

UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

**Spectrographic analyses of insoluble-residue samples,  
Joplin 1° x 2° quadrangle, Kansas and Missouri:  
Drill hole nos. 33, 34, and 35**

By

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Open-File Report 89-209

Prepared in cooperation with the Kansas Geological Survey and the Missouri Division of Geology and Land Survey.

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature. Any use of trade names is for descriptive purposes only and does not imply endorsement by the U.S. Geological Survey.

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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. 33 (#1 Clark - KGS), drill hole no. 34 (#3 Coleman - KGS), and drill hole no. 35 (#1 Newbold - KGS) are given in this report. Drill hole no. 33 is located in sec. 13, T. 33 S., R. 21 E. in Cherokee County, Kansas; drill hole no. 34 is located in sec. 4, T. 33 S., R. 17 E. in Montgomery County, Kansas; drill hole no. 35 is located in sec. 29, T. 25 S., R. 16 E. in Woodson County, Kansas (fig.1). Data for the insoluble-residue samples from drill holes 33, 34, and 35 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 in 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:

### For those given in percent:

Calcium	0.05
Iron	0.05
Magnesium	0.02
Titanium	0.002

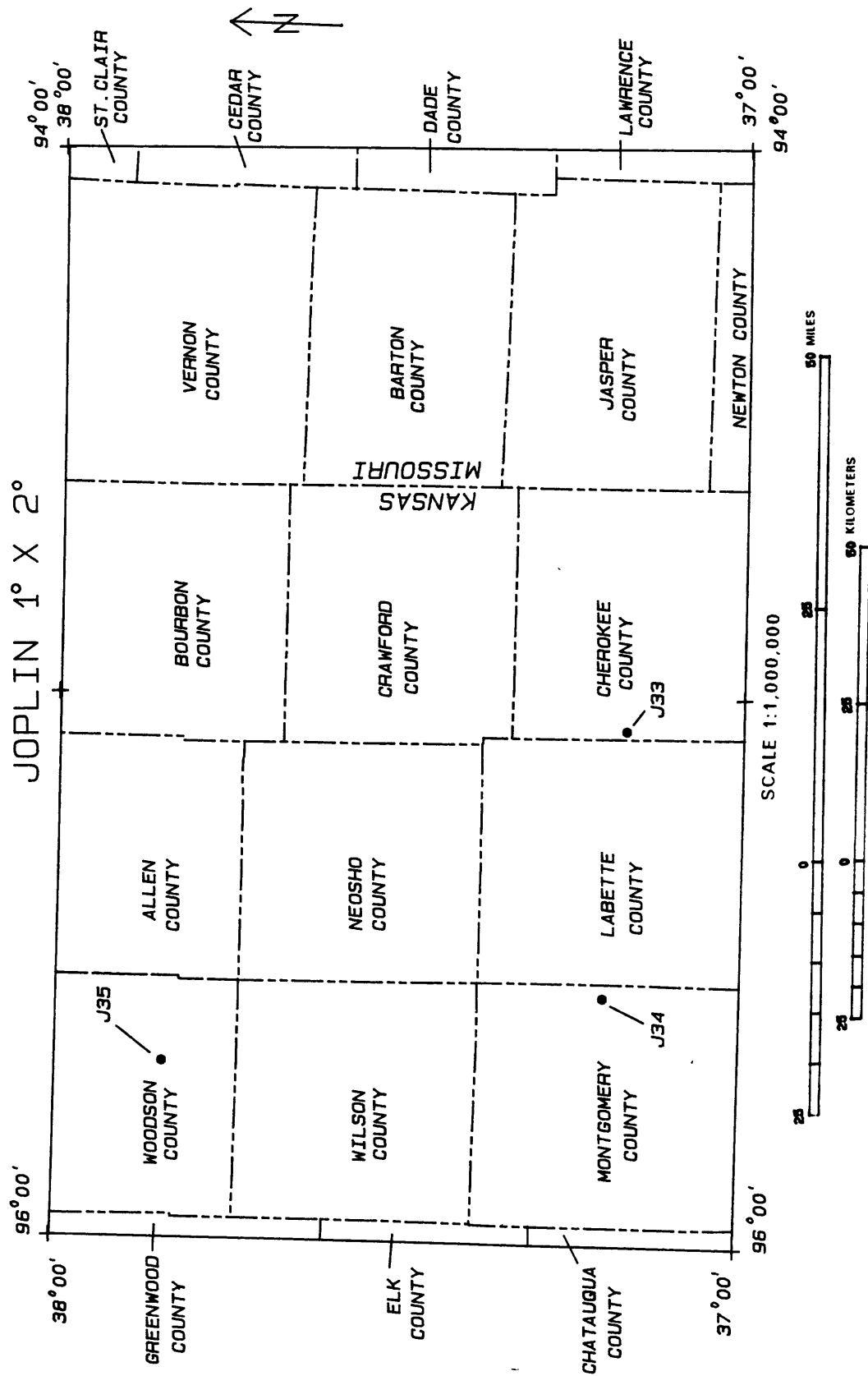


Figure 1. Locations of drill holes 33, 34, and 35, Joplin 1° x 2° quadrangle, Missouri and Kansas.

**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:

<u>Code</u>	<u>Formation</u>
20	Pennsylvanian Undifferentiated
31	Chattanooga Shale
40	Mississippian Undifferentiated
60	Ordovician Undifferentiated
78	Cambro-Ordovician Undifferentiated
79	Arbuckle
80	Cambrian Undifferentiated
85	Lamotte Sandstone
86	Reagan Sandstone
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) 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. Gerhart, State Geologist, and their staffs, for making these 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. 33, 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	Hg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s
J33R0045	37 10 27	95 4 9	2.00	.10	.05	.070	100	N	N	N
J33R0116	37 10 27	95 4 9	1.50	.30	<.05	.300	50	N	N	N
J33R0148	37 10 27	95 4 9	1.50	.50	<.05	.300	30	N	N	N
J33R0174	37 10 27	95 4 9	2.00	.50	<.05	.500	30	N	N	N
J33R0214	37 10 27	95 4 9	2.00	.50	<.05	.300	30	N	N	N
J33R0260	37 10 27	95 4 9	1.50	.30	<.05	.300	20	N	N	N
J33R0285	37 10 27	95 4 9	2.00	.50	<.05	.500	30	N	N	N
J33R0320	37 10 27	95 4 9	2.00	.50	<.05	.300	30	N	N	N
J33R0358	37 10 27	95 4 9	2.00	.70	<.05	.500	30	N	N	N
J33R0404	37 10 27	95 4 9	7.00	.70	.30	.300	1,000	N	N	N
J33R0428	37 10 27	95 4 9	2.00	.15	<.05	.150	50	N	N	N
J33R0450	37 10 27	95 4 9	.70	.02	.05	.020	15	N	N	N
J33R0460	37 10 27	95 4 9	.20	.02	<.05	.015	<10	N	N	N
J33R0478	37 10 27	95 4 9	.20	.02	<.05	.020	<10	N	N	N
J33R0514	37 10 27	95 4 9	1.00	.10	<.05	.070	20	N	N	N
J33R0535	37 10 27	95 4 9	1.50	.20	.10	.070	50	N	N	N
J33R0554	37 10 27	95 4 9	.30	.02	<.05	.002	<10	N	N	N
J33R0569	37 10 27	95 4 9	.10	<.02	<.05	<.002	N	N	N	N
J33R0590	37 10 27	95 4 9	.10	<.02	<.05	.002	N	N	N	N
J33R0608	37 10 27	95 4 9	.15	<.02	<.05	.002	N	N	N	N
J33R0631	37 10 27	95 4 9	.20	<.02	.05	.007	10	N	N	N
J33R0643	37 10 27	95 4 9	.15	<.02	<.05	.005	10	N	N	N
J33R0662	37 10 27	95 4 9	.20	.02	.05	.010	10	N	N	N
J33R0680	37 10 27	95 4 9	.50	.05	<.05	.020	15	N	N	N
J33R0702	37 10 27	95 4 9	.20	.05	<.05	.030	10	N	N	N
J33R0738	37 10 27	95 4 9	1.50	.07	.05	.030	20	N	N	N
J33R0771	37 10 27	95 4 9	1.00	.10	<.05	.050	15	N	N	N
J33R0825	37 10 27	95 4 9	1.00	.10	.07	.030	15	N	N	N
J33R0865	37 10 27	95 4 9	1.00	.05	.05	.020	<10	N	N	N
J33R0888	37 10 27	95 4 9	.50	.02	<.05	.003	N	N	N	N
J33R0905	37 10 27	95 4 9	.30	.05	.05	.007	N	N	N	N
J33R0945	37 10 27	95 4 9	1.00	.07	.05	.030	20	N	N	N
J33R0980	37 10 27	95 4 9	.50	.05	.05	.020	<10	N	N	N
J33R1017	37 10 27	95 4 9	.50	.10	.05	.050	<10	N	N	N
J33R1050	37 10 27	95 4 9	.50	.10	.07	.020	<10	N	N	N
J33R1081	37 10 27	95 4 9	.50	.05	.05	.005	<10	N	N	N
J33R1116	37 10 27	95 4 9	.30	.03	.05	.007	<10	N	N	N
J33R1135	37 10 27	95 4 9	.50	.05	.05	.020	<10	N	N	N
J33R1150	37 10 27	95 4 9	.70	.02	.05	.010	<10	N	N	N
J33R1179	37 10 27	95 4 9	.30	.03	.05	.007	<10	N	N	N
J33R1204	37 10 27	95 4 9	1.00	.03	.07	.005	15	N	N	N
J33R1231	37 10 27	95 4 9	1.00	.03	.05	.005	10	N	N	N
J33R1337	37 10 27	95 4 9	.07	<.02	<.05	<.002	N	N	N	N
J33R1354	37 10 27	95 4 9	.07	<.02	<.05	<.002	N	N	N	N
J33R1472	37 10 27	95 4 9	.05	<.02	<.05	<.002	N	N	N	N

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 33, 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
J33R0045	20	100	N	N	N	15	30	30	N	N	N	50
J33R0116	30	100	1.0	N	N	10	50	20	20	5	N	30
J33R0148	20	100	1.0	N	N	7	50	20	20	N	N	50
J33R0174	30	200	1.0	N	N	15	100	50	20	7	N	70
J33R0214	30	100	1.0	N	N	15	70	20	20	N	N	50
J33R0260	30	100	1.0	N	N	10	70	20	20	N	N	50
J33R0285	30	100	1.0	N	N	10	70	30	20	N	N	50
J33R0320	20	100	1.0	N	N	15	70	20	20	N	N	50
J33R0358	50	200	2.0	N	N	10	100	20	50	N	N	50
J33R0404	30	100	1.5	N	N	20	70	50	N	N	N	70
J33R0428	20	30	N	N	N	5	50	10	N	N	N	20
J33R0450	20	<20	N	N	N	N	N	5	N	N	N	15
J33R0460	15	<20	N	N	N	N	N	<5	N	N	N	10
J33R0478	20	<20	N	N	N	N	N	<5	N	N	N	7
J33R0514	20	20	N	N	N	N	20	10	N	10	N	30
J33R0535	20	30	N	N	N	N	30	15	N	15	N	30
J33R0554	20	N	N	N	N	N	N	<5	N	N	N	7
J33R0569	20	N	N	N	N	N	N	<5	N	N	N	5
J33R0590	30	N	N	N	N	N	N	<5	N	N	N	5
J33R0608	20	N	N	N	N	N	N	<5	N	N	N	5
J33R0631	20	<20	N	N	N	N	N	<5	N	N	N	5
J33R0643	20	<20	N	N	N	N	N	<5	N	N	N	7
J33R0662	20	<20	N	N	N	N	N	<5	N	N	N	10
J33R0680	20	<20	N	N	N	N	N	<5	N	N	N	15
J33R0702	20	<20	N	N	N	N	N	<5	N	N	N	15
J33R0738	20	50	N	N	N	20	N	10	N	N	N	300
J33R0771	20	50	N	N	N	N	10	100	N	N	N	20
J33R0825	20	30	N	N	N	N	N	70	N	N	N	5
J33R0865	20	30	N	N	N	N	N	10	N	N	N	10
J33R0888	15	N	N	N	N	N	N	5	N	N	N	5
J33R0905	15	20	N	N	N	N	N	<5	N	N	N	5
J33R0945	15	30	N	N	N	N	N	10	N	10	N	10
J33R0980	15	20	N	N	N	N	N	5	N	<5	N	7
J33R1017	20	20	N	N	N	N	N	5	N	5	N	10
J33R1050	15	20	N	N	N	N	N	7	N	<5	N	7
J33R1081	15	<20	N	N	N	N	N	5	N	N	N	7
J33R1116	15	<20	N	N	N	N	N	5	N	N	N	5
J33R1135	15	20	N	N	N	N	N	7	N	5	N	10
J33R1150	15	<20	N	N	N	N	N	<5	N	N	N	7
J33R1179	10	<20	N	N	N	N	N	<5	N	N	N	7
J33R1204	10	20	N	N	N	N	N	10	N	N	N	10
J33R1231	10	<20	N	N	N	N	N	5	N	N	N	7
J33R1337	10	<20	N	N	N	N	N	<5	N	N	N	5
J33R1354	10	<20	N	N	N	N	N	<5	N	N	N	5
J33R1472	10	<20	N	N	N	N	N	<5	N	N	N	5



TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 33, JOPLIN 1 x 2 QUADRANGLE,  
MISSOURI AND KANSAS.--Continued

Sample	Pb-ppm s	Sb-ppm s	Sc-ppm s	Sn-ppm s	Si-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Form.#
J33R0045	20	N	N	N	N	100	N	N	N	20	N	20
J33R0116	15	N	7	N	N	150	N	15	N	150	N	20
J33R0148	20	N	10	N	N	200	N	15	N	100	N	20
J33R0174	30	N	10	N	N	200	N	20	N	150	N	20
J33R0214	20	N	10	N	N	200	N	15	N	100	N	20
J33R0260	15	N	7	N	N	200	N	15	N	100	N	20
J33R0285	20	N	10	N	N	200	N	15	N	150	N	20
J33R0320	20	N	10	N	N	200	N	15	N	150	N	20
J33R0358	20	N	20	N	N	300	N	30	N	150	N	20
J33R0404	50	N	15	N	N	200	N	20	N	100	N	20
J33R0428	<10	N	<5	N	N	100	N	N	N	50	N	40
J33R0450	N	N	N	N	N	10	N	N	N	10	N	40
J33R0460	N	N	N	N	N	N	N	N	N	N	N	40
J33R0478	N	N	N	N	N	N	N	N	N	10	N	40
J33R0514	N	N	N	N	N	70	N	N	N	30	N	40
J33R0535	N	N	N	N	N	100	N	N	N	30	N	40
J33R0554	N	N	N	N	N	N	N	N	N	N	N	40
J33R0569	N	N	N	N	N	N	N	N	N	N	N	40
J33R0590	N	N	N	N	N	N	N	N	N	N	N	40
J33R0608	N	N	N	N	N	N	N	N	N	N	N	40
J33R0631	N	N	N	N	N	N	N	N	N	N	N	40
J33R0643	N	N	N	N	N	N	N	N	N	N	N	40
J33R0662	N	N	N	N	N	10	N	N	N	N	N	40
J33R0680	N	N	N	N	N	10	N	N	N	N	N	40
J33R0702	N	N	N	N	N	15	N	N	N	<10	N	40
J33R0738	N	N	N	N	N	20	N	N	N	<10	N	40
J33R0771	<10	N	N	N	N	20	N	N	N	30	N	79
J33R0825	<10	N	N	N	N	10	N	N	N	<10	N	79
J33R0865	<10	N	N	N	N	10	N	N	N	10	N	79
J33R0888	N	N	N	N	N	N	N	N	N	N	N	79
J33R0905	N	N	N	N	N	N	N	N	N	N	N	79
J33R0945	70	N	N	N	N	15	N	N	N	N	N	79
J33R0980	N	N	N	N	N	N	N	N	N	10	N	79
J33R1017	N	N	N	N	N	15	N	N	N	10	N	79
J33R1050	N	N	N	N	N	10	N	N	N	N	N	79
J33R1081	N	N	N	N	N	N	N	N	N	N	N	79
J33R1116	N	N	N	N	N	N	N	N	N	N	N	79
J33R1135	N	N	N	N	N	10	N	N	N	N	N	79
J33R1150	N	N	N	N	N	N	N	N	N	N	N	79
J33R1179	N	N	N	N	N	N	N	N	N	10	N	79
J33R1204	N	N	N	N	N	N	N	N	N	20	N	79
J33R1231	N	N	N	N	N	N	N	N	N	30	N	79
J33R1337	N	N	N	N	N	N	N	N	N	N	N	79
J33R1354	N	N	N	N	N	N	N	N	N	N	N	79
J33R1472	N	N	N	N	N	N	N	N	N	N	N	79

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 33, 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
J33R1493	37 10 27	95 4 9	1.00	<.02	<.05	.005	N	N	N	N
J33R1515	37 10 27	95 4 9	1.00	<.02	<.05	.005	<10	N	N	N
J33R1536	37 10 27	95 4 9	.70	.02	<.05	.007	<10	N	N	N
J33R1562	37 10 27	95 4 9	.50	.03	.05	.003	<10	N	N	N
J33R1583	37 10 27	95 4 9	.50	.03	.07	.002	<10	N	N	N
J33R1614	37 10 27	95 4 9	3.00	.10	.10	.010	30	.5	N	N
J33R1648	37 10 27	95 4 9	3.00	.07	.07	.007	30	.7	N	N
J33R1669	37 10 27	95 4 9	2.00	.10	.10	.020	15	.5	N	N
J33R1706	37 10 27	95 4 9	3.00	.20	.05	.100	30	N	N	N
J33R1730	37 10 27	95 4 9	2.00	.30	<.05	.150	15	N	N	N
J33R1790	37 10 27	95 4 9	1.50	.20	<.05	.100	10	N	N	N
J33R1812	37 10 27	95 4 9	1.50	.30	<.05	.100	20	N	N	N
J33R1863	37 10 27	95 4 9	.50	.05	<.05	.050	10	N	N	N
J33R1927	37 10 27	95 4 9	.15	.02	<.05	.010	<10	N	N	N

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 33, 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
J33R1493	15	<20	N	N	N	N	N	7	N	N	N	5
J33R1515	15	<20	N	N	N	N	N	7	N	N	N	5
J33R1536	15	20	N	N	N	N	N	5	N	N	N	5
J33R1562	15	<20	N	N	N	N	N	5	N	N	N	5
J33R1583	15	<20	N	N	N	N	N	5	N	N	N	5
J33R1614	15	N	N	N	N	<5	N	20	N	7	N	20
J33R1648	15	N	N	N	N	5	N	50	N	7	N	30
J33R1669	20	50	N	N	N	5	N	30	N	5	N	20
J33R1706	15	150	N	N	N	10	N	30	N	20	N	30
J33R1730	20	300	N	N	N	5	N	20	N	7	N	10
J33R1790	15	500	N	N	N	5	N	15	N	7	N	10
J33R1812	15	300	N	N	N	5	N	20	N	5	N	7
J33R1863	10	150	N	N	N	N	N	15	N	N	N	7
J33R1927	10	20	N	N	N	N	N	7	N	N	N	5

TABLE 1--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 33, 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.#
J33R1493	N	N	N	N	N	N	N	N	N	N	N	79
J33P1515	N	N	N	N	N	N	N	N	N	N	N	79
J33R1536	N	N	N	N	N	N	N	N	N	N	N	79
J33R1562	N	N	N	N	N	N	N	N	N	50	N	79
J33R1583	N	N	N	N	N	N	N	N	N	N	N	79
J33R1614	20	N	N	N	N	N	N	N	N	N	N	79
J33R1648	20	N	N	N	N	N	N	N	N	50	N	79
J33R1669	30	N	N	N	N	N	N	N	N	70	N	79
J33R1706	100	N	N	N	N	30	N	N	N	100	N	79
J33R1730	100	N	N	N	N	50	N	<10	N	100	N	79
J33R1790	30	N	N	N	N	50	N	<10	N	100	N	79
J33R1812	70	N	N	N	N	50	N	<10	N	150	N	79
J33R1863	10	N	N	N	N	10	N	N	N	100	N	86
J33R1927	N	N	N	N	N	N	N	N	N	20	N	86

TABLE 2--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 34, 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	Hg-pct. s	Ca-pct. s	Ti-pct. s	Mn-pdm s	Ag-pdm s	As-pdm s	Au-pdm s
J34R0240	37 12 0	95 32 50	2.0	1.00	.05	.70	100	N	N	N
J34R0300	37 12 0	95 32 50	2.0	1.00	.05	.50	150	.5	N	N
J34R0340	37 12 0	95 32 50	5.0	1.50	.05	1.00	200	N	N	N
J34R0380	37 12 0	95 32 50	5.0	1.50	.05	1.00	200	N	N	N
J34R0420	37 12 0	95 32 50	7.0	1.00	.05	.70	200	1.0	N	N
J34R0460	37 12 0	95 32 50	7.0	1.00	.05	.50	500	N	N	N
J34R0530	37 12 0	95 32 50	7.0	1.00	.05	.50	300	N	N	N
J34R0590	37 12 0	95 32 50	5.0	1.00	<.05	.70	300	N	N	N
J34R0660	37 12 0	95 32 50	7.0	1.50	<.05	.70	300	N	N	N
J34R0700	37 12 0	95 32 50	5.0	1.00	<.05	.70	300	N	N	N
J34R0750	37 12 0	95 32 50	5.0	1.00	<.05	.70	200	N	N	N
J34R0810	37 12 0	95 32 50	10.0	1.50	<.05	1.00	300	N	N	N
J34R0860	37 12 0	95 32 50	5.0	1.00	<.05	.50	200	.5	N	N
J34R0900	37 12 0	95 32 50	3.0	.20	.07	.30	100	N	N	N
J34R0930	37 12 0	95 32 50	1.0	.15	<.05	.15	20	N	N	N
J34R0990	37 12 0	95 32 50	.5	1.00	<.05	.07	10	N	N	N
J34R1040	37 12 0	95 32 50	1.5	.15	.05	.10	50	N	N	N
J34R1100	37 12 0	95 32 50	1.5	.20	.10	.10	70	N	N	N
J34R1160	37 12 0	95 32 50	10.0	1.00	<.05	.50	100	N	N	N
J34R1190	37 12 0	95 32 50	7.0	1.00	<.05	.50	100	N	N	N
J34R1220	37 12 0	95 32 50	7.0	1.00	.05	.50	200	N	N	N
J34R1260	37 12 0	95 32 50	3.0	.70	.05	.30	70	N	N	N
J34R1300	37 12 0	95 32 50	2.0	.50	.05	.30	70	N	N	N
J34R1350	37 12 0	95 32 50	3.0	.50	.05	.30	50	N	N	N
J34R1410	37 12 0	95 32 50	7.0	.50	.05	.30	50	N	N	N
J34R1470	37 12 0	95 32 50	5.0	.50	.05	.30	200	N	N	N
J34R1490	37 12 0	95 32 50	5.0	.50	.10	.20	700	N	N	N
J34R1520	37 12 0	95 32 50	2.0	.15	.05	.20	1,000	N	N	N
J34R1562	37 12 0	95 32 50	1.5	.50	.07	.30	150	.5	N	N

TABLE 2--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 34, 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
J34R0240	20	500	2.0	N	N	15	100	50	50	N	<20	50
J34R0300	50	500	2.0	N	N	15	150	50	30	15	<20	100
J34R0340	50	500	2.0	N	N	20	100	70	50	N	<20	100
J34R0380	50	700	2.0	N	N	20	100	50	50	7	<20	70
J34R0420	50	1,500	2.0	N	N	20	200	150	30	20	<20	100
J34R0460	50	500	1.5	N	N	20	100	70	50	7	<20	70
J34R0530	50	500	2.0	N	N	30	150	50	50	10	<20	100
J34R0590	50	700	2.0	N	N	30	150	50	50	5	<20	70
J34R0660	50	500	2.0	N	N	20	200	50	50	7	<20	100
J34R0700	50	500	2.0	N	N	30	200	50	50	N	<20	100
J34R0750	50	500	2.0	N	N	20	200	30	50	N	<20	100
J34R0810	50	500	2.0	N	N	30	200	50	70	N	<20	100
J34R0860	50	300	1.5	N	N	15	150	30	50	N	<20	50
J34R0900	50	100	N	N	N	5	50	20	20	N	N	20
J34R0930	50	50	N	N	N	N	15	5	N	N	N	15
J34R0990	50	20	N	N	N	<5	N	5	N	N	N	15
J34R1040	50	150	N	N	N	<5	10	10	N	N	N	20
J34R1100	50	50	N	N	N	10	15	10	N	N	N	30
J34R1160	50	500	1.5	N	N	20	100	50	30	5	<20	50
J34R1190	50	500	1.0	N	N	15	100	50	30	10	<20	50
J34R1220	50	300	1.0	N	N	10	100	50	20	10	<20	50
J34R1260	50	200	1.0	N	20	7	70	50	20	5	<20	30
J34R1300	50	200	1.0	N	<20	7	50	200	30	<5	<20	30
J34R1350	30	150	N	N	N	10	50	30	20	<5	<20	30
J34R1410	50	200	1.0	N	N	7	70	70	20	100	<20	30
J34R1470	50	200	N	N	N	15	70	500	20	30	<20	30
J34R1490	50	300	N	N	N	10	50	2,000	N	15	<20	30
J34R1520	30	200	N	N	N	10	30	1,500	20	5	<20	20
J34R1562	10	1,000	1.5	N	N	5	N	500	20	5	<20	7

TABLE 2--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 34, 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	N-ppm S	Y-ppm S	Zn-ppm S	Zr-ppm S	Th-ppm S	Form.#
J34R0240	10	N	20	N	150	300	N	30	N	300	N	20
J34R0300	15	N	15	N	100	200	N	20	N	200	N	20
J34R0340	20	N	20	N	150	200	N	50	N	500	N	20
J34R0380	500	N	20	N	150	200	N	20	700	300	N	20
J34R0420	70	N	15	N	150	300	50	15	N	200	N	20
J34R0460	50	N	15	N	150	200	<50	20	N	200	N	20
J34R0530	50	N	20	N	150	300	N	30	500	200	N	20
J34R0590	30	N	15	N	150	300	N	30	N	300	N	20
J34R0660	50	N	20	N	150	300	50	30	200	200	N	20
J34R0700	50	N	20	N	150	200	N	30	300	200	N	20
J34R0750	50	N	20	N	100	300	N	30	N	200	N	20
J34R0810	100	N	20	N	150	300	50	50	200	300	N	20
J34R0860	50	N	15	N	150	200	100	30	300	200	N	40
J34R0900	10	N	5	N	N	70	N	10	N	100	N	40
J34R0930	N	N	N	N	N	50	N	N	N	30	N	40
J34R0990	N	N	N	N	N	20	50	N	N	15	N	40
J34R1040	<10	N	N	N	N	50	N	N	N	30	N	40
J34R1100	10	N	N	N	N	70	N	N	200	50	N	40
J34R1160	50	N	15	N	N	300	<50	30	N	300	N	31
J34R1190	50	N	15	N	N	200	N	20	300	300	N	78
J34R1220	1,000	N	15	N	N	200	N	20	N	200	N	78
J34R1260	100	N	7	N	N	150	<50	15	2,000	100	N	78
J34R1300	70	N	7	N	N	150	N	15	700	150	N	78
J34R1350	70	N	5	N	N	100	N	10	N	100	N	78
J34R1410	30	N	7	N	N	150	N	15	N	100	N	78
J34R1470	100	N	10	N	N	150	N	20	N	100	N	78
J34R1490	300	N	N	N	N	100	N	10	N	100	N	78
J34R1520	50	N	N	N	N	70	N	10	N	150	N	78
J34R1562	50	N	7	N	150	100	N	30	N	150	N	90

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 35, 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	Hg-pct. S	Ca-pct. S	Ti-pct. S	Mn-ppm S	Ag-ppm S	As-ppm S	Au-ppm S
J35R1295	37 18 24	95 59 25	2.00	.50	<.05	.300	50	N	N	N
J35R1304	37 18 24	95 59 25	2.00	.30	<.05	.200	30	N	N	N
J35R1318	37 18 24	95 59 25	1.00	.10	.07	.100	20	N	N	N
J35R1327	37 18 24	95 59 25	.20	.05	.05	.030	10	N	N	N
J35R1347	37 18 24	95 59 25	1.00	.15	.05	.150	30	N	N	N
J35R1360	37 18 24	95 59 25	.30	.05	<.05	.030	15	N	N	N
J35R1378	37 18 24	95 59 25	.10	.02	<.05	.015	<10	N	N	N
J35R1387	37 18 24	95 59 25	.07	.02	<.05	.010	N	N	N	N
J35R1399	37 18 24	95 59 25	.10	.02	<.05	.007	10	N	N	N
J35R1422	37 18 24	95 59 25	.15	.02	<.05	.010	10	N	N	N
J35R1440	37 18 24	95 59 25	.30	.02	<.05	.020	15	N	N	N
J35R1455	37 18 24	95 59 25	.30	.03	.05	.020	15	N	N	N
J35R1471	37 18 24	95 59 25	1.00	.05	<.05	.050	15	N	N	N
J35R1485	37 18 24	95 59 25	1.50	.07	.07	.070	50	N	N	N
J35R1501	37 18 24	95 59 25	.50	.02	.05	.030	N	N	N	N
J35R1516	37 18 24	95 59 25	5.00	.20	.10	.300	70	N	N	N
J35R1550	37 18 24	95 59 25	5.00	1.50	<.05	.700	200	N	N	N
J35R1570	37 18 24	95 59 25	7.00	1.00	<.05	.500	200	N	N	N
J35R1582	37 18 24	95 59 25	20.00	.70	.10	.300	300	.7	N	N
J35R1605	37 18 24	95 59 25	7.00	1.50	<.05	.500	200	N	N	N
J35R1623	37 18 24	95 59 25	7.00	1.00	<.05	.500	150	N	N	N
J35R1641	37 18 24	95 59 25	2.00	.50	<.05	.200	50	N	N	N
J35R1678	37 18 24	95 59 25	1.50	.20	<.05	.150	30	N	N	N
J35R1711	37 18 24	95 59 25	.50	.05	<.05	.020	10	N	N	N
J35R1730	37 18 24	95 59 25	1.50	.07	<.05	.030	20	N	N	N
J35R1750	37 18 24	95 59 25	1.00	.05	.05	.020	15	N	N	N
J35R1771	37 18 24	95 59 25	1.00	.07	<.05	.030	10	N	N	N
J35R1785	37 18 24	95 59 25	.70	.07	.05	.015	15	N	N	N
J35R1809	37 18 24	95 59 25	1.00	.05	.05	.015	30	N	N	N
J35R1828	37 18 24	95 59 25	1.00	.05	.07	.030	30	N	N	N
J35R1881	37 18 24	95 59 25	1.50	.10	.05	.100	50	.5	N	N
J35R1925	37 18 24	95 59 25	1.00	.10	.05	.070	20	N	N	N
J35R1950	37 18 24	95 59 25	1.00	.10	.10	.020	30	N	N	N
J35R1970	37 18 24	95 59 25	1.00	.07	.07	.010	15	N	N	N
J35R2008	37 18 24	95 59 25	.20	.03	.07	.010	<10	N	N	N
J35R2030	37 18 24	95 59 25	.15	<.02	<.05	.002	N	N	N	N
J35R2043	37 18 24	95 59 25	.50	.03	.05	.005	15	N	N	N
J35R2065	37 18 24	95 59 25	.05	.02	<.05	.003	<10	N	N	N
J35R2095	37 18 24	95 59 25	.15	.03	<.05	.015	10	N	N	N
J35R2112	37 18 24	95 59 25	.10	.02	<.05	.003	<10	N	N	N
J35R2140	37 18 24	95 59 25	.20	.02	<.05	.010	20	N	N	N
J35R2160	37 18 24	95 59 25	.70	.02	.05	.007	10	N	N	N
J35R2170	37 18 24	95 59 25	1.50	<.02	.05	.007	15	N	N	N
J35R2189	37 18 24	95 59 25	2.00	.02	.05	.007	20	.5	N	N
J35R2201	37 18 24	95 59 25	7.00	.07	.07	.020	70	.7	N	N



TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 35, 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
J35R1295	50	150	1.5	N	N	10	100	20	30	N	<20	50
J35R1304	50	100	1.5	N	N	7	50	20	50	N	<20	50
J35R1318	30	30	N	N	N	5	20	10	20	N	N	30
J35R1327	30	<20	N	N	N	N	20	5	20	N	N	7
J35R1347	50	20	N	N	N	N	50	15	30	N	N	20
J35R1360	50	<20	N	N	N	N	N	5	20	N	N	10
J35R1378	50	20	N	N	N	N	N	<5	N	N	N	5
J35R1387	50	<20	N	N	N	N	N	<5	N	N	N	5
J35R1399	50	<20	N	N	N	N	N	<5	N	N	N	5
J35R1422	50	<20	N	N	N	N	N	<5	N	N	N	5
J35R1440	50	<20	N	N	N	N	N	<5	N	N	N	10
J35R1455	50	<20	N	N	N	N	N	<5	N	N	N	10
J35R1471	30	<20	N	N	N	5	N	5	N	N	N	30
J35R1485	30	30	N	N	N	5	10	10	N	N	N	30
J35R1501	30	<20	N	N	N	N	N	<5	N	N	N	10
J35R1516	50	100	N	N	N	10	50	50	N	7	<20	150
J35R1550	50	200	2.0	N	N	20	150	70	20	N	<20	70
J35R1570	70	500	2.0	N	N	15	100	70	20	N	<20	70
J35R1582	70	150	1.0	N	N	20	50	100	N	10	N	150
J35R1605	70	500	3.0	N	N	30	100	100	30	50	<20	70
J35R1623	70	300	3.0	N	N	20	70	50	30	100	<20	50
J35R1641	50	200	N	N	N	7	20	20	N	15	N	20
J35R1678	30	100	N	N	N	5	10	15	N	10	N	15
J35R1711	20	30	N	N	N	N	N	10	N	N	N	7
J35R1730	20	50	N	N	N	N	N	20	N	N	N	20
J35R1750	20	50	N	N	N	N	N	10	N	N	N	15
J35R1771	20	30	N	N	N	N	N	10	N	N	N	10
J35R1785	20	30	N	N	N	N	N	7	N	N	N	7
J35R1809	20	50	N	N	N	N	N	7	N	N	N	5
J35R1828	20	70	N	N	N	N	N	5	N	N	N	7
J35R1881	20	70	N	N	N	5	20	20	N	N	N	20
J35R1925	20	70	N	N	N	5	10	10	N	N	N	15
J35R1950	20	50	N	N	N	N	N	15	N	N	N	10
J35R1970	20	30	N	N	N	N	N	10	N	N	N	10
J35R2008	15	30	N	N	N	N	N	<5	N	N	N	5
J35R2030	10	<20	N	N	N	N	N	<5	N	N	N	N
J35R2043	10	20	N	N	N	N	N	5	N	N	N	5
J35R2065	10	20	N	N	N	N	N	<5	N	N	N	5
J35R2095	20	20	N	N	N	N	N	<5	N	N	N	5
J35R2112	15	20	N	N	N	N	N	<5	N	N	N	5
J35R2140	15	30	N	N	N	N	N	<5	N	N	N	5
J35R2160	15	20	N	N	N	N	N	5	N	N	N	5
J35R2170	15	150	N	N	N	N	N	7	N	N	N	10
J35R2189	15	50	N	N	N	N	N	10	N	10	N	15
J35R2201	15	50	N	N	N	10	N	70	N	30	N	20

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 35, 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.#
J35R1295	15	N	10	N	N	150	N	30	N	100	N	40
J35R1304	15	N	5	N	N	150	N	20	N	100	N	40
J35R1318	10	N	<5	N	N	50	N	10	N	50	N	40
J35R1327	N	N	<5	N	N	<10	N	N	N	20	N	40
J35R1347	10	N	<5	N	N	70	N	15	200	50	N	40
J35R1360	N	N	N	N	N	10	N	N	500	10	N	40
J35R1378	N	N	N	N	N	N	N	N	N	N	N	40
J35R1387	N	N	N	N	N	N	N	N	N	N	N	40
J35R1399	N	N	N	N	N	N	N	N	N	N	N	40
J35R1422	N	N	N	N	N	N	N	N	N	N	N	40
J35R1440	10	N	N	N	N	N	N	N	200	N	N	40
J35R1455	<10	N	N	N	N	N	N	N	1,000	N	N	40
J35R1471	10	N	N	N	N	10	N	N	N	10	N	40
J35R1485	15	N	N	N	N	20	N	N	200	15	N	40
J35P1501	N	N	N	N	N	N	N	N	200	10	N	40
J35R1516	200	N	7	N	N	150	N	10	<200	100	N	40
J35R1550	100	N	15	N	N	500	N	20	<200	200	N	40
J35R1570	50	N	10	N	N	300	N	15	<200	150	N	40
J35R1582	100	N	10	30	N	100	N	15	700	100	N	40
J35R1605	50	N	20	N	N	500	N	20	500	200	N	40
J35R1623	50	N	15	N	N	300	N	15	N	150	N	31
J35R1641	30	N	5	N	N	100	N	10	N	50	N	60
J35R1678	15	N	N	N	N	50	N	N	N	30	N	60
J35R1711	N	N	N	N	200	N	N	N	N	10	N	60
J35R1730	10	N	N	N	N	10	N	N	N	30	N	60
J35R1750	N	N	N	N	N	N	N	N	N	20	N	60
J35R1771	N	N	N	N	N	10	N	N	N	15	N	60
J35R1785	N	N	N	N	N	N	N	N	N	<10	N	60
J35R1809	10	N	N	N	N	N	N	N	N	<10	N	60
J35R1828	N	N	N	N	N	<10	N	N	N	10	N	60
J35R1881	20	N	N	N	N	30	N	N	N	30	N	60
J35R1925	30	N	N	20	500	20	N	N	200	50	N	60
J35R1950	N	N	N	N	100	10	N	N	N	15	N	60
J35R1970	N	N	N	N	200	N	N	N	N	20	N	60
J35R2008	N	N	N	N	N	N	N	N	N	10	N	60
J35R2030	N	N	N	N	N	N	N	N	N	200	N	60
J35R2043	N	N	N	N	N	N	N	N	N	20	N	80
J35R2065	N	N	N	N	N	N	N	N	N	50	N	80
J35R2095	N	N	N	N	N	N	N	N	N	10	N	80
J35R2112	N	N	N	N	N	N	N	N	N	N	N	80
J35R2140	N	N	N	N	N	N	N	N	N	N	N	80
J35R2160	N	N	N	N	N	N	N	N	N	50	N	80
J35R2170	10	N	N	N	N	N	N	N	N	20	N	80
J35R2189	10	N	N	N	N	N	N	N	N	50	N	80
J35R2201	70	N	N	N	N	N	N	N	N	50	N	80

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 35, 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
J35R2216	37 18 24	95 59 25	3.00	.05	.05	.015	70	.5	N	N
J35R2234	37 18 24	95 59 25	5.00	.05	.07	.020	100	.5	N	N
J35R2258	37 18 24	95 59 25	5.00	.07	.05	.050	70	.5	N	N
J35R2275	37 18 24	95 59 25	20.00	.15	.05	.200	100	1.0	N	N
J35R2291	37 18 24	95 59 25	10.00	.20	<.05	.200	100	.5	N	N
J35R2302	37 18 24	95 59 25	10.00	.20	.05	.200	100	.5	N	N
J35R2314	37 18 24	95 59 25	15.00	.30	<.05	.200	100	1.5	N	N
J35R2323	37 18 24	95 59 25	10.00	.10	<.05	.150	150	1.5	N	N
J35R2329	37 18 24	95 59 25	10.00	.50	<.05	.300	100	1.0	N	N
J35R2355	37 18 24	95 59 25	7.00	.70	<.05	.300	70	.5	N	N
J35R2366	37 18 24	95 59 25	1.50	.05	<.05	.030	70	N	N	N
J35R2380	37 18 24	95 59 25	3.00	.02	<.05	.020	200	N	N	N
J35R2400	37 18 24	95 59 25	5.00	.20	.05	.050	300	N	N	N
J35R2411	37 18 24	95 59 25	3.00	.50	.05	.070	300	N	N	N
J35R2437	37 18 24	95 59 25	3.00	.50	.20	.200	300	N	N	N
J35R2447	37 18 24	95 59 25	2.00	1.00	.30	.300	500	N	N	N

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 35, 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
J35R2216	20	70	N	N	N	N	N	50	N	20	N	15
J35R2234	15	50	N	N	N	5	N	70	N	20	N	20
J35R2258	20	50	N	N	N	5	N	50	N	15	N	20
J35R2275	30	150	N	N	N	15	N	200	N	20	N	70
J35R2291	30	700	1.0	N	N	7	10	100	N	15	N	30
J35R2302	30	500	1.0	N	N	15	10	100	N	10	N	30
J35R2314	20	300	1.5	N	N	15	10	150	N	10	<20	50
J35R2323	20	500	N	N	N	10	10	150	N	15	<20	50
J35R2329	30	500	1.5	N	N	10	20	70	30	15	N	30
J35P2355	50	500	3.0	N	N	10	15	50	30	7	N	15
J35R2366	15	50	N	N	N	N	10	7	N	5	N	10
J35R2380	15	30	N	N	N	N	10	20	N	5	N	15
J35R2400	15	700	1.0	N	N	7	10	70	N	7	N	15
J35R2411	15	1,000	2.0	N	N	5	N	7	N	20	N	7
J35R2437	15	1,000	2.0	N	N	7	N	5	20	10	<20	5
J35R2447	15	1,000	3.0	N	N	7	N	10	70	10	20	7

TABLE 3--SPECTROGRAPHIC ANALYSES OF INSOLUBLE RESIDUE SAMPLES FROM DRILL HOLE NO. 35, 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.#
J35R2216	50	N	N	N	N	N	N	N	N	30	N	80
J35R2234	70	N	N	N	N	10	N	N	N	20	N	80
J35R2258	30	N	N	N	N	15	N	N	N	100	N	80
J35R2275	100	N	N	N	N	30	N	10	N	200	N	80
J35R2291	100	N	N	N	N	50	N	10	N	150	N	80
J35R2302	100	N	N	N	N	50	N	10	N	150	N	80
J35R2314	100	N	N	N	N	70	N	15	N	150	N	80
J35R2323	100	N	N	N	N	30	N	15	500	200	N	80
J35R2329	500	N	7	N	100	50	N	20	N	300	N	80
J35R2355	70	N	5	N	N	70	N	20	N	300	N	80
J35R2366	10	N	N	N	N	N	N	10	N	200	N	85
J35R2380	70	N	N	N	N	N	N	N	N	100	N	85
J35R2400	70	N	N	N	100	30	N	20	N	200	N	85
J35R2411	70	N	<5	N	150	50	N	15	N	100	N	90
J35R2437	70	N	5	N	150	100	N	30	N	150	N	90
J35R2447	100	N	10	N	200	50	N	15	N	150	N	90