

UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Gold contents of 766 A-horizon soil samples  
from the Vermilion District, northeastern Minnesota

By

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## CONTENTS

	Page
Introduction.....	1
Sample Collection.....	1
Analytical Procedures.....	1
References Cited.....	3

## ILLUSTRATIONS

Figure 1. Index map of the study area.....	2
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## TABLES

Table 1. Gold contents of 766 A-horizon soil samples from the Vermilion District, Minnesota.....	4
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## Introduction

The Vermilion district (fig 1.), as referred to in this report, encompasses an irregularly shaped area some 66 km (41 mi) long and ranging in width from 5 km<sup>2</sup> (3 mi<sup>2</sup>) to 16 km<sup>2</sup> (10 mi<sup>2</sup>). It extends from the Vermilion Lake in the southwest to Moose Lake in the northeast. The area sampled encompasses approximately 568 km (226 mi) and is centered on the greenstone (Archean) belt within St. Louis, Lake, and Cook Counties.

The greenstone belt is composed of mafic metavolcanic and associated rocks that are intruded on both the north and south by major granitoid bodies. These rocks have mineral assemblages characteristic of the greenschist-facies metamorphism. The general geology of the district has been described by Sims (1976). Pleistocene glacial materials consisting of till, outwash, and lacustrine deposits, associated with the Wisconsin episode of glaciation, cover the area. These are the parent materials of the A-horizon soils sampled here.

The field work was done as a cooperative project between the U.S. Geological Survey and the Minnesota Geological Survey in the years of 1970 and 1971. A table format listing of all spectrographic analyses of the collected soil and outcrop samples from this area was published in 1981 (Grimes, 1981).

## Sample Collection

A-horizon soil samples were collected at 766 localities along roads, rivers and lakeshores. These soils were collected immediately below the turf at an average depth of 10 cm (4 in). They are generally a fine, organic-rich material containing few rock fragments and ranging in color from black through brown to a red.

## Sample Preparation

The soil samples were oven-dried overnight at 100 °C in the original Kraft paper sample containers. Extremely clay-rich samples were disaggregated in a jaw crusher, using a wide jaw setting. All of the soils were then sieved through an 80-mesh (177-micrometer opening) sieve, and an 84 g (3-oz) container of the fine fraction was saved for analysis.

## Analytical Methods

Gold content of the soils was determined using an atomic-absorption spectroscopic method described below:

A 10-gram sample is roasted for 1 hour at 700 °C, gold is then extracted with hydrobromic acid-0.5 percent bromine solution and MIBK (methyl isobutyl ketone). Electrothermal atomic-absorption spectroscopy, using background correction, is used to determine gold to 0.001 ppm (1 ppb) (O'Leary and Meier, 1986).

Table 1 shows the analytical results for these 766 soil samples. A MF map showing field localities and a discussion of the results will be published at a later date.

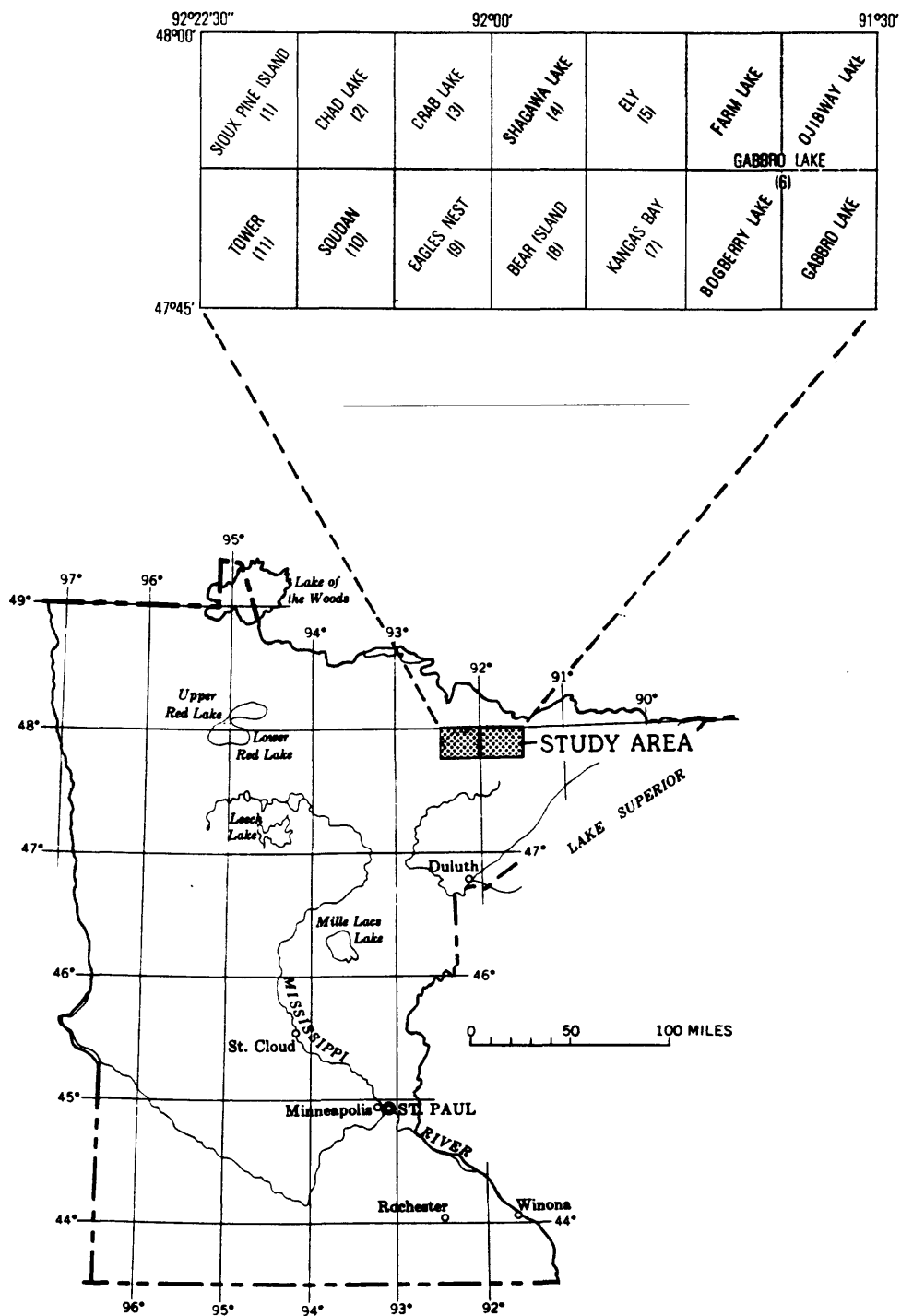


Figure 1. Index map of the study area

### References Cited

- Grimes, D.J., Siems, D.F., and Alminas, H.V., 1981, Analyses of A-horizon soil and outcrop samples from the Vermilion District, northeastern Minnesota: U.S. Geological Survey Open-File Report 81-999, 60 p.
- O'Leary, R.M., and Meier, A.L., 1986, Analytical Methods Used in Geochemical Exploration, 1984: U.S. Geological Survey Circular 948, 48 p.
- Sims, P.K., 1973, Early Precambrian tectonic-igneous evolution of the Vermilion district, northeastern Minnesota: Geological Society of America Bulletin, V. 87, p. 379-389.

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA

Sample	LATITUDE	LONGITUD	AU(PPB)
70V016A	47 51 4	91 16 23	11
70V017A	47 51 5	91 16 18	73
70V018A	47 51 7	91 16 10	1,100
70V019A	47 51 12	91 16 9	8
70V021A	47 51 20	91 16 0	6
70V022A	47 51 17	91 15 58	3
70V023A	47 51 14	91 15 57	3
70V024A	47 51 11	91 15 57	7
70V025A	47 51 9	91 15 57	7
70V026A	47 51 7	91 15 52	2
70V027A	47 51 4	91 15 50	40
70V054A	47 54 31	91 59 11	4
70V055A	47 54 38	91 59 14	1
70V056A	47 54 39	91 59 25	3
70V058A	47 54 56	91 58 17	2
70V059A	47 55 1	91 58 20	14
70V400A	47 58 48	91 48 56	<1
70V401A	47 59 6	91 49 1	1
70V402A	47 59 20	91 49 11	6
70V407A	47 57 59	91 48 12	1
70V408A	47 58 6	91 48 12	3
70V409A	47 58 7	91 48 20	1
70V410A	47 58 5	91 48 32	1
70V411A	47 58 11	91 48 34	<1
70V412A	47 58 10	91 48 42	1
70V413A	47 58 11	91 49 23	2
70V414A	47 58 15	91 48 50	<1
70V415A	47 58 16	91 48 56	2
70V416A	47 58 21	91 49 2	<1
70V417A	47 58 24	91 49 8	<1
70V418A	47 58 31	91 48 57	<1
70V419A	47 58 40	91 48 58	<1
70V420A	47 58 43	91 48 54	<1
71V431A	47 49 35	92 17 34	3
71V432A	47 49 32	92 17 16	4
71V433A	47 49 39	92 17 9	1
71V434A	47 49 39	92 16 51	2
71V435A	47 49 39	92 16 36	4
71V436A	47 49 36	92 16 21	4
71V437A	47 49 30	92 16 2	<1
71V438A	47 47 12	92 21 51	1
71V439A	47 47 26	92 22 0	2
71V440A	47 47 40	92 22 11	3
71V442A	47 48 18	92 22 19	2
71V443A	47 48 31	92 22 12	5

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V444A	47 48 30	92 21 47	2
71V447A	47 48 16	92 21 5	3
71V448A	47 48 26	92 21 16	2
71V449A	47 48 33	92 21 12	2
71V450A	47 48 54	92 20 35	5
71V451A	47 48 59	92 20 12	3
71V452A	47 49 30	92 19 17	2
71V453A	47 49 2	92 19 27	1
71V454A	47 49 13	92 19 50	2
71V455A	47 49 24	92 20 22	4
71V456A	47 49 31	92 20 37	2
71V457A	47 49 22	92 19 59	3
71V458A	47 48 45	92 22 19	1
71V459A	47 48 58	92 22 11	1
71V460A	47 49 9	92 22 14	1
71V461A	47 49 23	92 22 17	1
71V463A	47 49 35	92 22 17	1
71V464A	47 50 3	92 22 22	2
71V465A	47 50 20	92 22 19	6
71V466A	47 50 35	92 22 26	3
71V467A	47 50 23	92 21 57	4
71V468A	47 50 18	92 21 31	1
71V469A	47 50 14	92 21 13	1
71V470A	47 50 4	92 20 50	3
71V471A	47 50 2	92 20 43	1
71V472A	47 49 24	92 15 44	1
71V473A	47 49 13	92 15 32	2
71V474A	47 49 10	92 15 19	10
71V475A	47 49 5	92 14 55	16
71V476A	47 49 12	92 14 39	6
71V478A	47 51 25	92 15 20	5
71V479A	47 51 26	92 15 2	9
71V480A	47 51 25	92 14 56	6
71V481A	47 51 13	92 14 44	15
71V482A	47 51 11	92 14 29	10
71V483A	47 51 19	92 14 16	5
71V484A	47 51 19	92 13 52	2
71V485A	47 51 16	92 13 43	2
71V486A	47 51 27	92 14 23	2
71V487A	47 51 28	92 14 34	15
71V488A	47 51 50	92 13 28	1
71V489A	47 51 51	92 13 6	1
71V490A	47 51 42	92 12 52	2
71V491A	47 51 46	92 12 38	1
71V492A	47 51 56	92 12 26	5

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V493A	47 51 44	92 12 28	3
71V494A	47 51 32	92 12 17	4
71V495A	47 51 24	92 13 3	2
71V496A	47 51 31	92 13 7	2
71V497A	47 51 10	92 13 8	<1
71V498A	47 51 3	92 13 3	<1
71V499A	47 50 54	92 12 55	<1
71V500A	47 50 45	92 13 19	1,000
71V501A	47 51 8	92 5 20	1
71V502A	47 51 12	92 5 31	1
71V503A	47 51 19	92 5 34	2
71V504A	47 51 27	92 5 38	3
71V505A	47 51 31	92 6 19	3
71V506A	47 51 31	92 6 47	<1
71V507A	47 51 38	92 6 59	2
71V508A	47 51 40	92 7 18	13
71V509A	47 51 37	92 7 33	2
71V510A	47 51 35	92 8 7	3
71V511A	47 51 39	92 9 29	2
71V512A	47 51 32	92 9 49	2
71V513A	47 51 39	92 9 12	8
71V514A	47 51 38	92 8 59	3
71V515A	47 51 33	92 8 47	19
71V516A	47 51 33	92 8 27	2
71V517A	47 51 34	92 5 51	11
71V518A	47 51 36	92 6 12	5
71V519A	47 51 42	92 6 17	2
71V520A	47 51 50	92 6 14	4
71V521A	47 51 53	92 6 44	3
71V522A	47 52 7	92 7 6	5
71V523A	47 52 11	92 7 25	9
71V524A	47 52 14	92 7 47	5
71V525A	47 52 16	92 8 9	2
71V526A	47 52 20	92 8 25	2
71V527A	47 53 9	92 0 29	1
71V528A	47 53 22	92 0 24	<1
71V529A	47 53 30	92 0 11	<1
71V530A	47 53 32	92 0 30	<1
71V531A	47 53 33	92 0 50	22
71V532A	47 53 30	92 1 25	1
71V533A	47 53 30	92 1 54	<1
71V534A	47 53 17	92 2 19	<1
71V535A	47 53 27	92 3 6	2
71V536A	47 53 26	92 3 31	<1
71V537A	47 53 35	92 3 57	1



TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V538A	47 53 41	92 4 8	<1
71V539A	47 53 39	92 4 46	1
71V540A	47 53 31	92 5 14	<1
71V541A	47 53 31	92 5 34	1
71V542A	47 53 33	92 5 52	<1
71V543A	47 53 39	92 6 13	<1
71V544A	47 53 42	92 6 33	1
71V545A	47 53 59	92 6 52	<1
71V546A	47 54 23	92 6 47	1
71V547A	47 54 35	92 6 30	<1
71V548A	47 54 53	92 6 33	<1
71V549A	47 55 14	92 6 40	1
71V550A	47 55 35	91 51 2	1
71V551A	47 55 58	91 51 10	<1
71V552A	47 56 10	91 51 11	<1
71V553A	47 56 27	91 51 11	<1
71V554A	47 56 43	91 51 13	<1
71V555A	47 56 59	91 51 21	5
71V556A	47 56 58	91 51 45	<1
71V557A	47 56 58	91 52 9	<1
71V558A	47 56 59	91 52 30	1
71V559A	47 56 59	91 52 37	<1
71V560A	47 56 53	91 52 51	2
71V561A	47 56 53	91 53 11	1
71V562A	47 57 10	91 53 37	5
71V563A	47 57 12	91 53 57	2
71V564A	47 57 26	91 54 18	3
71V565A	47 57 52	91 54 35	3
71V566A	47 56 45	91 52 21	1
71V567A	47 56 37	91 52 40	1
71V568A	47 56 43	91 52 32	<1
71V570A	47 51 23	92 16 6	20
71V571A	47 51 26	92 16 11	140
71V573A	47 55 29	91 51 26	1
71V574A	47 55 34	91 51 49	1
71V576A	47 55 50	91 52 27	1
71V577A	47 55 14	91 52 58	<1
71V578A	47 55 25	91 52 46	5
71V579A	47 55 33	91 53 13	1
71V580A	47 55 33	91 53 33	<1
71V581A	47 55 37	91 53 53	1
71V582A	47 56 30	91 52 54	<1
71V583A	47 56 33	91 53 8	1
71V584A	47 56 20	91 53 13	<1
71V585A	47 56 12	91 53 19	1

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUDE	AU(PPB)
71V586A	47 56 4	91 53 29	1
71V587A	47 55 35	91 54 21	1
71V588A	47 55 52	91 54 22	1
71V589A	47 55 47	91 54 39	1
71V590A	47 55 33	91 54 43	<1
71V591A	47 55 30	91 55 5	1
71V592A	47 55 29	91 55 35	2
71V593A	47 55 42	91 55 17	<1
71V594A	47 55 51	91 55 6	<1
71V595A	47 56 3	91 55 17	1
71V596A	47 56 15	91 55 6	1
71V597A	47 56 26	91 55 11	<1
71V598A	47 56 34	91 54 45	<1
71V599A	47 55 19	91 55 57	1
71V602A	47 52 17	92 13 41	3
71V603A	47 52 20	92 14 25	<1
71V604A	47 52 19	92 14 29	1
71V605A	47 52 26	92 14 38	1
71V607A	47 52 7	92 14 52	4
71V608A	47 52 9	92 14 39	<1
71V612A	47 52 11	92 17 14	<1
71V613A	47 51 37	92 17 17	1
71V615A	47 50 24	92 18 27	<1
71V616A	47 50 29	92 18 36	2
71V617A	47 50 16	92 19 26	1
71V618A	47 50 8	92 17 19	5
71V619A	47 51 41	92 11 41	2
71V620A	47 51 37	92 11 38	3
71V622A	47 51 32	92 11 39	3
71V624A	47 51 28	92 11 37	1
71V625A	47 51 19	92 11 30	<1
71V626A	47 51 17	92 11 24	3
71V627A	47 51 11	92 11 19	3
71V628A	47 51 10	92 10 47	<1
71V629A1	47 51 12	92 10 11	1
71V630A	47 50 55	92 10 35	1
71V631A	47 51 1	92 11 15	<1
71V632A	47 50 58	92 11 30	4
71V633A	47 52 16	92 11 26	1
71V636A	47 52 24	92 10 30	<1
71V637A	47 52 25	92 10 17	1
71V638A	47 52 18	92 10 31	1
71V639A1	47 52 15	92 10 59	<1
71V640A	47 51 57	92 11 45	<1
71V641A	47 51 54	92 11 43	1

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V643A	47 50 54	92 13 31	1
71V644A	47 51 2	92 13 33	1
71V645A	47 50 42	92 14 52	<1
71V646A	47 53 39	92 14 31	<1
71V647A	47 53 44	92 14 12	<1
71V648A	47 53 44	92 13 30	1
71V649A	47 53 41	92 12 59	7
71V650A	47 53 42	92 12 32	1
71V651A	47 53 38	92 12 17	<1
71V652A	47 53 38	92 11 51	1
71V653A	47 53 37	92 11 39	<1
71V654A	47 53 31	92 10 53	<1
71V656A	47 53 27	92 10 33	<1
71V657A	47 53 30	92 9 56	<1
71V658A	47 53 25	92 9 52	2
71V659A	47 53 22	92 9 56	26
71V660A	47 53 16	92 9 38	1
71V662A	47 53 4	92 9 22	1
71V663A	47 52 57	92 9 10	<1
71V664A	47 52 44	92 8 59	<1
71V665A	47 52 37	92 8 51	2
71V667A	47 52 31	92 8 46	<1
71V668A	47 52 33	92 8 28	21
71V669A	47 52 24	92 8 26	<1
71V670A	47 54 17	92 16 56	1
71V671A	47 52 17	92 7 57	26
71V672A	47 52 12	92 7 38	2
71V673A	47 57 28	91 42 35	1
71V676A	47 57 50	91 41 59	1
71V677A	47 58 9	91 41 16	1
71V678A	47 58 11	91 41 56	3
71V679A	47 58 17	91 42 3	<1
71V680A	47 58 17	91 42 10	<1
71V681A	47 58 7	91 42 58	1
71V682A	47 57 57	91 43 7	<1
71V683A	47 58 5	91 43 10	<1
71V684A	47 58 9	91 43 17	2
71V685A	47 58 12	91 43 20	<1
71V686A	47 58 17	91 43 19	<1
71V688A	47 57 40	91 43 2	<1
71V691A	47 58 15	91 35 32	1
71V692A	47 58 21	91 35 29	2
71V693A	47 58 26	91 35 33	1
71V694A	47 58 38	91 35 23	1
71V695A	47 58 36	91 35 53	1

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V697A	47 58 40	91 36 3	<1
71V698A	47 58 56	91 36 16	<1
71V699A	47 59 20	91 36 0	1
71V702A	47 59 15	91 35 27	<1
71V704A	47 59 27	91 35 28	<1
71V705A	47 59 49	91 35 54	<1
71V709A	47 57 22	91 52 3	1
71V710A	47 57 27	91 51 55	<1
71V711A	47 57 29	91 51 49	<1
71V713A	47 57 37	91 51 34	<1
71V714A	47 57 41	91 51 39	<1
71V715A	47 58 13	91 50 16	<1
71V716A	47 58 18	91 50 0	<1
71V718A	47 58 42	91 49 12	<1
71V719A	47 58 38	91 49 7	<1
71V721A	47 58 32	91 49 4	<1
71V722A	47 58 30	91 49 4	1
71V723A	47 58 20	91 49 14	<1
71V724A	47 58 13	91 49 46	<1
71V725A	47 58 6	91 49 58	<1
71V727A	47 57 50	91 50 40	<1
71V729A	47 57 32	91 51 17	5
71V730A	47 57 28	91 51 25	<1
71V731A	47 57 29	91 51 57	<1
71V732A	47 53 48	91 55 39	3
71V733A	47 53 42	91 55 33	9
71V734A	47 54 3	91 55 58	1
71V735A	47 54 8	91 56 20	3
71V736A	47 54 11	91 56 37	28
71V737A	47 54 24	91 56 43	1
71V738A	47 54 39	91 56 47	<1
71V739A	47 55 8	91 57 2	<1
71V742A	47 54 24	92 18 7	<1
71V743A	47 54 10	92 1 5	<1
71V744A	47 53 43	92 1 14	<1
71V745A	47 53 51	92 1 35	<1
71V746A	47 53 42	92 2 19	<1
71V747A	47 53 38	92 2 55	1
71V748A	47 53 35	92 3 6	<1
71V749A	47 53 46	92 3 17	<1
71V750A	47 54 2	92 3 8	<1
71V751A	47 54 19	92 3 20	<1
71V752A	47 54 28	92 2 55	<1
71V753A	47 54 55	92 2 24	<1
71V754A	47 55 15	92 1 29	<1

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V755A	47 55 1	92 0 55	1
71V756A	47 55 34	92 1 42	<1
71V757A	47 56 6	92 1 22	1
71V758A	47 54 32	92 1 16	<1
71V759A	47 54 24	92 1 45	<1
71V760A	47 55 44	91 48 11	23
71V761A	47 56 25	91 47 58	1
71V762A	47 56 22	91 47 38	1
71V763A	47 56 25	91 47 23	<1
71V764A	47 57 13	91 46 46	1
71V765A	47 57 2	91 46 28	1
71V768A	47 56 35	91 46 24	1
71V769A	47 57 38	91 48 10	1
71V770A	47 56 32	91 48 26	1
71V771A	47 56 21	91 48 43	1
71V772A	47 56 21	91 48 55	1
71V773A	47 54 1	92 19 25	5
71V774A	47 54 1	92 19 25	1
71V775A	47 56 28	91 49 8	1
71V776A	47 52 30	91 50 24	<1
71V777A	47 52 32	91 49 52	<1
71V778A	47 52 34	91 49 37	1
71V779A	47 53 35	91 50 23	1
71V780A	47 59 22	91 43 52	<1
71V781A	47 58 0	91 44 8	<1
71V782A1	47 59 46	91 43 56	5
71V783A	47 58 51	91 43 43	3
71V784A	47 58 52	91 43 27	<1
71V785A	47 59 3	91 43 30	<1
71V786A	47 58 58	91 43 17	1
71V787A	47 59 12	91 42 58	1
71V788A	47 59 33	91 43 8	1
71V789A	47 59 47	91 43 16	1
71V790A1	47 59 49	91 43 21	1
71V791A	47 53 25	92 17 51	<1
71V792A	47 53 25	92 17 51	1
71V793A	47 53 25	92 17 51	2
71V794A1	47 59 55	91 43 10	7
71V795A	47 59 27	91 42 57	1
71V796A	47 58 45	91 43 17	1
71V798A	47 51 51	92 20 29	1
71V799A	47 52 24	92 20 31	2
71V800A	47 53 34	92 15 54	1
71V801A	47 53 36	92 3 38	<1
71V802A	47 53 47	92 3 46	<1

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V803A	47 53 57	92 3 41	<1
71V804A	47 54 7	92 3 56	<1
71V805A	47 53 59	91 52 47	1
71V806A	47 54 0	91 53 13	1
71V807A	47 53 55	91 53 35	1
71V808A	47 53 49	91 53 48	2
71V809A	47 53 44	91 54 10	2
71V810A	47 53 37	91 54 33	12
71V811A	47 53 35	91 54 51	2
71V812A	47 53 39	91 55 11	1
71V813A	47 53 38	91 55 37	1
71V814A	47 53 59	91 53 2	62
71V815A	47 48 4	92 17 21	2
71V816A	47 47 52	92 17 33	5
71V817A	47 47 50	92 18 3	1
71V818A	47 47 52	92 18 27	1
71V819A	47 46 52	92 19 52	2
71V821A	47 47 54	92 19 51	<1
71V822A	47 47 46	92 20 15	<1
71V823A	47 47 38	92 20 33	1
71V824A	47 47 26	92 21 6	1
71V825A	47 47 20	92 21 23	<1
71V826A	47 47 7	92 21 52	1
71V827A	47 46 46	92 22 6	1
71V828A	47 46 32	92 22 12	1
71V829A	47 46 8	92 22 21	2
71V830A	47 45 53	92 22 30	1
71V834A	47 54 47	91 48 13	3
71V835A	47 54 41	91 47 51	2
71V836A	47 54 39	91 47 31	1
71V837A	47 54 39	91 46 57	3
71V838A	47 54 33	91 46 37	1
71V839A	47 54 21	91 46 27	1
71V840A	47 54 19	91 46 13	1
71V841A	47 54 13	91 45 32	1
71V842A	47 54 13	91 45 10	1
71V843A	47 54 3	91 44 51	<1
71V844A	47 53 48	91 45 0	<1
71V845A	47 53 29	91 44 57	1
71V846A	47 53 24	91 44 36	<1
71V847A	47 53 12	91 44 14	1
71V848A	47 53 12	91 43 35	<1
71V849A	47 56 27	91 49 14	<1
71V850A	47 56 30	91 49 21	1
71V851A	47 56 41	91 49 24	<1

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V875A	47 55 8	91 50 26	<1
71V876A	47 49 55	91 50 16	<1
71V877A	47 49 56	91 49 52	<1
71V878A	47 49 57	91 49 8	<1
71V879A	47 49 51	91 48 54	<1
71V880A	47 49 34	91 48 38	<1
71V881A	47 49 25	91 48 24	<1
71V882A	47 49 8	91 48 19	2
71V883A	47 49 4	91 47 16	1
71V888A	47 56 59	91 51 12	1
71V889A	47 57 16	91 51 22	4
71V890A	47 57 19	91 50 49	1
71V891A	47 57 57	91 52 33	<1
71V892A	47 57 25	91 51 56	3
71V893A	47 58 20	91 52 35	7
71V894A	47 57 40	91 50 52	<1
71V895A	47 57 47	91 50 28	<1
71V896A	47 57 53	91 50 26	<1
71V897A	47 57 10	91 46 53	1
71V898A	47 57 55	91 49 59	<1
71V899A	47 57 52	91 49 52	1
71V900A	47 55 20	91 56 18	1
71V901A	47 55 36	91 56 20	<1
71V902A	47 55 25	91 56 46	1
71V903A	47 55 12	91 57 1	1
71V904A	47 54 58	91 57 41	<1
71V905A	47 55 8	91 58 3	<1
71V906A	47 55 6	91 58 27	<1
71V907A	47 55 0	91 58 57	<1
71V908A	47 55 2	91 59 18	2
71V909A	47 55 8	91 59 43	1
71V910A	47 54 58	92 0 13	<1
71V911A	47 54 40	92 0 23	1
71V912A	47 54 11	92 0 51	2
71V913A	47 54 23	92 0 38	85
71V914A	47 54 40	91 49 0	1
71V915A	47 54 56	91 48 36	1
71V916A	47 55 4	91 48 22	4
71V917A	47 55 20	91 48 13	2
71V918A	47 55 32	91 47 41	38
71V919A	47 55 29	91 47 12	5
71V920A	47 55 35	91 46 46	3
71V920A1	47 55 35	91 46 46	2
71V921A	47 55 39	91 46 24	1
71V922A	47 55 42	91 45 57	1

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V923A	47 55 50	91 45 25	4
71V924A	47 55 56	91 45 9	1
71V925A	47 55 59	91 44 49	1
71V926A	47 55 59	91 44 18	24
71V927A	47 55 56	91 43 57	3
71V928A	47 55 55	91 43 16	63
71V929A	47 55 57	91 42 29	4
71V930A	47 56 6	91 41 52	2
71V931A	47 56 9	91 41 16	1
71V932A	47 56 14	91 40 54	1
71V933A	47 56 24	91 40 31	2
71V934A	47 56 35	91 40 12	2
71V935A	47 56 42	91 39 51	4
71V936A	47 56 57	91 39 34	6
71V937A	47 57 11	91 39 26	32
71V938A	47 56 44	91 39 33	6
71V939A	47 56 53	91 39 7	5
71V940A	47 57 0	91 38 48	2
71V941A	47 57 12	91 38 31	5
71V942A	47 57 20	91 38 7	13
71V943A	47 57 30	91 37 48	41
71V944A	47 57 28	91 37 26	1
71V945A	47 57 27	91 37 2	7
71V946A	47 57 31	91 36 33	4
71V947A	47 57 30	91 36 12	2
71V948A	47 57 30	91 35 40	48
71V949A	47 57 28	91 35 20	2
71V950A	47 57 31	91 34 52	1
71V951A	47 57 33	91 34 32	36
71V952A	47 57 37	91 34 7	3
71V953A	47 57 41	91 33 52	22
71V954A	47 57 46	91 33 39	34
71V955A	47 57 40	91 33 31	7
71V956A	47 57 40	91 33 14	4
71V957A	47 57 33	91 32 58	3
71V958A	47 57 42	91 32 51	4
71V959A	47 57 52	91 32 35	3
71V960A	47 58 3	91 32 20	<1
71V961A	47 58 15	91 32 5	1
71V962A	47 58 30	91 32 17	2
71V963A	47 58 39	91 31 53	2
71V964A	47 58 47	91 31 39	2
71V965A	47 57 32	91 32 38	19
71V966A	47 57 40	91 32 19	1
71V967A	47 57 48	91 31 59	10



TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V968A	47 57 52	91 31 37	1
71V969A	47 57 33	91 31 21	<1
71V970A	47 57 33	91 30 59	1
71V971A	47 57 29	91 30 31	5
71V972A	47 57 14	91 30 29	5
71V973A	47 57 6	91 30 9	5
71V974A	47 57 53	91 31 12	2
71V975A	47 58 7	91 31 4	2
71V976A	47 58 21	91 30 55	3
71V977A	47 58 40	91 30 49	2
71V978A	47 58 48	91 30 30	4
71V979A	47 59 3	91 30 16	2
71V980A	47 57 20	91 39 53	2
71V981A	47 57 21	91 40 21	1
71V982A	47 57 33	91 40 51	1
71V983A	47 57 29	91 41 2	4
71V984A	47 57 34	91 41 10	1
71V985A	47 47 58	92 15 32	7
71V986A	47 47 50	92 14 57	3
71V987A	47 47 42	92 14 34	5
71V988A	47 47 28	92 14 11	5
71V989A	47 47 24	92 13 39	1
71V990A	47 47 19	92 13 11	1
71V991A	47 47 15	92 12 39	1
71V992A	47 47 17	92 12 22	3
71V993A	47 47 16	92 12 8	2
71V994A	47 47 18	92 11 45	1
71V995A	47 48 6	92 15 40	1
71V996A	47 48 9	92 16 49	2
71V997A	47 58 34	91 48 20	1
71V998A	47 49 15	92 14 14	4
71V999A	47 49 28	92 14 26	2
71V1000A	47 48 33	92 15 27	18
71V1001A	47 48 47	92 14 52	4
71V1002A	47 48 47	92 14 21	2
71V1003A	47 48 52	92 13 42	10
71V1004A	47 49 0	92 13 17	1
71V1005A	47 49 9	92 12 21	2
71V1006A	47 49 17	92 11 47	1
71V1007A	47 49 27	92 11 11	1
71V1008A	47 49 44	92 10 42	2
71V1009A	47 49 57	92 10 13	2
71V1012A	47 55 10	91 47 18	1
71V1013A	47 54 57	91 47 2	2
71V1014A	47 54 48	91 47 1	3

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V1015A	47 54 11	91 46 47	2
71V1016A	47 54 0	91 47 11	1
71V1017A	47 53 44	91 47 16	<1
71V1018A	47 53 30	91 48 0	2
71V1019A	47 53 42	91 48 9	2
71V1020A	47 53 54	91 48 20	<1
71V1021A	47 53 52	91 48 49	1
71V1022A	47 53 58	91 49 11	4
71V1023A	47 53 59	91 53 31	1
71V1026A	47 55 56	91 46 29	3
71V1027A	47 55 48	91 46 23	2
71V1028A	47 54 40	91 54 25	2
71V1030A	47 54 30	91 54 40	1
71V1031A	47 54 26	91 54 47	2
71V1032A	47 54 24	91 54 59	10
71V1033A	47 54 23	91 55 18	3
71V1034A	47 54 25	91 55 37	8
71V1035A	47 54 26	91 55 47	1
71V1036A	47 54 23	91 56 6	1
71V1037A	47 54 18	91 56 26	1
71V1100A	47 57 46	91 49 50	7
71V1200A	47 49 36	92 14 11	11
71V1201A	47 50 39	92 8 55	1
71V1203A	47 50 42	92 8 28	3
71V1204A	47 50 49	92 8 8	3
71V1205A	47 50 51	92 7 46	1
71V1206A	47 50 49	92 7 15	1
71V1207A	47 50 55	92 6 45	1
71V1208A	47 50 50	92 5 58	<1
71V1209A	47 51 2	92 5 44	<1
71V1210A	47 51 13	92 4 59	<1
71V1211A	47 51 27	92 4 38	140
71V1212A	47 51 29	92 4 14	1
71V1213A	47 51 21	92 3 54	1
71V1214A	47 51 16	92 3 28	1
71V1215A	47 51 13	92 3 3	2
71V1216A	47 51 23	92 2 41	1
71V1217A	47 51 42	92 2 23	1
71V1218A	47 51 59	92 1 58	1
71V1219A	47 52 12	92 1 43	1
71V1220A	47 52 25	92 1 20	1
71V1221A	47 52 34	92 1 4	<1
71V1222A	47 52 53	92 0 18	<1
71V1223A	47 53 2	91 59 56	18
71V1224A	47 52 57	91 59 15	1

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V1225A	47 52 52	91 58 52	2
71V1226A	47 52 47	91 58 23	1
71V1227A	47 52 42	91 57 57	<1
71V1228A	47 52 32	91 57 25	1
71V1229A	47 53 4	91 57 12	2
71V1230A	47 53 22	91 56 31	11
71V1231A	47 53 32	91 55 55	1
71V1232A	47 53 49	92 14 55	<1
71V1233A	47 53 53	92 15 31	4
71V1234A	47 53 44	92 15 52	2
71V1236A	47 54 10	92 16 12	1
71V1237A	47 54 27	92 15 55	<1
71V1238A	47 54 30	92 15 27	<1
71V1239A	47 54 31	92 15 46	<1
71V1243A	47 55 4	92 19 26	<1
71V1244A	47 54 50	92 19 25	4
71V1245A	47 54 29	92 20 33	1
71V1246A	47 54 31	92 21 18	<1
71V1247A	47 54 23	92 22 3	<1
71V1248A	47 54 6	92 22 9	<1
71V1249A	47 53 52	92 22 23	1
71V1250A	47 53 35	92 22 11	1
71V1251A	47 53 16	92 21 52	1
71V1252A	47 52 58	92 21 34	2
71V1254A	47 52 51	92 14 19	1
71V1255A	47 53 9	92 14 6	1
71V1256A	47 53 22	92 14 21	<1
71V1257A	47 53 49	92 14 29	1
71V1258A	47 53 58	92 14 35	1
71V1259A	47 54 8	92 14 41	1
71V1260A	47 54 17	92 14 44	<1
71V1262A	47 53 33	92 9 41	<1
71V1263A	47 53 40	92 9 32	<1
71V1264A	47 53 52	92 9 32	<1
71V1265A	47 54 2	92 9 31	1
71V1266A	47 54 11	92 9 30	<1
71V1267A	47 54 19	92 9 27	1
71V1268A	47 54 27	92 9 24	<1
71V1269A	47 50 7	92 16 16	2
71V1271A	47 50 3	92 15 32	1
71V1272A	47 50 31	92 16 11	5
71V1273A	47 50 37	92 16 39	1
71V1274A	47 52 50	92 16 28	3
71V1275A	47 52 56	92 16 2	1
71V1276A	47 52 51	92 15 25	1

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V1277A	47 53 5	92 15 8	1
71V1278A	47 53 17	92 14 54	<1
71V1279A	47 53 36	92 14 56	<1
71V1287A	47 57 22	91 33 59	1
71V1288A	47 57 8	91 34 4	2
71V1290A	47 57 24	91 33 40	1
71V1291A	47 57 29	91 32 12	2
71V1292A	47 57 12	91 32 18	4
71V1293A	47 57 2	91 32 9	5
71V1294A	47 57 43	91 37 30	3
71V1295A	47 57 52	91 37 19	3
71V1296A	47 58 2	91 37 21	3
71V1297A	47 58 12	91 37 18	<1
71V1298A	47 58 24	91 37 25	4
71V1299A	47 58 34	91 37 25	9
71V1300A	47 58 36	91 37 32	<1
71V1301A	47 58 31	91 37 55	<1
71V1302A	47 58 33	91 38 14	1
71V1303A	47 57 13	91 38 7	4
71V1304A	47 57 3	91 38 10	5
71V1305A	47 56 52	91 38 19	2
71V1306A	47 56 47	91 38 27	26
71V1307A	47 56 34	91 38 28	1
71V1308A	47 56 23	91 38 19	1
71V1309A	47 56 14	91 38 17	1
71V1310A	47 56 4	91 38 10	1
71V1311A	47 55 57	91 38 13	12
71V1312A	47 55 53	91 38 2	2
71V1313A	47 55 43	91 37 52	19
71V1314A	47 55 11	91 44 21	1
71V1315A	47 55 10	91 43 59	3
71V1316A	47 55 11	91 43 34	4
71V1317A	47 55 6	91 43 8	2
71V1318A	47 54 59	91 43 36	1
71V1319A	47 54 44	91 43 26	2
71V1320A	47 54 33	91 43 10	1
71V1321A	47 54 26	91 42 45	1
71V1322A	47 54 22	91 42 20	1
71V1323A	47 54 35	91 42 0	<1
71V1324A	47 54 49	91 41 33	2
71V1325A	47 54 41	91 41 3	1
71V1326A	47 54 45	91 40 32	1
71V1327A	47 54 46	91 39 57	1
71V1328A	47 54 34	91 39 43	<1
71V1329A	47 54 44	91 39 15	1

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V1330A	47 54 44	91 38 43	1
71V1331A	47 55 3	91 38 48	1
71V1332A	47 54 35	91 43 48	3
71V1333A	47 54 31	91 44 20	1
71V1334A	47 54 32	91 44 46	2
71V1335A	47 54 9	91 42 44	4
71V1336A	47 53 47	91 42 33	1
71V1337A	47 57 22	91 35 53	20
71V1338A	47 57 11	91 35 52	1
71V1339A	47 56 59	91 35 58	1
71V1340A	47 56 54	91 36 4	3
71V1341A	47 56 47	91 35 57	2
71V1342A	47 56 38	91 35 59	3
71V1343A	47 56 29	91 36 9	14
71V1344A	47 56 19	91 36 14	1
71V1345A	47 56 11	91 36 11	2
71V1346A	47 55 55	91 41 9	4
71V1347A	47 55 44	91 41 19	11
71V1348A	47 55 36	91 41 18	9
71V1349A	47 55 26	91 41 21	2
71V1350A	47 55 16	91 41 22	4
71V1400A	47 52 38	92 20 13	1
71V1401A	47 52 21	92 19 28	1
71V1402A	47 52 42	92 19 49	1
71V1403A	47 52 40	92 19 18	8
71V1404A	47 52 39	92 18 37	<1
71V1405A	47 52 38	92 18 2	<1
71V1406A	47 52 51	92 17 37	<1
71V1407A	47 52 59	92 17 46	<1
71V1408A	47 53 2	92 17 24	5
71V1409A	47 52 36	92 17 13	<1
71V1410A	47 52 39	92 16 49	1
71V1412A	47 56 11	91 42 4	2
71V1413A	47 56 12	91 42 10	1
71V1414A	47 56 18	91 42 16	2
71V1415A	47 56 27	91 42 13	2
71V1416A	47 56 38	91 42 8	1
71V1417A	47 56 29	91 42 1	1
71V1418A	47 56 20	91 41 52	1
71V1419A	47 57 18	91 42 51	<1
71V1420A	47 57 8	91 43 8	1
71V1421A	47 56 34	91 43 51	6
71V1422A	47 56 21	91 44 2	1
71V1423A	47 56 4	91 44 27	2
71V1424A	47 55 25	91 44 23	1

TABLE 1. GOLD CONTENTS OF 766 A-HORIZON SOIL SAMPLES FROM THE VERMILION DISTRICT, MINNESOTA--Continued

Sample	LATITUDE	LONGITUD	AU(PPB)
71V1425A	47 55 30	91 44 25	2
71V1426A	47 55 30	91 44 30	1
71V1427A	47 55 41	91 44 32	1
71V1435A	47 54 32	91 53 8	23
71V1437A	47 57 26	91 50 20	1
71V1438A	47 57 17	91 50 9	1
71V1439A	47 57 19	91 49 52	<1
71V1440A	47 57 18	91 49 34	1
71V1441A	47 57 12	91 49 39	1
71V1443A	47 57 0	91 49 40	1
71V1444A	47 56 50	91 49 39	3
71V1445A	47 56 48	91 49 52	2
71V1446A	47 56 38	91 50 14	1
71V1447A	47 56 26	91 50 31	2
71V1448A	47 57 30	91 50 47	2
71V1450A	47 55 25	91 33 9	1
71V1451A	47 55 36	91 33 9	4
71V1454A	47 55 47	91 33 15	5
71V1455A	47 56 0	91 33 17	4
71V1456A	47 56 2	91 33 37	7
71V1457A	47 56 14	91 33 32	11
71V1458A	47 56 38	91 33 51	13
71V1459A	47 56 37	91 33 26	2
71V1460A	47 56 55	91 33 33	40
71V1461A	47 57 14	91 33 31	8
71V1462A	47 56 27	91 33 41	9
71V1463A	47 55 14	91 50 30	2
71V1464A	47 55 3	91 52 7	2
75V5000A	47 50 21	92 8 23	29
75V5001A	47 50 28	92 8 49	3
75V5002A	47 50 17	92 8 2	3
75V5003A	47 50 24	92 7 43	2
75V5004A	47 50 24	92 7 18	2
75V5005A	47 50 21	92 6 55	2
75V5006A	47 50 34	92 6 34	2
75V5007A	47 53 30	92 11 53	2
75V5008A	47 53 22	92 11 48	2
75V5009A	47 53 12	92 11 43	1
75V5010A	47 53 4	92 11 37	<1
75V5011A	47 52 59	92 11 40	1
75V5012A	47 52 56	92 11 48	4
75V5013A	47 53 0	92 11 23	<1
75V5014A	47 52 59	92 11 5	1
75V5015A	47 53 9	92 11 9	1
75V5016A	47 53 21	92 11 12	1
75V5017A	47 51 8	92 5 20	4