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Introduction  
Preparation and analysis of samples  
Description of samples  
Location of drill hole

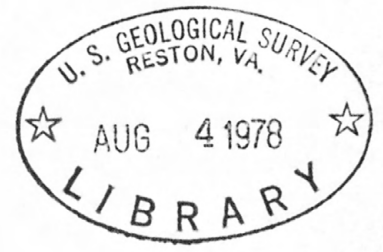
Spectrographic and chemical analyses  
of whole-rock and insoluble-residue samples,  
Rolla 1° x 2° quadrangle, Missouri  
Drill hole No. 2

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EM

by

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## Introduction

Geochemical studies of the Rolla, Mo., 1° x 2° quadrangle were begun in 1977 as a part of a joint multidisciplinary study of the quadrangle by the U.S. Geological Survey and the Division of Geology and Land Survey, Missouri Department of Natural Resources. The study is to access the mineral resource potential of the area by integrated geologic, geochemical, and geophysical studies.

The geochemical work to date has been directed at the characterization of the sedimentary and igneous rocks in the quadrangle through spectrographic and chemical analyses of whole-rock samples and dilute-hydrochloric-acid insoluble-residue samples of whole rock from widely spaced drill holes. Sixty-two drill holes have been selected for study from the sample library of the Missouri Division of Geology and Land Survey. None of the holes are company confidential, none intersect economically significant mineralized ground, and only a few are located in known ore-bearing trends.

The analytical results for drill hole No. 2, Missouri log numbers 20975 and 23193, are given in this report. The drill hole is located in sec. 26, T. 34 N., R. 3 W. in Dent County. Data of the whole-rock samples are listed in table 1, and data of the insoluble-residue samples are listed in table 2. Missouri log number, county, and location allow correlation with the stratigraphic logs on file at the Missouri Division of Geology and Land Survey in Rolla, Mo.

## Preparation and analysis of samples

The samples were pulverized to minus-140-mesh (0.105 mm) in a vertical grinder 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 be present.

Each sample was analyzed semiquantitatively for 31 elements using a six-step, D.C.-arc, optical-emission spectrographic method (Grimes and Marranzino, 1968). In addition, where sufficient sample was available, each sample was analyzed for zinc by an atomic-absorption technique using deuterium background correction (Ward and others, 1969, p. 33).

The semiquantitative spectrographic values are reported as six steps per order of magnitude (1, 0.7, 0.5, 0.3, 0.2, 0.15, or multiples of 10 of these numbers) 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 values 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 determined spectrographically included in this report are as follows:

For those given in percent:

Calcium	0.05
Iron	0.05
Magnesium	0.02
Titanium	0.002

For those given in ppm:

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

## Description of samples

Each sample is identified by an eight-character code. The first three numbers signify the USGS hole number (for example, 001=hole 1, 002=hole 2, and so forth). These three numbers are followed by a capital letter (W, U, or I), which indicates washed (W) or unwashed (U) whole rock in table 1 and insoluble residue (I) in table 2. The last four digits identify the depth of the sample from the drill-hole collar. Each sample is a composite of either 5 or 10 feet of drill core from above the depth indicated.

The stratigraphic unit of the sample is identified by a coded number in the first column (tables 1 and 2) following the sample number. The code and formation names are as follows:

<u>code</u>	<u>formation</u>
1	Precambrian rocks
2	Lamotte Sandstone
3	Bonneterre Formation
4	Davis Formation
5	Derby-Doe Run* Formation
6	Potosi Dolomite
7	Eminence Dolomite
8	Gunter Sandstone Member of Gasconade Dolomite
9	Gasconade Dolomite (part)
10	Roubidoux Formation
11	Residuum
13	Basal conglomerate
14	Derby-Doe Run and Davis Formations, undifferentiated
16	Van Buren Formation

\*As used by McCracken, 1961.

## Explanation of data

The columns in tables 1 and 2 have headings of sample, formation, and elements. Columns in which the element heading is preceded by an S contain the emission-spectrographic data. The prefix AA in the zinc column heading indicates that the results were determined by atomic absorption.

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

N = Not detected at the level of detection;

-- = Not determined;

< = Detected, but below the lowest limit of detection, which is value shown; and

> = Greater than value shown.

Elements that were not detected in any of the samples of a sample set (whole rock or insoluble residue) are not reported in the tables.

References cited

- Grimes, D. J., and Marranzino, A. P., 1968, Direct-current arc and alternating-current spark emission spectrographic field methods for the semiquantitative analyses of geologic materials: U.S. Geol. Survey Circ. 591, 6 p.
- Motooka, J. M., and Grimes, D. J., 1976, Analytical precision of one-sixth order semiquantitative spectrographic analyses: U.S. Geol. Survey Circ. 738, 25 p.
- Ward, F. N., Nakagawa, H. M., Harms, T. F., and Van Sickle, G. H., 1969, Atomic absorption methods of analysis useful in geochemical exploration: U.S. Geol. Survey Bull. 1289, 45 p.



Table 1.—Spectrographic and atomic-absorption of whole-rock samples from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri

sample	FORM	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-B	S-BA	S-BE	S-CO	S-CR	S-CU	S-LA	S-MO	S-NB	S-VI
002W0440	6	.50	7.00	20.00	.007	150	15	N	N	N	N	<5	N	N	N	N
002W0445	6	1.00	7.00	20.00	.007	200	20	20	N	V	N	<5	N	V	N	7
002W0450	6	.50	10.00	20.00	.005	100	10	N	N	V	N	<5	N	7	N	7
002W0455	6	.30	10.00	20.00	.003	100	10	N	N	N	N	5	N	N	N	5
002W0460	6	.30	7.00	20.00	.002	150	<10	N	N	N	N	<5	N	N	N	N
002W0465	6	.20	10.00	20.00	.002	50	<10	N	N	V	N	5	N	V	N	7
002W0470	6	.15	10.00	20.00	.003	30	<10	N	N	N	10	<5	N	N	N	N
002W0475	6	.70	10.00	20.00	.005	100	10	N	N	N	15	<5	N	N	N	10
002W0480	6	.50	10.00	20.00	.007	150	<10	N	N	V	N	<5	N	7	N	5
002W0485	6	.10	10.00	20.00	.002	15	N	N	N	N	N	<5	N	V	N	N
002W0490	6	.30	10.00	20.00	.003	50	<10	N	N	V	N	<5	N	5	N	N
002W0495	6	.20	10.00	>20.00	.002	30	<10	N	N	N	10	<5	N	N	N	N
002W0500	6	.30	10.00	20.00	.003	100	10	N	N	N	N	<5	N	<5	N	10
002W0505	6	.10	7.00	20.00	<.002	20	N	N	N	V	N	<5	N	N	N	N
002W0510	6	.10	10.00	20.00	<.002	20	N	20	N	V	10	<5	N	V	N	V
002W0515	6	.15	10.00	>20.00	.005	30	<10	N	N	N	N	<5	N	<5	N	N
002W0520	6	.07	10.00	15.00	.002	15	<10	N	N	N	N	5	N	<5	N	N
002W0525	6	.10	10.00	20.00	.002	20	<10	N	N	N	10	<5	N	<5	N	V
002W0530	6	.15	10.00	20.00	.003	30	<10	N	N	N	10	<5	N	<5	N	5
002W0535	6	.20	10.00	>20.00	.007	50	<10	50	N	N	N	<5	N	5	N	7
002W0540	6	.15	10.00	20.00	.002	50	10	N	N	N	N	<5	N	5	N	5
002W0545	6	.15	10.00	20.00	.005	50	10	N	N	N	N	<5	N	<5	N	5
002W0550	6	.20	10.00	20.00	.005	50	10	N	N	V	<10	<5	N	<5	N	5
002W0555	6	.20	10.00	>20.00	.007	70	15	N	N	N	<10	N	N	N	N	5
002W0560	6	.15	10.00	20.00	.003	30	10	N	N	N	<10	N	N	N	N	N
002W0565	5	.30	10.00	>20.00	.010	50	<10	N	N	V	10	N	N	N	N	N
002W0570	5	.15	10.00	20.00	<.002	50	<10	N	N	N	<10	<5	N	N	N	5
002W0575	5	.10	10.00	20.00	.002	15	N	N	N	N	<10	<5	N	N	N	N
002W0580	5	.20	10.00	20.00	.002	50	N	N	N	V	15	<5	N	N	N	N
002W0585	5	.20	10.00	20.00	.005	70	<10	N	N	N	15	5	N	5	N	5
002W0590	5	.20	10.00	20.00	.005	50	<10	N	N	V	10	<5	N	V	N	5
002W0595	5	.20	10.00	20.00	.015	50	10	N	N	N	15	5	N	<5	N	7
002W0600	5	.50	10.00	>20.00	.005	100	<10	N	N	N	<10	<5	N	5	N	5
002W0605	5	.30	10.00	20.00	.005	100	<10	N	N	V	N	<5	N	V	N	5
002W0610	5	.70	>10.00	>20.00	.020	200	<10	N	N	V	20	<5	N	N	N	5
002W0615	5	.30	10.00	20.00	.050	150	10	30	N	N	20	<5	N	<5	N	7
002W0620	5	.50	10.00	20.00	.150	150	20	150	N	V	50	15	N	5	N	10
002W0625	5	.50	10.00	>20.00	.030	150	<10	30	N	V	20	<5	N	N	N	N
002W0630	5	.50	10.00	>20.00	.100	150	15	70	N	V	30	5	N	N	N	5
002W0635	5	.50	10.00	20.00	.100	150	10	100	N	N	30	<5	N	N	N	5
002W0640	5	.30	10.00	20.00	.050	150	10	100	N	V	30	<5	N	N	N	5
002W0645	5	.20	10.00	20.00	.020	100	N	20	N	N	10	<5	N	N	N	N
002W0650	5	.30	10.00	20.00	.070	150	10	100	N	V	30	<5	N	N	N	N
002W0655	5	.50	10.00	20.00	.070	150	10	70	N	N	30	<5	N	7	N	5
002W0660	5	.50	10.00	>20.00	.070	150	10	30	N	N	30	5	N	N	N	N

Table 1.--Spectrographic and atomic-absorption of whole-rock samples  
from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri--continued

sample	S-PB	S-SC	S-SR	S-V	S-Y	S-ZN	S-ZR	AA-ZN-P
002W0440	N	N	N	10	N	N	N	--
002W0445	N	N	100	15	N	N	N	--
002W0450	<10	N	N	10	N	N	N	12
002W0455	<10	N	N	<10	N	N	N	--
002W0460	N	N	N	10	N	N	N	--
002W0465	N	N	N	<10	N	N	N	--
002W0470	N	N	N	10	N	N	N	--
002W0475	N	N	N	10	N	N	N	--
002W0480	N	N	N	10	N	N	N	--
002W0485	N	N	N	<10	N	N	N	--
002W0490	N	N	N	<10	N	N	N	--
002W0495	N	N	N	<10	N	N	N	--
002W0500	<10	N	N	10	N	N	N	2
002W0505	N	N	N	<10	N	N	N	--
002W0510	N	N	N	<10	N	N	N	--
002W0515	N	N	N	<10	N	N	N	--
002W0520	15	N	N	<10	N	N	N	--
002W0525	15	N	N	<10	N	N	N	--
002W0530	N	N	N	<10	N	N	N	--
002W0535	N	N	<100	<10	N	N	N	--
002W0540	10	N	N	<10	N	N	N	--
002W0545	N	N	N	<10	N	N	N	--
002W0550	N	N	N	<10	N	N	N	--
002W0555	N	N	100	<10	N	N	N	--
002W0560	N	N	N	<10	N	N	N	--
002W0565	N	N	N	<10	N	N	N	--
002W0570	N	N	N	<10	N	N	N	--
002W0575	N	N	N	<10	N	N	N	2
002W0580	10	N	N	<10	N	N	N	--
002W0585	10	N	N	<10	N	N	N	--
002W0590	<10	N	N	<10	N	N	N	--
002W0595	N	N	N	<10	N	N	N	--
002W0600	N	N	N	<10	N	N	N	--
002W0605	N	N	N	<10	N	N	N	--
002W0610	N	N	N	<10	N	N	N	--
002W0615	N	N	N	10	N	N	20	--
002W0620	N	N	N	15	N	N	70	--
002W0625	N	N	N	<10	N	N	15	1
002W0630	N	N	<100	15	N	N	30	--
002W0635	N	N	<100	10	N	N	50	--
002W0640	N	N	N	10	N	N	20	--
002W0645	N	N	N	<10	N	N	15	--
002W0650	N	N	N	<10	N	N	30	--
002W0655	N	N	N	10	N	N	30	--
002W0660	N	N	N	10	N	N	20	--

Table 1.--Spectrographic and atomic-absorption of whole-rock samples from drill no. 2, Rolla 1° X 2° quadrangle, Missouri--continued

sample	FORM	S-FEX	S-MGX	S-CAZ	S-TIX	S-MN	S-B	S-BA	S-BE	S-CD	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI
002W0665	5	.50	10.00	20.00	.150	150	30	200	N	4	50	7	N	5	N	10
002W0670	5	.50	10.00	20.00	.100	150	15	70	N	N	30	7	N	5	N	7
002W0675	5	.70	10.00	20.00	.150	200	15	150	N	7	50	7	N	7	N	15
002W0680	5	1.00	10.00	>20.00	.150	200	15	100	N	7	30	10	N	5	N	20
002W0700	4	1.50	10.00	20.00	.150	500	50	200	N	5	50	20	20	5	N	20
002W0705	4	2.00	7.00	20.00	.300	500	100	500	<1.0	15	70	10	20	<5	N	30
002W0710	4	2.00	5.00	10.00	.500	200	70	700	<1.0	15	70	7	20	<5	N	30
002W0715	4	2.00	7.00	20.00	.200	1,000	50	300	N	7	50	5	N	5	N	15
002W0720	4	2.00	5.00	20.00	.200	700	50	300	N	10	70	10	N	<5	N	20
002W0725	4	3.00	7.00	20.00	.300	1,000	70	300	<1.0	15	70	5	N	N	N	30
002W0730	4	5.00	2.00	10.00	.700	500	150	700	1.0	30	150	20	50	N	N	70
002W0735	4	3.00	3.00	10.00	.500	500	70	500	<1.0	20	100	15	20	N	N	50
002W0740	4	3.00	3.00	20.00	.300	1,000	70	500	<1.0	20	70	50	20	5	N	50
002W0745	4	3.00	2.00	15.00	.500	500	100	700	<1.0	15	100	7	30	N	N	50
002W0750	4	3.00	2.00	10.00	.500	500	100	700	<1.0	20	100	15	30	N	N	70
002W0755	4	3.00	2.00	15.00	.300	700	100	500	<1.0	15	70	7	30	7	N	70
002W0760	4	3.00	2.00	15.00	.200	500	50	700	<1.0	10	50	N	N	7	N	20
002W0765	4	2.00	2.00	10.00	.200	500	50	500	1.0	7	30	N	N	N	N	15
002W0770	4	3.00	3.00	10.00	.300	1,000	30	50	<1.0	10	50	<5	N	5	N	30
002W0775	4	3.00	3.00	10.00	.300	1,000	30	500	<1.0	10	50	<5	N	N	N	20
002W0780	4	2.00	2.00	15.00	.300	1,000	30	700	N	10	30	10	20	5	N	20
002W0785	4	2.00	3.00	15.00	.300	1,000	50	500	<1.0	10	70	5	20	N	N	20
002W0790	4	2.00	2.00	15.00	.300	700	50	500	<1.0	10	70	50	20	5	N	30
002W0795	4	2.00	2.00	15.00	.300	500	50	500	<1.0	10	70	7	20	5	N	30
002W0800	4	2.00	2.00	15.00	.150	500	50	500	<1.0	10	150	7	20	4	N	15
002W0805	4	1.50	2.00	20.00	.100	700	20	300	N	7	50	5	20	4	N	10
002W0810	4	1.50	2.00	20.00	.150	700	50	500	N	7	70	5	20	5	N	20
002W0815	4	2.00	2.00	>20.00	.150	1,000	50	300	N	15	70	7	30	<5	N	20
002W0820	4	3.00	3.00	15.00	.200	500	100	700	<1.0	20	200	50	30	5	N	30
002W0825	4	3.00	2.00	20.00	.150	700	70	500	<1.0	15	20	10	20	7	N	30
002W0830	4	2.00	2.00	20.00	.150	700	50	300	N	10	100	10	20	5	N	20
002W0835	4	2.00	2.00	20.00	.200	700	70	300	<1.0	15	100	7	20	5	N	20
002W0840	4	2.00	3.00	15.00	.150	700	30	300	N	10	70	30	N	4	N	15
002W0845	4	2.00	2.00	20.00	.150	700	50	300	<1.0	15	70	7	20	4	N	20
002W0850	4	2.00	2.00	10.00	.150	700	50	300	<1.0	15	70	20	20	N	N	20
002W0855	4	2.00	3.00	20.00	.200	700	100	500	<1.0	20	150	50	30	4	N	30
002W0860	4	2.00	2.00	20.00	.200	700	70	700	<1.0	20	200	50	50	5	N	30
002W0865	4	5.00	3.00	7.00	.500	500	100	700	1.0	30	300	30	70	7	N	50
002W0870	4	3.00	3.00	10.00	.300	700	100	700	1.0	30	200	70	30	5	N	50
002W0875	4	2.00	3.00	>20.00	.150	1,000	50	150	N	15	100	10	30	N	N	15
002W0880	3	2.00	7.00	>20.00	.070	1,000	20	50	N	10	50	7	20	N	N	15
002W0885	3	1.00	7.00	>20.00	.030	700	10	20	N	5	15	10	N	4	N	10
002W0890	3	1.50	7.00	20.00	.070	700	30	100	N	5	50	10	N	4	N	10
002W0895	3	1.00	10.00	>20.00	.030	500	10	20	N	5	15	10	N	5	N	15
002W0900	3	2.00	5.00	10.00	.200	300	70	500	1.5	10	100	20	30	4	N	20

Table 1.--Spectrographic and atomic-absorption of whole-rock samples  
from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri--continued

sample	S-PB	S-SC	S-SR	S-V	S-Y	S-ZN	S-ZR	AA-ZN-P
002W0665	N	N	N	20	10	N	100	--
002W0670	<10	N	N	15	N	N	20	--
002W0675	<10	N	<100	20	N	V	50	2
002W0680	<10	N	N	15	N	N	30	--
002W0700	<10	5	N	20	15	N	30	--
002W0705	10	7	100	50	15	N	100	2
002W0710	10	7	<100	70	15	N	150	--
002W0715	10	<5	N	30	15	N	70	3
002W0720	20	7	150	20	10	N	20	--
002W0725	10	7	150	50	15	N	100	7
002W0730	<10	15	150	100	20	N	100	--
002W0735	<10	10	150	70	20	N	70	19
002W0740	<10	10	200	30	20	N	100	--
002W0745	<10	15	200	50	20	N	70	19
002W0750	<10	10	150	50	20	N	100	--
002W0755	<10	10	150	50	20	N	70	17
002W0760	<10	7	100	30	20	N	70	--
002W0765	<10	5	<100	20	15	N	100	5
002W0770	10	5	<100	30	15	N	150	--
002W0775	<10	7	<100	30	15	N	150	9
002W0780	10	5	100	30	15	N	150	--
002W0785	10	7	150	30	20	N	150	9
002W0790	10	7	150	30	20	N	150	--
002W0795	10	7	150	50	20	N	70	10
002W0800	10	10	200	50	15	N	100	--
002W0805	10	5	200	30	20	N	100	4
002W0810	10	7	300	30	20	N	100	--
002W0815	10	7	500	30	20	N	50	7
002W0820	15	10	200	50	20	N	50	--
002W0825	15	10	300	50	15	N	70	12
002W0830	10	7	300	50	15	N	70	--
002W0835	10	7	300	50	20	N	70	10
002W0840	<10	5	200	30	15	N	50	--
002W0845	<10	7	200	30	20	N	50	5
002W0850	<10	7	150	50	15	N	70	--
002W0855	10	10	500	50	20	N	70	13
002W0860	10	10	300	50	30	N	70	--
002W0865	10	15	150	100	30	N	100	25
002W0870	20	10	200	70	20	N	70	--
002W0875	15	7	300	30	30	N	30	8
002W0880	15	<5	200	20	30	N	15	--
002W0885	20	N	100	10	30	N	30	1
002W0890	20	<5	100	20	15	N	20	--
002W0895	20	N	100	15	10	N	15	1
002W0900	20	10	150	50	20	N	70	--

Table 1.--Spectrographic and atomic-absorption of whole-rock samples from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri--continued

sample	FORM	S-FEX	S-MGX	S-CAZ	S-TIX	S-MN	S-B	S-BA	S-BE	S-CD	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI
002W0905	3	1.50	5.00	7.00	.200	300	50	1,000	1.5	5	70	15	50	V	N	15
002W0910	3	1.00	5.00	7.00	.300	300	20	1,000	1.0	5	70	7	50	N	N	10
002W0915	3	1.50	7.00	20.00	.150	500	20	700	<1.0	5	50	7	20	N	N	10
002W0920	3	.70	7.00	>20.00	.005	500	N	N	N	V	10	5	N	7	<20	10
002W0925	3	.70	7.00	>20.00	.015	300	N	N	N	N	10	5	N	<5	N	5
002W0930	3	.50	5.00	>20.00	.020	200	<10	N	N	N	15	5	N	<5	N	5
002W0935	3	1.00	5.00	>20.00	.020	200	<10	N	N	V	20	7	N	<5	N	5
002W0940	3	.30	3.00	>20.00	.020	200	N	N	N	N	15	<5	N	5	N	V
002W0945	3	.30	3.00	>20.00	.007	150	N	N	N	N	10	<5	N	N	N	N
002W0950	3	1.00	5.00	>20.00	.050	200	<10	70	N	N	20	5	N	N	N	5
002W0955	3	.30	3.00	>20.00	.015	200	<10	N	N	N	10	<5	N	V	N	V
002W0960	3	.50	3.00	>20.00	.007	150	N	N	N	V	10	<5	N	V	N	N
002W0965	3	.15	1.50	15.00	<.002	30	N	N	N	N	N	N	N	N	<20	N
002W0970	3	.50	3.00	>20.00	.010	150	N	N	N	V	10	<5	N	N	N	N
002W0975	3	.70	5.00	>20.00	.015	200	<10	N	N	N	15	<5	N	<5	N	N
002W0980	3	.50	3.00	>20.00	.007	200	N	N	N	N	10	N	N	<5	N	N
002W0985	3	1.50	5.00	>20.00	.020	200	N	50	N	N	10	<5	N	<5	N	V
002W0990	3	.50	3.00	>20.00	.030	200	<10	50	N	V	15	<5	N	<5	N	N
002W0995	3	2.00	5.00	>20.00	.100	200	30	200	1.0	5	30	5	20	<5	N	10
002W1000	3	1.50	2.00	>20.00	.150	300	50	500	1.0	5	30	<5	30	N	N	5
002W1005	3	1.00	1.50	>20.00	.150	300	30	300	<1.0	5	20	<5	30	N	N	5
002W1010	3	2.00	2.00	>20.00	.200	200	70	500	<1.0	5	30	<5	30	V	N	7
002W1015	3	1.50	2.00	>20.00	.200	200	70	500	<1.0	7	30	<5	30	<5	N	5
002W1020	3	1.50	1.50	>20.00	.200	200	50	300	<1.0	5	30	<5	30	<5	N	5
002W1025	3	1.00	1.50	>20.00	.150	200	50	300	<1.0	5	30	<5	30	<5	N	5
002W1030	3	1.50	1.50	>20.00	.150	200	50	100	<1.0	5	20	<5	20	N	N	5
002W1040	3	1.50	2.00	20.00	.300	20	150	500	1.5	5	50	5	50	V	N	7
002W1045	3	1.50	2.00	>20.00	.200	200	100	300	1.5	5	50	<5	30	V	N	7
002W1050	3	1.50	2.00	>20.00	.150	200	50	200	1.0	5	30	<5	20	<5	N	7
002W1055	3	1.50	2.00	>20.00	.150	300	50	300	<1.0	5	30	<5	20	<5	N	7
002W1060	3	1.50	2.00	>20.00	.150	200	50	200	<1.0	5	30	<5	20	V	N	7
002W1065	3	1.50	2.00	>20.00	.200	200	70	200	<1.0	5	30	<5	20	N	N	7
002W1070	3	2.00	3.00	>20.00	.150	300	50	300	<1.0	5	30	<5	20	<5	N	7
002W1075	3	2.00	3.00	>20.00	.100	300	30	150	<1.0	5	30	<5	20	<5	N	7
002W1080	3	2.00	3.00	>20.00	.150	300	50	200	<1.0	5	30	15	20	<5	N	7
002W1085	3	2.00	2.00	>20.00	.150	200	50	200	<1.0	5	30	<5	20	<5	N	7
002W1090	3	2.00	3.00	>20.00	.100	500	50	150	<1.0	7	20	<5	20	N	N	7
002W1095	3	2.00	2.00	>20.00	.150	300	50	150	<1.0	5	30	<5	20	N	N	7
002W1100	3	2.00	2.00	>20.00	.200	300	70	200	<1.0	5	50	<5	20	N	N	7
002W1105	3	2.00	3.00	>20.00	.100	300	50	150	<1.0	5	30	<5	20	V	N	7
002W1110	3	2.00	3.00	>20.00	.200	300	100	300	<1.0	5	50	<5	30	5	N	10
002W1115	3	2.00	2.00	>20.00	.150	500	50	150	<1.0	7	30	<5	20	<5	N	10
002W1120	3	1.50	3.00	>20.00	.100	500	50	150	<1.0	5	20	<5	20	V	N	5
002W1125	3	2.00	3.00	>20.00	.150	500	50	150	<1.0	5	30	<5	20	N	N	7
002W1130	3	2.00	3.00	>20.00	.150	500	50	150	<1.0	N	30	<5	20	N	N	7

Table 1.--Spectrographic and atomic-absorption of whole-rock samples  
from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri--continued

sample	S-PB	S-SC	S-SR	S-V	S-Y	S-ZN	S-ZR	AA-ZN-P
002W0905	30	7	150	50	30	N	100	2
002W0910	20	7	150	30	30	N	200	--
002W0915	20	5	100	30	20	N	150	2
002W0920	10	N	N	15	N	N	N	--
002W0925	20	N	200	30	N	N	20	3
002W0930	15	N	300	30	N	N	15	--
002W0935	30	N	300	20	N	N	15	3
002W0940	15	N	500	20	N	N	10	--
002W0945	15	N	300	10	N	N	15	2
002W0950	30	N	300	20	10	N	100	--
002W0955	20	N	500	15	<10	N	15	1
002W0960	15	N	500	15	N	N	10	--
002W0965	15	N	100	<10	N	N	N	2
002W0970	20	N	500	10	N	N	15	--
002W0975	15	N	500	10	N	N	10	4
002W0980	10	N	500	10	N	N	15	--
002W0985	30	N	500	10	N	N	50	1
002W0990	15	N	500	10	<10	N	30	--
002W0995	50	5	300	15	20	N	100	1
002W1000	20	5	300	15	30	N	100	--
002W1005	15	5	500	10	30	200	100	150
002W1010	15	5	500	20	30	N	100	--
002W1015	15	7	500	15	30	N	100	2
002W1020	15	7	500	20	30	N	100	--
002W1025	15	7	500	15	30	N	100	2
002W1030	10	5	500	15	20	N	50	2
002W1040	15	7	500	30	30	N	100	--
002W1045	15	7	500	20	20	N	100	2
002W1050	15	5	500	15	20	N	70	--
002W1055	15	5	500	15	20	N	70	5
002W1060	10	5	500	15	20	N	70	--
002W1065	15	5	500	15	20	N	70	2
002W1070	15	5	500	15	20	N	70	--
002W1075	15	5	700	15	20	N	50	2
002W1080	15	5	500	15	20	N	70	--
002W1085	15	5	500	20	20	N	70	4
002W1090	15	5	500	15	20	N	50	--
002W1095	10	5	700	20	20	N	70	3
002W1100	15	5	500	20	20	N	70	--
002W1105	10	5	500	10	20	N	50	4
002W1110	15	7	500	30	20	N	70	--
002W1115	15	5	500	20	30	N	50	3
002W1120	15	5	500	10	20	N	50	--
002W1125	15	5	500	20	20	N	50	3
002W1130	15	5	500	20	20	N	50	--

Table 1.--Spectrographic and atomic-absorption of whole-rock samples from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri--continued

sample	FORM	S-FEZ	S-MGZ	S-CAX	S-TIX	S-MN	S-B	S-BA	S-BE	S-CD	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI
002W1135	3	1.50	3.00	>20.00	.150	500	30	150	<1.0	5	30	<5	20	<5	N	7
002W1140	3	2.00	3.00	>20.00	.150	500	50	150	<1.0	5	30	<5	20	N	N	7
002W1145	3	2.00	5.00	>20.00	.150	1,000	50	150	<1.0	7	30	<5	20	N	N	7
002W1150	3	1.50	2.00	>20.00	.150	500	30	150	N	7	30	5	20	5	N	10
002W1155	3	1.50	3.00	>20.00	.150	500	30	150	N	5	30	5	20	N	N	10
002W1160	3	1.50	3.00	>20.00	.100	700	30	100	N	5	20	<5	20	5	N	15
002W1165	3	1.50	3.00	20.00	.150	700	50	150	<1.0	7	30	<5	20	5	N	15
002W1170	3	2.00	7.00	15.00	.150	1,500	50	150	1.0	7	30	<5	20	5	N	7
002W1175	3	2.00	7.00	15.00	.100	2,000	50	150	<1.0	10	20	5	20	N	N	10
002W1180	3	2.00	7.00	15.00	.070	2,000	50	100	1.5	20	20	15	N	N	N	15
002W1185	3	5.00	7.00	15.00	.100	3,000	100	150	7.0	50	30	50	N	10	N	30
002W1190	2	.07	.15	.30	.020	10	15	N	N	N	N	<5	N	N	N	N
002W0095	2	.10	.20	.50	.015	30	15	20	N	N	N	5	N	N	N	N
002W1200	2	.05	.07	.07	.020	N	15	20	N	N	N	<5	N	N	N	N
002W1205	2	.10	.05	.07	.015	N	10	30	N	N	N	10	N	N	N	N

Table 1.--Spectrographic and atomic-absorption of whole-rock samples  
from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri--continued

sample	S-PB	S-SC	S-SR	S-V	S-Y	S-ZN	S-ZR	AA-ZN-P
002W1135	20	5	500	15	20	N	50	4
002W1140	15	5	500	20	20	N	50	--
002W1145	20	5	500	20	20	N	70	3
002W1150	20	5	500	15	20	N	50	--
002W1155	15	5	500	15	20	N	50	3
002W1160	10	5	500	15	20	N	50	--
002W1165	15	5	300	15	20	N	70	3
002W1170	15	5	150	15	20	N	50	--
002W1175	20	5	<100	15	20	N	50	2
002W1180	20	<5	N	10	15	N	30	--
002W1185	30	5	N	20	30	N	70	2
002W1190	N	N	N	N	10	N	200	--
002W0095	N	N	N	N	N	N	100	2
002W1200	N	N	N	N	N	N	150	--
002W1205	N	N	N	N	N	N	30	4



Table 2.--Spectrographic and atomic-absorption analyses of insoluble-residue samples from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri

sample	FORM	S-FE2	S-MGZ	S-CAX	S-TIZ	S-MN	S-AG	S-B	S-BA	S-BE	S-CO	S-CR	S-CU	S-LA	S-MO	S-VB
00210440	6	.15	.07	.10	.0200	10	N	30	70	N	N	N	5	V	N	V
00210445	6	.10	.10	.15	.0005	N	N	30	70	N	N	N	<5	N	N	N
00210450	6	.20	.50	1.00	.0070	N	N	50	N	N	N	N	<5	V	N	V
00210455	6	.10	.10	.20	.0030	N	N	50	20	N	N	N	<5	N	N	V
00210460	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
00210475	6	1.00	.30	.20	.0500	N	.7	30	70	<1.0	N	15	<5	V	N	V
00210480	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
00210505	6	5.00	.50	.50	.2000	50	N	20	500	1.0	10	70	20	N	N	N
00210515	6	.70	.30	.50	.0500	<10	N	30	100	N	N	20	5	V	N	V
00210520	6	.07	.10	.15	.0005	N	N	30	20	N	N	N	N	V	N	V
00210525	6	.07	.15	.20	.0007	N	.7	30	20	N	N	N	N	N	N	V
00210530	6	1.00	.20	.50	.0100	10	N	30	30	N	N	N	5	V	N	V
00210535	6	.30	.15	.20	.0100	N	N	30	70	N	N	N	N	N	N	V
00210540	6	.05	.15	.30	.0007	N	N	30	50	N	N	N	10	N	N	N
00210545	6	.70	.15	.30	.0007	N	N	30	N	V	N	N	<5	V	N	V
00210550	6	.05	.20	.50	.0100	N	N	30	N	N	N	N	N	N	N	V
00210555	6	.05	.15	.20	.0070	N	N	30	N	N	N	N	N	V	N	V
00210560	6	.07	.30	.70	.0050	N	N	30	N	N	N	N	N	V	N	N
00210580	5	.10	.07	.10	.0100	N	N	30	N	N	N	N	N	V	N	N
00210590	5	1.00	.15	.07	.0300	N	N	30	500	N	N	20	<5	V	N	V
00210595	5	2.00	2.00	.20	1.0000	50	N	100	700	3.0	7	500	<5	70	N	20
00210615	5	1.00	2.00	1.00	1.0000	20	N	50	1,000	1.0	N	200	N	50	N	20
00210620	5	2.00	.70	.20	.7000	15	N	50	1,000	2.0	5	300	20	20	5	<20
00210630	5	1.00	.50	.20	.7000	15	N	50	1,500	1.0	N	150	5	30	N	<20
00210635	5	.70	.30	.10	.5000	10	N	30	1,500	1.0	N	100	<5	20	N	V
00210640	5	.70	.50	.50	.5000	10	N	30	1,000	<1.0	N	100	<5	20	N	V
00210645	5	.50	.50	.07	.7000	10	N	30	1,000	1.0	N	150	N	V	N	V
00210650	5	.70	.70	.50	.7000	10	N	50	1,000	1.0	N	100	<5	N	N	N
00210655	5	.70	.70	.70	.3000	<10	N	30	1,000	1.0	N	70	N	V	N	V
00210660	5	1.50	1.00	.20	1.0000	15	N	50	1,000	1.0	N	300	5	20	N	<20
00210665	5	.70	.70	.50	.7000	10	N	50	1,000	1.0	N	100	10	V	N	V
00210670	5	3.00	1.00	1.00	.5000	20	N	30	1,000	1.0	N	70	70	V	N	N
00210675	5	1.00	2.00	5.00	.5000	30	.5	150	1,000	<1.0	5	150	30	N	N	V
00210680	5	3.00	.50	.15	.7000	10	.7	50	1,000	<1.0	15	150	70	N	N	N
00210700	4	2.00	.70	.30	.5000	15	N	50	1,000	1.0	10	200	50	V	N	N
00210705	4	1.50	.70	.20	.7000	15	N	50	1,000	1.0	15	200	15	V	N	V
00210710	4	1.50	1.00	1.00	.5000	50	N	50	1,000	1.0	15	200	7	V	N	N
00210715	4	2.00	1.00	.50	.7000	30	N	50	1,000	1.0	10	300	10	20	7	N
00210720	4	2.00	1.00	1.00	.5000	50	N	50	700	1.0	20	200	50	20	N	N
00210725	4	2.00	1.00	1.00	.5000	100	N	50	1,000	1.0	15	200	20	20	N	V
00210730	4	3.00	2.00	1.00	.5000	150	N	70	700	1.0	20	200	50	50	N	V
00210735	4	3.00	2.00	1.50	.7000	150	N	100	700	1.0	20	300	30	50	N	N
00210740	4	5.00	1.50	.20	.5000	100	N	100	700	1.0	15	200	300	30	N	V
00210745	4	5.00	1.50	1.50	.5000	100	N	70	1,000	1.0	15	150	15	30	N	V
00210750	4	5.00	1.50	1.50	.5000	150	N	70	1,000	1.0	20	200	15	30	N	N

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Table 2.--Spectrographic and atomic-absorption analyses of insoluble-residue  
 samples from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri--continued

sample	S-NI	S-PB	S-SC	S-SN	S-SR	S-V	S-Y	S-ZN	S-ZR	AA-ZN-P
00210440	N	N	N	N	N	N	N	N	N	<5
00210445	N	N	N	N	N	N	N	N	N	<5
00210450	N	N	N	N	N	N	N	N	N	--
00210455	N	N	N	N	N	N	N	N	N	--
00210460	--	--	--	--	--	--	--	--	--	--
00210475	N	N	N	N	N	20	N	N	10	--
00210480	--	--	--	--	--	--	N	--	--	--
00210505	30	50	N	N	N	50	N	N	200	--
00210515	7	50	N	N	N	N	N	N	20	--
00210520	N	N	N	N	N	N	N	N	N	<5
00210525	N	N	N	N	N	N	N	N	10	<5
00210530	10	N	N	N	N	N	10	N	10	--
00210535	N	N	N	N	N	N	N	N	N	--
00210540	N	N	N	N	N	N	N	N	N	<5
00210545	5	N	N	N	N	N	N	N	N	<5
00210550	N	N	N	N	N	N	N	N	N	N
00210555	N	N	N	N	N	N	N	N	N	N
00210560	N	N	N	N	N	N	N	N	N	N
00210580	N	N	N	N	N	N	N	N	N	--
00210590	N	N	N	N	N	N	N	N	70	--
00210595	30	20	10	N	150	200	20	N	200	--
00210615	10	20	N	N	150	50	20	N	500	--
00210620	20	15	N	N	100	100	20	N	500	<5
00210630	5	15	N	N	150	50	20	N	700	--
00210635	N	15	N	N	150	30	15	N	500	--
00210640	7	15	N	N	150	30	15	N	300	--
00210645	N	15	N	N	100	30	20	N	700	--
00210650	7	10	N	N	100	50	15	N	500	N
00210655	7	10	N	N	100	20	10	N	300	--
00210660	15	10	5	N	100	70	20	N	500	<5
00210665	15	10	N	N	100	50	15	N	500	N
00210670	30	30	N	N	100	30	15	N	300	--
00210675	20	15	N	N	100	50	15	N	300	--
00210680	50	15	N	N	100	50	15	N	300	--
00210700	30	15	5	N	100	70	15	N	200	<5
00210705	30	10	7	N	100	70	15	N	300	<5
00210710	30	10	7	N	100	50	15	N	200	<5
00210715	30	15	7	N	100	70	15	N	200	<5
00210720	50	10	10	N	100	50	15	N	200	10
00210725	50	15	5	N	100	50	15	N	200	10
00210730	70	15	10	N	100	70	15	N	200	30
00210735	70	10	15	N	100	70	15	N	150	30
00210740	70	10	10	N	100	70	15	N	200	25
00210745	50	10	10	N	100	50	15	N	150	25
00210750	70	10	10	N	100	70	15	N	200	35

Table 2.--Spectrographic and atomic-absorption analyses of insoluble-residue samples from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri

sample	FORM	S-FEX	S-MGX	S-CAX	S-TIX	S-MN	S-AG	S-B	S-BA	S-3E	S-CO	S-CR	S-CU	S-LA	S-MO	S-N3
00210755	4	5.00	1.50	.50	.7000	100	.5	100	1,000	1.0	20	200	50	50	N	V
00210760	4	2.00	1.00	1.00	.3000	100	N	50	1,000	1.0	10	70	20	N	N	N
00210765	4	3.00	1.00	1.00	.5000	100	N	50	1,000	1.0	10	70	N	N	N	N
00210770	4	2.00	1.00	1.00	.3000	100	N	30	1,000	<1.0	10	100	N	20	N	V
00210775	4	1.50	.70	1.00	.3000	100	N	30	1,000	<1.0	7	70	10	N	N	V
00210780	4	2.00	.70	.70	.5000	100	N	30	1,000	<1.0	10	100	7	N	N	V
00210785	4	3.00	1.50	.70	.5000	150	N	50	1,000	1.0	15	200	7	30	N	V
00210790	4	3.00	1.50	2.00	.5000	200	N	50	1,000	1.0	15	200	100	30	N	V
00210795	4	2.00	1.00	1.50	.5000	150	N	50	1,000	1.0	10	150	15	20	N	V
00210800	4	2.00	1.50	2.00	.5000	200	N	50	1,000	1.0	10	150	20	20	N	N
00210805	4	2.00	1.00	1.50	.5000	150	N	30	1,000	1.0	10	100	15	V	7	V
00210810	4	3.00	1.00	2.00	.5000	200	N	30	1,000	<1.0	10	100	10	20	5	N
00210815	4	2.00	1.00	1.50	.5000	150	N	50	700	1.0	15	150	20	20	N	N
00210820	4	3.00	2.00	1.00	.5000	150	N	100	700	1.0	20	200	70	50	N	N
00210825	4	3.00	2.00	5.00	.5000	200	N	70	700	1.0	15	200	20	50	N	V
00210830	4	5.00	2.00	5.00	.5000	200	N	70	700	<1.0	15	200	20	30	N	V
00210835	4	5.00	2.00	7.00	.7000	300	N	70	500	<1.0	15	200	20	30	N	N
00210840	4	2.00	.70	1.00	.3000	100	N	70	300	<1.0	7	70	20	N	N	N
00210845	4	3.00	1.00	2.00	.3000	150	N	70	300	<1.0	7	70	10	N	N	N
00210850	4	3.00	1.00	2.00	.3000	150	N	70	700	<1.0	10	70	15	N	N	N
00210855	4	3.00	2.00	5.00	.5000	200	N	70	700	<1.0	15	200	70	30	N	V
00210860	4	3.00	1.50	5.00	.5000	200	N	70	700	<1.0	15	200	70	30	N	N
00210865	4	5.00	2.00	1.50	.5000	200	N	150	500	1.0	20	200	20	50	N	N
00210870	4	5.00	2.00	1.50	.7000	300	N	150	500	1.5	20	200	70	30	5	V
00210875	4	3.00	1.50	1.00	.5000	70	N	100	500	1.0	15	150	50	V	N	V
00210880	3	2.00	1.50	.70	.5000	30	N	70	500	1.5	15	150	70	N	N	V
00210885	3	5.00	1.50	1.00	.3000	70	.7	70	300	3.0	15	100	100	N	15	N
00210890	3	3.00	2.00	2.00	.5000	70	N	70	500	2.0	10	150	30	30	5	V
00210895	3	2.00	1.00	.70	.5000	50	N	70	500	2.0	10	150	30	30	N	V
00210900	3	2.00	1.50	1.00	.3000	50	N	50	700	1.5	7	150	30	30	N	V
00210905	3	1.50	2.00	2.00	.3000	70	N	30	1,000	1.0	5	70	10	20	5	V
00210910	3	.50	1.50	2.00	.3000	70	N	20	1,000	<1.0	N	50	10	20	N	V
00210915	3	.70	2.00	2.00	.3000	70	N	20	1,000	<1.0	N	70	7	20	N	V
00210925	3	10.00	1.00	2.00	.3000	30	.5	50	700	3.0	15	150	200	20	20	V
00210930	3	7.00	1.00	1.50	.3000	30	<.5	50	700	2.0	7	100	100	V	15	V
00210935	3	15.00	.70	1.00	.3000	20	<.5	30	300	2.0	10	100	100	N	20	N
00210940	3	7.00	1.00	1.50	.5000	20	<.5	50	700	1.5	10	200	100	N	20	<20
00210945	3	15.00	.50	.70	.2000	20	<.5	30	700	1.0	5	50	70	V	20	V
00210950	3	7.00	.70	3.00	.3000	30	.5	50	1,000	2.0	10	100	100	V	15	V
00210955	3	10.00	1.00	5.00	.3000	50	.5	50	500	3.0	15	100	100	V	20	V
00210965	3	7.00	.70	1.00	.3000	15	N	50	500	2.0	7	70	70	V	20	N
00210970	3	15.00	.50	1.00	.3000	15	N	30	500	2.0	7	50	70	V	15	V
00210975	3	7.00	.50	1.00	.3000	10	N	50	500	3.0	5	50	30	20	20	V
00210985	3	15.00	.30	1.50	.2000	15	N	20	700	1.0	5	30	50	N	20	V
00210990	3	5.00	.70	1.00	.5000	15	N	50	1,000	1.5	5	50	30	20	15	<20

Table 2.--Spectrographic and atomic-absorption analyses of insoluble-residue samples from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri--continued

sample	S-Ni	S-PB	S-SC	S-SN	S-SR	S-V	S-Y	S-ZN	S-ZR	AA-ZN-P
00210755	70	10	15	N	100	70	20	N	200	35
00210760	30	10	5	N	100	50	10	N	300	10
00210765	15	10	<5	N	100	50	15	N	200	10
00210770	30	10	5	N	100	50	15	N	200	15
00210775	20	10	N	N	100	30	15	N	300	5
00210780	20	10	<5	N	100	50	10	N	200	10
00210785	50	10	7	N	100	70	15	N	300	20
00210790	50	10	7	N	100	70	20	N	300	20
00210795	50	10	5	N	100	70	20	N	300	20
00210800	50	15	5	N	100	50	15	N	300	20
00210805	50	10	<5	N	100	50	15	N	300	15
00210810	30	10	5	N	100	50	20	N	300	20
00210815	30	15	5	N	100	50	15	N	300	25
00210820	70	15	10	N	100	70	15	N	200	40
00210825	50	15	10	N	150	70	20	N	100	25
00210830	50	15	10	N	150	70	20	N	200	25
00210835	70	15	10	N	200	70	20	N	200	25
00210840	30	N	N	N	N	50	<10	N	150	15
00210845	30	N	<5	N	N	50	15	N	200	10
00210850	30	N	<5	N	N	50	10	N	200	15
00210855	50	10	10	N	150	70	15	N	150	20
00210860	50	10	10	N	150	70	15	N	200	30
00210865	70	10	15	N	100	100	15	N	150	35
00210870	100	15	15	N	100	100	15	N	200	25
00210875	30	15	7	N	N	100	10	N	70	20
00210880	30	20	10	N	N	100	<10	N	70	5
00210885	50	50	5	N	N	100	10	N	100	--
00210890	30	30	10	N	100	100	15	N	100	5
00210895	20	20	10	N	100	100	15	N	100	5
00210900	20	15	7	N	<100	100	15	N	100	5
00210905	15	15	5	N	100	50	20	N	150	<5
00210910	7	15	N	N	100	50	20	N	200	<5
00210915	5	15	N	N	150	50	20	N	200	<5
00210925	150	200	5	N	100	200	30	300	300	--
00210930	30	100	5	N	100	100	20	N	300	--
00210935	30	300	N	N	N	100	15	500	150	--
00210940	50	150	7	N	N	300	50	500	700	--
00210945	30	100	N	N	N	70	15	N	200	--
00210950	30	100	N	N	<100	150	50	N	1,000	--
00210955	30	200	5	N	100	100	30	N	500	--
00210965	20	100	N	N	N	100	15	N	200	--
00210970	20	100	N	N	N	70	20	N	300	--
00210975	20	70	N	N	N	70	15	N	200	--
00210985	20	150	N	N	<100	50	15	N	200	--
00210990	10	20	N	N	100	70	20	N	500	--

Table 2.--Spectrographic and atomic-absorption analyses of insoluble-residue samples from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri--continued

sample	FORM	S-FEX	S-MGX	S-CAZ	S-TIX	S-MN	S-AG	S-B	S-BA	S-BE	S-CO	S-CR	S-CU	S-LA	S-MO	S-V3
00210995	3	5.00	1.00	1.50	.5000	20	N	50	1,000	2.0	5	50	30	30	10	<20
00211000	3	2.00	1.50	5.00	.5000	20	N	50	1,000	1.5	5	50	7	50	5	<20
00211005	3	1.50	.70	3.00	.5000	30	N	30	1,000	1.5	N	30	7	50	N	<20
00211010	3	2.00	1.50	5.00	.5000	30	N	70	1,000	1.5	N	50	5	70	5	<20
00211015	3	2.00	1.50	3.00	.5000	50	N	70	1,000	1.5	N	50	7	70	N	<20
00211020	3	2.00	1.50	5.00	.5000	30	N	70	1,000	1.5	N	50	5	70	5	N
00211025	3	2.00	1.50	7.00	.5000	50	N	70	1,000	1.5	5	70	5	70	N	N
00211030	3	3.00	2.00	7.00	.5000	70	N	100	700	2.0	5	70	5	70	N	<20
00211040	3	2.00	2.00	7.00	.5000	50	N	100	700	2.0	5	70	7	70	N	<20
00211045	3	2.00	1.50	7.00	.5000	50	N	100	700	1.5	5	70	7	70	N	N
00211050	3	2.00	1.50	5.00	.5000	50	N	100	700	1.0	5	70	10	70	N	N
00211055	3	2.00	2.00	7.00	.5000	50	N	100	700	1.0	5	70	7	70	N	<20
00211060	3	3.00	1.50	7.00	.5000	50	N	100	700	2.0	7	70	7	70	N	<20
00211065	3	2.00	1.00	5.00	.5000	50	N	100	700	2.0	5	70	7	70	N	<20
00211070	3	2.00	1.50	3.00	.5000	50	N	100	700	2.0	5	70	7	70	N	<20
00211075	3	3.00	2.00	5.00	.5000	70	N	100	1,000	2.0	7	50	20	70	N	<20
00211080	3	3.00	1.00	5.00	.5000	30	N	100	700	1.5	7	70	15	70	N	N
00211085	3	2.00	1.00	3.00	.5000	30	N	100	700	1.5	7	70	7	50	N	<20
00211090	3	3.00	1.50	7.00	.5000	70	N	150	700	1.5	10	70	7	70	N	<20
00211095	3	2.00	1.00	5.00	.5000	50	N	100	700	1.5	7	70	20	70	N	N
00211100	3	2.00	1.50	5.00	.5000	70	N	100	700	2.0	7	70	7	70	N	N
00211105	3	2.00	1.00	7.00	.5000	70	N	150	700	2.0	7	70	10	70	N	<20
00211110	3	2.00	1.50	5.00	.5000	70	N	150	700	1.5	7	70	5	70	N	<20
00211115	3	5.00	2.00	3.00	.5000	100	N	100	700	2.0	10	70	5	70	N	<20
00211120	3	2.00	2.00	5.00	.3000	70	N	150	700	2.0	7	50	10	70	N	<20
00211125	3	2.00	1.50	3.00	.5000	50	N	100	700	1.5	10	70	10	70	N	<20
00211130	3	2.00	1.00	3.00	.5000	50	N	100	700	1.5	7	70	10	70	N	<20
00211135	3	2.00	1.00	3.00	.3000	50	N	100	700	1.5	10	50	7	70	N	<20
00211140	3	2.00	1.00	2.00	.3000	50	N	100	700	2.0	10	70	30	70	N	<20
00211145	3	2.00	1.00	3.00	.5000	70	N	100	700	1.5	10	50	7	70	N	<20
00211150	3	2.00	1.00	3.00	.5000	50	N	100	700	1.5	10	70	10	70	N	<20
00211155	3	2.00	.70	2.00	.3000	50	N	100	700	2.0	10	50	20	50	5	N
00211160	3	2.00	1.00	3.00	.5000	50	N	100	700	1.5	10	70	10	70	N	<20
00211165	3	1.50	1.50	3.00	.3000	100	N	70	700	1.5	7	30	10	50	N	N
00211170	3	2.00	1.50	3.00	.3000	100	N	70	700	2.0	10	70	10	70	N	N
00211175	3	1.50	1.00	1.50	.3000	70	N	70	500	1.0	5	30	20	50	N	N
00211180	3	5.00	2.00	3.00	.3000	200	.5	100	500	5.0	20	70	30	50	N	N
00211185	3	10.00	1.50	1.00	.2000	100	1.5	150	300	30.0	70	50	100	20	N	N
00211190	2	.10	.07	.10	.0300	10	N	15	N	N	N	N	7	N	N	N
00211195	2	<.05	.02	<.05	.0150	N	N	N	N	N	N	N	7	N	N	N
00211200	2	<.05	.03	<.05	.0200	N	N	10	N	N	N	N	<5	N	N	N
00211205	2	<.05	.02	<.05	.0100	N	N	N	N	N	N	N	5	N	N	N

Table 2.--Spectrographic and atomic-absorption analyses of insoluble-residue  
 samples from drill hole no. 2, Rolla 1° X 2° quadrangle, Missouri--continued

sample	S-NI	S-PB	S-SC	S-SN	S-SR	S-V	S-Y	S-ZN	S-ZR	AA-ZN-P
00210995	20	20	N	N	100	70	30	N	500	<5
00211000	7	15	5	N	150	70	30	N	300	<5
00211005	10	15	N	N	150	50	30	N	200	10
00211010	10	10	5	N	150	70	30	N	200	<5
00211015	7	15	5	N	150	70	30	N	200	<5
00211020	15	15	5	N	150	100	30	N	150	<5
00211025	10	15	7	N	200	100	30	N	150	5
00211030	20	20	7	N	200	100	30	N	200	5
00211040	15	15	7	N	200	100	30	N	200	5
00211045	10	15	5	N	200	100	20	N	150	5
00211050	10	15	5	N	200	100	20	N	150	5
00211055	15	10	5	N	150	100	20	N	150	10
00211060	15	15	5	N	150	100	20	N	200	5
00211065	10	15	5	N	150	100	20	N	200	5
00211070	15	15	5	N	150	100	20	N	200	5
00211075	15	30	5	N	150	70	15	N	150	10
00211080	15	15	5	N	150	100	20	N	150	5
00211085	15	15	5	N	200	100	20	N	200	30
00211090	20	20	5	N	150	100	20	N	150	5
00211095	15	15	5	N	200	100	20	N	200	15
00211100	15	10	5	N	150	100	20	N	200	10
00211105	15	20	7	N	200	100	20	N	150	10
00211110	15	15	7	N	150	100	200	N	200	10
00211115	15	15	7	N	200	100	30	N	150	10
00211120	15	15	5	N	150	70	20	N	150	10
00211125	20	20	5	N	150	100	20	N	150	5
00211130	15	15	5	N	150	100	15	N	100	10
00211135	20	30	5	N	150	100	20	N	150	10
00211140	20	20	5	N	150	100	20	N	150	10
00211145	15	20	5	N	150	100	20	N	150	<5
00211150	20	20	5	N	150	100	20	N	150	5
00211155	20	30	5	N	150	70	15	N	150	10
00211160	20	100	5	N	150	100	20	N	200	<5
00211165	10	50	<5	N	150	70	15	N	100	--
00211170	15	30	5	N	100	100	20	N	150	<5
00211175	7	20	<5	N	100	70	15	N	150	10
00211180	20	20	5	N	100	100	30	N	200	<5
00211185	50	70	5	N	N	70	15	N	100	<5
00211190	N	N	N	N	N	N	N	N	150	N
00211195	N	N	N	N	N	N	N	N	70	N
00211200	N	N	N	N	N	N	N	N	50	N
00211205	N	N	N	N	N	N	N	N	70	N

