 51 13	1.00	.10	.05	.050	10	N	N	N
J1110610	36 59 47	94 51 13	1.50	.10	.05	.070	10	N	N	N
J1110640	36 59 47	94 51 13	1.00	.05	.05	.020	<10	N	N	N
J1110660	36 59 47	94 51 13	1.50	.02	.05	.015	<10	N	N	N
J1110680	36 59 47	94 51 13	2.00	.03	<.05	.015	<10	.5	N	N
J1110700	36 59 47	94 51 13	3.00	.07	.05	.050	15	.7	N	N
J1110720	36 59 47	94 51 13	1.50	.10	.05	.050	15	N	N	N
J1110740	36 59 47	94 51 13	.70	.03	<.05	.015	20	N	N	N
J1110760	36 59 47	94 51 13	1.00	.15	.10	.010	10	N	N	N
J1110780	36 59 47	94 51 13	.70	.10	<.05	.030	10	N	N	N
J1110800	36 59 47	94 51 13	.70	.05	<.05	.015	10	N	N	N
J1110820	36 59 47	94 51 13	.70	.15	.20	.010	10	N	N	N
J1110840	36 59 47	94 51 13	.15	.03	<.05	.010	<10	N	N	N
J1110860	36 59 47	94 51 13	.50	.15	.20	.020	<10	N	N	N
J1110880	36 59 47	94 51 13	1.00	.10	.10	.020	10	N	N	N
J1110900	36 59 47	94 51 13	.70	.15	.15	.030	10	N	N	N
J1110920	36 59 47	94 51 13	1.00	.10	.07	.015	<10	N	N	N
J1110940	36 59 47	94 51 13	.70	.05	<.05	.015	<10	N	N	N
J1110960	36 59 47	94 51 13	1.50	.07	.05	.015	10	N	N	N
J1110980	36 59 47	94 51 13	2.00	.10	.10	.020	10	N	N	N
J1111000	36 59 47	94 51 13	.15	.02	<.05	.005	N	N	N	N
J1111020	36 59 47	94 51 13	.07	.03	<.05	.003	N	N	N	N
J1111040	36 59 47	94 51 13	.20	.02	<.05	.002	N	N	N	N
J1111060	36 59 47	94 51 13	.07	.02	<.05	.005	N	N	N	N
J1111080	36 59 47	94 51 13	1.00	.02	<.05	.003	10	N	N	N
J1111100	36 59 47	94 51 13	.70	.05	.05	.005	30	N	N	N
J1111120	36 59 47	94 51 13	.20	.03	<.05	.003	<10	N	N	N
J1111140	36 59 47	94 51 13	.10	.02	<.05	.002	<10	N	N	N
J1111160	36 59 47	94 51 13	.30	.05	<.05	.002	<10	N	N	N

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 111, 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
J1110110	200	100	2.0	N	N	5	100	30	200	N	N	50
J1110130	200	200	3.0	N	N	15	200	30	70	N	N	70
J1110150	50	30	<1.0	N	N	N	20	<5	N	N	N	7
J1110181	70	30	2.0	N	N	N	50	7	N	N	N	10
J1110200	100	50	3.0	N	N	N	100	7	20	N	N	15
J1110220	70	30	1.5	N	N	N	30	N	N	N	N	7
J1110240	30	20	N	N	N	N	N	N	N	N	N	5
J1110260	50	20	N	N	N	N	N	N	N	N	N	N
J1110280	20	20	N	N	<20	N	N	N	N	N	N	N
J1110305	50	20	N	N	<20	N	N	N	N	N	N	N
J1110360	100	20	N	N	N	N	N	N	N	N	N	N
J1110440	70	50	N	N	N	N	N	N	N	N	N	N
J1110470	70	50	<1.0	N	N	N	N	N	N	N	N	10
J1110490	100	100	1.0	N	N	N	30	5	N	N	N	15
J1110520	70	150	<1.0	N	N	N	N	7	N	N	N	10
J1110550	70	100	<1.0	N	N	N	N	10	N	N	N	10
J1110580	70	70	<1.0	N	N	N	N	15	N	N	N	10
J1110610	70	100	<1.0	N	N	N	N	10	N	N	N	10
J1110640	70	100	<1.0	N	N	N	N	5	N	N	N	7
J1110660	50	100	N	N	N	N	N	7	N	N	N	10
J1110680	70	50	N	N	N	N	N	15	N	N	N	20
J1110700	70	70	<1.0	N	N	N	N	20	N	N	N	50
J1110720	100	100	<1.0	N	N	N	N	10	N	N	N	15
J1110740	70	100	N	N	N	N	N	5	N	N	N	N
J1110760	70	50	N	N	N	N	N	7	N	N	N	N
J1110780	70	70	<1.0	N	N	N	N	5	N	N	N	N
J1110800	70	70	N	N	N	N	N	<5	N	N	N	N
J1110820	70	50	N	N	N	N	N	5	N	N	N	N
J1110840	70	20	N	N	N	N	N	7	N	N	N	N
J1110860	70	50	N	N	N	N	N	<5	N	N	N	N
J1110880	70	50	N	N	N	N	N	10	N	N	N	N
J1110900	100	50	N	N	N	N	N	5	N	N	N	N
J1110920	70	30	N	N	N	N	N	<5	N	N	N	N
J1110940	50	50	N	N	N	N	N	<5	N	N	N	N
J1110960	50	70	N	N	N	N	N	5	N	N	N	10
J1110980	50	50	N	N	N	N	N	10	N	N	N	10
J1111000	10	20	N	N	N	N	N	<5	N	N	N	N
J1111020	20	30	N	N	N	N	N	<5	N	N	N	N
J1111040	30	30	N	N	N	N	N	<5	N	N	N	N
J1111060	15	20	N	N	N	N	N	<5	N	N	N	N
J1111080	10	20	N	N	N	N	N	<5	N	N	N	N
J1111100	10	30	N	N	N	N	N	<5	N	N	N	N
J1111120	10	20	N	N	N	N	N	<5	N	N	N	N
J1111140	30	30	N	N	N	N	N	<5	N	N	N	N
J1111160	30	30	N	N	N	N	N	<5	N	N	N	N

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 111, 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 #
J1110110	10	N	10	N	150	70	N	30	N	200	N	40
J1110130	30	N	15	N	N	200	N	50	N	200	N	40
J1110150	N	N	N	N	N	10	N	N	N	50	N	40
J1110181	N	N	N	N	N	30	N	N	N	100	N	40
J1110200	N	N	5	N	N	70	N	N	N	100	N	40
J1110220	N	N	N	N	N	20	N	N	N	70	N	40
J1110240	N	N	N	N	N	N	N	N	N	N	N	40
J1110260	N	N	N	N	N	N	N	N	300	10	N	40
J1110280	N	N	N	N	N	N	N	N	2,000	N	N	40
J1110305	N	N	N	N	N	N	N	N	5,000	10	N	40
J1110360	N	N	N	N	N	N	N	N	N	N	N	40
J1110440	N	N	N	N	N	N	N	N	N	N	N	40
J1110470	N	N	N	N	N	N	N	N	N	N	N	70
J1110490	N	N	N	N	N	50	N	N	N	100	N	70
J1110520	N	N	N	N	N	10	N	N	<200	100	N	70
J1110550	N	N	N	N	N	10	N	N	<200	30	N	70
J1110580	N	N	N	N	N	N	N	N	N	15	N	70
J1110610	N	N	N	N	N	N	N	N	N	70	N	70
J1110640	N	N	N	N	N	N	N	N	N	10	N	70
J1110660	N	N	N	N	N	N	N	N	N	50	N	70
J1110680	N	N	N	N	N	N	N	N	N	10	N	70
J1110700	N	N	N	N	N	N	N	N	N	10	N	70
J1110720	N	N	N	N	N	N	N	N	N	20	N	70
J1110740	N	N	N	N	N	N	N	N	N	N	N	70
J1110760	N	N	N	N	N	N	N	N	N	N	N	70
J1110780	N	N	N	N	N	N	N	N	N	N	N	70
J1110800	N	N	N	N	N	N	N	N	N	N	N	70
J1110820	N	N	N	N	N	N	N	N	N	N	N	70
J1110840	N	N	N	N	N	N	N	N	N	N	N	70
J1110860	N	N	N	N	N	N	N	N	N	15	N	70
J1110880	N	N	N	N	N	N	N	N	N	N	N	70
J1110900	N	N	N	N	N	N	N	N	N	N	N	70
J1110920	N	N	N	N	N	N	N	N	N	N	N	70
J1110940	N	N	N	N	N	N	N	N	N	N	N	70
J1110960	N	N	N	N	N	N	N	N	N	10	N	70
J1110980	N	N	N	N	N	N	N	N	N	15	N	70
J1111000	N	N	N	N	N	N	N	N	N	15	N	70
J1111020	N	N	N	N	N	N	N	N	N	N	N	67
J1111040	N	N	N	N	N	N	N	N	<200	N	N	67
J1111060	N	N	N	N	N	N	N	N	N	20	N	67
J1111080	N	N	N	N	N	N	N	N	N	10	N	67
J1111100	N	N	N	N	N	N	N	N	N	50	N	67
J1111120	N	N	N	N	N	N	N	N	N	50	N	67
J1111140	N	N	N	N	N	N	N	N	N	N	N	67
J1111160	N	N	N	N	N	N	N	N	N	N	N	68

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 111, 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
J1111180	36 59 47	94 51 13	.30	.05	<.05	.010	10	N	N	N
J1111200	36 59 47	94 51 13	.50	.05	.05	.010	20	N	N	N
J1111220	36 59 47	94 51 13	.30	.05	.05	.007	15	N	N	N
J1111240	36 59 47	94 51 13	.50	.07	.05	.007	<10	N	N	N
J1111260	36 59 47	94 51 13	.50	.05	<.05	.005	<10	N	N	N
J1111280	36 59 47	94 51 13	.70	.03	<.05	.005	10	N	N	N
J1111300	36 59 47	94 51 13	.50	.03	<.05	.003	<10	N	N	N
J1111320	36 59 47	94 51 13	1.00	.05	.10	.007	<10	N	N	N
J1111340	36 59 47	94 51 13	3.00	.15	<.05	.050	20	N	N	N
J1111360	36 59 47	94 51 13	.70	.02	<.05	.005	10	N	N	N
J1111380	36 59 47	94 51 13	2.00	.07	.05	.007	10	N	N	N
J1111400	36 59 47	94 51 13	5.00	.10	.10	.010	30	.5	N	N
J1111415	36 59 47	94 51 13	1.00	.10	.10	.010	<10	N	N	N
J1111444	36 59 47	94 51 13	5.00	1.50	.70	.300	150	2.0	N	N
J1111453	36 59 47	94 51 13	7.00	1.00	1.00	.500	150	2.0	N	N
J1111463	36 59 47	94 51 13	5.00	2.00	2.00	.500	100	2.0	200	N
J1111473	36 59 47	94 51 13	7.00	7.00	10.00	.100	300	5.0	200	N
J1111484	36 59 47	94 51 13	20.00	2.00	3.00	.200	100	3.0	1,500	N
J1111491	36 59 47	94 51 13	7.00	3.00	5.00	.300	200	5.0	500	N
J1111501	36 59 47	94 51 13	10.00	3.00	5.00	.300	100	7.0	1,500	N
J1111510	36 59 47	94 51 13	7.00	5.00	5.00	.500	100	5.0	200	N
J1111520	36 59 47	94 51 13	7.00	5.00	5.00	.200	200	5.0	500	N
J1111530	36 59 47	94 51 13	5.00	1.50	.50	.500	100	1.5	N	N
J1111539	36 59 47	94 51 13	2.00	1.00	1.00	.150	100	3.0	<200	N
J1111549	36 59 47	94 51 13	.50	.10	.15	.100	10	N	N	N
J1111558	36 59 47	94 51 13	5.00	.70	.10	.500	70	.5	N	N
J1111568	36 59 47	94 51 13	5.00	.50	.05	.200	50	<.5	200	N
J1111577	36 59 47	94 51 13	3.00	1.00	1.00	.500	100	N	N	N
J1111587	36 59 47	94 51 13	5.00	.50	.05	.500	100	<.5	N	N
J1111597	36 59 47	94 51 13	2.00	.50	.07	.500	50	N	N	N
J1111606	36 59 47	94 51 13	5.00	.70	.10	.500	50	.5	N	N
J1111616	36 59 47	94 51 13	3.00	.50	.05	.700	50	N	N	N
J1111625	36 59 47	94 51 13	2.00	.50	.05	.500	50	N	N	N
J1111634	36 59 47	94 51 13	1.50	.50	.10	.300	50	N	N	N
J1111644	36 59 47	94 51 13	1.50	.50	.10	.300	50	N	N	N
J1111653	36 59 47	94 51 13	1.00	.30	.10	.200	30	N	N	N
J1111663	36 59 47	94 51 13	1.50	.50	.10	.300	50	N	N	N
J1111673	36 59 47	94 51 13	2.00	.20	.07	.200	30	N	N	N
J1111683	36 59 47	94 51 13	3.00	.30	.05	.300	50	N	N	N
J1111692	36 59 47	94 51 13	2.00	.20	.07	.200	50	N	N	N
J1111701	36 59 47	94 51 13	1.00	.07	<.05	.150	20	N	N	N
J1111711	36 59 47	94 51 13	.70	.07	<.05	.150	15	N	N	N
J1111721	36 59 47	94 51 13	.50	.10	<.05	.150	15	N	N	N
J1111731	36 59 47	94 51 13	1.50	.10	<.05	.200	20	N	N	N
J1111740	36 59 47	94 51 13	.50	.05	.05	.200	15	N	N	N

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 111, 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
J1111180	30	50	N	N	N	N	N	<5	N	N	N	N
J1111200	30	50	N	N	N	N	N	N	N	N	N	N
J1111220	50	50	N	N	N	N	N	N	N	N	N	N
J1111240	50	30	N	N	N	N	N	N	N	N	N	N
J1111260	50	70	N	N	N	N	N	N	N	N	N	N
J1111280	30	30	N	N	N	N	N	N	N	N	N	N
J1111300	30	30	N	N	N	N	N	N	N	N	N	N
J1111320	50	20	N	N	N	N	N	N	N	N	N	N
J1111340	30	20	N	N	N	N	N	20	N	7	N	20
J1111360	20	20	N	N	N	N	N	<5	N	N	N	N
J1111380	30	20	N	N	N	N	N	15	N	5	N	7
J1111400	30	30	N	N	N	N	N	50	N	5	N	15
J1111415	30	50	N	N	N	N	N	10	N	N	N	N
J1111444	500	100	5.0	N	N	5	70	200	N	10	N	70
J1111453	200	70	5.0	N	N	10	70	300	N	20	N	100
J1111463	300	100	7.0	N	N	15	100	200	N	50	N	150
J1111473	200	100	3.0	N	N	10	20	200	N	100	N	100
J1111484	200	70	3.0	N	N	30	50	200	N	150	N	200
J1111491	300	50	7.0	N	N	10	70	150	N	50	N	100
J1111501	300	70	5.0	N	N	50	70	300	N	300	N	150
J1111510	300	70	5.0	N	N	20	70	200	N	50	N	150
J1111520	200	50	3.0	N	N	15	30	200	N	100	N	150
J1111530	300	100	5.0	N	N	10	70	150	N	20	N	100
J1111539	30	500	1.0	N	N	<5	N	100	20	7	N	30
J1111549	30	100	N	N	N	N	N	5	N	10	N	5
J1111558	100	300	5.0	N	N	15	70	100	N	20	N	100
J1111568	50	100	1.5	N	N	10	20	70	30	20	<20	50
J1111577	70	500	5.0	N	N	7	50	50	70	10	<20	30
J1111587	70	500	5.0	N	N	15	50	50	50	15	<20	50
J1111597	50	500	3.0	N	N	5	30	30	50	10	<20	20
J1111606	50	700	5.0	N	N	10	30	50	70	15	<20	30
J1111616	70	700	5.0	N	N	7	30	50	50	15	<20	20
J1111625	50	700	3.0	N	N	5	30	20	50	10	<20	10
J1111634	50	500	3.0	N	N	N	15	10	50	5	N	5
J1111644	50	700	3.0	N	N	5	10	7	50	7	<20	5
J1111653	50	500	3.0	N	N	<5	10	7	30	N	N	5
J1111663	50	500	3.0	N	N	5	10	10	50	<5	<20	5
J1111673	50	700	3.0	N	N	5	N	20	30	10	<20	5
J1111683	70	500	5.0	N	N	5	10	20	50	10	<20	N
J1111692	50	500	3.0	N	N	5	N	20	30	7	<20	N
J1111701	15	500	1.5	N	N	N	N	10	20	5	N	5
J1111711	10	500	1.0	N	N	N	N	5	20	N	N	5
J1111721	15	500	1.0	N	N	<5	N	7	30	<5	N	5
J1111731	20	700	1.5	N	N	5	N	15	50	<5	N	7
J1111740	15	500	1.0	N	N	<5	N	10	20	N	<20	5

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 111, 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 #
J1111180	N	N	N	N	N	N	N	N	N	N	N	68
J1111200	N	N	N	N	N	N	N	N	N	N	N	68
J1111220	N	N	N	N	N	N	N	N	N	N	N	68
J1111240	N	N	N	N	N	N	N	N	N	N	N	68
J1111260	N	N	N	N	N	N	N	N	N	N	N	68
J1111280	N	N	N	N	N	N	N	N	N	N	N	68
J1111300	N	N	N	N	N	N	N	N	N	N	N	68
J1111320	<10	N	N	N	N	N	N	N	N	N	N	68
J1111340	20	N	N	N	N	N	N	N	200	10	N	68
J1111360	<10	N	N	N	N	N	N	N	N	N	N	69
J1111380	10	N	N	N	N	N	N	N	N	N	N	87
J1111400	30	N	N	N	N	N	N	N	N	N	N	87
J1111415	<10	N	N	N	N	N	N	N	200	N	N	87
J1111444	200	N	5	N	N	200	N	15	N	100	N	87
J1111453	150	N	5	N	N	150	N	15	N	200	N	87
J1111463	200	N	5	N	N	200	N	15	N	200	N	87
J1111473	500	N	N	N	N	150	N	10	N	50	N	87
J1111484	500	N	N	N	N	100	N	10	N	70	N	87
J1111491	200	N	5	N	N	150	N	10	N	100	N	87
J1111501	300	N	5	N	N	200	N	10	N	100	N	87
J1111510	200	N	5	N	N	200	N	15	N	200	N	87
J1111520	300	N	N	N	N	150	N	10	N	100	N	87
J1111530	150	N	5	N	N	200	N	10	N	150	N	87
J1111539	150	N	N	N	N	15	N	10	N	200	N	87
J1111549	10	N	N	N	N	10	N	N	N	200	N	87
J1111558	150	N	5	N	N	70	N	15	N	300	N	87
J1111568	100	N	N	N	N	50	N	15	N	100	N	87
J1111577	100	N	7	<10	100	70	N	20	N	300	N	87
J1111587	100	N	7	<10	100	100	N	30	N	300	N	87
J1111597	50	N	5	N	100	70	N	20	N	200	N	87
J1111606	100	N	5	<10	100	100	N	30	N	300	N	87
J1111616	70	N	5	<10	100	100	N	50	N	500	N	87
J1111625	70	N	<5	<10	100	70	N	30	N	300	N	87
J1111634	30	N	<5	N	100	70	N	20	N	200	N	87
J1111644	30	N	<5	N	100	70	N	30	N	300	N	87
J1111653	50	N	N	N	100	30	N	20	N	200	N	87
J1111663	30	N	N	N	100	50	N	20	N	200	N	87
J1111673	20	N	N	N	100	20	N	20	N	300	N	87
J1111683	30	N	N	N	100	30	N	20	N	500	N	87
J1111692	50	N	N	N	100	20	N	20	N	300	N	87
J1111701	15	N	N	N	100	N	N	10	N	100	N	85
J1111711	30	N	N	N	100	N	N	<10	N	70	N	85
J1111721	20	N	N	N	100	<10	N	10	N	300	N	85
J1111731	30	N	N	N	100	15	N	15	N	200	N	85
J1111740	30	N	N	N	100	<10	N	10	N	500	N	85

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 111, 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
J1111750	36 59 47	94 51 13	.30	.05	<.05	.150	10	N	N	N
J1111760	36 59 47	94 51 13	.20	.15	<.05	.150	20	N	N	N
J1111770	36 59 47	94 51 13	.10	.07	<.05	.100	10	N	N	N
J1111780	36 59 47	94 51 13	.10	.10	<.05	.100	15	N	N	N
J1111789	36 59 47	94 51 13	1.50	.30	<.05	.200	30	N	N	N
J1111798	36 59 47	94 51 13	2.00	1.00	<.05	.500	30	N	N	N
J1111808	36 59 47	94 51 13	5.00	2.00	.05	.500	200	N	N	N
J1111818	36 59 47	94 51 13	3.00	1.50	<.05	.200	200	N	N	N
J1111827	36 59 47	94 51 13	5.00	3.00	.20	.300	700	N	N	N
J1111837	36 59 47	94 51 13	5.00	2.00	.50	.200	500	N	N	N

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 111, 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
J1111750	10	500	N	N	N	N	N	5	20	N	N	N
J1111760	50	100	2.0	N	N	N	N	15	30	N	N	N
J1111770	20	30	N	N	N	N	N	<5	20	N	N	N
J1111780	20	20	N	N	N	N	N	7	20	N	N	N
J1111789	200	300	3.0	N	N	5	20	20	50	N	<20	7
J1111798	200	100	5.0	N	N	50	200	30	70	N	<20	100
J1111808	500	20	5.0	N	N	20	300	20	30	N	<20	150
J1111818	150	20	2.0	N	N	20	200	20	20	N	N	100
J1111827	100	500	3.0	N	N	30	200	30	50	N	N	200
J1111837	30	100	1.5	N	N	20	200	15	30	N	N	100

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE-RESIDUE SAMPLES FROM DRILL HOLE NO. 111, 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 #
J1111750	<10	N	N	N	100	<10	N	<10	N	300	N	85
J1111760	N	N	N	N	N	10	N	50	N	>1,000	N	85
J1111770	N	N	N	N	N	N	N	15	N	500	N	85
J1111780	N	N	N	N	N	N	N	10	N	300	N	85
J1111789	20	N	7	N	100	50	N	30	N	500	N	85
J1111798	30	N	20	N	150	70	N	50	N	300	N	85
J1111808	N	N	20	N	N	100	N	50	N	300	N	90
J1111818	N	N	10	N	N	100	N	30	N	100	N	90
J1111827	N	N	15	N	N	100	N	50	200	150	N	90
J1111837	10	N	15	N	N	150	N	50	N	100	N	90