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Geochemical data of diamond drill core samples adjacent to the Red Lake Indian Reservation, northern Minnesota

by

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INTRODUCTION

This report contains major, minor, and trace element geochemical data for samples taken from diamond drill core collected near and adjacent to the Red Lake Indian Reservation of northern Minnesota. These data were generated as a part of a U.S. Geological Survey metallic mineral-resource assessment of the bedrock within the Red Lake Indian Reservation, which was sponsored by the Bureau of Indian Affairs (BIA) Division of Energy and Minerals. This report complies with the requirements set forth by the Minnesota Department of Natural Resources (MNDNR) that all data must be reported for samples analyzed from their core repository.

The mineral-resource assessment of the reservation was conducted as a two-phase project. The first phase was a regional assessment (1:250,000 scale) of all of the areas that contain parts of the reservation, extending from the Lake of the Woods region (49°30'N.) to latitude 47°45'N. and from longitude 93°30' to 96°W. The results of that study were released in a confidential report to the BIA (Day and others, 1992a). Public presentations of the data and conclusions were given by Klein and others (1991, 1992) and Day and others (1992b).

An area in the central region of the reservation north of Upper Red Lake was identified during the course of the first phase of the study as having high potential for undiscovered base- and precious-metal deposits. This area is the focus of the second, more detailed phase of the project. The second phase of the project is bounded on the north by 48°37'30"N. and on the south by 48°22'30"N. latitudes, with the western boundary of 95°7'30"W. and the eastern of 94°45'0"W. longitudes. Previous work by Klein (1988, 1991), Klein and Day (1989), and Klein and others (1987, 1988) reports additional observations and geochemistry of numerous exploration diamond drill cores during the USGS International Falls and Roseau 1°×2° CUSMAP projects.

The entire region within the study area is covered by Pleistocene glacial deposits, and, therefore, the diamond drill cores represent all of the available bedrock material. We examined all of the pertinent diamond drill cores available in this area at the MNDNR in Hibbing, Minnesota. The drill core samples are numbered with the drill hole identification numbers that correspond to those used by the MNDNR, followed by the depth of the sample. Further information on these drill core can be obtained from the MNDNR.

SAMPLING METHOD

Drill core was usually sampled by halving or quartering short intervals (usually 6-15 cm) using a diamond saw. Sample locations were digitized, using a GTCO Model 2436A digitizer, from sites plotted on the USGS International Falls, Baudette, Roseau, Grygla, and Upper Red Lake 1:100,000 USGS intermediate-scale topographic maps. The locations are reported to the nearest second of latitude and longitude.

ANALYTICAL METHODS

Major elements were determined by quantitative wavelength dispersive X-ray fluorescence spectrometry (XRF) by D.F. Seims and J.S. Mee using the method described by Taggart and others (1987). Major and minor element abundances were also determined by P.H. Briggs and D.L. Fey using inductively coupled plasma-atomic emission spectrometry (ICP) following the method outlined by Lichte and others (1987).

Gold and the platinum group elements (Pt, Pd, Rh, Ru, and Ir) were determined by B.H. Roushey, B.M. Adrian, P.M. Theodorakos, and A.L. Meier using a combination of fire assay and graphite furnace atomic absorption spectrometry (Graph AA) (see Wilson and others, 1987) to extend the detection limits to 0.01 ppm. Sample size was usually 10-15 g.

Rare-earth element concentrations were determined using instrumental neutron activation analysis (INAA) by G.A. Wandless using the method outlined by Baedecker and McKown (1987).

ORGANIZATION OF DATA TABLES AND FILES

Table 1 lists data for samples that do not exhibit mineralization and contain minimal alteration, with the exception of samples that are thought to be strongly deformed and from mylonite zones. These samples are representative of the host rock types encountered in the exploration drilling. Table 2 contains data from samples that are obviously mineralized and (or) altered. The data tables are organized by analytical method or combination of analytical methods and are sorted by sample number. Because some elements were analyzed by different analytical methods, the specific analytical method used for a given element is listed. Blank spaces represent elements not determined. Sample numbers were retained in all tables to allow an easy comparison between methods even though some pages contain sparse data. Laboratory numbers (column 3) are USGS laboratory identification numbers.

The data released here are also contained in U.S. Geological Survey Open-File Report 93-572-B. File OF93_572.TXT is an ASCII text file and OF93_572.WP is a DOS Wordperfect version 5.2 file of this document. File OF93_572.XLS is the data in Microsoft EXCEL version 4.0 format. File OF93_572.DAT is an ASCII file listing the geochemical data.

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Table 1.--*Sample locations and descriptions of non-mineralized diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*

Sample No.	Field No.	Lab No.	Latitude			Longitude			Description
			Deg	Min	Sec	Deg	Min	Sec	
1	40918-417	D-507271	48	26	10	94	54	43	Dacite tuff
2	40918-459	D-507272	48	26	10	94	54	43	Dacite tuff
3	B21-3-193	D-507280	48	32	21	94	51	40	Felsic tuff (cherty)
4	B24-1-318	D-507275	48	28	51	94	55	55	Dacite volcanic
5	B24-1-606	D-507276	48	28	51	94	55	55	Rhyolite tuff
6	B24-2-319	D-507277	48	28	51	94	55	55	Felsic dike
7	B24-2-334	D-507278	48	28	51	94	55	55	Mafic tuff
8	B24-2-532	D-507279	48	28	51	94	55	55	Rhyolite
9	B31-1-592	D-507281	48	26	57	95	4	27	Sheared intermediate tuff
10	B31-1-705	D-507282	48	26	57	95	4	27	Mylonitic felsic tuff
11	B31-2-280	D-507283	48	27	1	95	4	15	Mylonitic felsic tuff
12	B31-2-289	D-507284	48	27	1	95	4	15	Mylonitic felsic tuff
13	B31-2-370	D-507285	48	27	1	95	4	15	Mafic tuff
14	B31-2-662	D-507286	48	27	1	95	4	15	Basalt
15	B31-2-991	D-507287	48	27	1	95	4	15	Least-altered basalt
16	B31-4-321	D-507288	48	26	49	95	3	54	Mylonitic felsic volcanic
17	B31-4-363	D-507289	48	26	49	95	3	54	Mylonitic felsic volcanic
18	BDN1-740	D-507270	48	29	14	94	59	49	Dacite porphyry dike
19	MED1-171	D-507273	48	27	59	94	55	35	Foliated dacite tuff breccia (sheared)
20	MED1-367	D-507274	48	27	59	94	55	35	Foliated rhyolite tuff

Table 1.--*Sample locations and descriptions of non-mineralized diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	SiO_2 % XRF	Al_2O_3 % XRF	$FeTO_3$ % XRF	MgO % XRF	CaO % XRF	Na_2O % XRF	K_2O % XRF	TiO_2 % XRF	P_2O_5 % XRF	MnO % XRF	LOI 925C XRF	Total XRF
1	40918-417	65.2	16.7	3.42	1.94	5.16	4.45	1.09	0.33	0.10	0.07	0.54	99.00
2	40918-459	65.8	15.8	3.64	2.10	3.73	5.57	0.69	0.34	0.10	0.09	1.24	99.10
3	B21-3-193	75.4	11.3	3.17	1.92	4.60	1.65	0.63	0.26	0.08	0.09	0.60	99.70
4	B24-1-318	65.5	15.3	4.28	1.97	3.76	4.20	2.33	0.48	0.20	0.10	1.13	99.25
5	B24-1-606	76.5	12.5	0.78	<0.10	0.40	3.95	4.78	0.12	<0.05	0.04	0.18	99.25
6	B24-2-319	66.9	11.9	4.75	0.48	8.83	1.51	1.92	0.09	<0.05	0.15	2.10	98.63
7	B24-2-334	47.6	9.4	26.30	3.67	10.50	0.36	0.17	0.43	0.05	1.07	0.70	100.24
8	B24-2-532	69.4	16.2	1.25	0.32	1.15	4.84	4.82	0.40	0.10	0.03	0.36	98.87
9	B31-1-592	54.2	14.8	11.10	2.03	5.82	4.67	1.66	0.45	0.08	0.16	3.90	98.87
10	B31-1-705	75.9	12.1	1.48	0.55	1.60	4.28	2.01	0.24	0.06	0.05	0.79	99.06
11	B31-2-280	69.3	15.6	3.71	1.20	1.44	3.51	2.46	0.40	0.08	0.05	1.53	99.28
12	B31-2-289	70.8	14.6	3.58	1.17	1.93	3.27	1.68	0.39	0.07	0.05	1.48	99.02
13	B31-2-370	49.1	16.4	6.95	8.21	10.30	1.95	1.68	0.53	0.24	0.15	3.11	98.62
14	B31-2-662	50.6	13.3	14.10	5.64	11.50	1.45	0.53	0.62	0.07	0.54	0.81	99.16
15	B31-2-991	54.1	15.5	8.28	4.42	8.76	5.38	0.55	0.71	0.07	0.34	0.81	98.92
16	B31-4-321	75.6	12.5	1.09	0.34	1.81	4.54	1.97	0.22	0.07	0.03	0.76	98.93
17	B31-4-363	78.0	11.4	0.78	0.36	1.36	3.42	2.59	0.20	0.06	0.03	0.29	98.49
18	BDN1-740	63.6	14.3	4.53	3.62	5.41	4.35	1.14	0.41	0.13	0.08	0.83	98.40
19	MED1-171	63.8	13.6	2.49	2.21	5.95	4.90	4.10	0.37	0.08	0.14	1.64	99.28
20	MED1-367	72.6	11.6	2.41	1.09	2.45	5.37	2.00	0.23	0.06	0.06	1.24	99.11

Table 1.--*Sample locations and descriptions of non-mineralized diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Au ppm Graph AA	Pt ppm Graph AA	Pd ppm Graph AA	Rh ppm Graph AA	Ru ppm Graph AA	Ir ppm Graph AA	Al % ICP	Ca % ICP	Fe % ICP	K % ICP	Mg % ICP
1	40918-417	<0.002						9.0	3.8	2.3	0.9	1.2
2	40918-459	<0.002						8.5	2.8	2.5	0.6	1.3
3	B21-3-193	<0.002						6.2	3.5	2.3	0.5	1.2
4	B24-1-318	<0.002						8.4	2.8	3.1	2.0	1.3
5	B24-1-606	<0.002						6.6	0.3	0.6	3.8	0.0
6	B24-2-319	0.004						6.6	6.6	3.4	1.6	0.3
7	B24-2-334	0.01						5.0	7.2	18.0	0.2	2.2
8	B24-2-532	<0.002						8.6	0.9	0.9	3.7	0.2
9	B31-1-592	0.01						7.8	4.2	7.6	1.3	1.2
10	B31-1-705	0.012						6.6	1.3	1.1	1.6	0.4
11	B31-2-280	0.002						8.2	1.1	2.5	1.9	0.8
12	B31-2-289	0.002						7.7	1.5	2.5	1.3	0.7
13	B31-2-370	0.002						9.2	7.6	5.0	1.5	4.6
14	B31-2-662	0.002						7.3	8.1	9.8	0.5	3.3
15	B31-2-991	<0.002						8.6	6.3	5.8	0.5	2.7
16	B31-4-321	<0.002						6.7	1.4	0.8	1.5	0.2
17	B31-4-363	<0.002						6.2	1.1	0.5	2.0	0.2
18	BDN1-740	<0.002						7.8	4.0	3.1	1.0	2.2
19	MED1-171	<0.002						7.7	4.5	1.7	3.6	1.4
20	MED1-367	0.002						6.4	1.9	1.7	1.7	0.7

Table 1.--*Sample locations and descriptions of non-mineralized diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Na % ICP	P % ICP	Ti % ICP	Mn ppm ICP	Ag ppm ICP	As ppm ICP	Au ppm ICP	Ba ppm ICP	Be ppm ICP	Bi ppm ICP	Cd ppm ICP	Ce ppm ICP
1	40918-417	3.3	0.04	0.21	510	<2	<10	<8	300	<1	<10	<2	22
2	40918-459	4.1	0.04	0.2	670	<2	<10	<8	220	<1	<10	<2	27
3	B21-3-193	1.3	0.03	0.13	700	<2	10	<8	140	<1	<10	<2	25
4	B24-1-318	3.2	0.09	0.32	730	<2	<10	<8	950	1	<10	<2	82
5	B24-1-606	2.8	<0.005	0.06	290	<2	<10	<8	25	1	<10	<2	64
6	B24-2-319	1.2	0.006	0.05	1,200	<2	<10	<8	220	<1	<10	<2	17
7	B24-2-334	0.3	0.01	0.27	7,900	<2	<10	<8	67	<1	<10	<2	8
8	B24-2-532	3.5	0.05	0.12	230	<2	<10	<8	720	<1	<10	<2	41
9	B31-1-592	3.5	0.03	0.28	1,200	<2	<10	<8	88	<1	<10	<2	24
10	B31-1-705	3.3	0.02	0.11	380	<2	<10	<8	240	1	<10	<2	28
11	B31-2-280	2.6	0.04	0.16	350	<2	<10	<8	450	<1	<10	<2	26
12	B31-2-289	2.4	0.03	0.13	370	<2	<10	<8	210	<1	<10	<2	42
13	B31-2-370	1.6	0.11	0.34	1,100	<2	<10	<8	420	1	<10	<2	81
14	B31-2-662	1.2	0.03	0.41	4,000	<2	<10	<8	96	<1	<10	<2	7
15	B31-2-991	4.1	0.03	0.47	2,600	<2	<10	<8	190	<1	<10	<2	7
16	B31-4-321	3.3	0.03	0.11	180	<2	<10	<8	490	<1	<10	<2	29
17	B31-4-363	2.6	0.02	0.07	180	<2	<10	<8	340	<1	<10	<2	24
18	BDN1-740	3.4	0.06	0.26	610	<2	<10	<8	580	<1	<10	<2	36
19	MED1-171	3.8	0.03	0.24	1,100	<2	<10	<8	310	2	<10	<2	14
20	MED1-367	4.0	0.02	0.14	450	<2	<10	<8	240	<1	<10	<2	14

Table 1.--*Sample locations and descriptions of non-mineralized diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Co ppm ICP	Cr ppm ICP	Cu ppm ICP	Eu ppm ICP	Ga ppm ICP	Ho ppm ICP	La ppm ICP	Li ppm ICP	Mo ppm ICP	Nb ppm ICP	Nd ppm ICP	Ni ppm ICP
1	40918-417	15	34	22	<2	21	<4	12	16	<2	5	10	29
2	40918-459	12	45	19	<2	18	<4	15	13	<2	4	13	39
3	B21-3-193	8	10	99	<2	17	<4	14	10	<2	<4	11	10
4	B24-1-318	14	56	24	<2	22	<4	47	45	<2	9	32	31
5	B24-1-606	<1	2	1	<2	18	<4	32	5	<2	9	25	<2
6	B24-2-319	10	22	76	<2	12	<4	11	16	<2	5	8	11
7	B24-2-334	46	170	110	<2	17	<4	4	25	<2	<4	5	72
8	B24-2-532	4	24	9	<2	23	<4	23	18	<2	<4	20	7
9	B31-1-592	24	200	40	<2	18	<4	14	17	4	5	12	70
10	B31-1-705	6	16	14	<2	18	<4	17	17	<2	<4	12	8
11	B31-2-280	15	32	29	<2	21	<4	15	38	<2	<4	13	28
12	B31-2-289	17	36	43	<2	19	<4	22	40	10	<4	20	25
13	B31-2-370	35	400	100	<2	19	<4	42	46	<2	5	36	130
14	B31-2-662	55	290	150	<2	16	<4	3	22	<2	4	5	78
15	B31-2-991	51	330	11	<2	17	<4	3	40	<2	<4	6	93
16	B31-4-321	5	10	11	<2	15	<4	17	11	<2	<4	12	5
17	B31-4-363	3	6	5	<2	17	<4	14	8	<2	<4	10	4
18	BDN1-740	20	200	49	<2	24	<4	18	5	<2	4	20	68
19	MED1-171	10	58	6	<2	21	<4	8	29	<2	4	7	16
20	MED1-367	6	14	29	<2	18	<4	7	<2	<2	<4	7	10

Table 1.--*Sample locations and descriptions of non-mineralized diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Pb ppm ICP	Sc ppm ICP	Sn ppm ICP	Sr ppm ICP	Ta ppm ICP	Th ppm ICP	U ppm ICP	V ppm ICP	Y ppm ICP	Yb ppm ICP	Zn ppm ICP	Fe % INAA
1	40918-417	<4	7	<5	520	<40	<4	<100	51	4	<1	55	2.48
2	40918-459	7	7	<5	260	<40	<4	<100	52	5	<1	300	2.66
3	B21-3-193	<4	5	<5	120	<40	<4	<100	23	7	<1	26	2.29
4	B24-1-318	8	8	<5	550	<40	12	<100	64	8	<1	32	3.19
5	B24-1-606	23	<2	<5	6	<40	16	<100	<2	19	1	37	0.54
6	B24-2-319	16	4	<5	25	<40	17	<100	20	9	2	180	3.50
7	B24-2-334	<4	30	<5	64	<40	5	<100	170	14	2	210	19.00
8	B24-2-532	17	4	<5	500	<40	<4	<100	44	3	<1	56	0.90
9	B31-1-592	17	16	<5	200	<40	<4	<100	100	8	1	95	8.38
10	B31-1-705	<4	2	<5	120	<40	4	<100	27	4	<1	18	1.07
11	B31-2-280	<4	9	<5	260	<40	<4	<100	64	4	<1	72	2.71
12	B31-2-289	<4	8	<5	230	<40	5	<100	59	5	<1	60	2.65
13	B31-2-370	<4	28	<5	1,400	<40	7	<100	170	11	1	65	5.14
14	B31-2-662	<4	45	<5	86	<40	<4	<100	260	16	2	140	10.30
15	B31-2-991	<4	50	<5	150	<40	<4	<100	280	14	2	100	5.96
16	B31-4-321	30	3	<5	180	<40	4	<100	20	3	<1	120	0.80
17	B31-4-363	<4	3	<5	120	<40	4	<100	15	3	<1	13	0.52
18	BDN1-740	<4	12	<5	830	<40	<4	<100	93	6	<1	74	3.32
19	MED1-171	21	8	<5	190	<40	<4	<100	77	5	<1	66	1.77
20	MED1-367	12	4	<5	150	<40	<4	<100	27	2	<1	44	1.70

Table 1.--*Sample locations and descriptions of non-mineralized diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Ca % INAA	K % INAA	Na % INAA	As ppm INAA	Au ppb INAA	Ba ppm INAA	Co ppm INAA	Cr ppm INAA	Ni ppm INAA	Cs ppm INAA	Hf ppm INAA	Rb ppm INAA
1	40918-417	3.80	1.20	3.44	1.5	<5.0	290	13.00	32.7	28	1.20	1.86	27
2	40918-459	2.70	<1.30	4.33	<0.700	<5.0	210	11.20	45.8	44	0.37	2.12	26
3	B21-3-193	3.40	0.56	1.21	14.0	<4.0	140	6.82	11.0	11	1.30	2.98	17
4	B24-1-318	2.50	2.00	3.24	1.9	<5.0	943	12.70	51.4	39	1.94	3.90	58
5	B24-1-606	<0.290	4.20	2.98	<0.500	<5.0	24	0.09	0.9	<6	0.67	4.15	169
6	B24-2-319	6.20	1.70	1.10	10.0	10.0	220	8.39	20.9	15	1.70	2.55	61
7	B24-2-334	7.40	0.17	0.26	8.6	5.5	<140	41.70	177.0	79	0.74	0.80	<5.0
8	B24-2-532	1.10	4.20	3.73	5.0	<5.0	710	2.96	25.6	13	3.19	2.91	118
9	B31-1-592	4.50	1.30	3.64	5.6	29.0	300	23.60	196.0	77	4.30	2.42	44
10	B31-1-705	1.20	1.80	3.33	1.5	8.8	230	4.12	17.3	7.8	1.58	2.12	49
11	B31-2-280	1.20	2.20	2.66	3.4	12.0	460	13.60	40.8	28	6.47	3.12	67
12	B31-2-289	1.50	1.40	2.47	2.3	<5.0	210	16.00	39.6	25	5.22	3.07	47
13	B31-2-370	7.50	1.50	1.45	4.0	<5.0	410	31.20	410.0	140	3.41	2.55	91
14	B31-2-662	8.10	0.55	1.11	1.5	12.0	91	50.50	276.0	99	2.50	1.00	17
15	B31-2-991	6.10	<1.00	4.19	1.4	<7.0	170	46.00	324.0	110	2.50	1.20	18
16	B31-4-321	1.20	2.10	3.48	7.5	<6.0	499	3.56	10.0	<8.0	1.00	2.08	38
17	B31-4-363	0.95	2.40	2.61	1.0	8.3	320	2.48	7.7	13	1.63	1.99	53
18	BDN1-740	4.00	0.98	3.34	3.8	5.4	681	17.90	208.0	69	1.83	2.61	27
19	MED1-171	4.20	3.70	3.73	1.3	<5.0	290	8.25	56.1	18	1.49	2.06	85
20	MED1-367	1.80	1.90	4.15	1.6	<4.0	240	5.06	15.2	12	1.65	1.88	36

Table 1.--*Sample locations and descriptions of non-mineralized diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Sc ppm INAA	Sb ppm INAA	Sr ppm INAA	Ta ppm INAA	Th ppm INAA	U ppm INAA	Zn ppm INAA	Zr ppm INAA	La ppm INAA	Ce ppm INAA	Nd ppm INAA	Sm ppm INAA
1	40918-417	6.59	0.12	550	0.20	1.50	0.41	58	<120	10.7	20.8	9.0	1.79
2	40918-459	6.59	0.085	280	0.22	1.91	0.46	274	91	13.8	26.1	10.0	1.90
3	B21-3-193	5.12	0.24	120	0.34	1.81	0.39	26	150	12.7	24.1	9.7	1.99
4	B24-1-318	7.66	0.11	590	0.71	11.60	2.30	34	160	44.0	79.9	28.0	4.55
5	B24-1-606	1.45	0.056	<20.0	0.71	15.10	2.00	33.6	130	28.3	58.4	22.0	4.58
6	B24-2-319	4.03	0.62	<50.0	0.45	17.30	6.10	156	65	10.1	19.1	5.9	1.61
7	B24-2-334	28.1	0.69	<160	<0.08	0.35	0.13	200	<90.0	3.1	6.3	4.2	1.39
8	B24-2-532	3.98	0.39	530	0.27	3.57	0.56	45	120	20.7	40	17.0	2.30
9	B31-1-592	15.9	1.6	220	0.22	1.90	0.79	105	100	13.6	25.3	11.0	2.18
10	B31-1-705	2.01	0.4	120	0.36	4.13	1.10	20	70	15.9	29.4	10.0	1.69
11	B31-2-280	9.04	0.36	270	0.25	2.91	0.59	73.6	120	13.7	27.2	11.0	2.19
12	B31-2-289	8.19	0.25	230	0.34	4.37	0.78	62	150	21.0	42.7	18.0	3.30
13	B31-2-370	26.5	0.39	1,400	0.23	4.96	1.30	66	120	38.7	76.9	31.0	4.50
14	B31-2-662	42.8	0.23	<80.0	<0.17	0.31	<0.31	140	170	2.7	6.2	3.4	1.70
15	B31-2-991	46.8	0.24	160	0.11	0.21	<0.40	98	<110	2.9	6.8	4.2	1.50
16	B31-4-321	2.6	0.23	190	0.39	4.28	1.20	100	78	15.1	29.1	11.0	1.77
17	B31-4-363	2.47	0.15	130	0.34	4.03	1.00	12	65	12.8	24.3	8.6	1.49
18	BDN1-740	11.1	0.21	868	0.16	2.53	0.56	74.3	98	17.0	35.5	18.0	3.20
19	MED1-171	7.78	0.13	180	0.18	1.44	0.45	61.9	90	6.7	13.4	6.5	1.20
20	MED1-367	3.65	0.17	150	0.10	1.17	0.55	45	100	6.6	12.6	5.4	1.00

Table 1.--*Sample locations and descriptions of non-mineralized diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Eu ppm INAA	Gd ppm INAA	Tb ppm INAA	Tm ppm INAA	Yb ppm INAA	Lu ppm INAA
1	40918-417	0.58	-	0.17	-	0.42	0.059
2	40918-459	0.61	-	0.20	-	0.55	0.071
3	B21-3-193	0.66	-	0.25	-	0.73	0.110
4	B24-1-318	0.94	-	0.33	-	0.63	0.079
5	B24-1-606	0.18	-	0.49	-	1.40	0.180
6	B24-2-319	0.40	-	0.22	-	1.30	0.200
7	B24-2-334	0.64	-	0.32	-	1.70	0.260
8	B24-2-532	0.66	-	0.17	-	0.29	0.046
9	B31-1-592	0.63	-	0.26	-	1.00	0.130
10	B31-1-705	0.38	-	0.14	-	0.36	0.045
11	B31-2-280	0.53	-	0.20	-	0.56	0.083
12	B31-2-289	0.65	-	0.30	-	0.69	0.091
13	B31-2-370	1.21	-	0.37	-	1.40	0.190
14	B31-2-662	0.62	-	0.33	-	2.00	0.300
15	B31-2-991	0.62	-	0.38	-	1.70	0.250
16	B31-4-321	0.36	-	0.13	-	0.31	0.040
17	B31-4-363	0.30	-	0.12	-	0.31	0.039
18	BDN1-740	0.92	-	0.26	-	0.63	0.080
19	MED1-171	0.44	-	0.16	-	0.49	0.067
20	MED1-367	0.33	-	0.11	-	0.25	0.030

Table 2.--*Sample locations and rock types for mineralized and altered diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*

Sample No.	Field No.	Lab No.	Latitude			Longitude			Description
			Deg	Min	Sec	Deg	Min	Sec	
21	40919-174	D-507330	48	33	19	94	49	3	Sulfide-facies iron-formation
22	40919-442	D-507331	48	33	19	94	49	3	Oxide-facies iron-formation
23	40919-456	D-507332	48	33	19	94	49	3	Sulfide-facies iron-formation
24	40919-463	D-507333	48	33	19	94	49	3	Oxide-facies iron-formation
25	B21-1-190	D-507317	48	32	30	94	52	7	Sulfide-facies iron-formation / high Zn zone
26	B21-1-194	D-507318	48	32	30	94	52	7	Sulfide-facies iron-formation / high Zn zone
27	B21-1-220	D-507319	48	32	30	94	52	7	Sulfide-facies iron-formation with intermediate tuff
28	B21-2-669	D-507300	48	32	34	94	52	57	Magnetite horizon
29	B21-2-707	D-507301	48	32	34	94	52	57	Mafic tuff with disseminated sulfides
30	B21-3-302	D-507320	48	32	21	94	51	40	Intermediate tuff with sulfide horizons
31	B24-1-422	D-507306	48	28	51	94	55	55	Pyrite-bearing brecciated rhyodacite
32	B24-2-436	D-507307	48	28	51	94	55	55	Garnet-bearing sulfide-facies iron-formation
33	B24-2-447	D-507308	48	28	51	94	55	55	Sulfide horizon in felsic tuff
34	B24-2-575	D-507309	48	28	51	94	55	55	Massive sulfide
35	B24-2-588	D-507310	48	28	51	94	55	55	Massive sulfide
36	B24-2-632	D-507311	48	28	51	94	55	55	Massive sulfide
37	B24-2-655	D-507312	48	28	51	94	55	55	Massive sulfide
38	B24-2-683	D-507313	48	28	51	94	55	55	Sulfide-rich cherty exhalite
39	B31-1-302	D-507321	48	26	57	95	4	27	Massive sulfide
40	B31-1-525	D-507322	48	26	57	95	4	27	Sulfide-rich chert horizon
41	B31-1-527	D-507323	48	26	57	95	4	27	Sulfide-rich chert horizon
42	B31-1-565	D-507324	48	26	57	95	4	27	Sulfide-rich chert horizon
43	B31-1-637	D-507325	48	26	57	95	4	27	Pyrite-chert horizon with interlayered tuff
44	B31-4-193	D-507326	48	26	49	95	3	54	Heterolithic breccia with mafic matrix
45	B31-4-216	D-507327	48	26	49	95	3	54	Heterolithic breccia with mafic matrix

Table 2.--*Sample locations and rock types for mineralized and altered diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Lab No.	Latitude			Longitude			Description
			Deg	Min	Sec	Deg	Min	Sec	
46	B31-4-276	D-507328	48	26	49	95	3	54	Felsic breccia with 5 percent pyrite
47	B31-4-292	D-507329	48	26	49	95	3	54	Silicified felsic breccia with pyrite
48	BDN-1-461	D-507334	48	29	14	94	59	49	Sulfide-facies iron-formation within mafic volcanic
49	BDN-1-497	D-507290	48	29	14	94	59	49	Oxide + sulfide-facies iron-formation
50	BDN-1-499	D-507291	48	29	14	94	59	49	Silicate-facies iron-formation
51	BDN-1-548	D-507292	48	29	14	94	59	49	Sulfide-facies iron-formation
52	BDN-1-615	D-507293	48	29	14	94	59	49	Sulfide-facies iron-formation
53	BDN-1-679	D-507294	48	29	14	94	59	49	Massive sulfide
54	BDN-1-805	D-507295	48	29	14	94	59	49	Sulfide-facies iron-formation
55	BQ-1-200	D-507316	48	30	47	94	58	51	Sulfide-rich horizon in mafic xenolith
56	MDD-1-258	D-507314	48	30	58	94	57	6	Quartz-tourmalite vein in basalt
57	MDD-1-282	D-507315	48	30	58	94	57	6	Sulfide-rich horizon in mafic volcanics
58	MDD-1-303	D-507335	48	30	58	94	57	6	Sulfide-rich vein in pyroxenite
59	MDD-1-311	D-507336	48	30	58	94	57	6	Sulfide-rich zone in diorite intrusion
60	MDD-1-450	D-507337	48	30	58	94	57	6	Sulfide-rich zone in quartz diorite intrusion
61	MED-1-198	D-507302	48	27	59	94	55	35	Pyrite-bearing felsic tuff
62	MED-1-229	D-507303	48	27	59	94	55	35	Oxide-facies iron-formation with pyrite
63	MED-1-244	D-507304	48	27	59	94	55	35	Sulfide-facies iron-formation
64	MED-1-316	D-507305	48	27	59	94	55	35	Sulfide-facies iron-formation
65	MMD-1-432	D-507296	48	28	39	94	57	25	Siliceous felsic tuff
66	MMD-1-434	D-507297	48	28	39	94	57	25	Chert with sulfide bands
67	MMD-1-440	D-507298	48	28	39	94	57	25	Chert with sulfide bands
68	MMD-1-465	D-507299	48	28	39	94	57	25	Pyritic chert horizon

Table 2.--*Sample locations and rock types for mineralized and altered diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	SiO_2 % XRF	Al_2O_3 % XRF	$FeTO_3$ % XRF	MgO % XRF	CaO % XRF	Na_2O % XRF	K_2O % XRF	TiO_2 % XRF	P_2O_5 % XRF	MnO % XRF	LOI 925C XRF	Total XRF
21	40919-174												
22	40919-442												
23	40919-456												
24	40919-463												
25	B21-1-190												
26	B21-1-194												
27	B21-1-220												
28	B21-2-669												
29	B21-2-707												
30	B21-3-302												
31	B24-1-422												
32	B24-2-436												
33	B24-2-447												
34	B24-2-575												
35	B24-2-588												
36	B24-2-632												
37	B24-2-655												
38	B24-2-683												
39	B31-1-302												
40	B31-1-525												
41	B31-1-527												
42	B31-1-565												
43	B31-1-637												
44	B31-4-193												
45	B31-4-216												

Table 2.--*Sample locations and rock types for mineralized and altered diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	SiO_2 % XRF	Al_2O_3 % XRF	$FeTO_3$ % XRF	MgO % XRF	CaO % XRF	Na_2O % XRF	K_2O % XRF	TiO_2 % XRF	P_2O_5 % XRF	MnO % XRF	LOI 925C XRF	Total XRF
46	B31-4-276												
47	B31-4-292												
48	BDN-1-461	39.5	8.48	35.00	4.06	4.42	0.15	0.04	0.20	0.07	1.26	6.07	99.25
49	BDN-1-497												
50	BDN-1-499												
51	BDN-1-548												
52	BDN-1-615												
53	BDN-1-679												
54	BDN-1-805												
55	BQ-1-200												
56	MDD-1-258												
57	MDD-1-282												
58	MDD-1-303	12.4	1.12	69.10	1.25	1.14	0.25	0.05	0.04	<0.05	0.07	16.00	101.42
59	MDD-1-311	42.0	8.56	34.40	1.53	3.78	2.81	0.53	0.69	0.21	0.36	5.48	100.35
60	MDD-1-450	51.9	11.2	11.30	10.10	8.18	2.50	1.88	0.70	0.21	0.37	0.16	98.50
61	MED-1-198												
62	MED-1-229												
63	MED-1-244												
64	MED-1-316												
65	MMD-1-432												
66	MMD-1-434												
67	MMD-1-440												
68	MMD-1-465												

Table 2.--*Sample locations and rock types for mineralized and altered diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Au ppm Graph AA	Pt ppm Graph AA	Pd ppm Graph AA	Rh ppm Graph AA	Ru ppm Graph AA	Ir ppm Graph AA	Al % ICP	Ca % ICP	Fe % ICP	K % ICP	Mg % ICP	Na % ICP
21	40919-174	0.006						1.8	3.9	37	0.31	2.80	0.08
22	40919-442	0.003						0.2	1.4	47	0.02	1.90	0.01
23	40919-456	0.004						0.7	1.2	38	0.06	2.50	0.04
24	40919-463	<0.002						0.6	4.6	44	0.08	3.60	<0.01
25	B21-1-190	0.006						4.4	0.6	13	0.80	0.55	1.20
26	B21-1-194	0.002						3.4	0.8	24	0.34	0.48	0.92
27	B21-1-220	0.002						4.3	4.4	25	0.06	3.10	0.28
28	B21-2-669	<0.002						8.0	11.0	13	1.5	2.80	0.61
29	B21-2-707	0.010						5.2	9.7	19	0.06	4.30	0.31
30	B21-3-302	0.006						3.9	3.1	27	0.23	1.50	1.50
31	B24-1-422	0.002						0.1	0.3	14	0.02	0.31	0.02
32	B24-2-436	0.004						7.0	7.9	14	0.69	1.70	1.10
33	B24-2-447	0.006						0.6	0.9	39	<0.02	0.87	0.01
34	B24-2-575	<0.002						0.1	0.2	43	<0.02	0.20	<0.01
35	B24-2-588	<0.002						0.4	1.3	39	0.07	0.60	0.01
36	B24-2-632	<0.002						0.1	0.9	43	<0.02	0.53	<0.01
37	B24-2-655	0.008						2.2	3.0	29	0.1	1.60	0.29
38	B24-2-683	0.006						0.3	1.8	29	0.03	0.70	0.05
39	B31-1-302	0.070						3.4	2.0	19	0.47	3.20	1.20
40	B31-1-525	0.034						1.1	1.2	11	0.1	0.39	0.40
41	B31-1-527	0.022						2.8	2.8	12	0.64	0.59	1.40
42	B31-1-565	0.016						5.2	4.7	14	1.3	1.40	2.80
43	B31-1-637	0.060						2.3	1.5	34	0.35	0.81	0.61
44	B31-4-193	<0.002						8.7	5.0	7.2	0.94	1.80	4.00
45	B31-4-216	<0.002						8.5	3.2	6.6	0.73	1.30	3.30

Table 2.--*Sample locations and rock types for mineralized and altered diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Au ppm Graph AA	Pt ppm Graph AA	Pd ppm Graph AA	Rh ppm Graph AA	Ru ppm Graph AA	Ir ppm Graph AA	Al % ICP	Ca % ICP	Fe % ICP	K % ICP	Mg % ICP	Na % ICP
46	B31-4-276	0.018						7.2	3.6	9.4	1.4	1.30	2.40
47	B31-4-292	<0.002						2.9	6.3	0.41	0.09	0.10	2.40
48	BDN-1-461	0.012	<1	<3	<1	<1	<1	4.3	3.1	23	0.03	2.40	0.06
49	BDN-1-497	0.014						5.9	5.8	11	1.5	1.60	0.58
50	BDN-1-499	0.008						7.4	8.4	8.4	0.71	2.20	1.90
51	BDN-1-548	0.030						0.8	2.1	35	0.04	1.10	0.06
52	BDN-1-615	0.004						2.6	1.0	25	0.43	0.36	0.60
53	BDN-1-679	0.010						0.6	0.2	37	0.2	0.05	0.20
54	BDN-1-805	0.008						3.9	1.6	18	0.59	0.42	0.98
55	BQ-1-200	0.062						3.8	4.0	32	0.21	2.30	0.60
56	MDD-1-258	<0.002						4.5	5.3	2.2	0.45	0.78	2.20
57	MDD-1-282	0.004						7.0	5.7	13	1.2	2.50	2.10
58	MDD-1-303	0.004	5.3	<8	<2	<2	<2	0.4	0.8	44	0.03	0.75	0.10
59	MDD-1-311	0.026	2	<3	<1	<1	<1	4.4	2.6	23	0.42	0.95	2.10
60	MDD-1-450	<0.002	3.8	2	<0.5	0.7	<0.5	6.0	6.0	7.9	1.6	5.90	2.10
61	MED-1-198	<0.002						8.8	2.7	1.7	4.5	0.83	4.00
62	MED-1-229	<0.002						0.5	0.8	40	0.35	2.10	2.20
63	MED-1-244	0.006						0.9	2.2	33	0.1	1.30	2.70
64	MED-1-316	<0.002						6.5	0.7	17	5.1	4.40	1.90
65	MMD-1-432	<0.002						7.4	5.8	10	0.52	3.80	2.10
66	MMD-1-434	<0.002						6.4	3.4	12	1.0	2.90	1.80
67	MMD-1-440	<0.002						7.7	1.5	3.1	2.4	1.10	2.20
68	MMD-1-465	0.006						4.6	4.5	19	0.39	3.30	1.20

Table 2.--*Sample locations and rock types for mineralized and altered diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	P % ICP	Ti % ICP	Mn ppm ICP	Ag ppm ICP	As ppm ICP	Au ppm ICP	Ba ppm ICP	Be ppm ICP	Bi ppm ICP	Cd ppm ICP	Ce ppm ICP	Co ppm ICP	Cr ppm ICP
21	40919-174	<0.01	0.05	24,000	<4	<20	<20	80	<2	<20	<4	20	24	10
22	40919-442	<0.01	0.01	7,200	<4	43	<20	7	<2	<20	<4	<8	38	<2
23	40919-456	<0.01	0.03	23,000	<4	30	<20	20	<2	<20	<4	9	29	2
24	40919-463	<0.01	0.02	30,000	<4	<20	<20	10	<2	<20	<4	10	31	<2
25	B21-1-190	0.03	0.20	480	<4	<20	<20	190	<2	<20	10	27	90	96
26	B21-1-194	0.02	0.20	800	<4	<20	<20	87	<2	<20	20	26	180	110
27	B21-1-220	0.02	0.26	9,500	<4	20	<20	32	<2	<20	6	8	38	92
28	B21-2-669	0.03	0.61	7,100	<4	20	<20	1,300	<2	<20	<4	9	48	310
29	B21-2-707	0.02	0.36	7,200	<4	<20	<20	120	<2	<20	5	10	68	330
30	B21-3-302	0.01	0.24	3,700	<4	<20	<20	79	<2	<20	6	8	77	94
31	B24-1-422	<0.01	<0.01	770	<4	<20	<20	240	<2	<20	<4	<8	7	5
32	B24-2-436	0.02	0.38	4,200	<4	40	<20	250	<2	<20	<4	<8	140	290
33	B24-2-447	<0.01	0.03	3,000	<4	160	<20	110	<2	<20	9	<8	61	20
34	B24-2-575	<0.01	<0.01	830	<4	280	<20	81	<2	<20	6	<8	73	<2
35	B24-2-588	<0.01	0.01	2,800	<4	250	<20	53	<2	<20	7	<8	77	4
36	B24-2-632	<0.01	<0.01	4,700	<4	68	<20	79	<2	<20	8	<8	26	<2
37	B24-2-655	<0.01	0.10	16,000	<4	<20	<20	70	<2	<20	6	9	26	91
38	B24-2-683	<0.01	0.02	2,600	<4	20	<20	100	<2	<20	5	<8	95	10
39	B31-1-302	0.03	0.20	2,800	<4	<20	<20	120	<2	<20	4	10	27	330
40	B31-1-525	<0.01	0.04	1,100	<4	<20	<20	92	<2	<20	10	<8	45	10
41	B31-1-527	0.01	0.09	1,400	<4	<20	<20	78	<2	<20	7	10	27	46
42	B31-1-565	0.02	0.20	1,800	<4	<20	<20	110	<2	<20	<4	20	20	87
43	B31-1-637	<0.01	0.08	1,500	<4	<20	<20	98	<2	<20	6	10	56	54
44	B31-4-193	0.03	0.50	2,100	<4	<20	<20	360	<2	<20	<4	22	51	190
45	B31-4-216	0.03	0.42	1,300	<4	<20	<20	260	<2	<20	<4	21	37	210

Table 2.--*Sample locations and rock types for mineralized and altered diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	P % ICP	Ti % ICP	Mn ppm ICP	Ag ppm ICP	As ppm ICP	Au ppm ICP	Ba ppm ICP	Be ppm ICP	Bi ppm ICP	Cd ppm ICP	Ce ppm ICP	Co ppm ICP	Cr ppm ICP
46	B31-4-276	0.03	0.31	1,300	<4	<20	<20	340	<2	<20	<4	20	62	200
47	B31-4-292	<0.01	0.03	1,700	<4	<20	<20	70	<2	<20	<4	20	4	20
48	BDN-1-461	0.02	0.10	9,200	<4	<20	<20	20	<2	<20	<4	10	33	9
49	BDN-1-497	0.03	0.30	2,700	<4	20	<20	300	<2	<20	10	20	28	180
50	BDN-1-499	0.03	0.57	3,500	<4	30	<20	140	<2	<20	<4	10	34	230
51	BDN-1-548	<0.01	0.05	11,000	<4	79	<20	7	<2	<20	7	<8	200	21
52	BDN-1-615	0.02	0.04	840	<4	160	<20	130	<2	<20	10	20	130	39
53	BDN-1-679	<0.01	0.02	250	<4	170	<20	59	<2	<20	8	<8	51	29
54	BDN-1-805	0.03	0.10	840	<4	91	<20	120	<2	<20	10	20	170	90
55	BQ-1-200	0.03	0.26	3,800	<4	<20	<20	120	<2	<20	8	10	260	86
56	MDD-1-258	0.05	0.10	980	<4	<20	<20	210	<2	<20	<4	20	7	10
57	MDD-1-282	0.04	0.59	4,300	<4	<20	<20	550	<2	<20	<4	31	110	270
58	MDD-1-303	<0.01	0.04	530	<4	<20	<20	21	<2	<20	<4	10	35	69
59	MDD-1-311	0.1	0.43	2,600	<4	<20	<20	250	<2	<20	<4	59	29	59
60	MDD-1-450	0.1	0.46	2,900	<4	<20	<20	720	<2	<20	<4	46	41	960
61	MED-1-198	0.03	0.20	740	<4	<20	<20	480	<2	<20	<4	20	8	26
62	MED-1-229	<0.01	0.05	6,900	<4	<20	<20	5	3	<20	8	<8	29	<2
63	MED-1-244	<0.01	0.02	3,000	<4	<20	<20	8	2	<20	7	<8	300	6
64	MED-1-316	0.02	0.37	4,000	<4	<20	<20	120	<2	<20	<4	9	42	300
65	MMD-1-432	0.04	0.51	1,700	<4	<20	<20	100	<2	<20	<4	10	41	110
66	MMD-1-434	0.03	0.53	1,000	<4	<20	<20	130	<2	<20	<4	20	36	78
67	MMD-1-440	0.05	0.20	210	<4	<20	<20	380	<2	<20	<4	31	7	10
68	MMD-1-465	0.04	0.68	1,100	<4	44	<20	110	<2	<20	6	32	29	1,300

Table 2.--*Sample locations and rock types for mineralized and altered diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Cu ppm ICP	Eu ppm ICP	Ga ppm ICP	Ho ppm ICP	La ppm ICP	Li ppm ICP	Mo ppm ICP	Nb ppm ICP	Nd ppm ICP	Ni ppm ICP	Pb ppm ICP	Sc ppm ICP	Sn ppm ICP
21	40919-174	20	<4	23	<8	10	10	<4	<8	9	27	<8	7	<10
22	40919-442	56	<4	10	<8	4	<4	5	<8	<8	57	<8	5	<10
23	40919-456	51	<4	20	<8	6	<4	4	<8	<8	51	<8	6	<10
24	40919-463	3	<4	27	<8	8	<4	<4	<8	<8	45	<8	10	<10
25	B21-1-190	500	<4	20	<8	20	24	9	<8	10	120	76	10	<10
26	B21-1-194	710	<4	10	<8	10	20	10	<8	10	240	54	10	<10
27	B21-1-220	200	<4	20	<8	6	10	<4	<8	9	91	<8	38	<10
28	B21-2-669	44	<4	22	<8	4	34	<4	<8	<8	110	<8	46	<10
29	B21-2-707	290	<4	20	<8	9	7	<4	<8	8	210	<8	22	<10
30	B21-3-302	220	<4	9	<8	4	10	<4	<8	<8	90	<8	25	<10
31	B24-1-422	96	<4	<8	<8	<4	<4	<4	<8	<8	36	<8	<4	<10
32	B24-2-436	240	<4	10	<8	<4	58	<4	<8	<8	76	<8	34	<10
33	B24-2-447	110	<4	<8	<8	<4	6	<4	<8	<8	94	10	6	<10
34	B24-2-575	6	<4	<8	<8	<4	<4	<4	<8	<8	47	<8	<4	<10
35	B24-2-588	<2	<4	<8	<8	<4	6	<4	<8	<8	43	<8	<4	<10
36	B24-2-632	82	<4	<8	<8	<4	<4	<4	<8	<8	100	<8	<4	<10
37	B24-2-655	26	<4	20	<8	7	20	<4	<8	<8	36	<8	20	<10
38	B24-2-683	110	<4	<8	<8	<4	5	<4	<8	<8	58	<8	5	<10
39	B31-1-302	280	<4	<8	<8	5	21	9	<8	<8	130	10	22	<10
40	B31-1-525	64	<4	<8	<8	<4	<4	<4	<8	<8	100	31	<4	<10
41	B31-1-527	44	<4	<8	<8	5	4	<4	<8	<8	52	20	6	<10
42	B31-1-565	10	<4	10	<8	9	7	<4	<8	<8	110	8	10	<10
43	B31-1-637	59	<4	<8	<8	8	5	9	<8	<8	74	10	8	<10
44	B31-4-193	62	<4	25	<8	10	22	<4	<8	10	84	9	28	<10
45	B31-4-216	63	<4	20	<8	10	29	<4	<8	9	58	<8	30	<10

Table 2.--*Sample locations and rock types for mineralized and altered diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Cu ppm ICP	Eu ppm ICP	Ga ppm ICP	Ho ppm ICP	La ppm ICP	Li ppm ICP	Mo ppm ICP	Nb ppm ICP	Nd ppm ICP	Ni ppm ICP	Pb ppm ICP	Sc ppm ICP	Sn ppm ICP
46	B31-4-276	110	<4	20	<8	10	20	<4	<8	8	50	8	22	<10
47	B31-4-292	6	<4	10	<8	10	<4	<4	<8	9	<4	<8	<4	<10
48	BDN-1-461	200	<4	20	<8	8	7	<4	<8	<8	43	<8	7	<10
49	BDN-1-497	300	<4	20	<8	9	20	10	<8	<8	70	20	27	<10
50	BDN-1-499	55	<4	20	<8	4	20	7	<8	<8	61	20	48	<10
51	BDN-1-548	510	<4	10	<8	<4	4	<4	<8	<8	140	54	5	43
52	BDN-1-615	350	<4	<8	<8	8	6	<4	<8	8	110	70	10	<10
53	BDN-1-679	86	<4	<8	<8	<4	<4	<4	<8	<8	100	90	6	<10
54	BDN-1-805	240	<4	10	<8	10	7	6	<8	9	550	94	10	20
55	BQ-1-200	150	<4	9	<8	7	10	45	<8	8	270	<8	24	<10
56	MDD-1-258	6	<4	10	<8	10	10	<4	<8	10	<4	<8	8	<10
57	MDD-1-282	30	<4	20	<8	20	8	<4	<8	10	86	<8	37	<10
58	MDD-1-303	160	<4	<8	<8	6	<4	8	<8	<8	130	<8	8	<10
59	MDD-1-311	550	<4	10	<8	28	<4	<4	9	31	48	<8	25	<10
60	MDD-1-450	47	<4	20	<8	21	24	<4	9	28	270	<8	33	<10
61	MED-1-198	20	<4	28	<8	9	42	<4	<8	<8	7	24	5	<10
62	MED-1-229	280	<4	20	<8	<4	93	<4	<8	<8	26	<8	4	<10
63	MED-1-244	2,000	<4	10	<8	<4	45	<4	<8	<8	20	100	<4	<10
64	MED-1-316	290	<4	20	<8	<4	220	<4	<8	<8	59	20	41	<10
65	MMD-1-432	160	<4	20	<8	5	20	<4	<8	10	60	<8	44	<10
66	MMD-1-434	280	<4	20	<8	8	28	<4	<8	<8	66	<8	31	<10
67	MMD-1-440	46	<4	20	<8	20	31	<4	<8	10	6	<8	5	<10
68	MMD-1-465	1,100	<4	20	<8	10	10	<4	10	20	280	10	26	20

Table 2.--*Sample locations and rock types for mineralized and altered diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Sr ppm ICP	Ta ppm ICP	Th ppm ICP	U ppm ICP	V ppm ICP	Y ppm ICP	Yb ppm ICP	Zn ppm ICP
21	40919-174	54	<80	10	<200	10	10	3	<4
22	40919-442	10	<80	10	<200	<4	6	3	61
23	40919-456	7	<80	10	<200	6	10	2	20
24	40919-463	46	<80	10	<200	20	10	4	<4
25	B21-1-190	120	<80	<8	<200	64	6	<2	5,300
26	B21-1-194	130	<80	<8	<200	66	5	<2	5,400
27	B21-1-220	60	<80	<8	<200	150	22	3	160
28	B21-2-669	180	<80	<8	<200	290	20	2	150
29	B21-2-707	230	<80	<8	<200	170	20	3	130
30	B21-3-302	75	<80	<8	<200	120	8	<2	130
31	B24-1-422	<4	<80	<8	<200	7	<4	<2	29
32	B24-2-436	200	<80	<8	<200	210	7	<2	41
33	B24-2-447	20	<80	<8	<200	20	<4	<2	480
34	B24-2-575	9	<80	<8	<200	<4	<4	<2	<4
35	B24-2-588	29	<80	<8	<200	5	<4	<2	72
36	B24-2-632	20	<80	<8	<200	<4	<4	<2	130
37	B24-2-655	33	<80	8	<200	76	10	2	120
38	B24-2-683	24	<80	<8	<200	20	<4	<2	69
39	B31-1-302	63	<80	<8	<200	120	7	<2	110
40	B31-1-525	30	<80	<8	<200	10	<4	<2	2,400
41	B31-1-527	77	<80	<8	<200	36	<4	<2	1,400
42	B31-1-565	140	<80	<8	<200	67	<4	<2	54
43	B31-1-637	90	<80	<8	<200	46	<4	<2	44
44	B31-4-193	360	<80	<8	<200	270	10	2	91
45	B31-4-216	330	<80	<8	<200	180	10	<2	82

Table 2.--*Sample locations and rock types for mineralized and altered diamond drill core samples near the Red Lake Indian Reservation, northern Minnesota*--Continued

Sample No.	Field No.	Sr ppm ICP	Ta ppm ICP	Th ppm ICP	U ppm ICP	V ppm ICP	Y ppm ICP	Yb ppm ICP	Zn ppm ICP
46	B31-4-276	320	<80	<8	<200	140	7	<2	65
47	B31-4-292	72	<80	<8	<200	10	<4	<2	<4
48	BDN-1-461	32	<80	8	<200	21	6	<2	480
49	BDN-1-497	120	<80	<8	<200	170	10	<2	2,800
50	BDN-1-499	200	<80	<8	<200	270	20	3	250
51	BDN-1-548	29	<80	8	<200	23	<4	<2	320
52	BDN-1-615	71	<80	<8	<200	32	5	<2	2,800
53	BDN-1-679	9	<80	<8	<200	20	<4	<2	990
54	BDN-1-805	130	<80	<8	<200	53	8	<2	4,700
55	BQ-1-200	80	<80	<8	<200	140	8	2	99
56	MDD-1-258	310	<80	<8	<200	65	8	<2	27
57	MDD-1-282	230	<80	<8	<200	230	20	2	160
58	MDD-1-303	30	<80	<8	<200	10	<4	<2	29
59	MDD-1-311	250	<80	<8	<200	71	21	3	100
60	MDD-1-450	560	<80	<8	<200	130	20	2	120
61	MED-1-198	280	<80	<8	<200	47	4	<2	31
62	MED-1-229	7	<80	<8	<200	860	<4	<2	120
63	MED-1-244	10	<80	<8	<200	370	<4	<2	140
64	MED-1-316	29	<80	<8	<200	380	10	<2	150
65	MMD-1-432	110	<80	<8	<200	300	20	3	80
66	MMD-1-434	110	<80	<8	<200	250	10	<2	140
67	MMD-1-440	160	<80	<8	<200	31	<4	<2	110
68	MMD-1-465	88	<80	<8	<200	180	10	<2	1,100