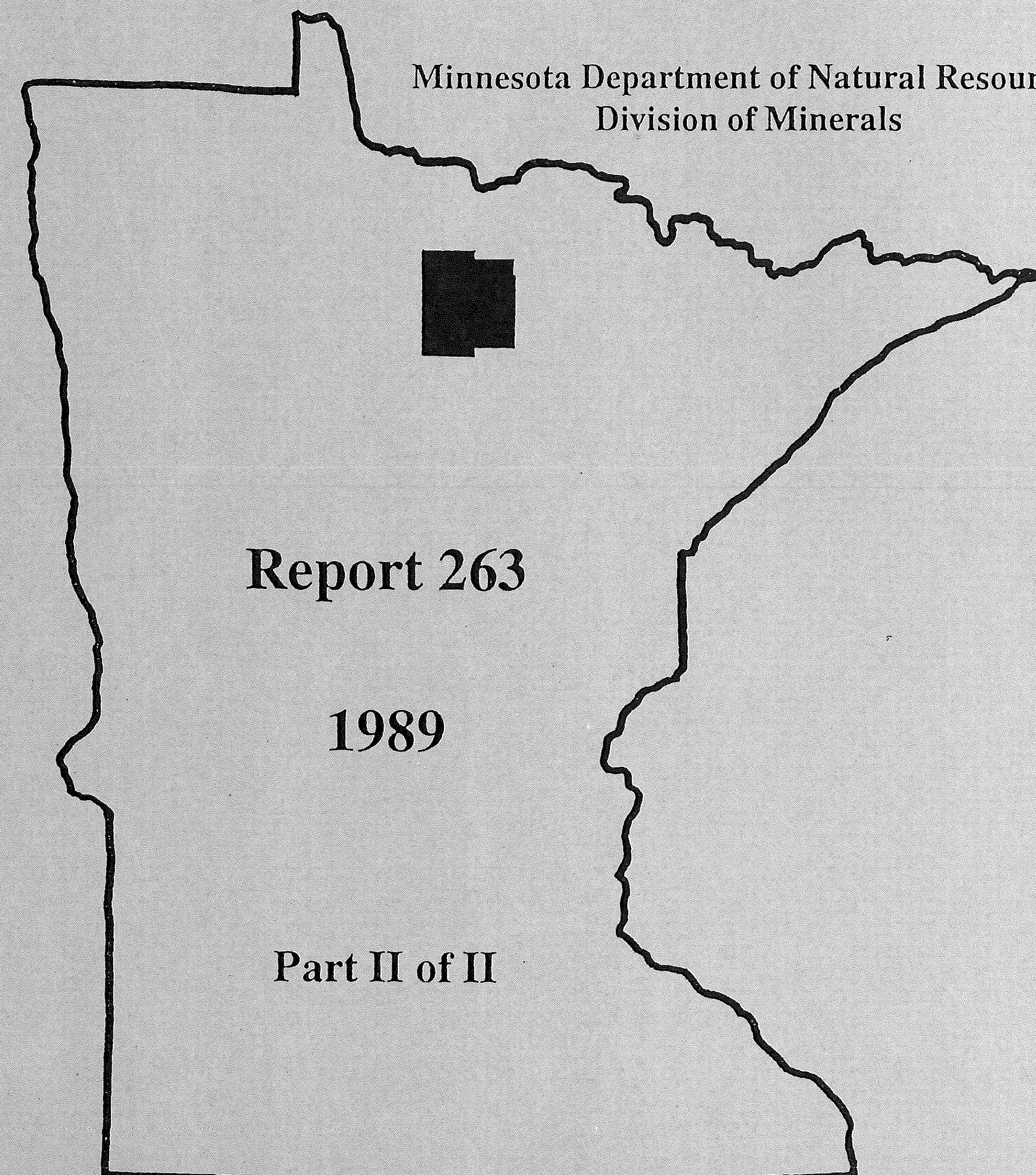
Regional Geochemical Survey of Glacial Drift Drill Samples Over Archean Granite - Greenstone Terrane in the Effie Area, Northern Minnesota

Minnesota Department of Natural Resources
Division of Minerals



Report 263

1989

Part II of II

Minnesota Department of Natural Resources
Division of Minerals
William C. Brice, Director

Regional Geochemical Survey of Glacial Drift Drill Samples Over Archean Granite - Greenstone Terrane in the Effie Area, Northern Minnesota

By:

D. P. Martin, G. Meyer[1], D. F. Cartwright, T. L. Lawler, T. Pastika, M. A. Jirsa[1], T. J. Boerboom[1], and A. R. Streitz[2]

A Minerals Diversification Project

1989

Report 263
Part II of II

[1] *Minnesota Geological Survey*
[2] *Department of Natural Resources Division of Waters*

This report is on file at various major libraries in Minnesota. It may be purchased at the Hibbing office, DNR Minerals Division. For further information contact Richard Ruhanen at (218) 262-6767

Table of Contents: Part II of II

Figures:

Table of Contents (cont) : Part II of II

Tables:

Table of Contents (cont.): Part II of II

Maps and Plates:

Effie Area

Ironton Area

Trace Element Distribution Maps: Effie Area

Table of Contents (cont.): Part II of II

Maps and Plates (cont.):

Trace Element Distribution Maps: Effie Area (cont.)

Plates (in pocket)

Table of Contents (cont.): Part II of II

Appendices:

Table of Contents (cont.): Part II of II

Appendices (cont.):

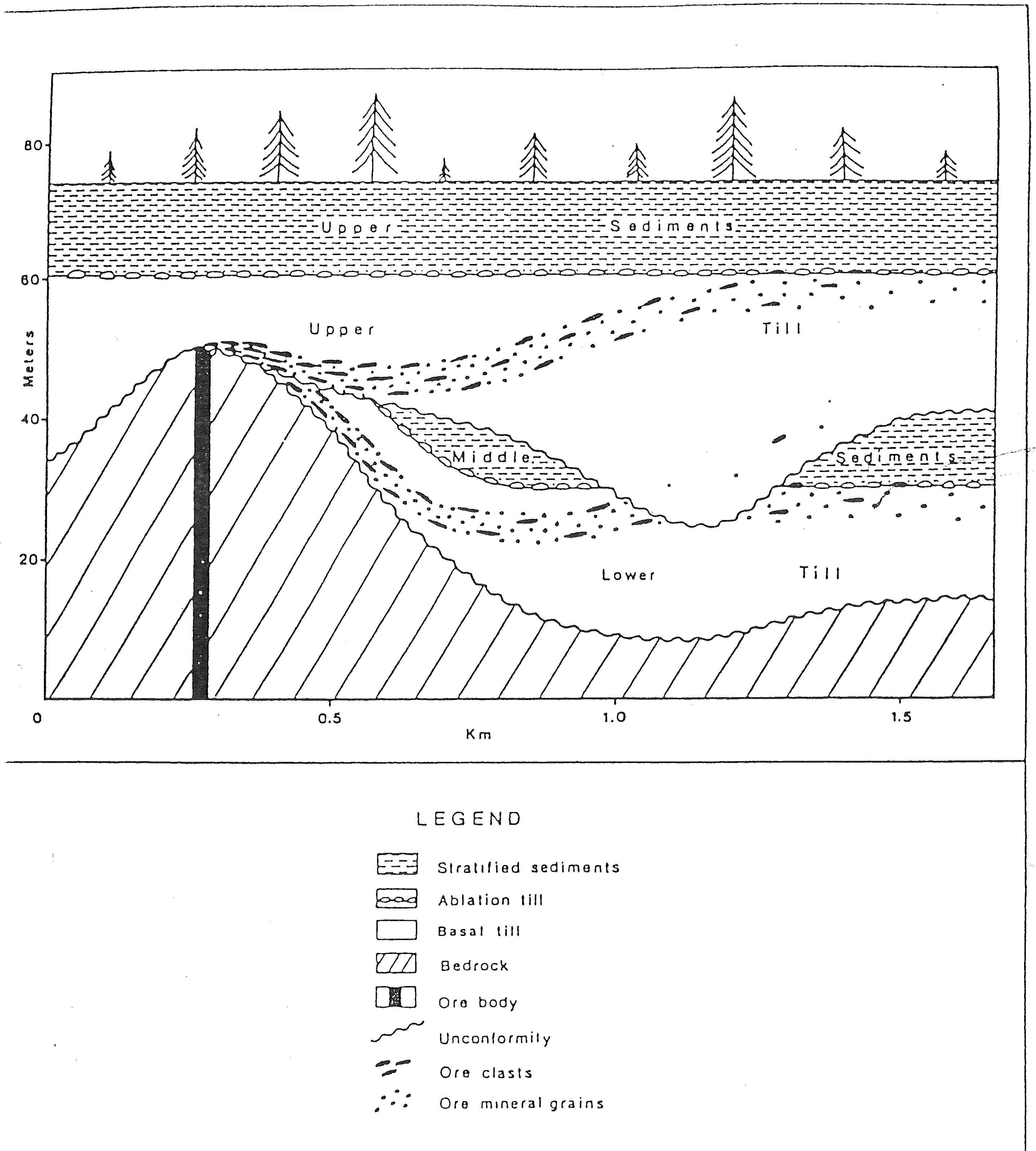
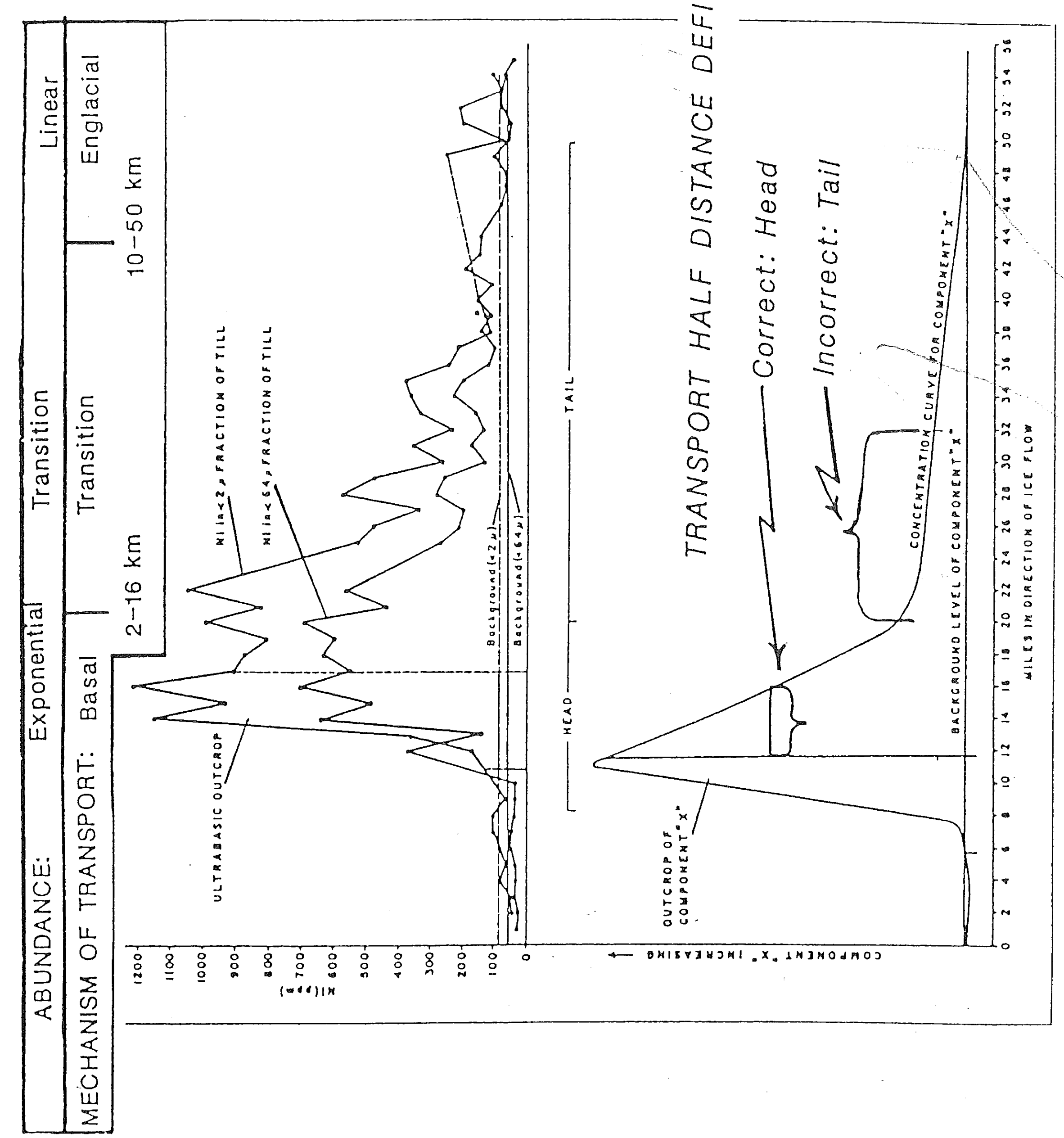


Figure 1. Dispersion pattern for two tills with gold source on a bedrock high (Developed by Overburden Drilling Management Ltd.).

Figure 2. Example of actually found (upper graph) and idealized (lower graph) glacial dispersal curves. (Modified from Bolviken and Gleeson, 1979; after Shilts, 1976; and Strobel and Faure, 1987.)



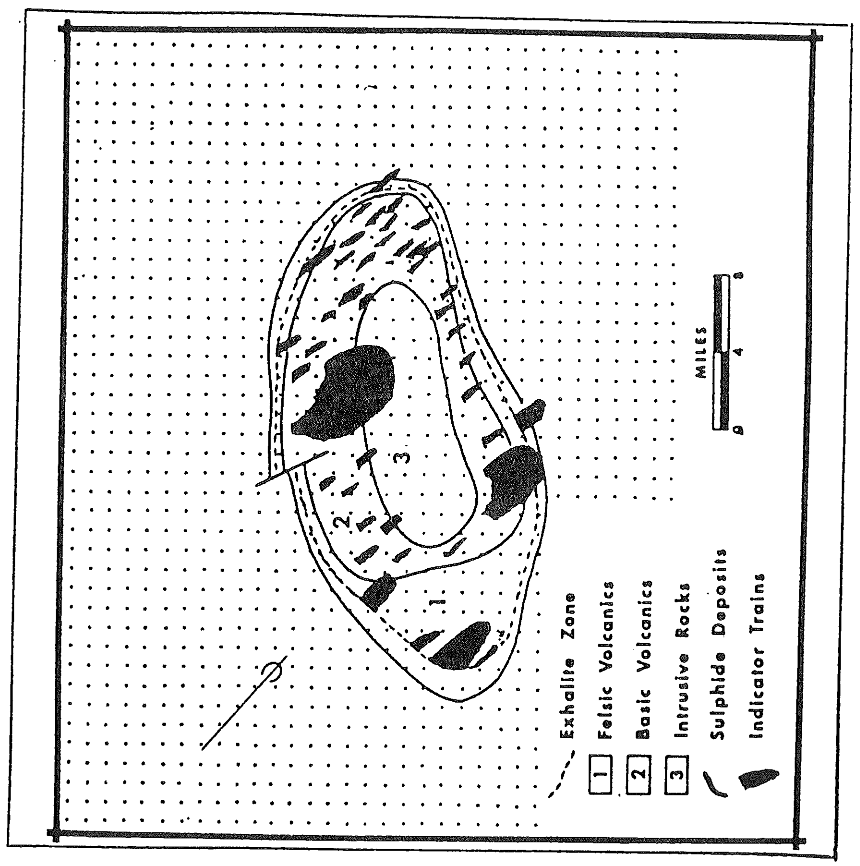


Figure 3. A cluster of dispersal trains of Cu-Ni showings in a regional survey in Archean terrane in the Rankin-Ennadai area, Canada (from Shilts, 1975).

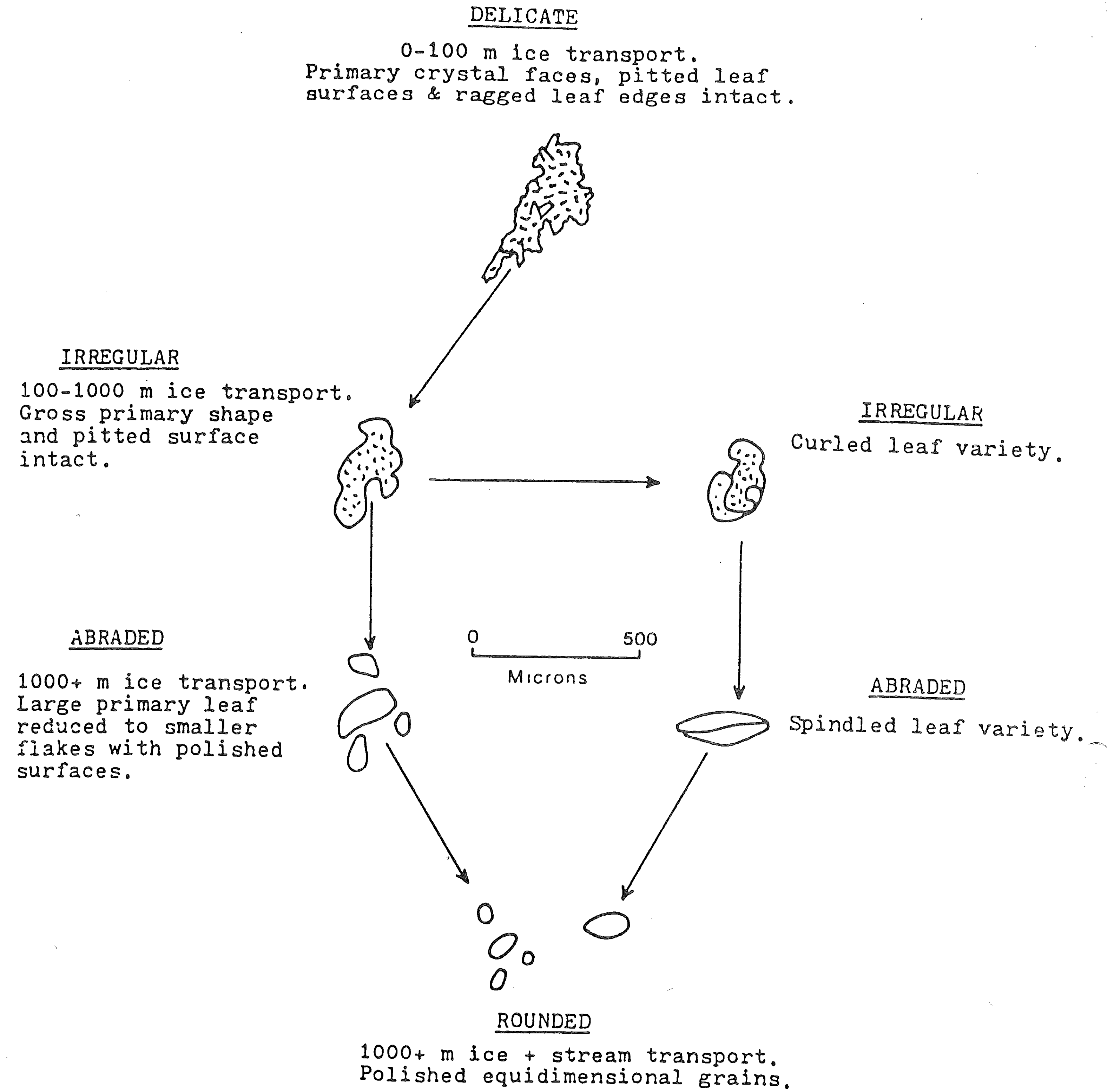


Figure 4. Effects of glacial transport on gold particle size and shape. (Developed by Overburden Drilling Management Ltd.)

Figure 5. Sample prep flowsheet.

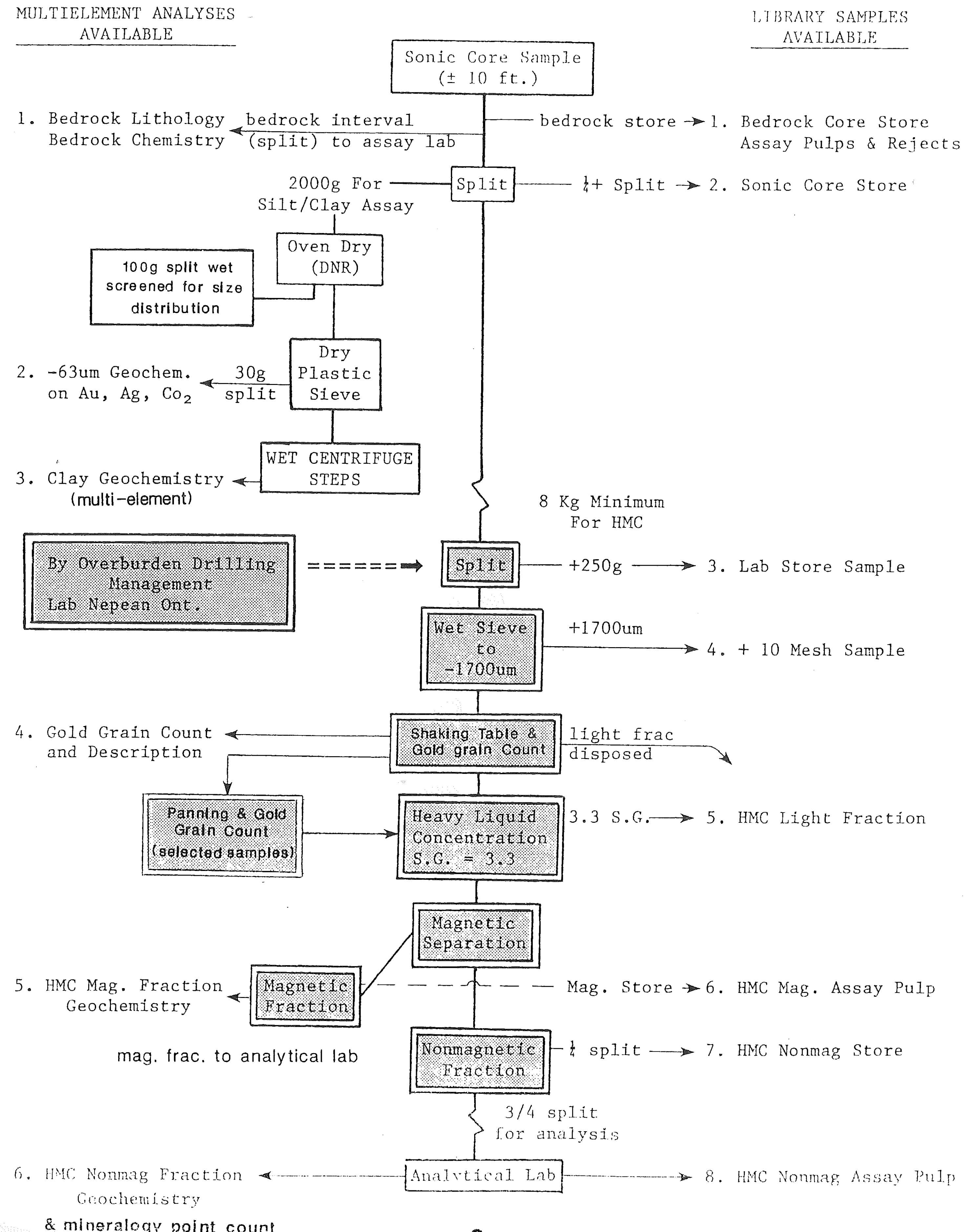
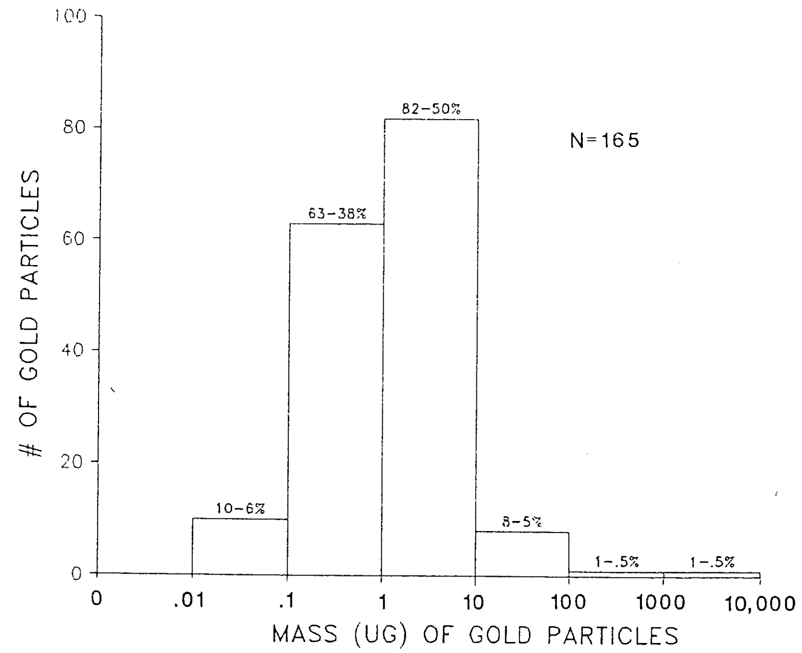
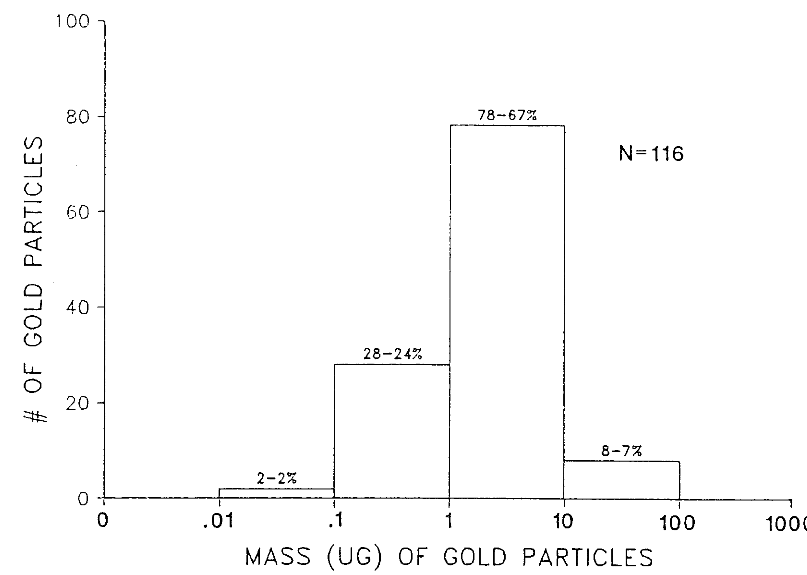


Figure 6. EFFIE AREA GOLD PARTICLE SIZE vs. FREQUENCY DISTRIBUTION

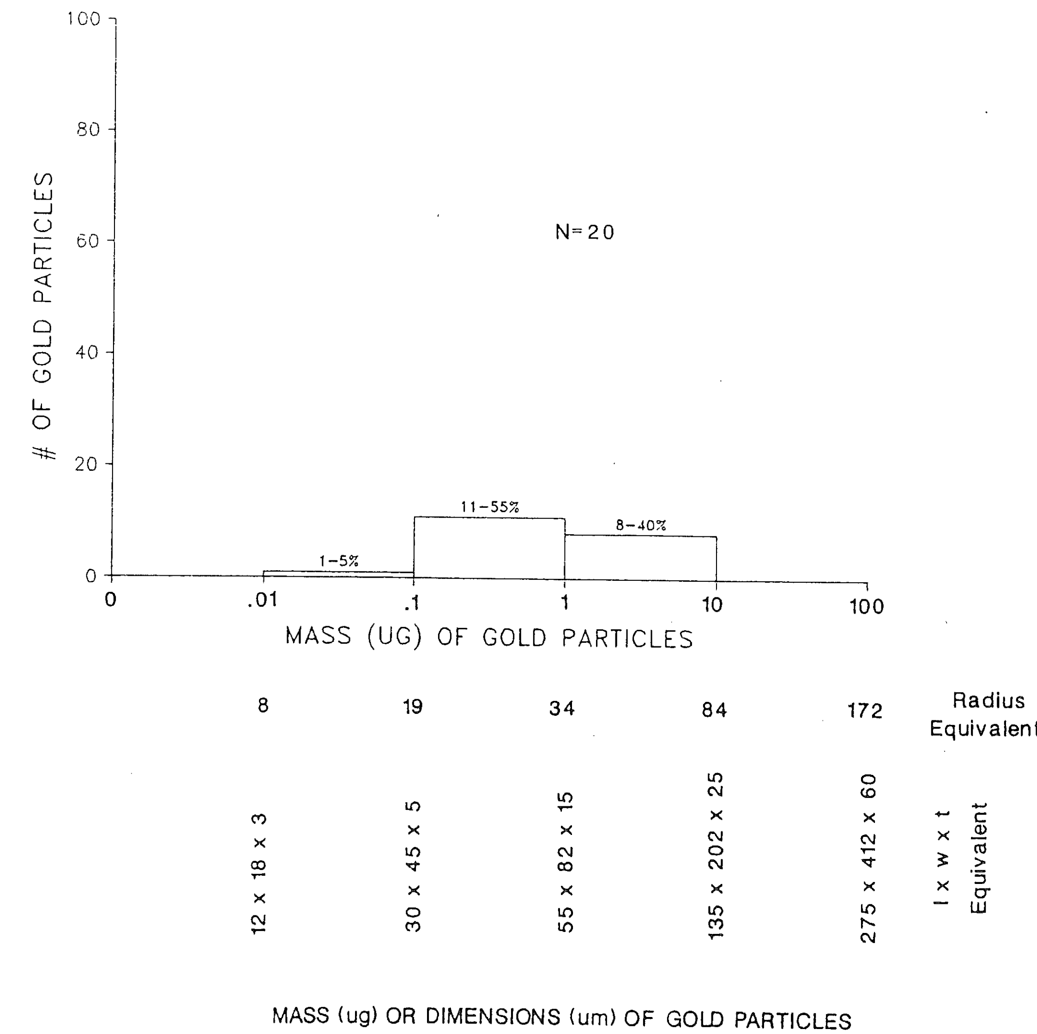
A. Gold Particles from 61 Samples of Rainy Lobe Till and Sands.



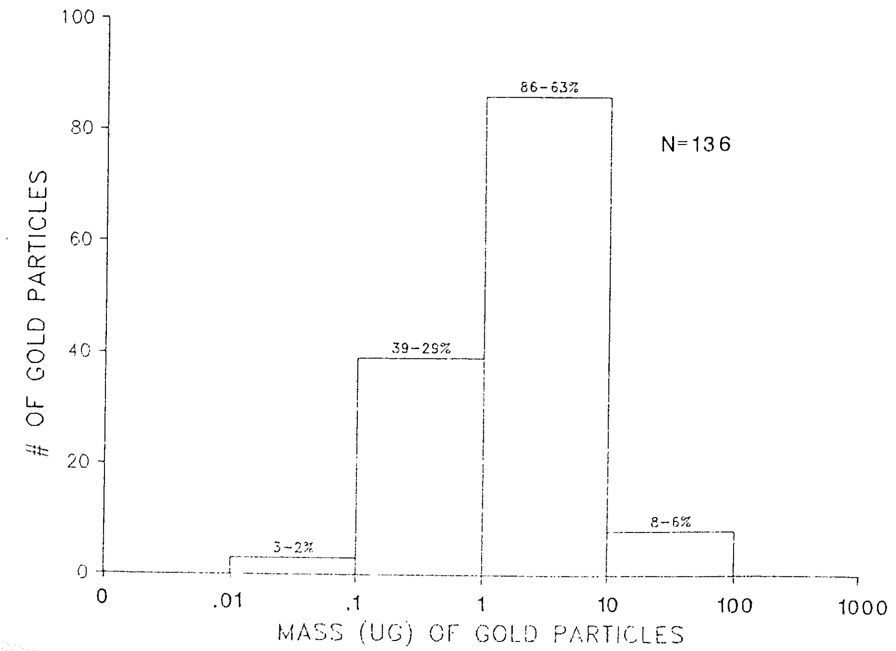
B. Gold Particles from 61 Samples of Old Rainy Lobe Glacial Drift.



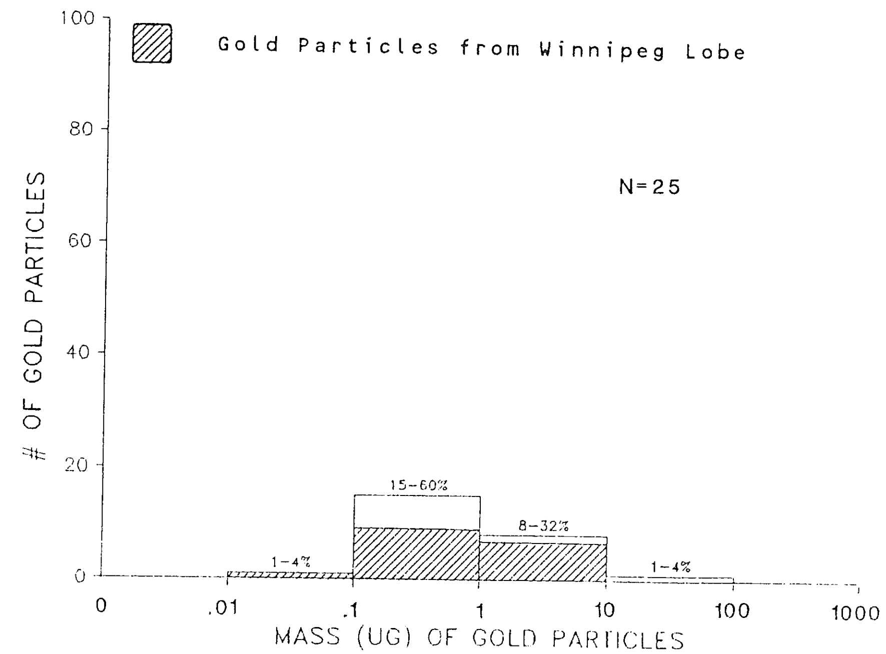
C. Gold Particles from 13 Samples of Winnipeg Lobe Glacial Drift.



D. Gold Particles from 49 Samples of Old Rainy Lobe and Winnipeg Lobe Glacial Drift (Composite of B & C).



E. Gold Particles from All 7 Drift Samples (3 Rainy Lobe, 1 Old Rainy Lobe and 3 Winnipeg Lobe) in Drill Hole OB-301.



Equations Used:

$m = dv$

$d\ (\text{gold}) = 18\ g/cm^3$

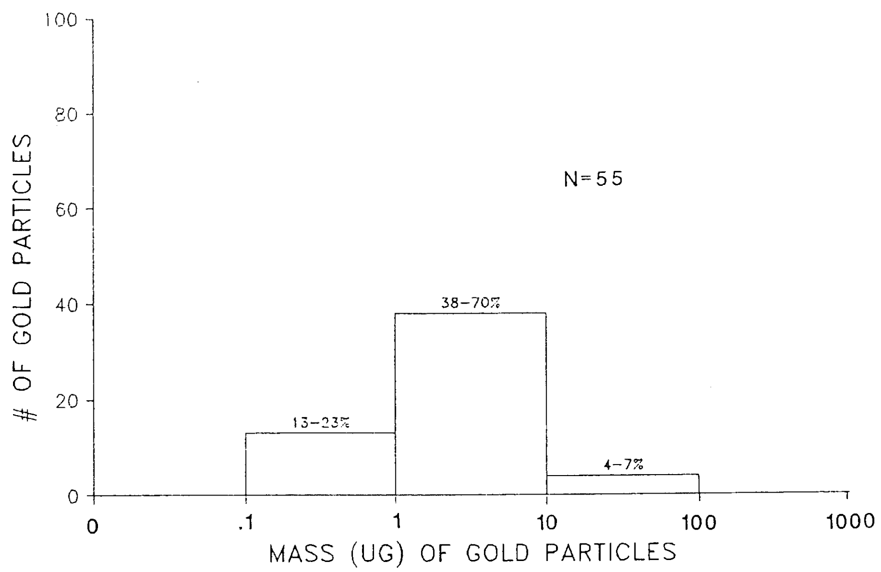
$v = r^2 t$

$r = \frac{(1.5)\ l + w}{4}$

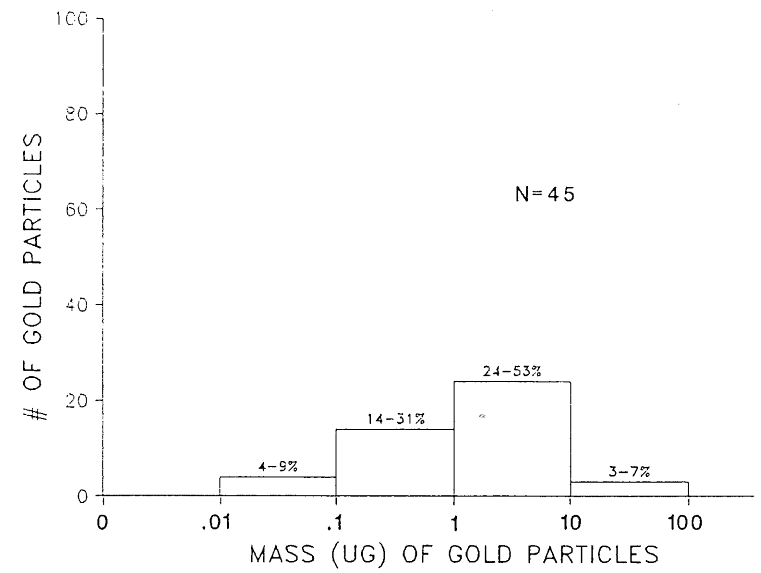
$T = [0.2 - 0.01\ \frac{(2r - 100)}{100}]\ 2r$

Figure 6. EFFIE AREA GOLD PARTICLE SIZE vs. FREQUENCY DISTRIBUTION

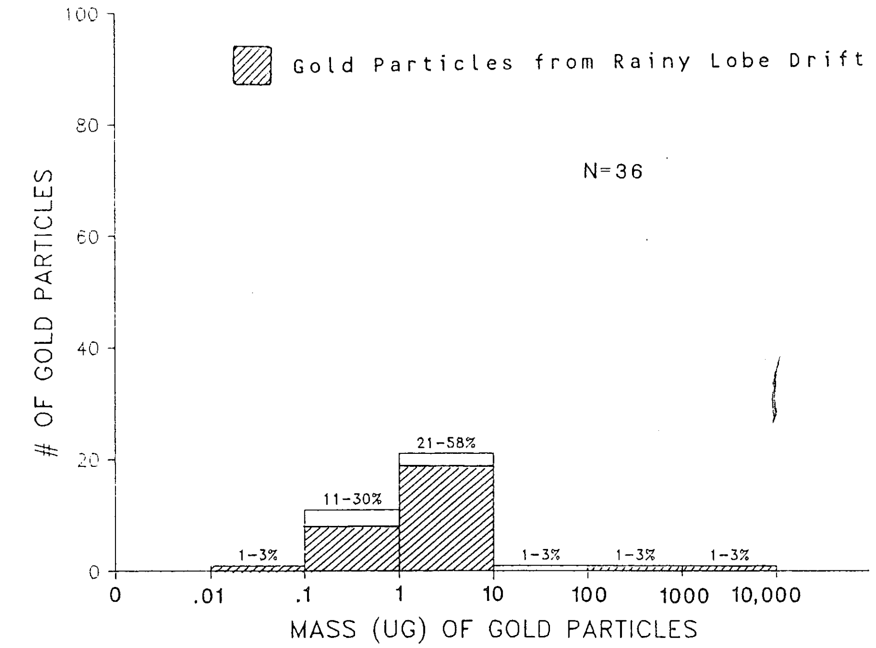
F. Gold Particles from All 6 Drift Samples (6 Old Rainy Lobe) in Drill Hole OB-321.



G. Gold Particles from All 10 Till Samples (9 Rainy Lobe and 1 Old Rainy Lobe) in Drill Hole OB-315.



H. Gold Particles from All 5 Drift Samples (1 Koochiching Lobe and 4 Rainy Lobe) in Drill Hole OB-318.

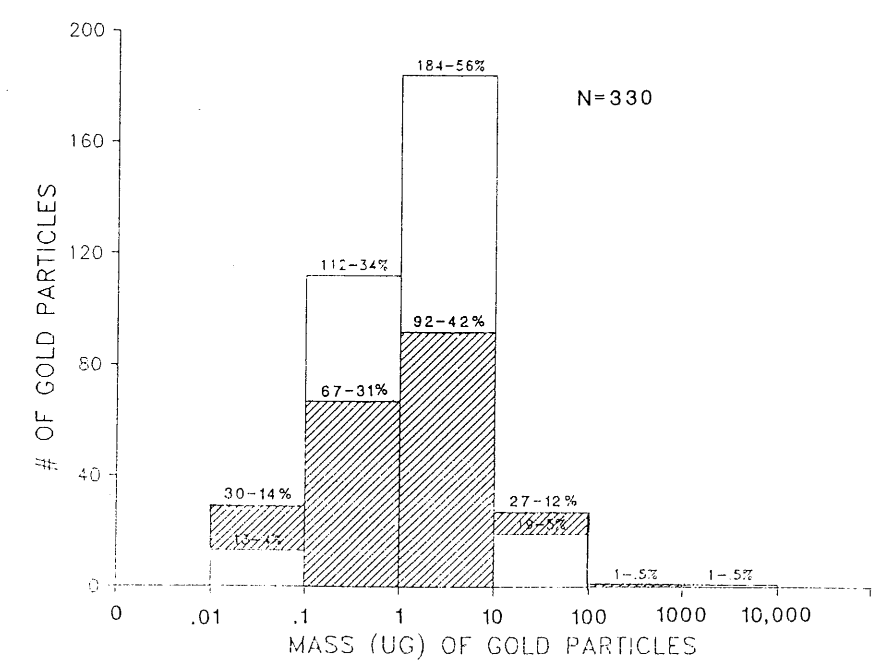


8	19	34	84	172	297		Radius Equivalent
12 x 18 x 3	30 x 45 x 5	55 x 82 x 15	135 x 202 x 25	275 x 412 x 60	476 x 714 x 200	1100 x 1700 x 400	l x w x t Equivalent

MASS (ug) OR DIMENSIONS (um) OF GOLD PARTICLES

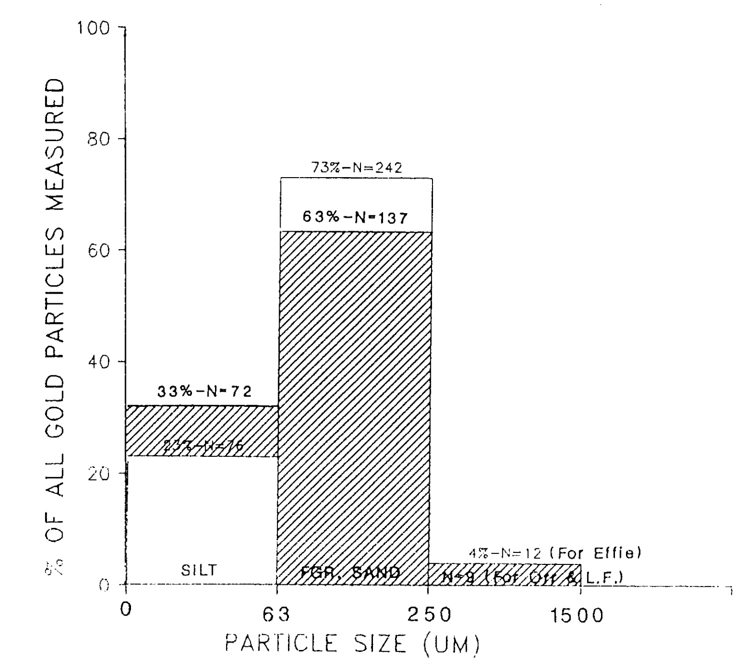
I. Total Gold Particles from 154 Different Samples from All Effie Drill Holes. All Sample Types (i.e., K, R, OR, W and Saprolite).

Total Gold Particles from the Orr and Littlefork Areas (1985-87 DNR Survey Areas)



J. Total Presented by Maximum Dimension of Gold Grain Size to Show Relative Abundance Available to HMC and Silt/Clay Sample Media (N = 330).

Results from Comparable Gold Particle Data from the Orr and Littlefork Areas (1985-87 DNR Survey Areas, N = 218)



Equations Used:

$m = dv$

$d\,(gold) = 18\ g/cm^3$

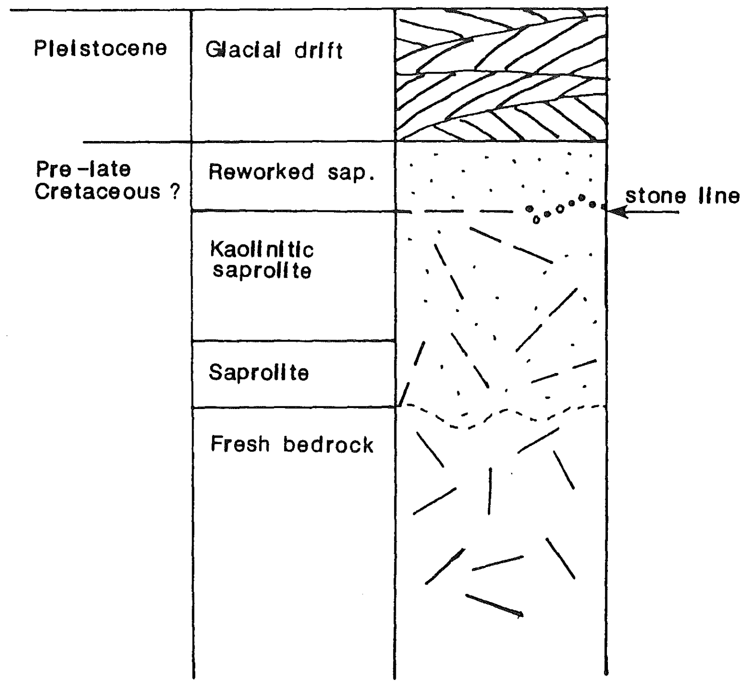
$v = r^2 t$

$r = \frac{(1.5)\,(l + w)}{4}$

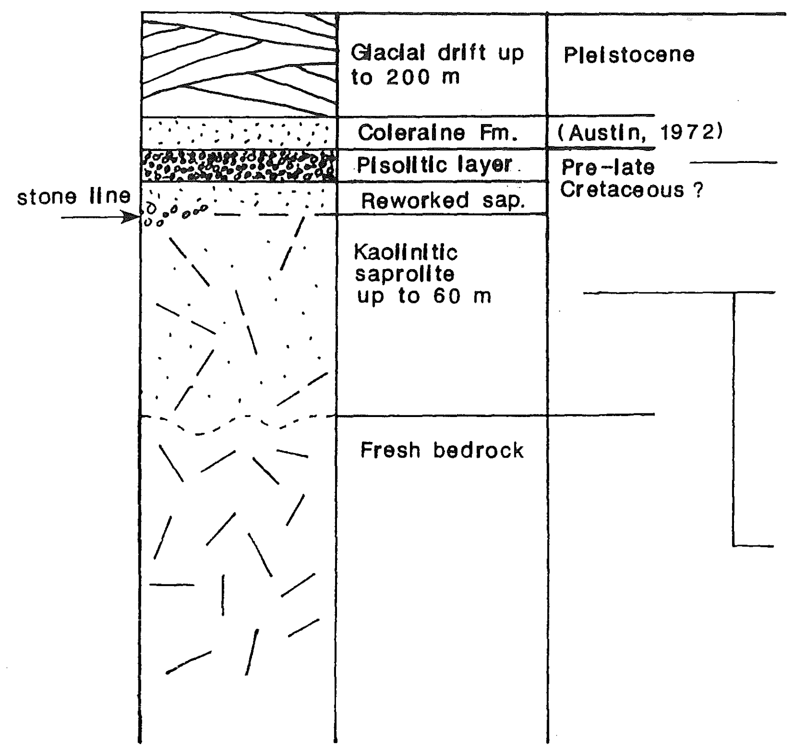
$T = [0.2 - 0.01\,\frac{(2r - 100)}{100}]\,2r$

Figure 7. Generalized stratigraphy within saprolite in the Effie area and northern Minnesota.

A. Effie Area - Minnesota - units found in Rotasonic core (modified from Smith, 1987).



B. Northern Minnesota - Generalized - from the literature (Parham, 1970, as cited in Smith, 1987).



Examples of Trace Element Distribution
<u>in Laterite from Literature Examples</u>

For Duricrust anomalies over massive sulfide occurrences in Australia (Smith & Perdrix, 1983) Bi-Sn-Sb-As-Mo-In-Cu-Au enrichment.

For Boddington Gold Deposit, Australia (Davy & El-Ansary, 1986) Generalization of: Elements <u>Leached</u>: Ba, Co, La, Mn, Ni, Rb, Sr, Ta, Zn, Y, CaO, K_2O, MgO, Na_2O; Elements <u>Reprecipitated</u>: Au, Ce, Cr, Cu, Mo, Fe_2O_3; Elements <u>Residual</u>: Sn, Nb, Th, V, W, Zr, Al_2O_3, TiO_2.

Saprolite Accumulations: Fe, Mn, Ni, Co, Si, CO_3 (relating to nickel sulfide exploration in Australia; Smith, B.H., 1984).

Figure 7-1. Pre-late Wisconsinan ice movement into northern Minnesota.

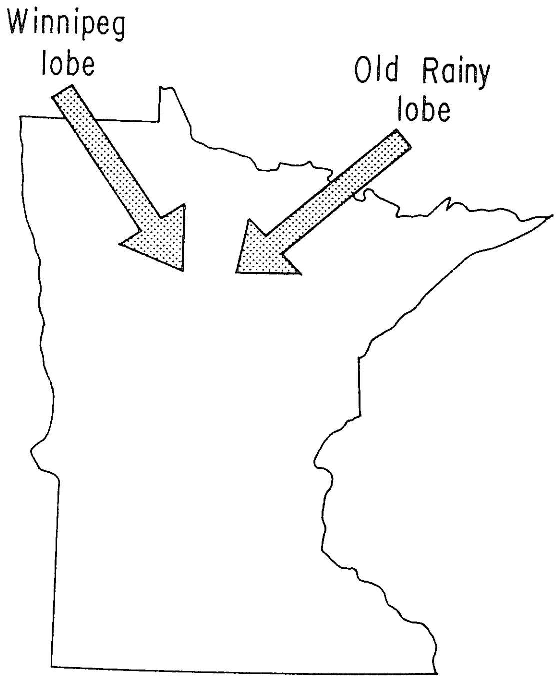


Figure 7-2. Late Wisconsinan Keewatin provenance ice lobes.

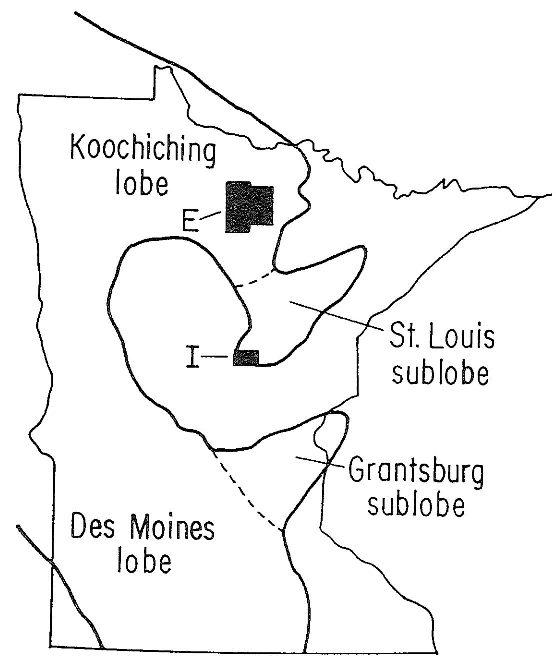
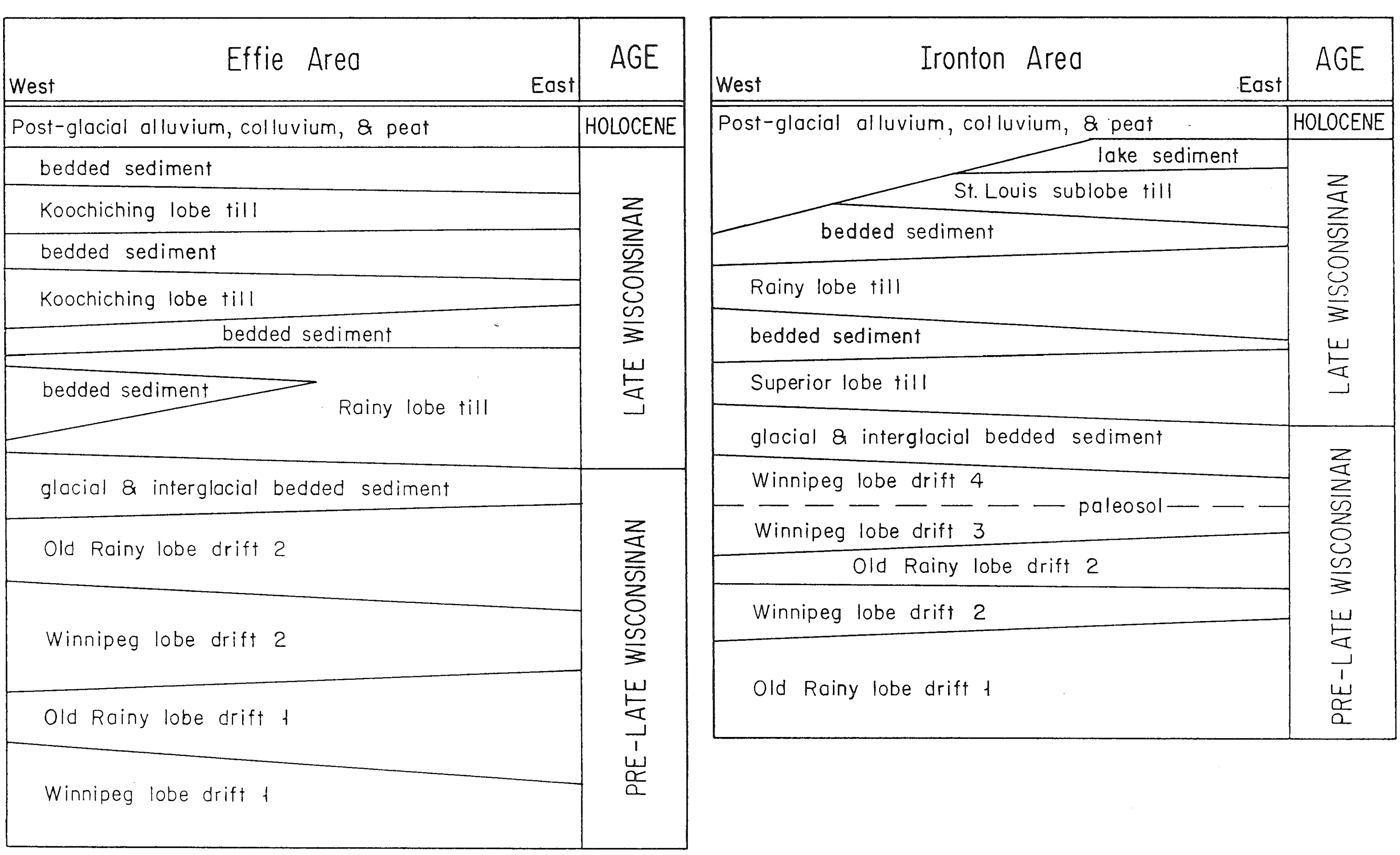


Figure 7-3. Time-distance diagrams showing relative timing and extent of glacial events in the Effie and Ironton areas.



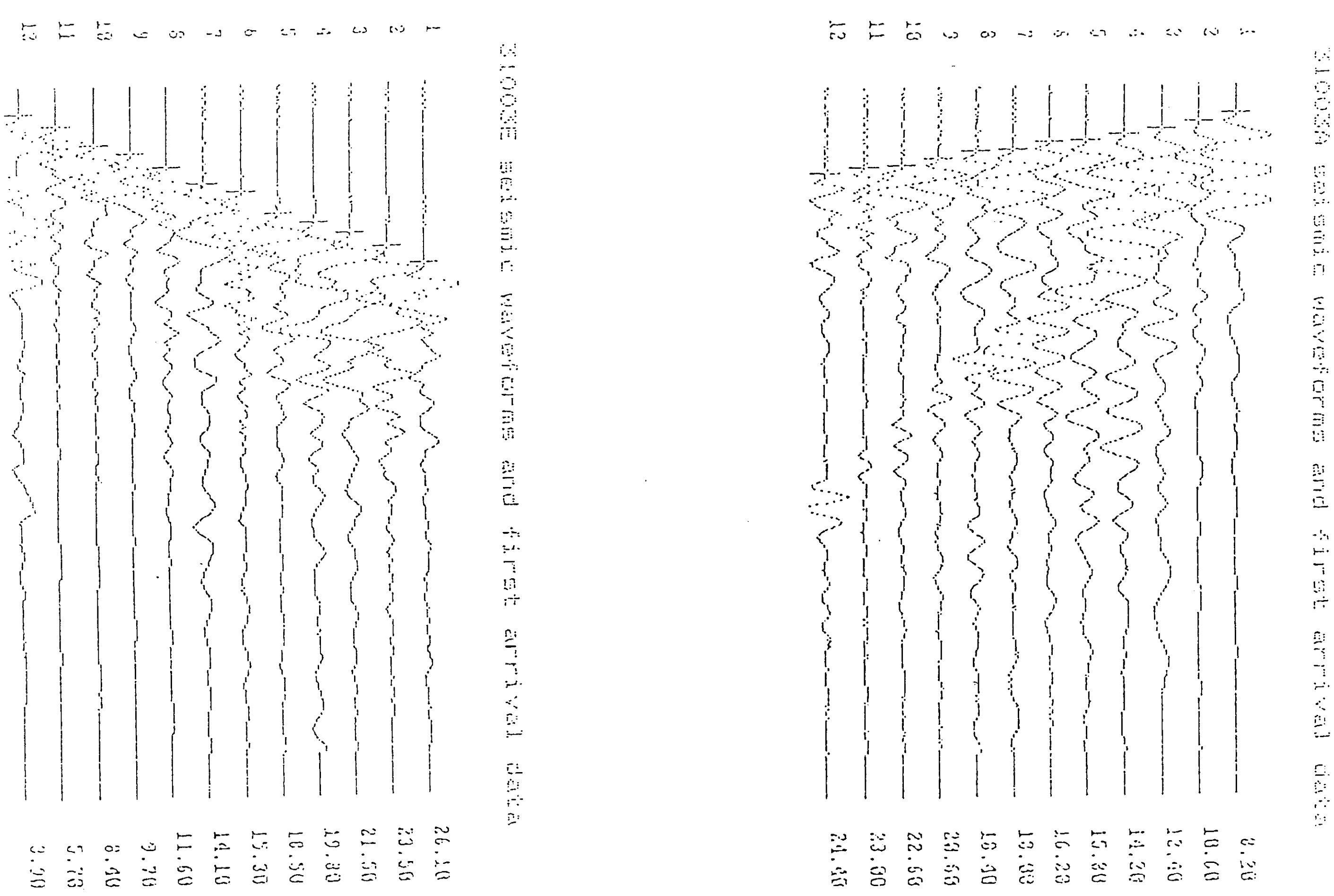


FIG. 8-1: SEISMIC WAVEFORMS HOLE OB-302

FIG. 8-2: NEAR SURFACE PERCENT ERROR/CHANGE IN VELOCITY WITH A NORMAL MOVE OUT CORRECTION

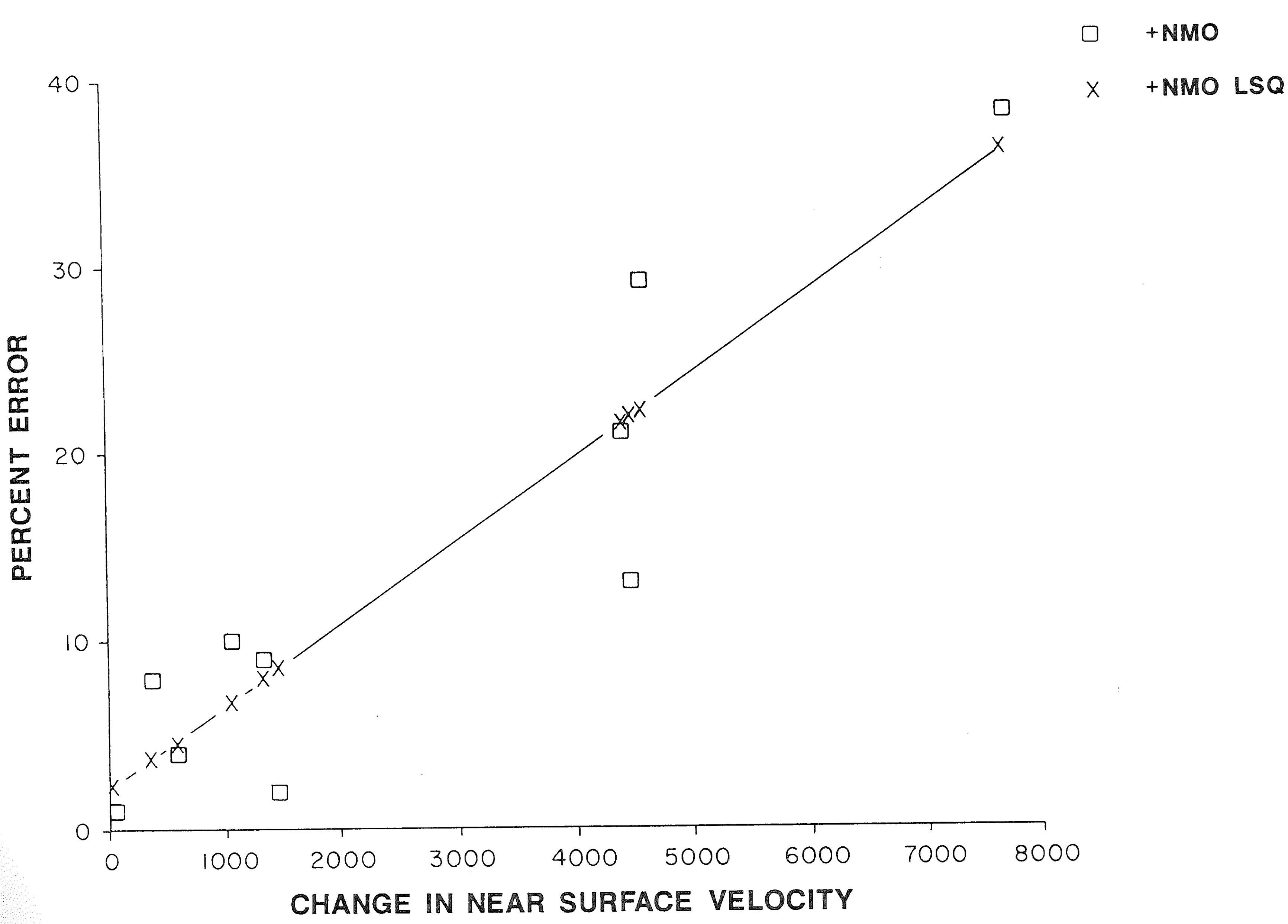
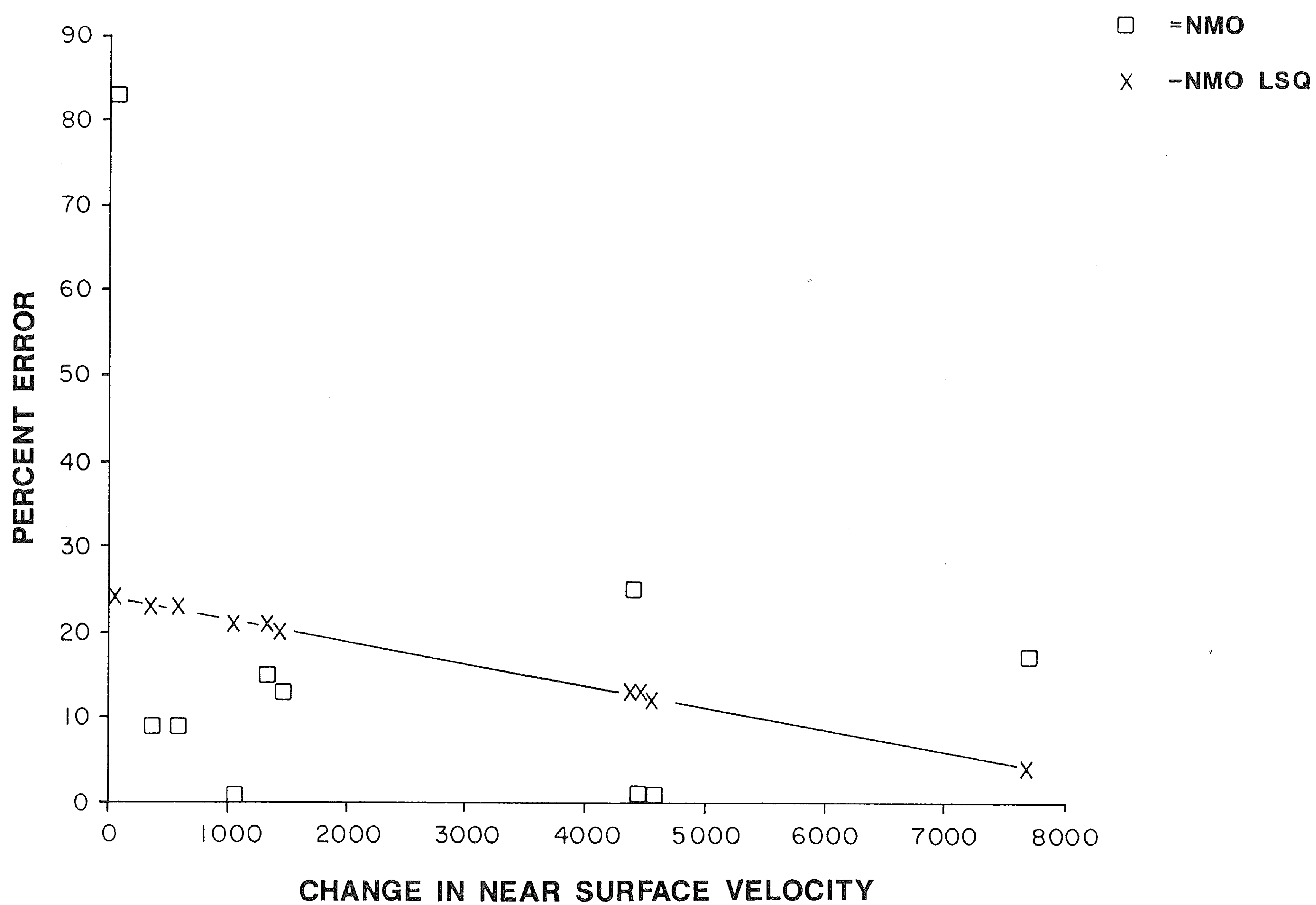


FIG. 8-3: NEAR SURFACE PERCENT ERROR/CHANGE IN VELOCITY
WITHOUT A NORMAL MOVE OUT CORRECTION



A

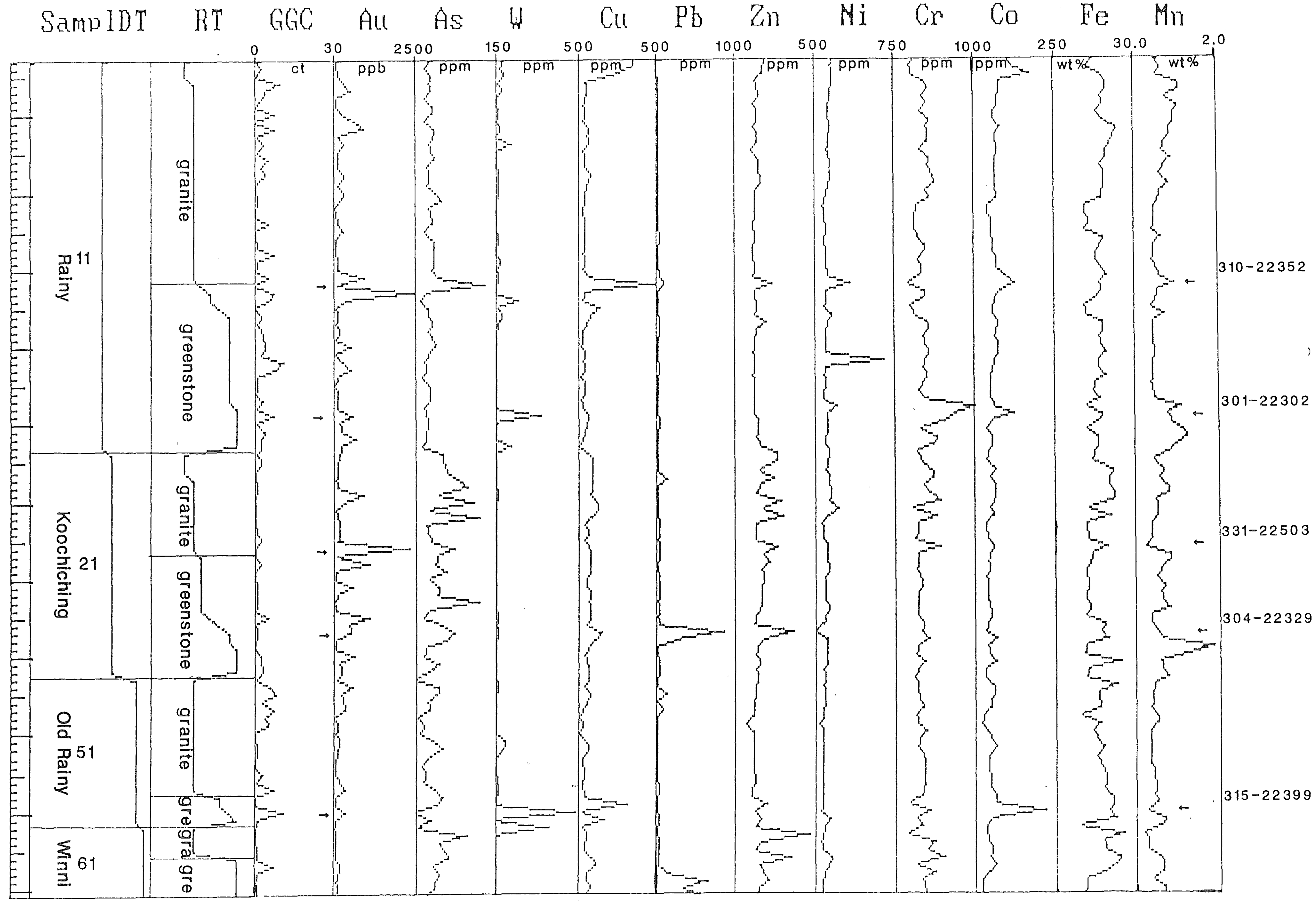


Figure 10-1. Assay results versus sample number for a) nonmagnetic HMC, and b) silt/clay fractions from till samples. Element scales are arithmetic. Samples are sorted primarily by drift type, with secondary and tertiary sorts by underlying bedrock type and sample number (drill hole), respectively. Several samples exhibit multi-element spikes, though not all spikes exceed a [3 x median] estimated threshhold (for examples see samples labeled on the nonmagnetic HMC plot and compare with Summary Map 3-2). The results for the nonmagnetic HMC and silt/clay components of the till samples show little correlation, the exception being sample 22352 from drill hole 310. Coincident high assay values could indicate a source area within a few hundred meters of the drill hole (see section 12.5). Lack of correlation between the assay results for the two components suggest that the nonmagnetic HMC and silt/clay components of the till samples are derived from different sources and/or have different transport distances. Whether this inhomogeneity reflects variable mechanical resistance of different mineral varieties from the same location, or are a function of property, local, or regional (ie. transport) variations in drift type, underlying bedrock, or saprolite contribution is difficult to assess. Interestingly, Koochiching lobe till samples (drift type=21) exhibit uniformly low assays for tungsten and higher than average arsenic assays, seemingly independent of analytical bias, drill hole location, and underlying bedrock type. This uniformity supports the contention by Martin, et al. (1988) that the Koochiching lobe till has undergone longer distance transport and homogenization. In the Effie study area, assay results for the tills do not exhibit noticeable background effects due to variations in underlying bedrock lithology.

B

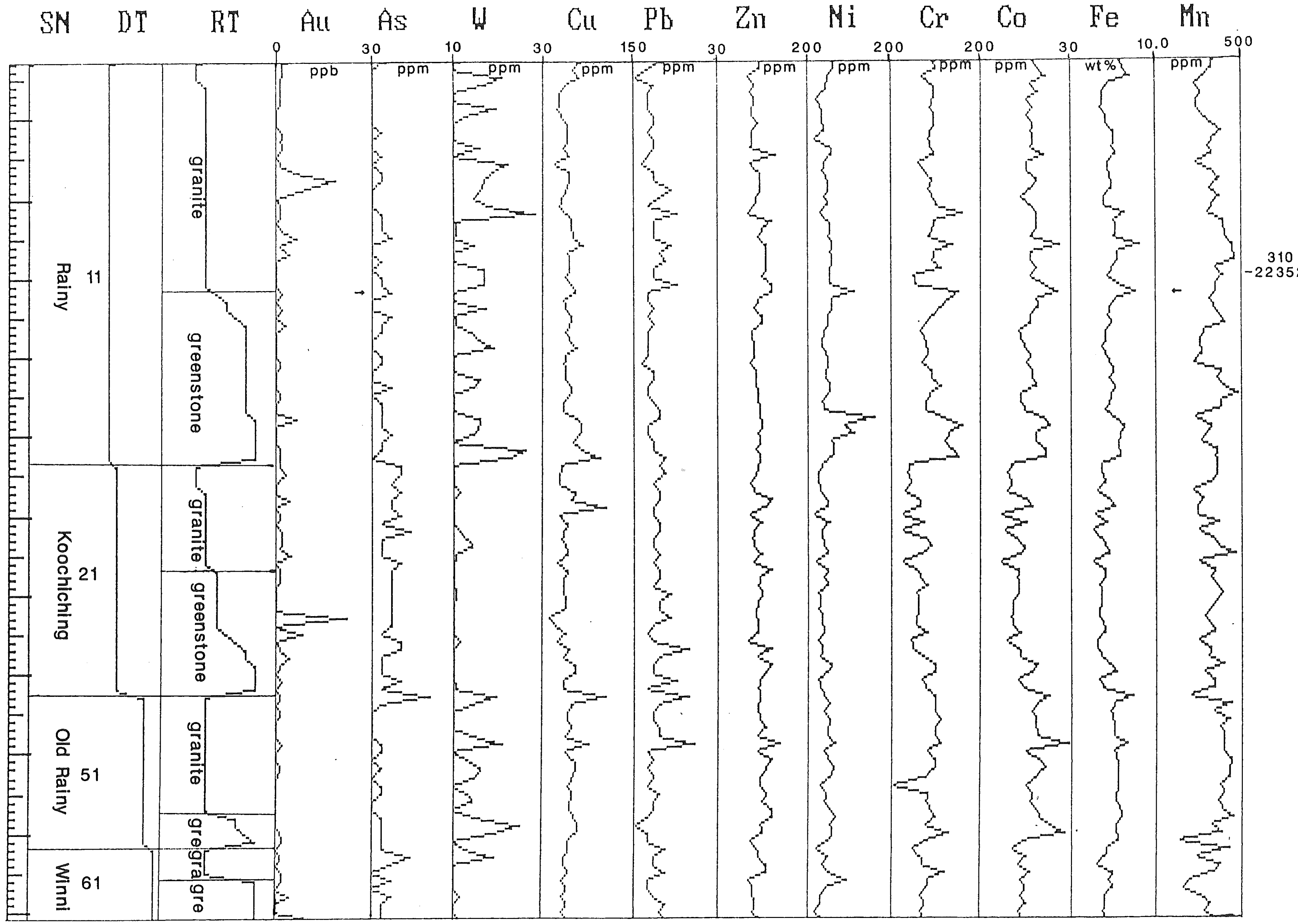


Figure 10-1 continued

Figure 11-1. Plot of nonmag HMC gold grain counts vs. -63um gold assays for 36 old till samples and 15 saprolite samples. No correlation is observed.

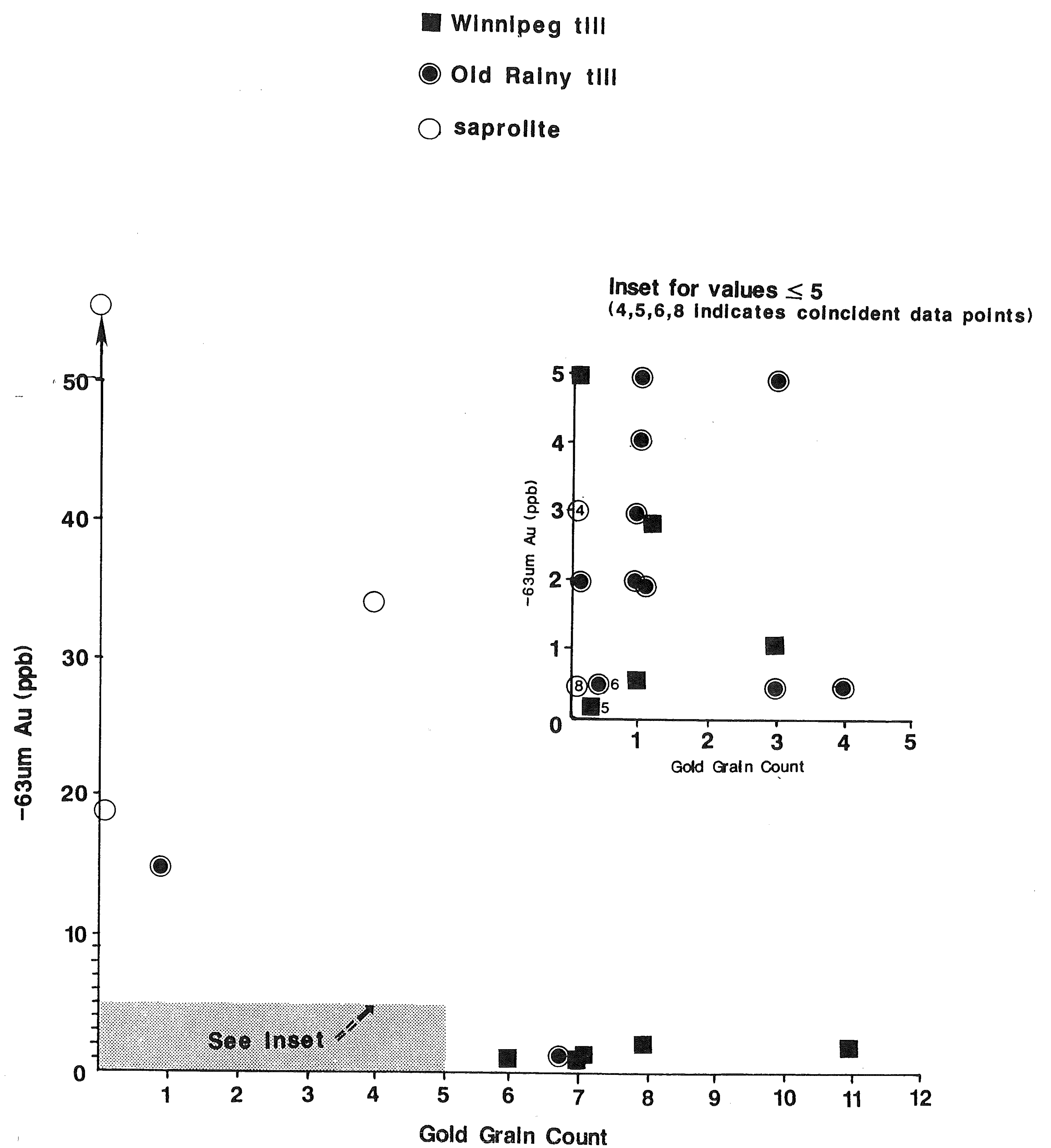


Table 1. The geochemical data is presented in the following ways:

A. Raw Data
   1. By Drill Hole
      a) Information Summary Sheet for each drill hole
      b) Listing of All Samples & Sample Media (= Master Sample List)
      c) All Assay Results within each drill hole
      d) Glacial Drift Descriptive Log and Columnar Section (of Genetic Interpretation)
      e) Selected Data plotted on the Columnar Section
      f) Heavy Mineral Concentrate Report w/Gold Grain Data and Gold Description
   2. By Sample Number
      a) Appendix: Master Sample List
      b) Appendix: Standards & Replicates
      c) Appendix: Saprolites - "wholerock", nonmag, & silt/clay
      d) Appendix: Bedrock

B. Statistical Data
   1. Distribution Statistics Table, Grouped by Drift Type and Underlying Bedrock Type, with Suggested Thresholds
   2. Histograms for Selected Elements and Drift Types for Nonmag HMC and Silt/Clay Fractions
   3. Spectrograms for Two Media, Silt/Clay, and Nonmag (Plots of Element vs. Sample Number Grouped by Drift Type and Underlying Bedrock Type)
   4. Table of HMC Data Averaged by Drift Type
   5. Appendix Lists by Sample Media: Sorted by Drift Type
   6. Precision Calculations
   7. Accuracy Calculations

C. Geochemical Maps
   1. By element within sample media: avg. of each till type within each drill hole (approx. 10 maps)
   2. Overall summary map

Table 2. Drilling Statistics and Field Operations Data Summary.

	Effie Area	Ironton Area	Overall	Average Per Hole
# of Holes	23	3	26	
Total Footage	4232	578	4810	185
% Recovery Glacial Drift	85.2	68.9	83.4	
% Recovery Saprolite-Weathered Rock	80.3	60.5	75.2	
% Recovery Bedrock	82.6	100	85.5	
% Recovery All	84.9	66.9	83.0	
% Recovery 1st Drill Operator	93.1	-	93.1	
% Recovery 2nd or Replacement Drill Operator	52.8	66.9	61.6	
Footage Recovered/Footage Drilled Glacial Drift	3309 / 3882.5	329 / 477	3638 / 4359.5	
Footage Recovered/Footage Drilled Saprolite - Weathered Bedrock	167.5 / 208.5	44.5 / 73.5	212 / 282	
Footage Recovered/Footage Drilled Bedrock	116.5 / 141	27.5 / 27.5	144 / 168.5	
Footage Recovered/Footage Drilled 1st Drill Operator	3623.5 / 3891	-	3623.5 / 3891	
Footage Recovered/Footage Drilled 2nd or Replacement Drill Operator	180 / 341	386.5 / 578	566.5 / 919	
% Chose not to sample due to time/cost restraints	8.6	13.2	9.2	
Drilling Time (Hours)	264	33.3	297.3	11.4
Mobilization Time (Hours)	12.5	4.3	16.8	.6
Abandonment Time (Hours)	39.5	4.3	43.8	1.7
Estimated Down Time (Hours)	9	1	10	

	Effie Area	Ironton Area	Overall	Average Per Hole
Estimated Time for Loading/Unloading Core (Hours)	17.3	2.3	19.6	.8
Time Driving Core to Drop Off Location (Hours)	34.5	4.5	39	1.5
# of Boxes	1244	103	1347	
# of Pallets	40	4	44	
Average # of Boxes per 200 Foot Hole	70.8	51	69.2	
Average # of Pallets per Hole	1.8	1.3	3	
# of Samples	194	37	231	
# of Holes Completed to Bedrock	16	2	18	
# of Holes Completed to Saprolite	3	0	3	
% Success to Bedrock	69.5	66.6	69.2	
# of holes greater than 300 feet stopped by choice/cost	6	1	7	

Notes

1. Estimated water consumption for one day is 4000 gallons.
2. Estimated number of DNR sampling crew mandays is 100.
3. DNR Field Crew: D. Martin, T. Pastika, D. Cartwright, and P. Geiselman
4. Drilling Contractor: North Star Drilling, Little Falls, Minnesota
5. Contracted Drilling Costs: $ 136,360 total - $28.35 per foot overall (including all bonding, drilling, abandonments, and mobilization)

Table 3. A list of the geologic units encountered in the Effie area Rotasonic drill cores, and also the sample media we used. At the bottom of the table is an example of how the data can be divided into the subpopulations necessary for interpretation. The computer data is designed to permit this type of review.

	No. of Samples Analyzed	Footage Drilled
I. Glacial Drift		
A. Stratigraphic Packages of Glacial Drift		
1. Late-Wisconsin		
a) Koochiching lobe: Keewatin source from W-NW		
1) till	29	1368
2) outwash, lake sediments, etc.	0	622.5
b) Rainy lobe: Labradorean source from NE		
1) till	51	411.5
2) outwash, lake sediments, etc.	10	631
2. Interglacial Sediments	0	30
3. Pre-Late Wisconsin, Undivided		
a) Winnipeg lobe: Keewatin source from W-NW		
1) till	10	111.5
2) outwash, lake sediments, etc.	3	138.5
b) Old Rainy lobe: Labradorean source from NE		
1) till	19	177.5
2) outwash, lake sediments, etc.	17	392
Subtotal	139	3882.5
B. Weathered Bedrock from Cretaceous(?)		
1. Pisolitic Laterite - observed in Becker County DDH1-2	0	5
2. Reworked Saprolite - observed in Effie samples	4	15
3. Kaolinitic Saprolite - observed in Effie samples . . .	7	26
4. Saprolite	21	167.5
Subtotal	32	208.5
C. Fresh Bedrock		
1. Metasedimentary rocks (1 core or DH)	2	-
2. Granite, granodiorite (7 cores or DH's)	9	-
3. Schist-rich migmatite (1 core or DH)	1	-
4. Mixed volcanic/clastic rocks (2 cores or DH's)	4	-
5. Ultramafic-intermediate volcanic rocks (3 cores or DH's)	4	-
6. Volcaniclastic rocks (3 cores or DH's)	5	-
Subtotal	25	141
Total	179	4232
II. Sample Media		
A. Glacial Drift		
1. Heavy mineral concentrates (greater than 3.3 specific gravity) from 7-11 kg of composite drill core sample		
a) Nonmagnetic fraction		
[1] assays	146	
[2] gold grain counts & descriptions	152	
[3] mineral point counts	72	
[4] replicates	14	
b) Magnetic fraction		
[1] assays	75	

	No. of Samples Analyzed
2. Silt/Clay fraction from 2 kg composite drill core sample that is same footage as above HMC	
a) Minus 63 micron fraction for Au, Ag and Co assays .	154 (24;
b) Clay fraction for Cu, Pb, Zn, As, Sb and other elements	154
c) Analytical variability test samples	
[1] analytical reference standards	80
[2] replicate samples	11
[3] clean quartz blank samples	5
B. Weathered Bedrock	
1. Nonmagnetic HMC	
[1] assays	17
[2] gold grain counts	17
[3] mineral point counts	14
2. Magnetic HMC	13
3. Silt/Clay fraction	16
4. "Wholerock" or total sample analysis	8
5. Mineralogy of selected intervals by x-ray diffraction .	20
C. Bedrock	
1. Total sample wholerock analysis of interval composites .	20
2. Special vein samples	5

III. Example of Review of Subpopulation

1. All nonmag HMC gold assays (located within computer datafile 263.Nonmag).
2. Find the subpopulation from the above list of only those from Old Rainy lobe tills (sort on drift type number for Old Rainy till, only DT = 51).
3. Find the smaller list of only those from underlying bedrock types of metasediments and mixed volcanic/clastic rocks (sort on underlying bedrock type for RT = 1 & 4).
4. Within this small population, a threshold can be estimated or the median value can be calculated for any element.

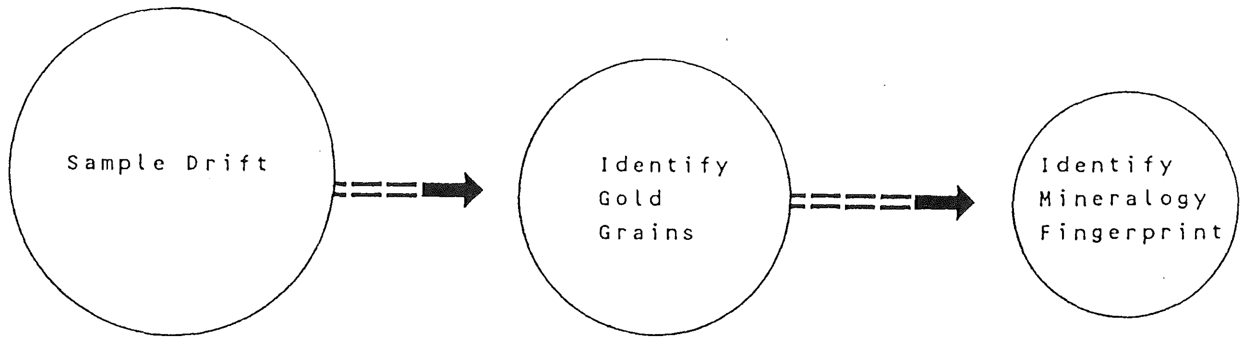
Table 4.

A. A list of types of data available for review, manipulation, and interpretation. This data has been set up on computer files to be sorted by drill hole, drift type, sample fraction, or underlying bedrock type to contrast and compare the following items.

	Data Description	Discussion
1.	Gold grain count normalized to 10 kg till sample.	Can compare to other samples of same population.
2.	Description of gold grain size and abrasion.	Check for short distance of glacial transport. Averill (1988) suggest +10 gold grains/10 kg, delicate or irregular, most less than 50 ums, and reproducible HMC assays near 1000 ppb Au.
3.	Calculated Nonmag HMC gold assay based upon the gold grain sizes in a theoretical 15 gm HMC.	3. & 4. If the actual assay of gold is much higher than predicted, other possible explanations or uncounted gold grains should be considered. Three most common pathfinders are #1 = As, #2 = Cu, #3 = Pb (Averills, 1988).
4.	The nonmag HMC assays.	
5.	The nonmag HMC wt.	Unusual accumulations of sulfides or other heavy minerals are indicated. Can calculate the original bulk sample equivalent metal value to normalize for variations in weight of original sample and in concentrate.
6.	The bulk sample gold content calculated from the nonmag HMC weight and assay.	The calculated bulk sample assay removes the variation due to HMC weight, but does not account for losses during drilling and concentration. The calculation normalizes the data to permit quick recognition of real patterns.
7.	The silt/clay assays.	Probably indicate anomalies within a few hundred meters of source (Lehmuspelto, 1987), or maybe complex hydromorphic anomaly.
8.	The magnetic fraction HMC wt. and the ratio of nonmag wt./mag wt.	Unusual accumulations of magnetite may indicate iron formation nearby or a placer-effect. Unusual depletion could indicate magnetite-destructive alteration such as carbonatization or of weathering.
9.	Description of glacial drift sample.	Does it have indications of subglacial vs. supraglacial origin?
10.	The wt.% of sand, silt, and clay.	Is an occurrence being diluted more (or less) than comparative samples? The heavy minerals come primarily from the -250 micron fraction. Thus, if more of this size fraction is present, one expects more heavy minerals to be available. Similarly, a higher percentage of silt in the silt/clay fraction could dilute an otherwise anomalous gold content. Further, contrast each till sample within the hole, between holes, and to other drift types to interpret the content of local bedrock (or saprolite) in the drift sample.
11.	The Columnar section has 8 graphs accompanying it.	Seek trace element fingerprints that could further subdivide the stratigraphy to help narrow down the correlation to bedrock in up-ice direction.
12.	Saprolite assays, including nonmag HMC, mag HMC, silt/clay, and total sample.	Has the till incorporated underlying or up-ice saprolite that raises (or lowers) the trace element content? Note the unusual HMC magnetic fraction trace element content for saprolite that could be useful to estimate the saprolite presence.
13.	The wt. % of +10 mesh rock chips and the lithologies (see HMC Reports).	Examine the rock chips under a binocular microscope to classify them. Look for alteration. Assay some if appropriate.
14.	Selected special mineralogy examinations.	Seek evidence of hydrous iron oxides of saprolite origin that may be scavenging trace metals.

Table 4.

B. Summary of a suggested approach to follow-up work in this area directed at gold exploration.



1. Drilling of selected targets.
   Collection of till samples from lower 100 feet of drill hole.
   Identification and separation of samples by drift type.

2. Composite till samples (greater than 8 kg) processed for heavy mineral separation, gold grain count & description, and limited analyses. Magnetic fraction and rock fragments saved.

3. Mineralogy is the key to source identification and the process of tracing dispersal trains back to a source. Limited to those samples with a significant number of gold grains or unexplainable high gold assays.
   a) Perform a series of microscopic examinations of rock type and mineralogy.
      1) Examine the +10 M rock fragments to identify lithologies and alteration, or clues for saprolite.
      2) Fingerprint the dispersal train in the glacial drift and the bedrock source by unusual metal ratios or more likely unusual minerals present.
      3) Examine the magnetic fraction and assay it to seek clues to mineralization event and to fingerprint both source and till layer.
      4) If necessary, microprobe selected minerals to verify that the anomalous till samples match to the bedrock source when it is found.
      5) Assay the silt/clay fraction since this anomaly is usually within a few hundred meters of source (Lehmuspelto, 1987). Fine-grained laterite gold may be present.
      6) Other indicators such as native copper or marcasite or microconglomeratic gold grains (Maurice, 1987) can be used in this interpretation. Laterite gold may be directly over the source or maybe downslope or a long distance placer.
   b) Submit adjacent samples (example - gravels) for HMC and gold grain counts, if not previously analyzed.

Table 5. Summary arithmetic averages of gold grains, nonmagnetic heavy mineral concentrate (HMC) weight and magnetic HMC weight. The data is sorted by drift type and has been normalized to a 10 kilogram total sample weight.

Drift Type No.	Drift Type	No. of Samples Anal.	Total No. Gold Grains	Median Number Gold Grains per Sample	Avg. Gold Grains per 10 kg	Nonmag (g)per 10 kg	Mag(g) per 10 kg	Ratio wt. non-mag:wt. mag
11	Rainy lobe till	51	132	1	2.7	28.1	8.0	3½:1
21	Koochiching lobe till	29	25	0	1.0	15.5	5.7	3:1
51	Old Rainy lobe till	20	88	2	4.7	32.3	8.2	4:1
61	Winnipeg lobe till	10	12	1	1.1	22.4	5.8	4:1
40's	Saprolite	15	4	0	0.3	11.1	1.3	9:1
10	Rainy lobe silty sand	1	1	-	1.1	22.9	3.9	6:1
12	Rainy lobe gravel	1	0	-	0	8.0	1.3	6:1
13	Rainy lobe gravelly sand	5	29	-	6.9	30.8	8.1	4:1
14	Rainy lobe mgr-vcgr sand	2	3	-	2.0	40.8	9.7	4:1
15	Rainy lobe vfgr-fgr sand	1	0	-	0	27.6	6.8	4:1
50	Old Rainy lobe silty sand	2	9	-	4.7	31.2	8.1	4:1
52	Old Rainy lobe gravel	2	1	-	0.7	19.9	6.0	3:1
53	Old Rainy lobe gravelly sand	3	7	-	2.0	21.3	4.7	5:1
54	Old Rainy lobe mgr-vcgr sand	4	7	-	1.9	28.3	7.8	4:1
55	Old Rainy lobe vfgr-fgr sand	2	1	-	0.6	35.4	10.4	3:1
58	Old Rainy mixed, till + other	3	3	-	1.3	57.9	5.6	10:1
60	Winnipeg lobe silty sand	2	1	-	0.5	36.8	12.1	3:1
68	Winnipeg lobe mixed, till + other	2	24	-	12.5	44.2	13.7	6:1

Table 6. Medians, population data, and [3 x median] for the subpopulations and 2 sample media. See also histograms and probability plots in Appendix 10-1.

		Rainy Lobe Till Drift Type = 11		Old Rainy Lobe Till Drift Type = 51		Koochiching Lobe Till Drift Type = 21		Winnipeg Lobe Till Drift Type = 61	
	Total Samples	n = 51		n = 19		n = 29		n = 10	
	No. Drill Holes Represented	dh = 15		dh = 8		dh = 14		dh = 5	
	Underlying Bedrock	Granite	Greenstone	Granite	Greenstone	Granite	Greenstone	Granite	Greenstone
	No. of Samples	29	22	15	4	13	16	4	6
	No. Drill Holes Represented	8	7	5	3	7	7	3	2
Gold Grain Count Nonmag HMC	Median	1.2	2.3	2.4	0	0	.9	0	.9
	Low	0	0	0	0	0	0	0	0
	High	7.8	11.5	9.2	14.4	2.5	6	1	5.3
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	3.6	6.9	7.2	0	0	2.7	0	2.7
	No. of Assays > (3 x Median)	9	3	2	2	5	2	1	1
	Note 1: Gold grain counts are normalized to gold grain counts per 10 kg sample.								
	Note 2: Additional gold grain count (sample #22589) not included with Old Rainy Till (DT = 51) data set. Analysis for #22589 consists of gold grain count only, no other assay results.								
Au (ppb) -63um fraction	Median	2	5/8	5/8	5/8	2	1	1	1
	Low	<1	<1	<1	<1	<1	<1	<1	<1
	High	21	8	3	3	6	25	3	15
	No. > detect.	19	8	4	2	8	8	2	3
	3 x Median	6	2	2	2	6	3	3	3
	No. of Assays > (3 x Median)	4	4	1	1	0	3	0	2
Nonmag HMC	Median	77	113	97	44	89	115	8	45
	Low	5	5	5	7	8	5	5	6
	High	895	27500	550	345	2310	1090	62	136
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	231	339	291	132	267	345	24	136
	No. of Assays > (3 x Median)	9	6	3	0	3	6	1	1
	Note: Assayed elements with median values less than the detection limit have been assigned numerical values of 5/8 of the detection limit (e.g. if median is less than the detection limit, say <2 ppm, then the assigned median value would be 10/8 or 1.2).								
As (ppm) -63um fraction	Median	5/8	2	5/8	2	3	3	5/8	2
	Low	<1	<1	1	2	2	2	1	<1
	High	3	3	7	2	5	4	5	3
	No. > detect.	28	21	15	4	13	16	4	5
	3 x Median	2	6	2	6	9	9	2	6
	No. of Assays > (3 x Median)	1	0	1	0	0	0	2	0
Nonmag HMC	Median	29	23	24	32	54	41	45	38
	Low	18	10	<2	2	22	16	8	16
	High	48	130	54	53	120	120	100	64
	No. > detect.	29	22	14	4	13	16	4	4
	3 x Median	87	69	72	96	162	123	135	114
	No. of Assays > (3 x Median)	0	1	0	0	0	0	0	0
W (ppm) -63um fraction	Median	8	2	6	9	5/8	5/8	5/8	5/8
	Low	<1	<1	<1	<1	<1	<1	<1	<1
	High	28	25	17	23	7	3	14	3
	No. > detect.	24	12	10	4	7	6	2	3
	3 x Median	24	6	18	27	2	2	2	2
	No. of Assays > (3 x Median)	1	11	0	0	4	1	1	2
Nonmag HMC	Median	9	20/8	20/8	20/8	20/8	20/8	20/8	20/8
	Low	<4	<4	<4	<4	<4	<4	<4	<4
	High	100	290	69	1400	15	16	330	<4
	No. > detect.	15	14	5	1	1	3	1	0
	3 x Median	27	7.5	7.5	7.5	7.5	7.5	7.5	7.5
	No. of Assays > (3 x Median)	5	7	5	1	1	3	1	0
Cu (ppm) -63um fraction	Median	43	48	49	52	38	36	38	34
	Low	24	35	40	43	27	14	35	33
	High	68	100	110	61	110	56	44	42
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	129	144	147	156	114	108	114	102
	No. of Assays > (3 x Median)	0	0	0	0	0	0	0	0
Nonmag HMC	Median	58	57	50	53	98	84	56	68
	Low	43	21	26	40	57	59	49	51
	High	358	1787	92	324	142	159	68	131
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	174	171	150	169	294	252	168	204
	No. of Assays > (3 x Median)	3	1	0	2	0	0	0	0

Table 6 continued on next page

Table 6 (continued from previous page).

Pb (ppm)									
-63um fraction									
	Median	8	6	8	6	10	10	8	8
	Low	<2	4	6	2	8	6	8	6
	High	16	12	22	6	12	20	12	12
	No. > detect.	28	22	15	4	13	16	4	6
	3 x Median	24	18	24	18	30	30	24	24
	No. of Assays > (3 x Median)	0	0	0	0	0	0	0	0
Nonmag HMC									
	Median	25	30	34	32	35	43	33	178
	Low	8	18	24	29	26	22	17	43
	High	44	99	147	43	152	854	47	695
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	75	90	132	96	105	129	99	544
	No. of Assays > (3 x Median)	0	1	1	0	1	2	0	1
Zn (ppm)									
-63um fraction									
	Median	90	90	97	97	84	93	90	78
	Low	70	76	90	74	73	71	110	71
	High	130	120	140	120	120	120	589	95
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	270	270	291	291	252	279	270	234
	No. of Assays > (3 x Median)	0	0	0	0	0	0	0	0
Nonmag HMC									
	Median	115	113	115	120	171	155	128	147
	Low	98	103	66	102	121	118	125	137
	High	167	216	136	192	285	365	460	342
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	345	339	345	360	513	465	384	441
	No. of Assays > (3 x Median)	0	0	0	0	0	0	1	0
Ni (ppm)									
-63um fraction									
	Median	47	50	49	53	35	36	38	32
	Low	20	36	30	47	17	26	22	20
	High	63	160	65	68	54	57	53	95
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	141	150	147	159	105	108	114	96
	No. of Assays > (3 x Median)	0	1	0	0	0	0	0	0
Nonmag HMC									
	Median	100	87	74	71	118	94	68	76
	Low	59	63	30	54	60	1	61	72
	High	138	627	95	146	210	120	81	163
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	300	261	222	210	354	288	204	228
	No. of Assays > (3 x Median)	0	2	0	0	0	0	0	0
Cr (ppm)									
-63um fraction									
	Median	90	90	100	80	44	60	66	68
	Low	46	64	4	78	24	44	46	62
	High	160	160	110	130	90	98	120	80
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	270	270	300	240	132	180	198	204
	No. of Assays > (3 x Median)	0	0	0	0	0	0	0	0
Nonmag HMC									
	Median	330	360	320	280	360	290	370	390
	Low	150	160	250	190	220	260	170	280
	High	470	1600	420	460	570	440	520	650
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	990	1080	960	840	1080	870	1110	1170
	No. of Assays > (3 x Median)	0	1	0	0	0	0	0	0
Co (ppm)									
-63um fraction									
	Median	19	19	20	22	11	14	14	15
	Low	15	14	17	16	8	10	12	14
	High	29	28	32	31	19	21	18	17
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	57	57	60	66	33	42	42	45
	No. of Assays > (3 x Median)	0	0	0	0	0	0	0	0
Nonmag HMC									
	Median	59	54	49	67	48	39	42	28
	Low	34	36	23	66	33	32	41	26
	High	170	120	68	230	86	71	58	67
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	177	162	147	201	144	117	126	84
	No. of Assays > (3 x Median)	0	0	0	1	0	0	0	0
Fe (%)									
-63um fraction									
	Median	4.46	4.17	5.17	5.44	4.54	4.87	5.57	5.18
	Low	3.29	3.1	3.28	4.45	2.81	3.88	5.48	2.98
	High	7.51	7.78	8.22	5.82	5.01	6.49	5.73	6.26
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	13.38	12.51	15.51	16.32	13.62	14.61	16.71	15.54
	No. of Assays > (3 x Median)	0	0	0	0	0	0	0	0
Nonmag HMC									
	Median	16.9	16	18	22	20	12.6	19	13.1
	Low	11	11	11	21	12	11.5	11	12.1
	High	22.7	19	24	23.9	22.8	25.5	27	25.7
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	50.7	48	48	66	60	37.8	57	39.3
	No. of Assays > (3 x Median)	0	0	0	0	0	0	0	0
Mn (ppm)									
-63um fraction									
	Median	280	390	400	390	310	350	380	350
	Low	150	240	260	350	230	250	370	260
	High	400	330	480	440	430	450	430	460
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	840	1170	1200	1170	930	1050	1140	1050
	No. of Assays > (3 x Median)	0	0	0	0	0	0	0	0
Nonmag HMC									
	Median	6730	5490	5790	6160	6350	7910	4250	8450
	Low	4260	4620	4770	4700	3680	5060	3600	6080
	High	11850	14420	9790	9190	9810	22311	8070	9030
	No. > detect.	29	22	15	4	13	16	4	6
	3 x Median	20190	16470	17370	18480	19050	23230	12750	25350
	No. of Assays > (3 x Median)	0	0	0	0	0	0	0	0

Table 7. Assay results for analytical standards and blanks. Precision % values are in percent. +/- values are in ppm, with the exception of Fe (wt%) and Au (ppb). (after Garrett, 1969).

SO-1 (CANMET soil standard)

Sample	Au	Ag	As	Sb	Se	Bi	W	Mo	Ba	Cu	Pb	Zn	Ni	Cr	Co	Fe	Mn
Preferred Values	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	879	61	21	146	94	160	32	6.00	890
22320	-1	<0.2	1	<1	<1	<2	1	<2	892	44	8	120	53	140	22	6.03	360
22340	-1	<0.2	1	<1	<1	<2	<1	<2	927	53	8	130	64	140	22	6.21	360
22360	-1	<0.2	1	<1	<1	<2	<1	<2	907	54	4	120	58	120	20	6.13	350
22381	-1	<0.2	<1	<1	<1	<2	1	<2	881	49	8	110	53	110	19	5.92	340
22402	-1	<0.2	1	<1	<1	<2	<1	<2	909	57	6	130	64	160	24	6.12	390
22422	-1	<0.2	<1	<1	<1	<2	3	<2	908	52	8	180	58	130	19	6.10	380
22441	-1	<0.2	<1	<1	<1	<2	2	<2	882	58	6	110	62	150	23	6.07	400
22461	-1	<0.2	1	<1	<1	<2	<1	<2	929	51	6	120	55	120	20	6.22	380
22479	-1	<0.2	1	<1	<1	<2	1	<2	909	55	8	140	51	130	21	6.04	410
22500	-1	<0.2	<1	<1	<1	<2	<1	<2	877	55	6	140	56	150	20	6.16	420
22520	-1	<0.2	1	<1	<1	<2	<1	<2	862	51	6	130	48	140	19	6.05	410
22541	-1	<0.2	1	<1	<1	<2	<1	2	928	61	10	150	88	170	20	6.40	97
22562	<1	<0.2	3	<1	1	<2	7	<2	688	62	2	120	78	80	18	6.05	99
Mean	N/A	N/A	1	N/A	1	N/A	3	2	885	54	7	131	61	134	21	6.12	338
+/-	N/A	N/A	1	N/A	0	N/A	4	0	118	9	4	36	21	44	3	.22	206
Precision %	N/A	N/A	101	N/A	0	N/A	168	0	13	17	59	27	35	33	16	3.60	61

FER-2 (CANMET iron formation standard)

Sample	Au	Ag	As	Sb	Se	Bi	W	Mo	Ba	Cu	Pb	Zn	Ni	Cr	Co	Fe	Mn
Preferred Values	N/A	N/A	2?	0.7?	N/A	N/A	N/A	3?	240	45	11?	45	21	47	7	27.53	929
22501	-1	<0.2	1	<1	<1	<2	1	<2	220	35	<2	33	8	34	3	26.48	190
22540	-1	<0.2	1	<1	<1	<2	1	<2	229	36	<2	30	5	32	3	26.37	102
22590	<5	<5	<2	1	<0.1	4	<4	8	430	37	<1	48	19	56	6	31.70	842
22592	<5	<5	4	1	<0.1	3	<4	6	320	36	<1	46	18	61	8	34.20	803
22594	<5	<5	4	1	<0.1	4	<4	9	320	41	<1	50	17	58	8	32.80	852
Mean	N/A	N/A	3	1	N/A	4	1	8	304	37	N/A	41	13	48	6	30.31	558
+/-	N/A	N/A	3	0	N/A	1	0	2	149	4	N/A	16	11	25	4	6.41	662
Precision %	N/A	N/A	118	N/A	N/A	N/A	0	0	49	11	N/A	39	84	51	79	21.14	119

GTS-1 (CANMET gold tailings standard)

Sample	Au	Ag	As	Sb	Se	Bi	W	Mo	Ba	Cu	Pb	Zn	Ni	Cr	Co	Fe	Mn
Preferred Values	346	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.00	N/A
22382	-1	<0.2	30	<1	<1	<2	17	<2	963	87	32	160	71	82	24	6.02	600
22423	-1	<0.2	31	<1	<1	<2	17	38	966	90	32	160	75	100	25	5.93	640
22460	-1	<0.2	30	<1	<1	<2	15	40	995	87	33	160	76	100	23	6.02	660
22591	380	<5.0	62	2	0	4	37	37	910	91	29	174	94	200	25	6.30	1247
22593	360	<5.0	64	2	0	3	38	38	920	92	32	177	97	200	24	6.10	1241
22595	377	<5.0	62	2	0	3	35	35	880	99	33	178	94	200	24	6.10	1300
Mean	186	N/A	47	2	0	3	27	38	939	91	32	168	85	147	24	6.08	948
+/-	366	N/A	32	0	0	1	20	3	76	8	3	16	21	105	1	.22	619
Precision %	197	N/A	68	4	0	28	76	8	8	9	8	10	25	71	6	3.70	65

Qtz. Sand

Sample	Au	Ag	As	Sb	Se	Bi	W	Mo	Ba	Cu	Pb	Zn	Ni	Cr	Co	Fe ppm	Mn
22380	-1	<0.2	<1	<1	<1	<2	1	<2	17	<1	2	<1	10	<2	<1	317	2
22424	-1	<0.2	<1	<1	<1	<2	2	<2	11	<1	<2	<1	<1	<2	<1	527	2
22459	-1	<0.2	<1	<1	<1	<2	<1	<2	18	<1	<2	<1	<1	<2	<1	316	2
22499	-1	<0.2	<1	<1	<1	<2	<1	<2	13	<1	<2	<1	<1	<2	<1	280	10
22539	<1	<0.2	<1	<1	<1	<2	<1	<2	20	1	10	1	6	<2	1	941	11
Mean	N/A	N/A	N/A	N/A	N/A	N/A	2	N/A	16	1	6	1	8	N/A	1	476	5
+/-	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	6	0	8	0	4	N/A	0	487	8
Precision %	N/A	N/A	N/A	N/A	N/A	N/A	65	N/A	41	0	131	0	49	N/A	0	102.17	152

N/A = not available, or not calculated
-1 = not analyzed
<1 = less than detection limit of 1

Table 8. Test of total variability as reflected by 11 pairs of separate core splits. These were processed to separate the silt/clay and the nonmagnetic HMC fractions and analyzed with the same methods as all the other samples. Calculated precision values are for the 95% confidence interval (adapted from Garrett, 1969).

Silt/Clay Replicates

Sample	-63um Au	-63um Ag	Clay As	Clay Sb	Clay Se	Clay Bi	Clay W	Clay Mo	Clay Ba	Clay Cu	Clay Pb	Clay Zn	Clay Ni	Clay Cr	Clay Co	Clay Fe	Clay Mn
Precision %	N/A	N/A	69	N/A	N/A	N/A	187	N/A	29	47	45	40	37	49	19	39	169
22334	<1	<0.2	1	<1	<1	<2	5	<2	687	33	8	77	37	94	17	4.26	270
22553	<1	<0.2	2	<1	1	<2	8	<2	648	59	12	110	80	110	17	5.35	87
22429	<1	<0.2	1	<1	<1	<2	1	<2	613	51	10	110	49	100	20	5.32	380
22554	<1	<0.2	4	<1	1	<2	1	<2	571	58	12	120	86	96	16	4.91	83
22434	3	<0.2	2	<1	<1	<2	2	<2	553	51	8	100	54	90	20	5.41	390
22555	<1	<0.2	3	<1	<1	<2	12	<2	548	86	12	120	96	140	20	8.87	133
22437	<1	<0.2	3	<1	<1	<2	1	4	549	80	32	85	57	130	22	9.24	600
22556	<1	<0.2	2	<1	2	<2	2	<2	591	48	42	110	75	100	20	4.95	80
22453	<1	<0.2	2	<1	<1	<2	1	<2	581	40	6	90	42	82	17	5.31	400
22557	2	<0.2	3	<1	<1	<2	18	<2	594	35	10	41	67	96	15	5.14	60
22456	<1	<0.2	4	<1	<1	<2	16	6	579	57	12	45	37	160	15	5.83	220
22558	<1	<0.2	2	<1	<1	<2	5	<2	655	51	8	110	73	96	9	4.96	82
22463	<1	<0.2	2	<1	<1	<2	1	<2	666	36	10	95	42	78	16	4.31	370
22559	2	<0.2	2	<1	<1	<2	6	<2	608	64	10	120	80	120	16	5.20	88
22473	<1	<0.2	1	<1	<1	<2	6	<2	612	52	8	120	49	100	22	5.44	440
22560	<1	<0.2	2	<1	<1	<2	5	<2	522	58	10	120	81	110	21	5.39	83
22478	<1	<0.2	1	<1	<1	<2	7	<2	530	47	8	100	41	76	18	5.57	370
22561	-1	<0.2	1	<1	<1	<2	2	<2	917	57	10	130	109	150	18	6.05	95
22509	<1	<0.2	3	<1	<1	<2	9	<2	637	45	6	110	47	68	16	5.79	460
22563	<1	<0.2	4	<1	<1	<2	3	<2	489	48	12	96	59	50	17	5.82	93
22528	<1	<0.2	4	<1	<1	<2	1	<2	450	36	14	91	40	46	14	5.75	440
22564	<1	<0.2	4	<1	<1	<2	3	<2	489	48	16	96	59	50	17	5.82	93

Nonmagnetic HMC Replicates

Sample	Au	Ag	As	Sb	Se	Bi	W	Mo	Ba	Cu	Pb	Zn	Ni	Cr	Co	Fe	Mn
Precision %	205	N/A	58	80	21	N/A	39	61	98	21	51	11	15	28	25	26	31
22344	212	<5	30	1	1	<1	15	2	200	61	21	124	112	300	49	14.60	1
22553	1400	0	26	<0.2	0	<1	4	2	200	50	26	109	86	320	58	16.00	1
22429	335	0	28	<0.2	0	<1	<4	2	200	50	106	110	74	360	52	18.00	1
22554	<6	0	31	<0.2	0	<1	<4	3	200	45	61	105	78	340	49	17.00	0
22434	75	<0.1	30	<0.2	1	<1	<4	2	200	56	32	106	77	220	45	12.00	1
22555	333	0	42	0	1	<1	<4	2	200	57	33	113	78	360	57	17.00	1
22437	<13	<0.1	<2	<0.3	<0.1	<1	<4	<1	600	22	50	117	38	380	21	17.00	1
22556	<1	<0.1	12	<0.2	<0.1	<1	<4	<1	200	30	52	119	40	470	32	20.00	1
22453	54	0	9	<0.2	<0.1	<1	<4	<1	<200	26	35	118	71	420	37	15.00	0
22557	171	<0.1	7	0	<0.1	<1	<4	<1	<200	27	41	122	69	350	31	13.00	1
22456	325	<0.1	14	1	0	<1	<4	2	<200	35	37	96	54	280	29	13.00	1
22558	<5	0	15	<0.2	<0.1	<1	<4	2	<200	28	36	90	56	310	28	12.00	1
22463	113	<0.1	27	<0.2	0	<1	<4	3	<200	38	25	117	64	360	46	17.00	1
22559	296	0	27	0	0	<1	<4	<1	360	39	26	102	70	360	46	16.00	1
22473	143	0	34	<0.2	0	<1	69	4	490	57	24	112	75	320	54	16.00	1
22560	72	0	28	1	1	<1	100	2	<200	68	28	130	77	220	44	13.00	1
22478	128	<0.2	16	0	0	<1	22	3	<200	49	39	120	67	390	49	20.00	1
22561	28	<0.1	13	1	0	<1	34	2	<200	51	37	125	65	310	35	13.00	1
22509	<5	<0.1	21	1	0	<1	<4	3	<200	36	12	112	91	300	47	22.00	0
22563	206	<0.1	17	1	0	<1	<4	1	<200	26	10	107	91	230	40	18.00	0
22528	505	0	140	2	1	<1	18	16	<200	38	18	100	76	270	33	19.00	0
22564	86	0	96	1	1	<1	17	12	<200	31	22	113	79	250	37	16.00	0

N/A = not available, or not calculated

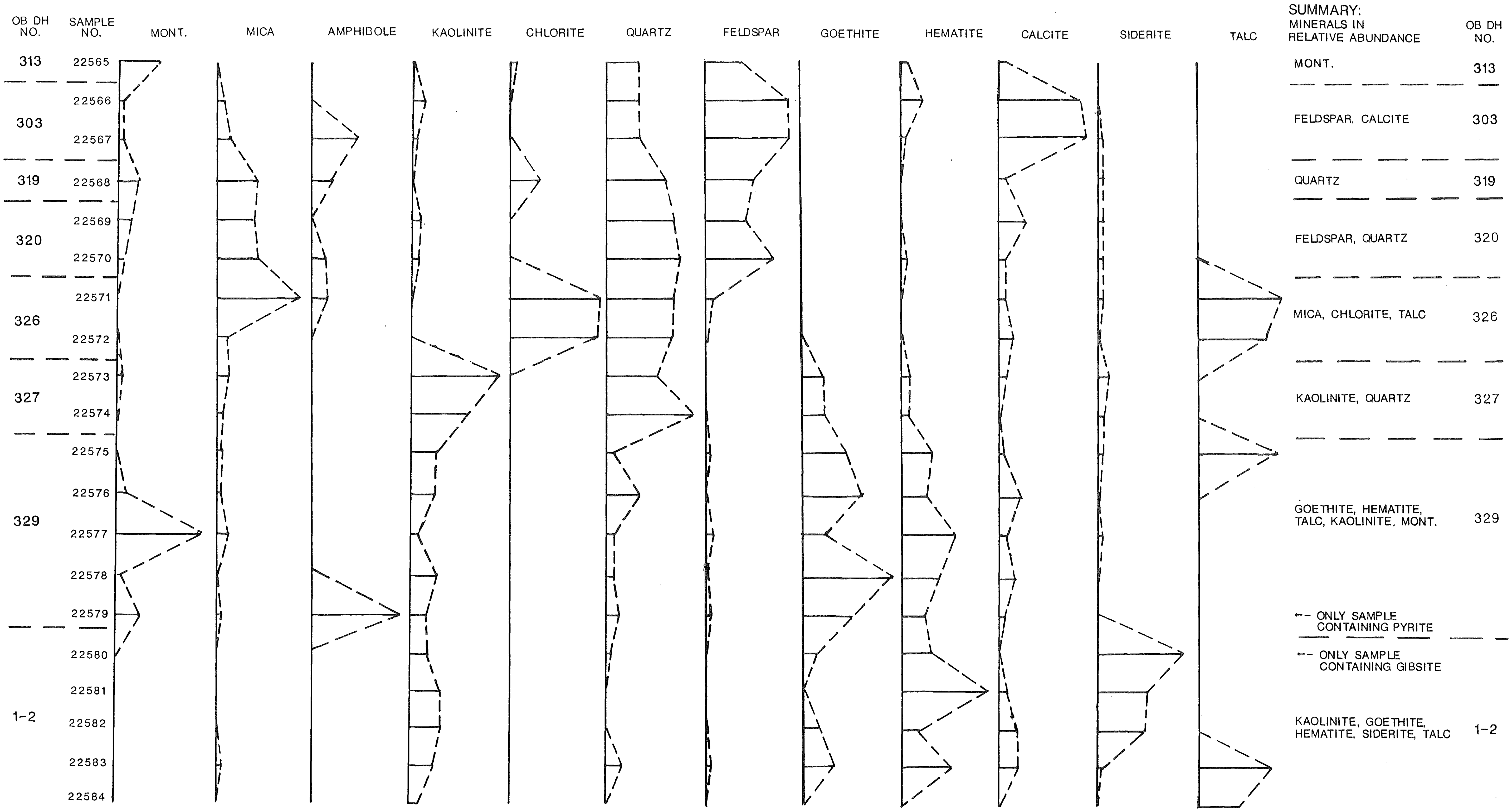
Table 9. Means to distinguish between stratigraphic units.

	Matrix Composition	Clast Lithologies	Average Nonmag HMC(g) per 10 kg	Nonmag Heavy Mineral Mineralogy	Color	Avg. Magnetic Susceptibility
Koochiching Till	clayey calcareous	shale carbonate	15.5	probably identifiable suite, but exotic	light gray to medium gray	$.09 \times 10^{-3}$ cm/gm/sec
Rainy Till	sandy, silty slightly calcareous to noncalcareous	metavolcanic granite metasediment migmatite (local material)	28.1	probably identifiable to local sources	brownish gray to greenish gray	$.12 \times 10^{-3}$ cm/gm/sec
Winnipeg Till	clayey, often well indurated and compact, calcareous	shale carbonate cretaceous limestone	22.4	probably identifiable mix of exotic + local suite	medium gray to dark gray	$.09 \times 10^{-3}$ cm/gm/sec
Old Rainy Till	sandy and rocky, more indurated than Rainy till, slightly calcareous to noncalcareous	metavolcanic granite metasediment migmatite (local material)	32.3	probably identifiable to local sources	brownish gray to greenish gray	$.13 \times 10^{-3}$ cm/gm/sec
Saprolite	clayey, calcareous to noncalcareous	bedrock	11.1	probably identifiable supergene minerals	grayish green to reddish brown	$.04 \times 10^{-3}$ cm/gm/sec

Table 10. List of Drill Core Available Within the Effie Area. See current Division of Minerals Drill Core Library Samples Index for more information about the core intervals available for inspection. To summarize, there are 26 drill cores from 6 different townships. These are in addition to DNR drilling described in this report and recent MGS drilling.

Township-Range-Section	County	DDH	Mining Unit #	Active(A) or Terminated(T)
61-25-10	Itasca	26509	CN-7825	T
61-25-10	Itasca	26510	CN-7825	T
61-25-10	Itasca	26511	CN-7825	T
61-25-10	Itasca	26512	CN-7825	T
61-25-10	Itasca	26513	CN-7825	T
61-25-12	Itasca	26502	CN-7827	T
61-25-12	Itasca	26503	CN-7827	T
61-25-12	Itasca	26506	CN-7827	T
61-25-12	Itasca	26507	CN-7827	T
61-25-12	Itasca	26508	CN-7827	T
61-25-16	Itasca	26514	CN-7828	T
61-25-16	Itasca	26515	CN-7828	T
61-26-33	Itasca	None		A
61-26-26	Itasca	MIR-1	N.S.	-
61-26-26	Itasca	MR-2	N.S.	-
150-26-9	Itasca	ML-5		T
150-26-9	Itasca	ML-6		T
150-26-15	Itasca	ML-7		T
150-26-17	Itasca	ML-3		T
150-26-17	Itasca	ML-4		T
150-26-17	Itasca	ML-8		T
150-26-20	Itasca	ML-10		T
150-27-10	Itasca	ML-2		T
150-27-15	Itasca	ML-1		T
150-27-15	Itasca	ML-9		T
62-25-27	Koochiching	FL-32-1	CN-7791	T
62-25-35	Koochiching	FL-30-1	CN-7794	T
152-27-22	Koochiching	MIZ-A-1	CN-7874	T

Table 11. This table shows the variation in mineralogy of selected saprolite samples.

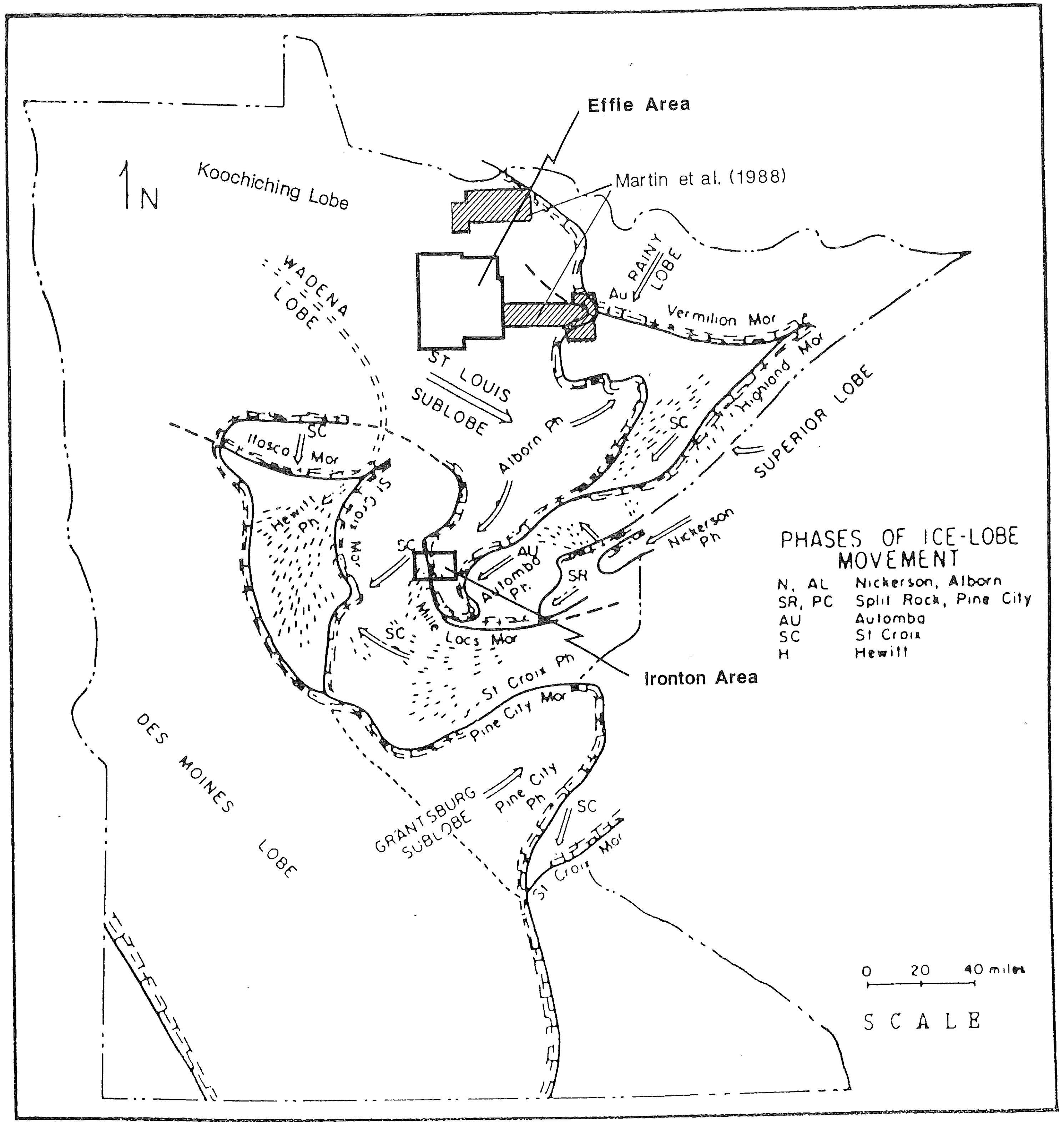


Note: An x-ray diffraction pattern was run on each sample with identical instrument parameters and the results graphed to compare the relative amounts of each mineral between samples. For each mineral, a specific peak is selected and the sample with that highest peak is assigned 100%. Every other sample is compared to that peak height. The results are semi-quantitative. For each mineral, relative variations between samples (and thus between drill holes) are shown by looking down columns. The mineralogy of each sample is shown by looking across rows.

Table 13: 1988 Seismic Depths Compared With Drill Depths

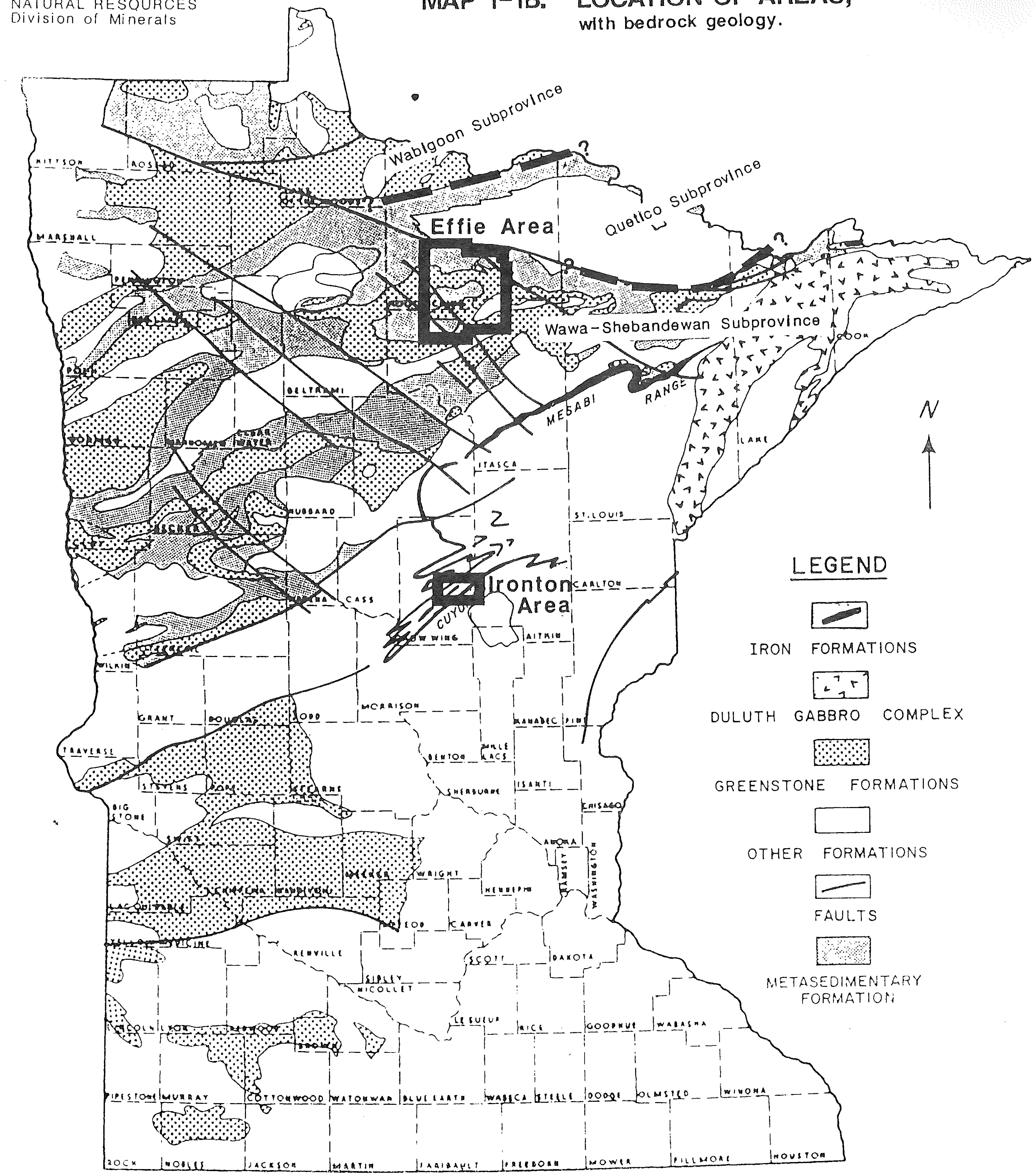
SITE	LOCATION	DRILL DEPTHS		SEISMIC DEPTHS WITHOUT NMO		PERCENT DIFF.	SEISMIC DEPTHS WITH NMO		PERCENT DIFF.
		SAPROLITE	BED ROCK						
OB-301	SE1/4 SW1/4 S. 25, T61N, R26W	87 FT.	91 FT.	85 FT.	141 FT.	-1 %	59 FT.	117 FT.	+29 %
OB-302	NE1/4 NE1/4 S. 35, T62N, R25W	76	79	95	205	+17	109	193	+38
OB-303	NW1/4 NW1/4 S. 19, T63N, R25W	149	-	88	135	-9	74	137	-8
OB-306	NE1/4 NW1/4 S. 16, T61N, R26W	128.5	129	74	127	-1	65	112	-13
OB-313	SW1/4 NW1/4 S. 22, T149N, R25W	190.5	193.5	127	162	-15	154	173	-9
OB-315	SE1/4 SW1/4 S. 22, T151N, R25W	-	162	70	147	-9	89	168	+4
OB-320	SW1/4 SE1/4 S. 28, T150N, R26W	198.5	-	152	200	+1	142	179	-10
OB-326	NW1/4 NW1/4 S. 14, T150N, R27W	230.5	251	115	200	-13	150	246	-2
OB-401	NW1/4 SE1/4 S. 27, T46N, R29W	99	109	200	277	+83	110	170	+1
OB-402	SE1/4 SW1/4 S. 10, T46N, R28W	208	211.5	96	160	-23	115	165	-21
						--------			--------
						17.2 AVE.			13.5 AVE.

MAP 1-1A. LOCATION OF AREAS, with glacial geology. See Figure 2 and section on Glacial Drift Stratigraphy by Gary Meyer for explanation of new lobe name, Koochiching Lobe (modified from Wright, 1972).



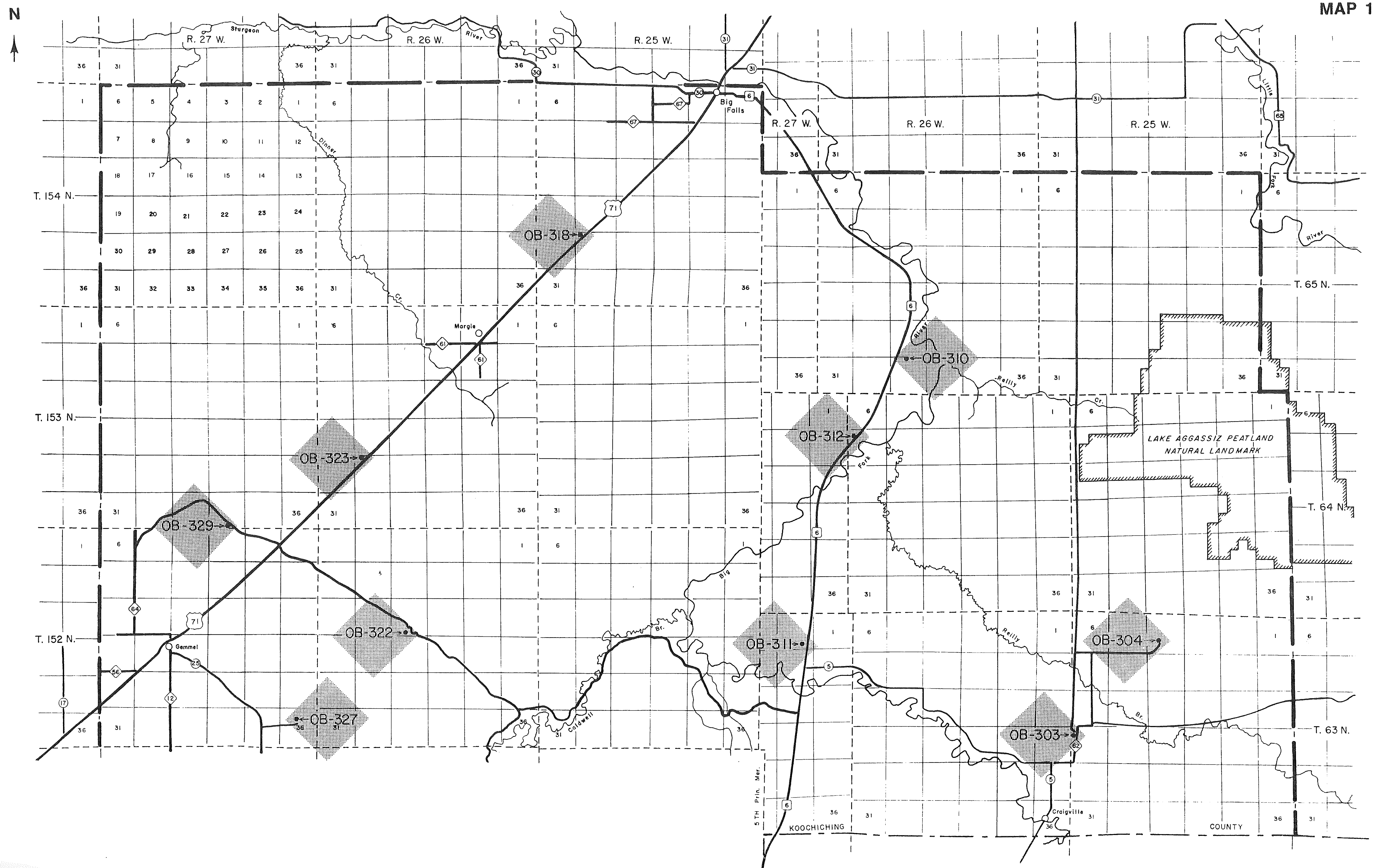
MINNESOTA DEPARTMENT OF NATURAL RESOURCES
Division of Minerals

MAP 1-1B. LOCATION OF AREAS, with bedrock geology.



Note: Greenstone areas north of the fault passing from Bigstone County northeastward to Morrison County are adapted from G. B. Morey etal, Map S-13, 1982. Protolith for the areas south of this fault are probably older mafic to intermediate greenstones as adapted from P. K. Sims, Geologic Map of Minnesota, 1970.

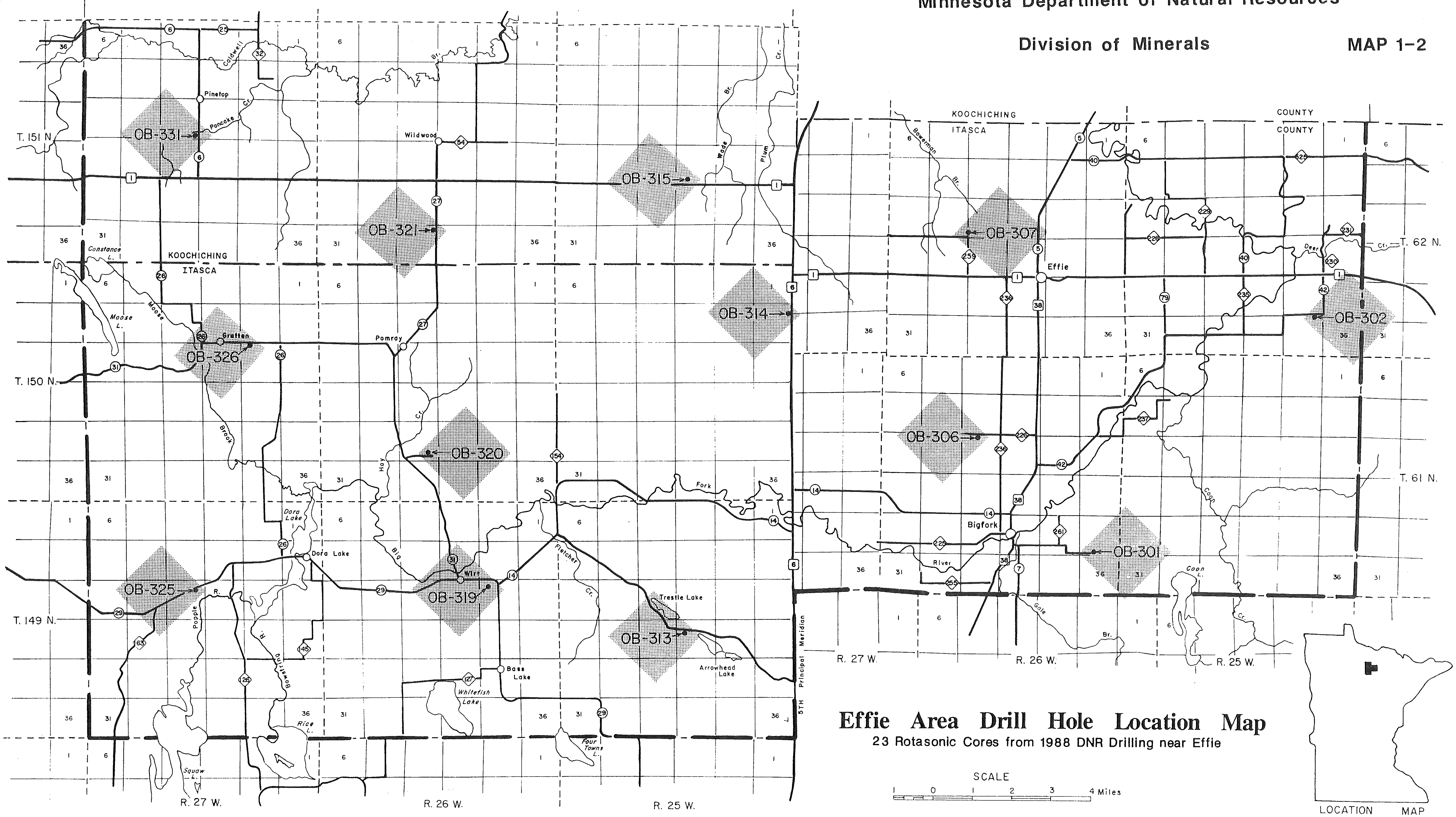
Note: Subprovince boundaries uncertain.


N
R. 27 W.
R. 26 W.
R. 25 W.
Sturgeon
River
Big Falls
Dinner
Cr.
Margie
T. 154 N.
T. 153 N.
T. 152 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
OB-323
OB-329
OB-322
OB-327
OB-310
OB-312
OB-311
OB-304
OB-303
Gemmel
Craigville
Big
Br.
Caldwell
Little
Fork
River
Reilly
LAKE AGASSIZ PEATLAND
NATURAL LANDMARK
5TH Prin. Mer.
KOOCHICHING
COUNTY

Minnesota Department of Natural Resources

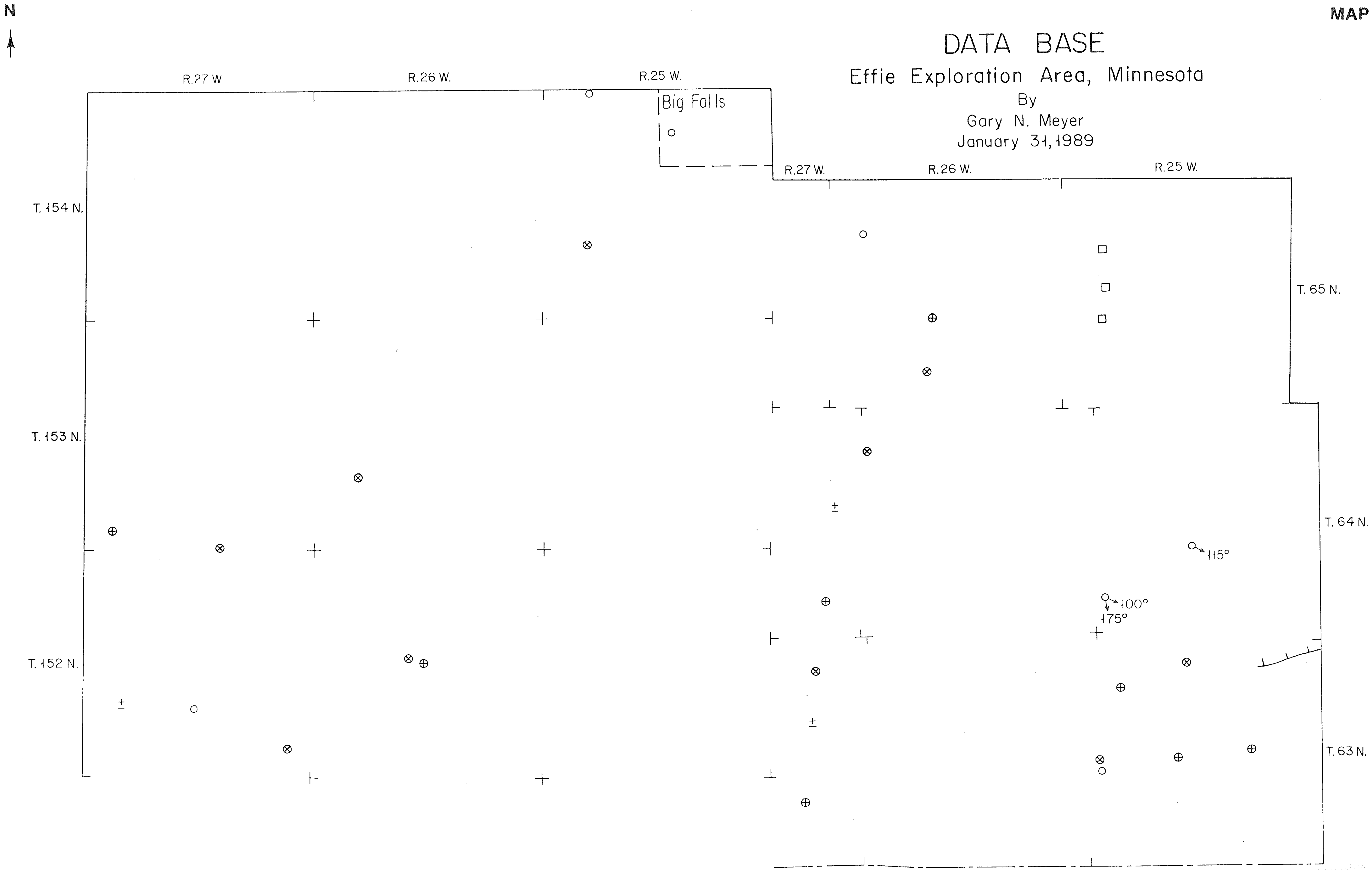
Division of Minerals

MAP 1-2

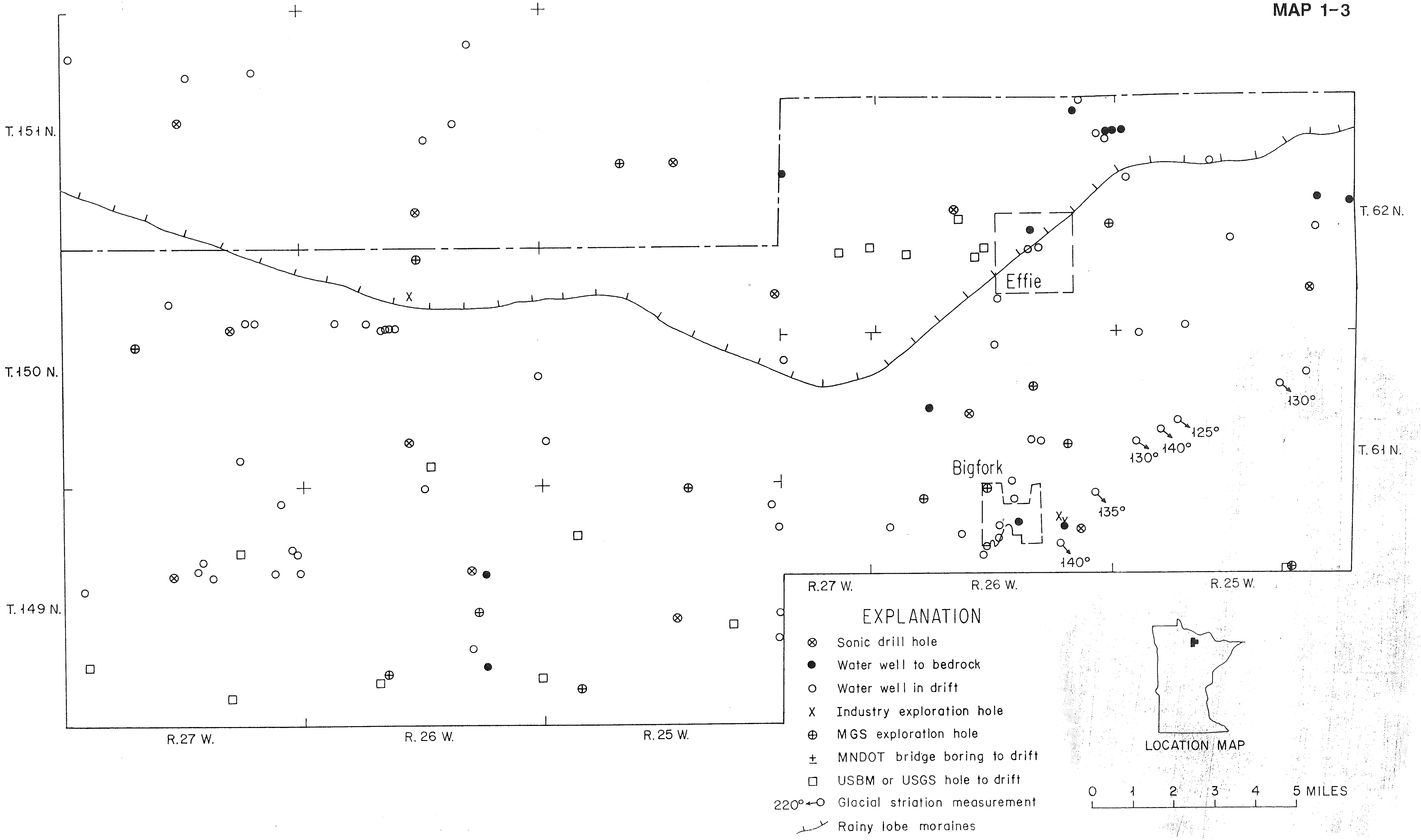


Effie Area Drill Hole Location Map

23 Rotasonic Cores from 1988 DNR Drilling near Effie


N
DATA BASE
Effie Exploration Area, Minnesota
By
Gary N. Meyer
January 31, 1989
R.27 W.
R.26 W.
R.25 W.
Big Falls
R.27 W.
R.26 W.
R.25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 65 N.
T. 64 N.
T. 63 N.
115°
100°
175°

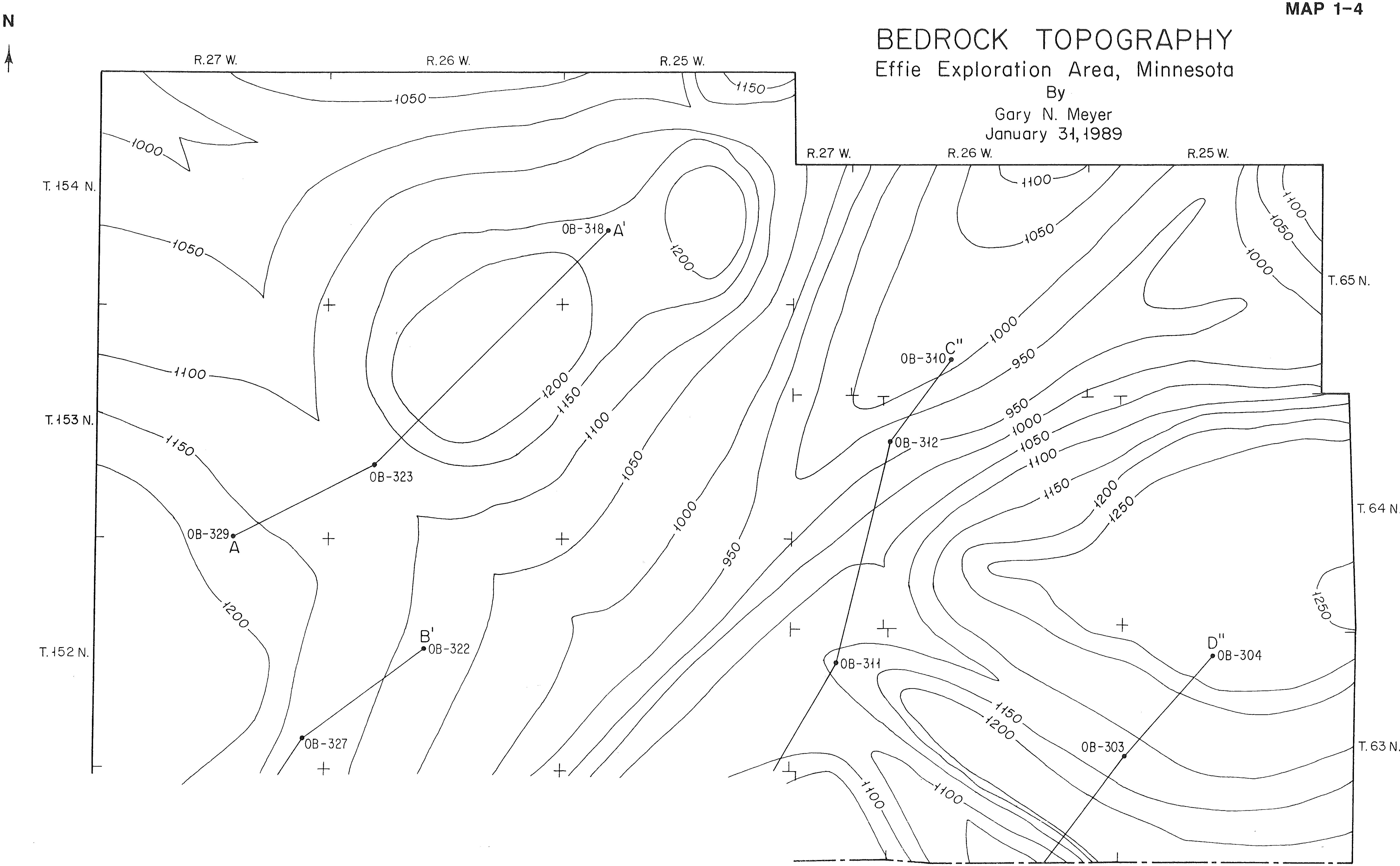
MAP 1-3

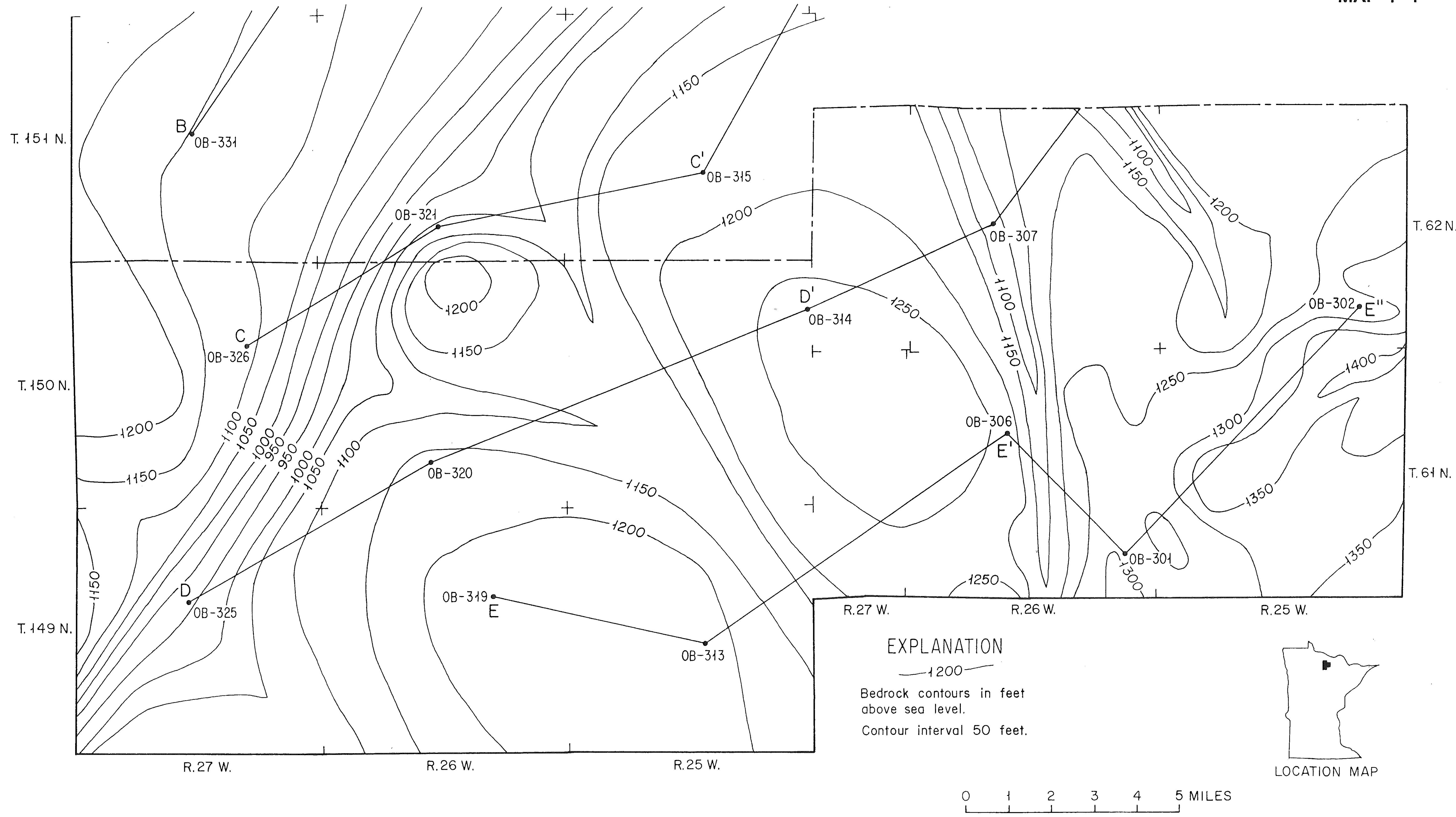


T. 151 N.
T. 150 N.
T. 149 N.
T. 62 N.
T. 61 N.
R. 27 W.
R. 26 W.
R. 25 W.
Effie
Bigfork
130°
125°
140°
135°
EXPLANATION
Sonic drill hole
Water well to bedrock
Water well in drift
Industry exploration hole
MGS exploration hole
MNDOT bridge boring to drift
USBM or USGS hole to drift
220° Glacial striation measurement
Rainy lobe moraines
LOCATION MAP
0 1 2 3 4 5 MILES

MAP 1-4

BEDROCK TOPOGRAPHY
Effie Exploration Area, Minnesota
By
Gary N. Meyer
January 31, 1989

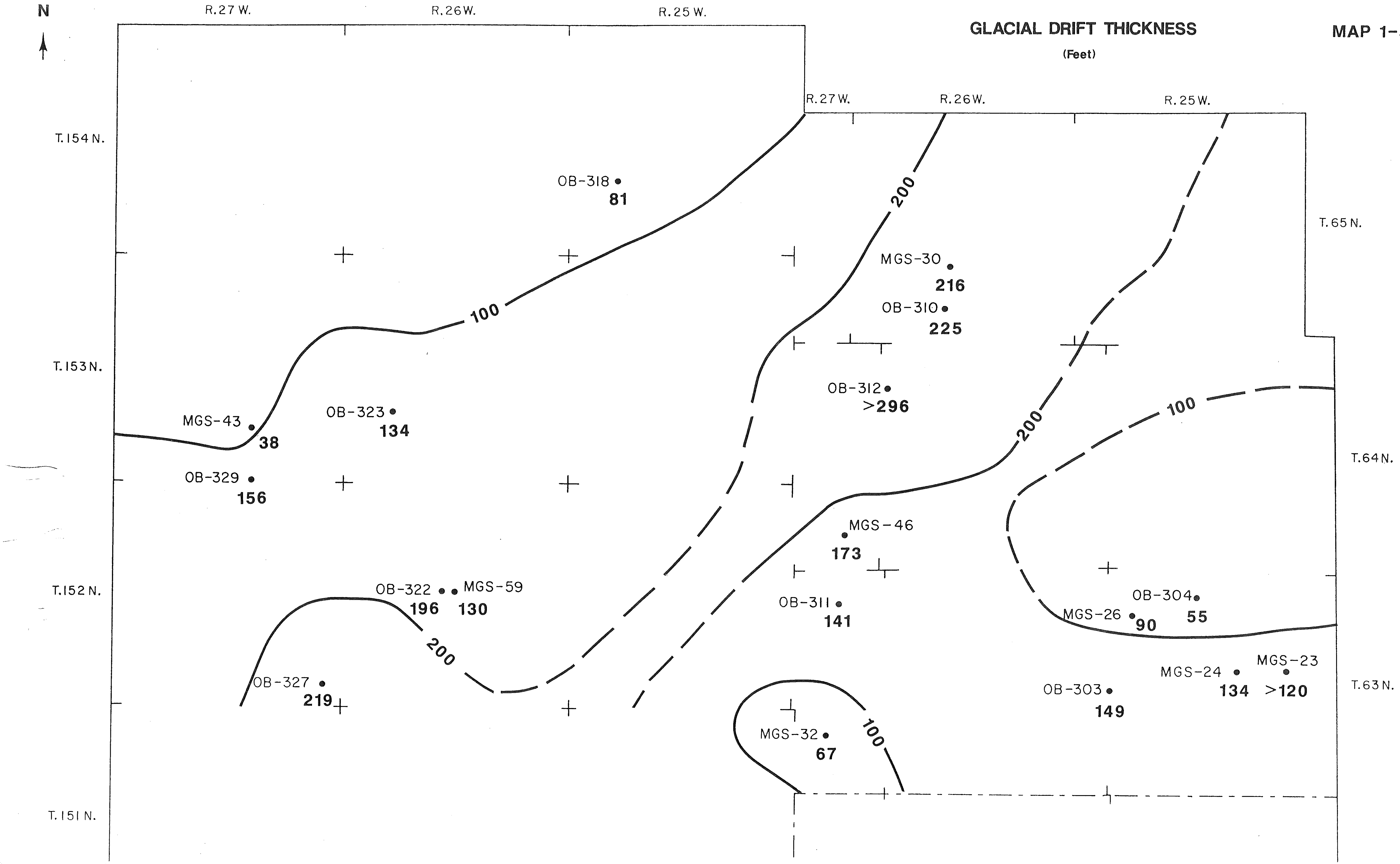


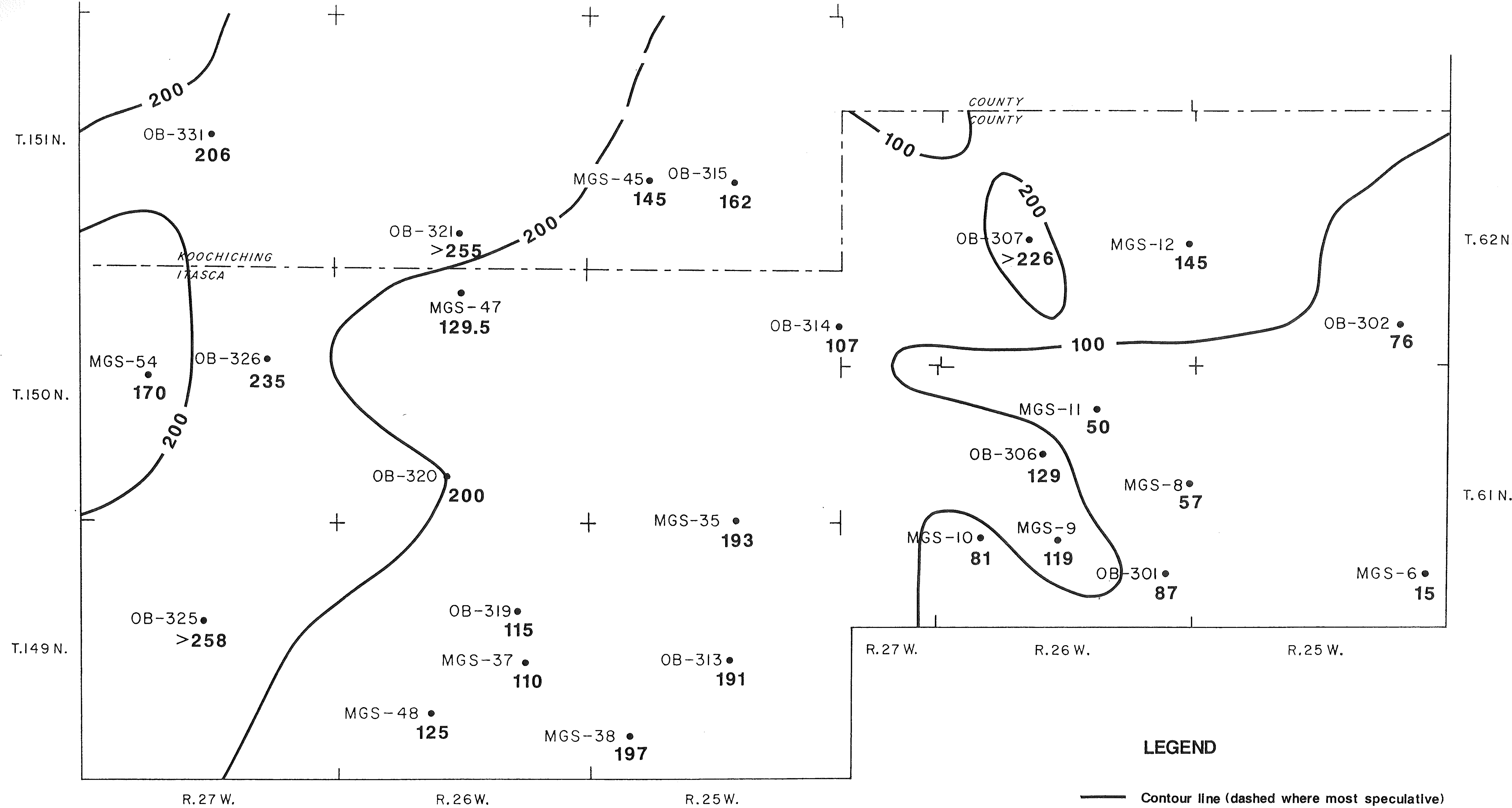

T. 151 N.
T. 150 N.
T. 149 N.
T. 62 N.
T. 61 N.
R. 27 W.
R. 26 W.
R. 25 W.
B
C
C'
D
D'
E
E'
E''
OB-331
OB-315
OB-321
OB-307
OB-326
OB-314
OB-302
OB-306
OB-320
OB-301
OB-325
OB-319
OB-313
1100
1150
1200
1250
1300
1350
1400
1050
1000
950
EXPLANATION
1200
Bedrock contours in feet above sea level.
Contour interval 50 feet.
0 1 2 3 4 5 MILES
LOCATION MAP

GLACIAL DRIFT THICKNESS

(Feet)

MAP 1-5





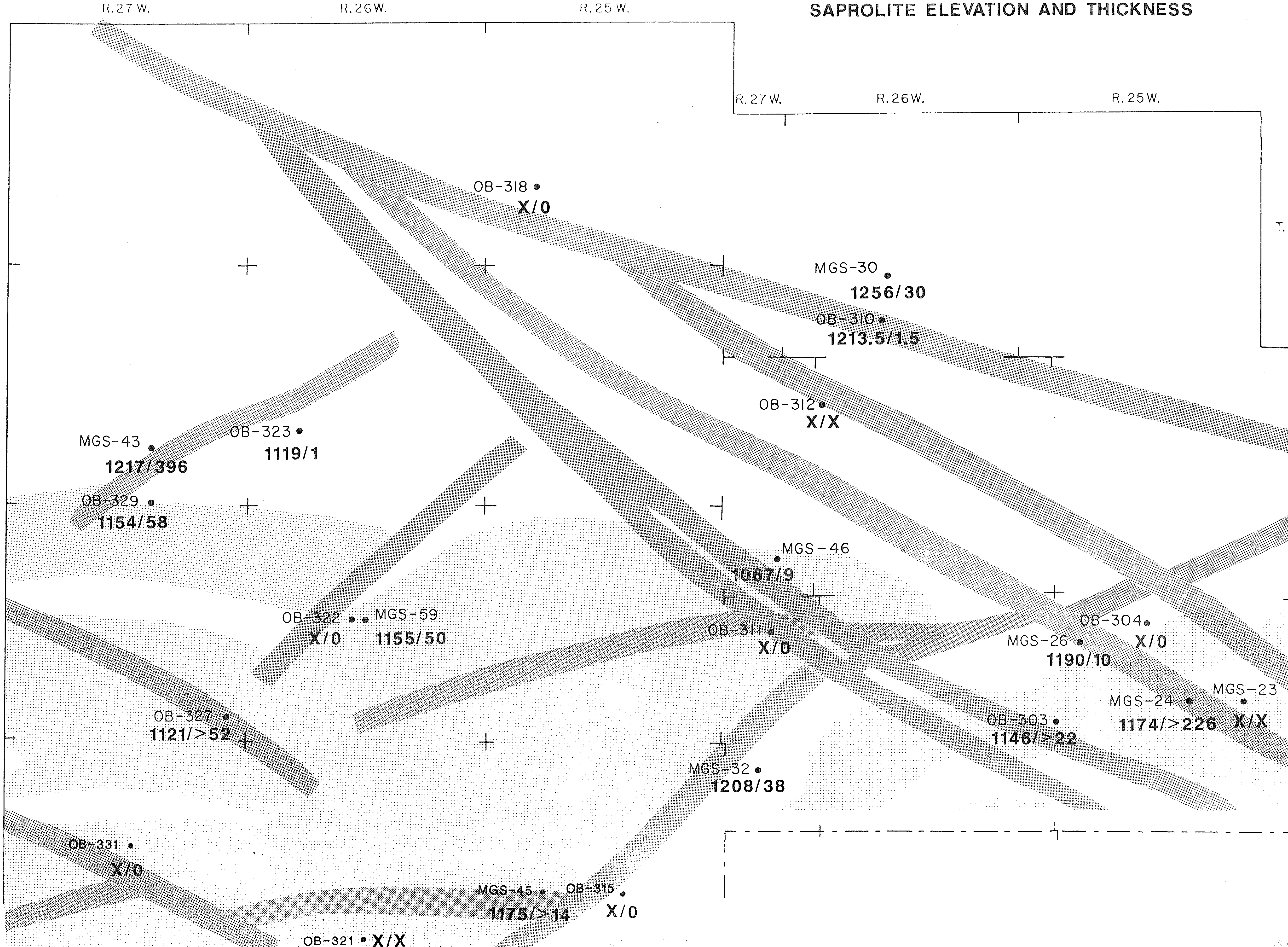
LEGEND

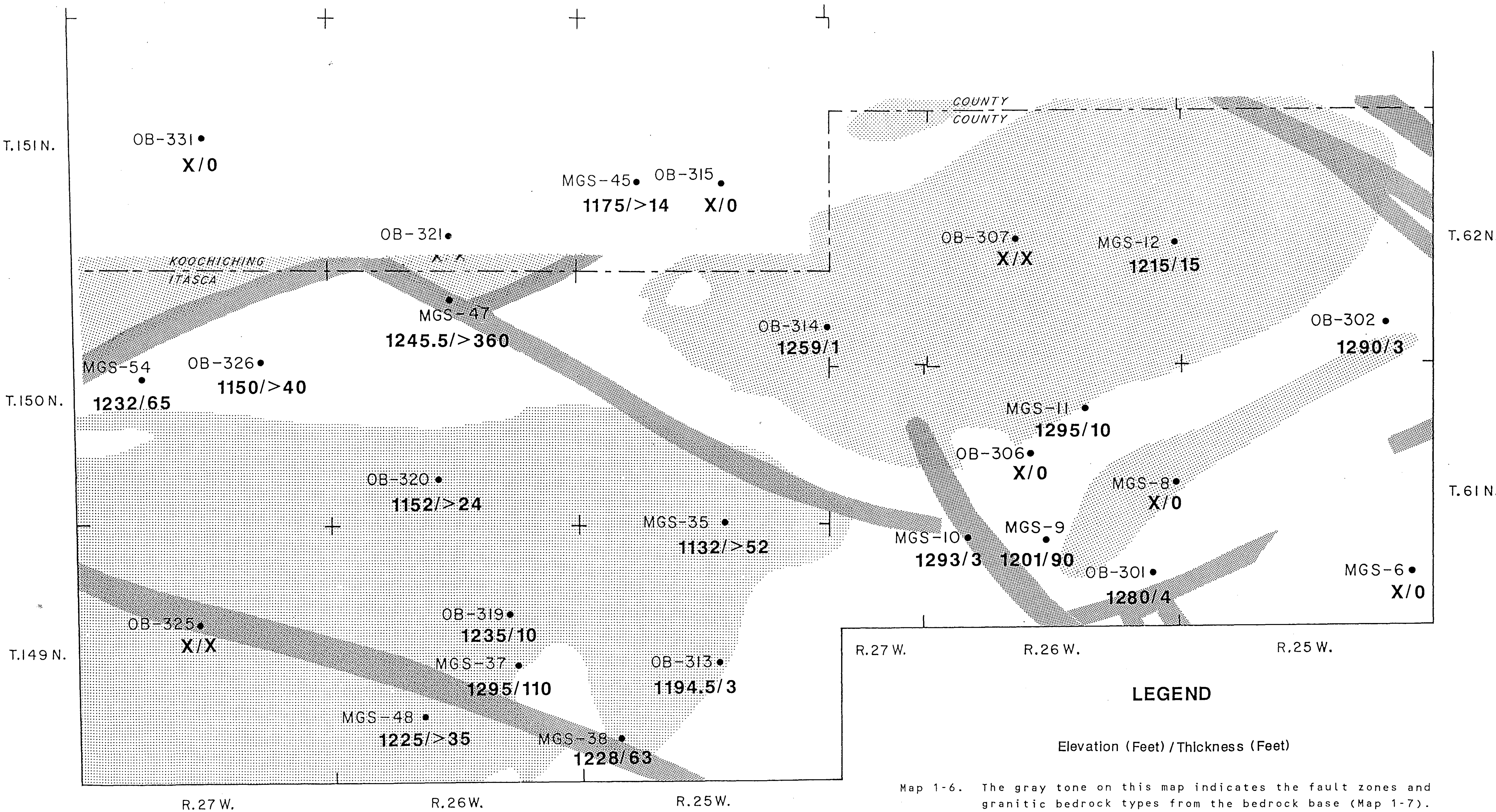
Contour line (dashed where most speculative)

Contour Interval 100 Feet

Minnesota Department of Natural Resources
Division of Minerals

PROJECT 263


R.27 W.
R.26 W.
R.25 W.
R.27 W.
R.26 W.
R.25 W.
T.154 N.
T.153 N.
T.152 N.
T.151 N.
T.65 N.
T.64 N.
T.63 N.
OB-318
X/0
MGS-30
1256/30
OB-310
1213.5/1.5
OB-312
X/X
MGS-43
1217/396
OB-323
1119/1
OB-329
1154/58
MGS-46
1067/9
OB-322
X/0
MGS-59
1155/50
OB-311
X/0
OB-304
X/0
MGS-26
1190/10
OB-327
1121/>52
MGS-24
1174/>226
MGS-23
X/X
OB-303
1146/>22
MGS-32
1208/38
OB-331
X/0
MGS-45
1175/>14
OB-315
X/0
OB-321
X/X



LEGEND

Elevation (Feet) / Thickness (Feet)

Map 1-6. The gray tone on this map indicates the fault zones and granitic bedrock types from the bedrock base (Map 1-7). It is an attempt to organize and understand the observations from deeply weathered shear zones and probable differential weathering of the granitic vs. greenstone rocks. It also clearly shows the overwhelming volumes of granitic saprolite materials that may have been available to the earliest Pleistocene ice lobes.

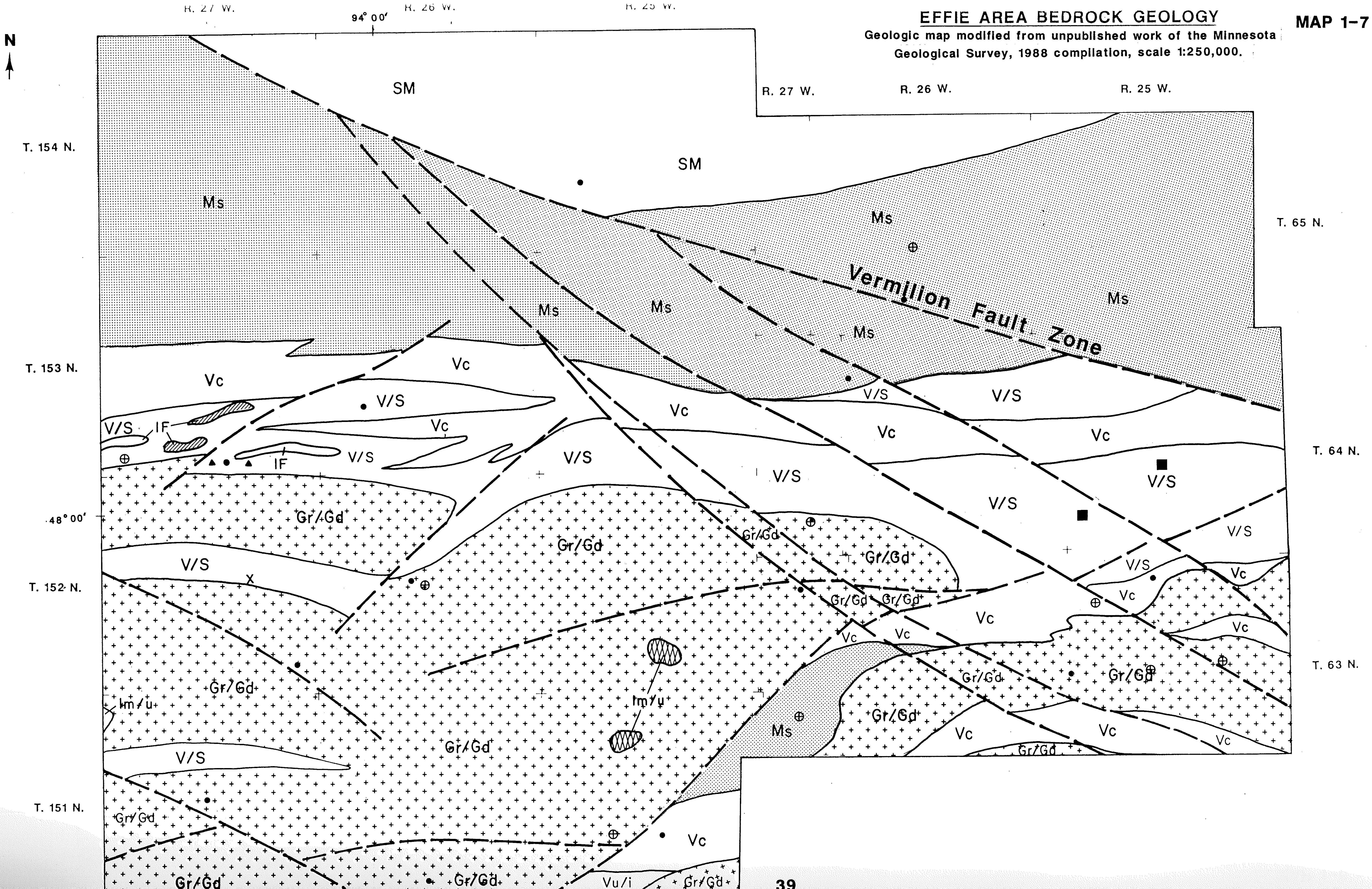
Minnesota Department of Natural Resources
Division of Minerals

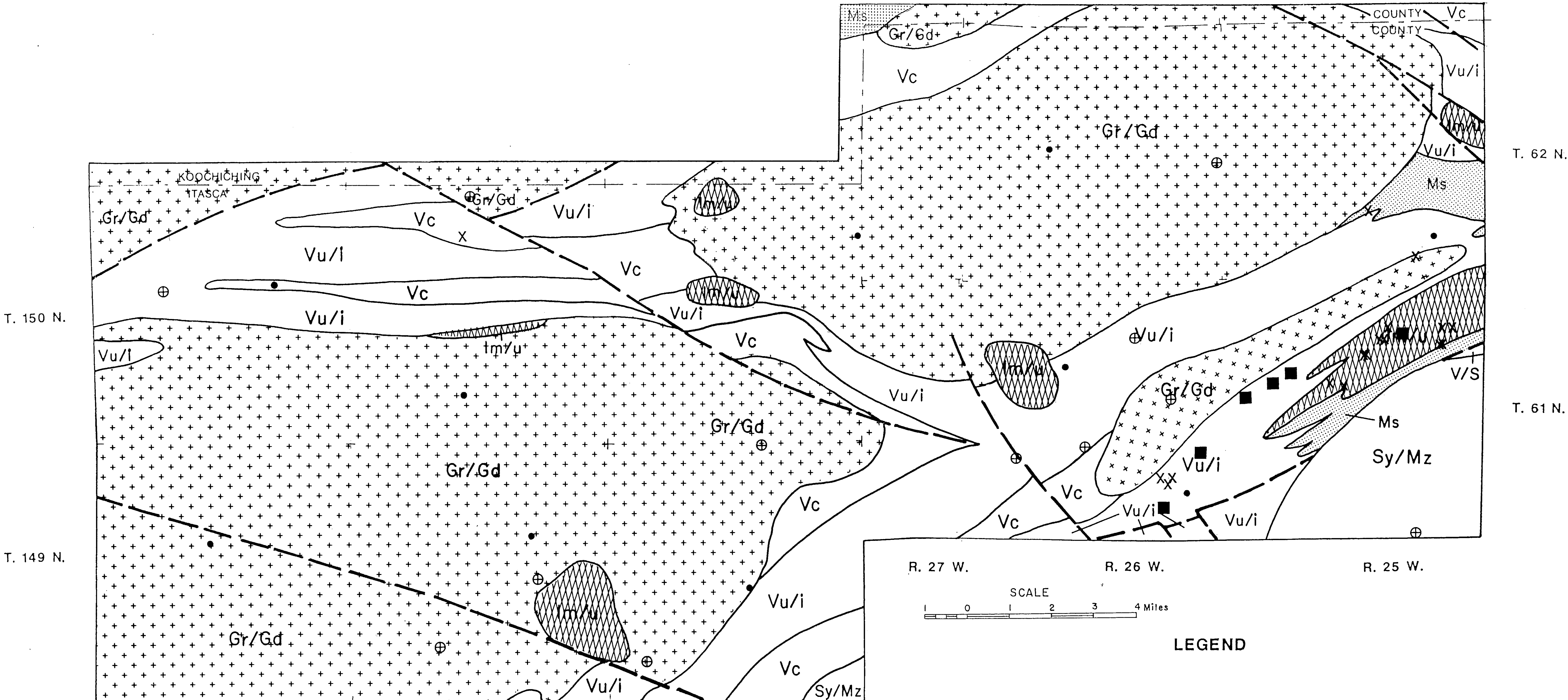
PROJECT 263

EFFIE AREA BEDROCK GEOLOGY

MAP 1–7

Geologic map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.





LEGEND

Ms = Metasedimentary rocks

IF = Iron-formation

Vc = Volcaniclastic rocks

Sy/mz = Syenite, monzonite

Vu/i = Ultramafic-intermed. volc.

V/S = Mixed volcanic/clastic rocks

SM = Schist-rich migmatite

Gr/Gd = Granite, granodiorite

Im/u = Mafic-ultramafic int.

= inferred contact

= inferred fault

● = **Rotasonic drill hole**

⊕ = MGS drill hole

X = Industry drill hole

■ = Outcrop with glacial striation measurements

▲ = DNR 1988 BEDROCK DRILL HOLES

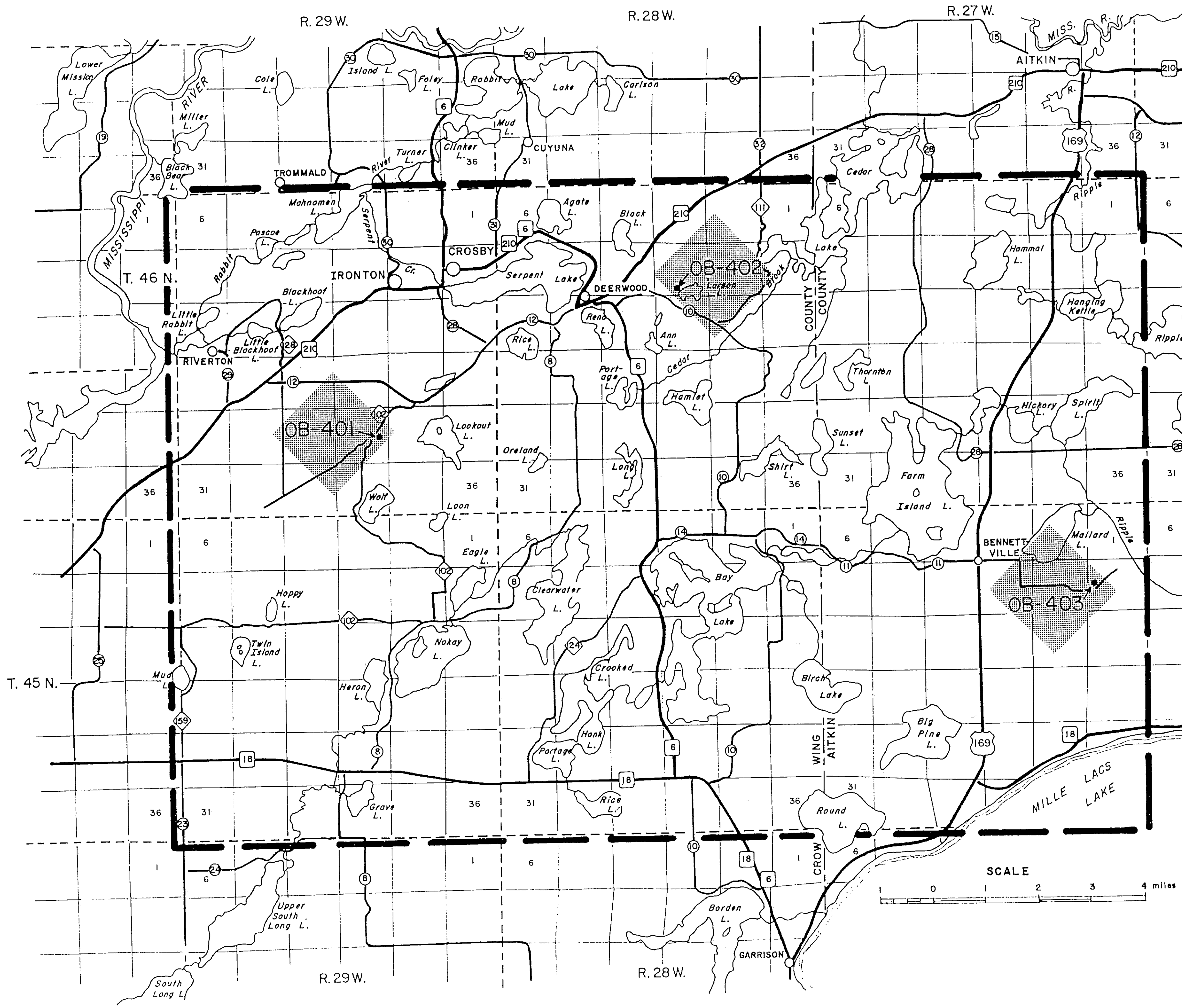
Minnesota Department of Natural Resources
Division of Minerals

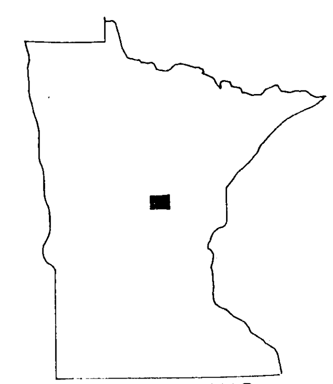
PROJECT 263

N

Ironton Area Drill Hole Location Map

MAP 2-1





LOCATION MAP

Minnesota Department of Natural Resources

Division of Minerals

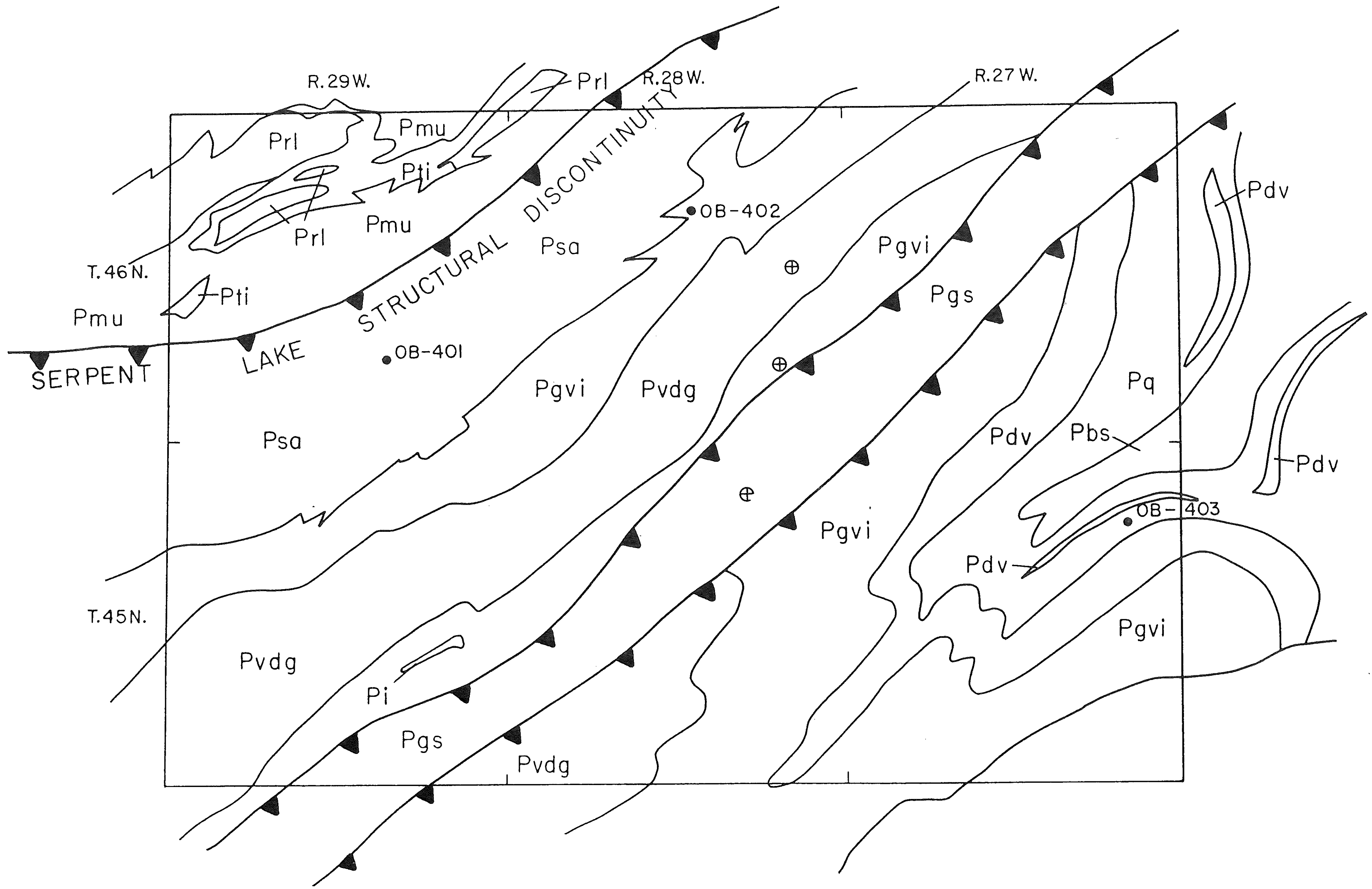
PROJECT 263

N

IRONTON AREA BEDROCK GEOLOGY

MAP 2-2

Modified from Geologic Map of the Penokean Orogen, East Central Minnesota, by Southwick, Morey, and McSwiggin, 1988, scale 1:250,000.



LEGEND

(EARLY PROTEROZOIC)

Pq = Quartzite

Prl = Slate, siltstone, and fine-grained graywacke

Pti = Interlayered cherty and slaty iron-formation

Pmu = Siltstone, argillite and fine grained quartzose sandstone

Pi = Iron-formation

Psa = Metasedimentary rocks

Pgvi = Metasedimentary and metavolcanic rocks

Pvdg = Metabasalt and metadiabase

Pgs = Graphitic schist and slate

Pdv = Metadiabase and metabasalt

Pbs = Metabasalt and allied rocks

= contact

= inferred trace of thrust fault or structural discontinuity

● = Sonic drill hole

⊕ = MGS drill hole

SCALE

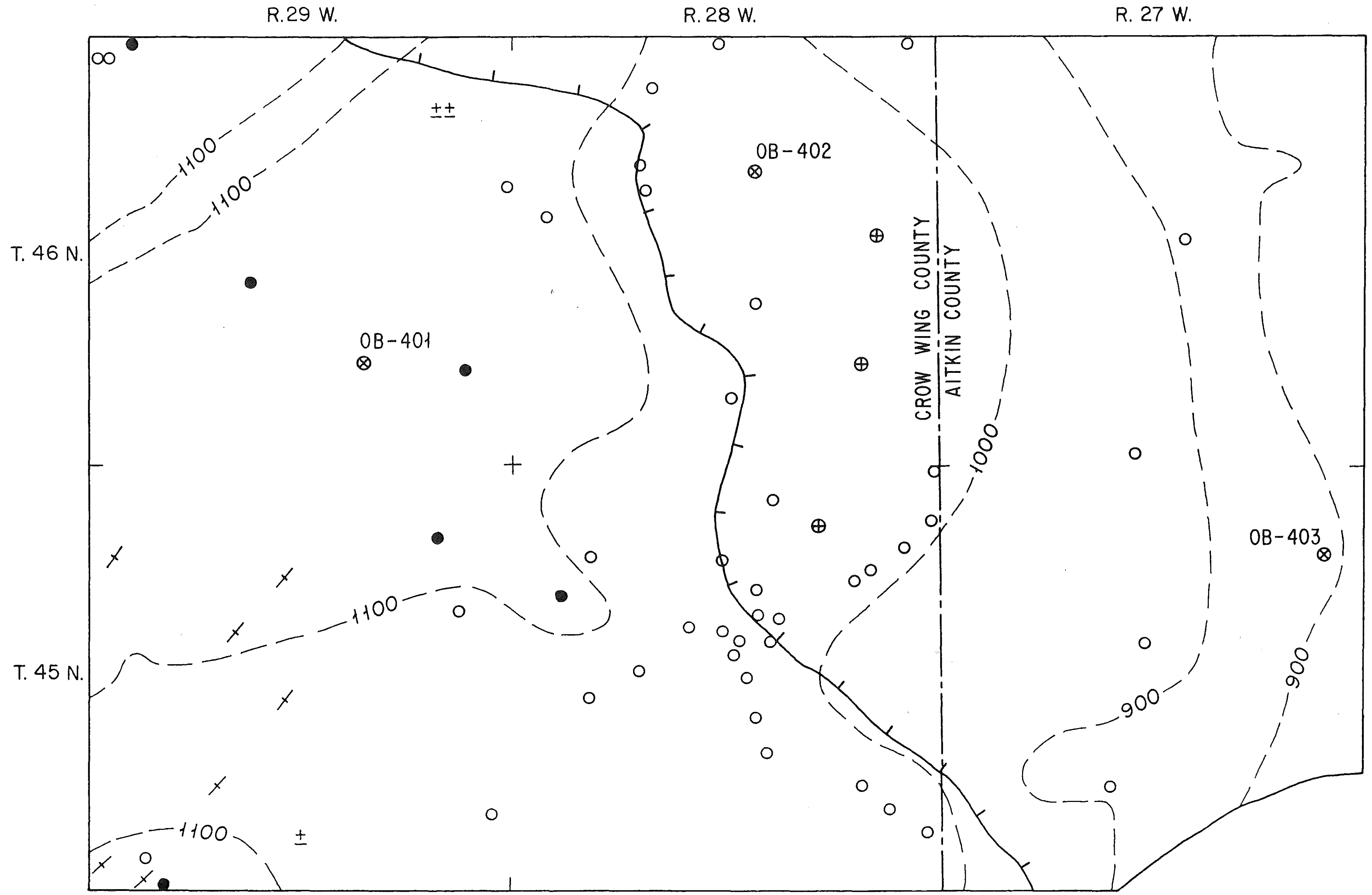
1 0 1 2 3 4 Miles

Minnesota Department of Natural Resources
Division of Minerals

Project 263

MAP 2-3

N



DATA BASE, BEDROCK TOPOGRAPHY

Ironton Exploration Area, Minnesota

By

Gary N. Meyer

January 31, 1989

EXPLANATION

— —1100— —

Bedrock contours in feet above sea level (modified from Olsen and Mossler, 1982). Contour interval 100 feet.

⊗ Sonic drill hole

● Unlocated water well to bedrock

○ Located or deep unlocated well in drift

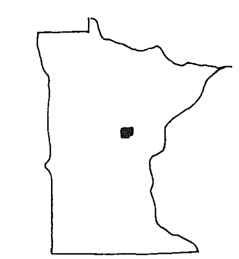
⊕ MGS exploration hole

± MNDOT bridge boring

Extent of St. Louis sublobe sediment

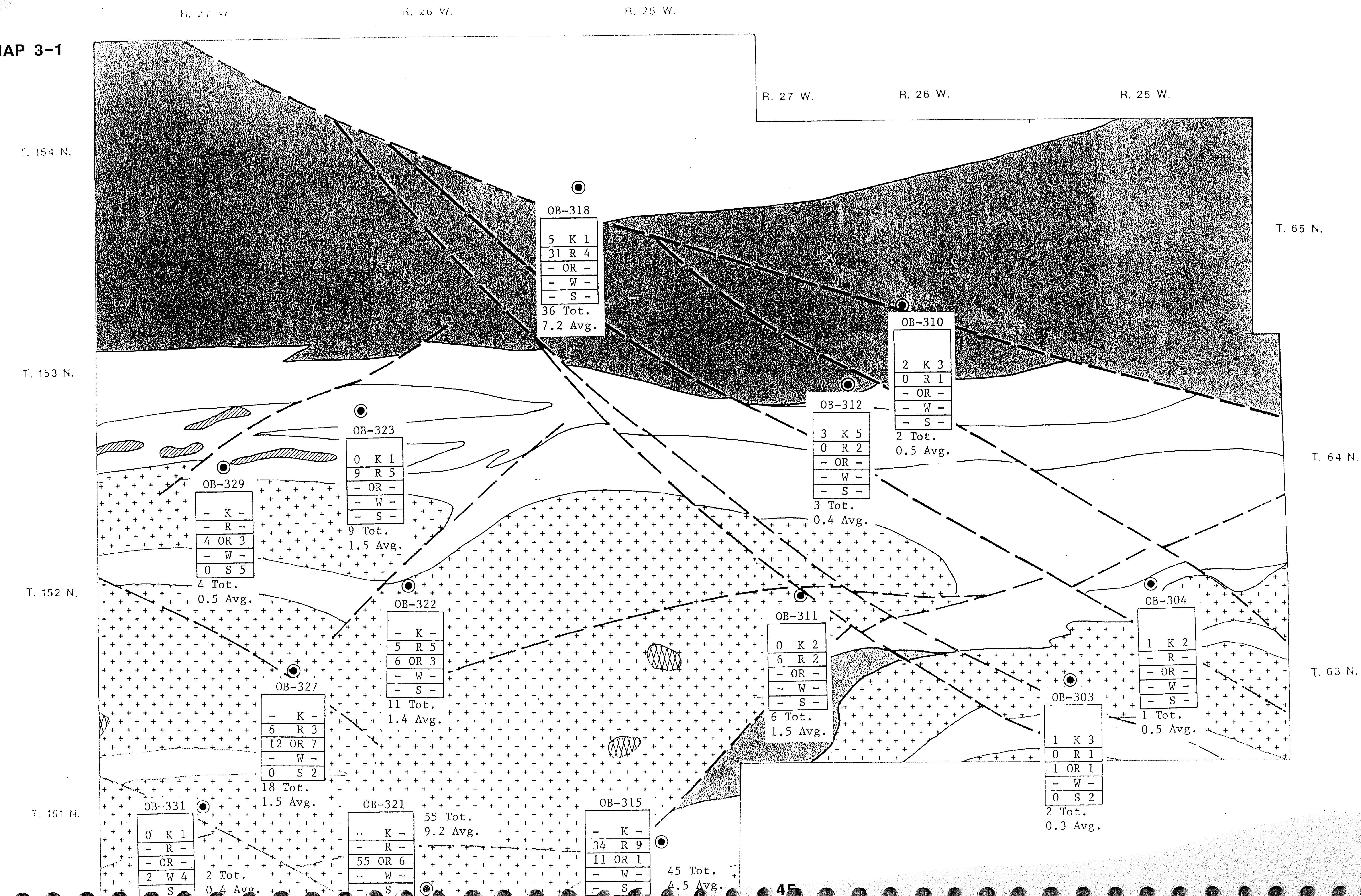
Drumlins

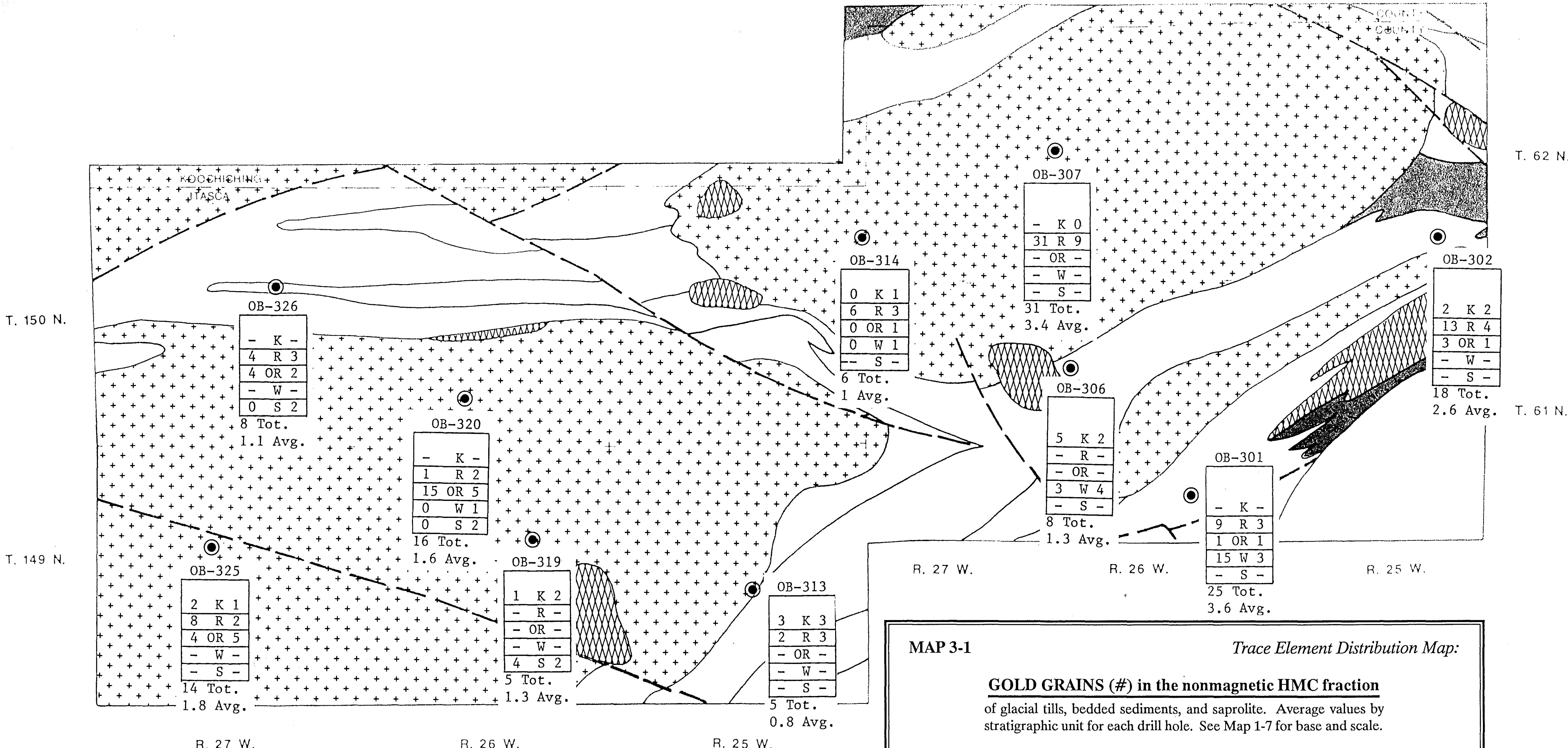
0 1 2 3 4 5 MILES



LOCATION MAP

MAP 3-1


R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
5 K 1
31 R 4
- OR -
- W -
- S -
36 Tot.
7.2 Avg.
OB-310
2 K 3
0 R 1
- OR -
- W -
- S -
2 Tot.
0.5 Avg.
OB-312
3 K 5
0 R 2
- OR -
- W -
- S -
3 Tot.
0.4 Avg.
OB-323
0 K 1
9 R 5
- OR -
- W -
- S -
9 Tot.
1.5 Avg.
OB-329
- K -
- R -
4 OR 3
- W -
0 S 5
4 Tot.
0.5 Avg.
OB-322
- K -
5 R 5
6 OR 3
- W -
- S -
11 Tot.
1.4 Avg.
OB-311
0 K 2
6 R 2
- OR -
- W -
- S -
6 Tot.
1.5 Avg.
OB-304
1 K 2
- R -
- OR -
- W -
- S -
1 Tot.
0.5 Avg.
OB-327
- K -
6 R 3
12 OR 7
- W -
0 S 2
18 Tot.
1.5 Avg.
OB-303
1 K 3
0 R 1
1 OR 1
- W -
0 S 2
2 Tot.
0.3 Avg.
OB-331
0 K 1
- R -
- OR -
2 W 4
- S -
2 Tot.
0.4 Avg.
OB-321
- K -
- R -
55 OR 6
- W -
- S -
55 Tot.
9.2 Avg.
OB-315
- K -
34 R 9
11 OR 1
- W -
- S -
45 Tot.
4.5 Avg.



MAP 3-1 *Trace Element Distribution Map:*

GOLD GRAINS (#) in the nonmagnetic HMC fraction

of glacial tills, bedded sediments, and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-311 ← DRILL HOLE

0 K 2*	← KOOCHICHING
6 R 2*	← RAINY
-- OR --*	← OLD RAINY
0 W --*	← WINNIPEG
-- S --*	← SAPROLITES

* Number of Samples Analyzed

-- Means Not Present

Average Au (#) for the nonmagnetic HMC in Koochiching Samples in OB-311

Median values by stratigraphic unit for 23 drill holes:

Au (#) in the nonmagnetic HMC fraction

Unit	Average # Gold Grains	Median value Gold Grains
K	0.9	0
R	2.7	1
OR	3.2	2
W	1.5	1
S	0.3	0

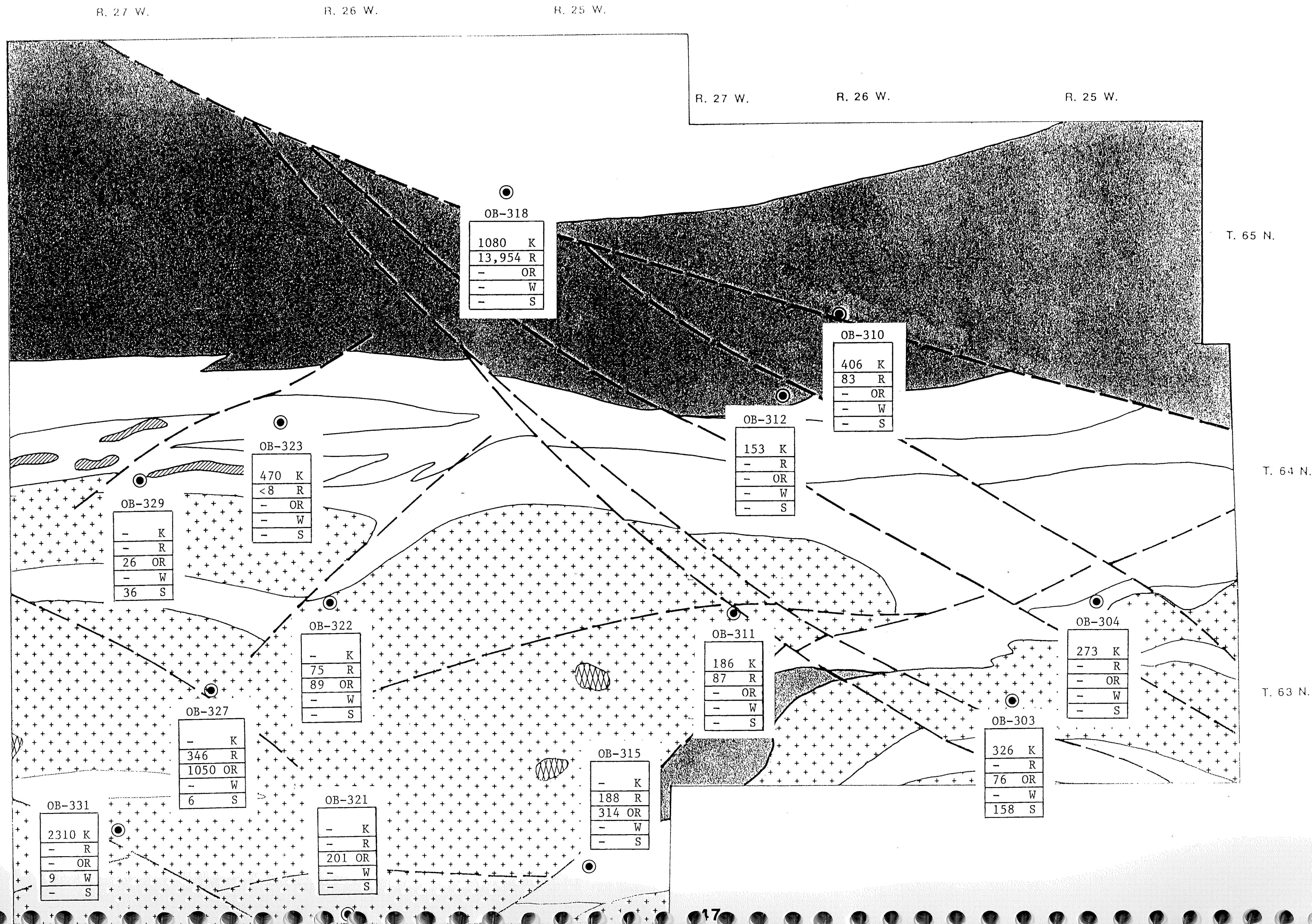
Minnesota Department of Natural Resources

Division of Minerals

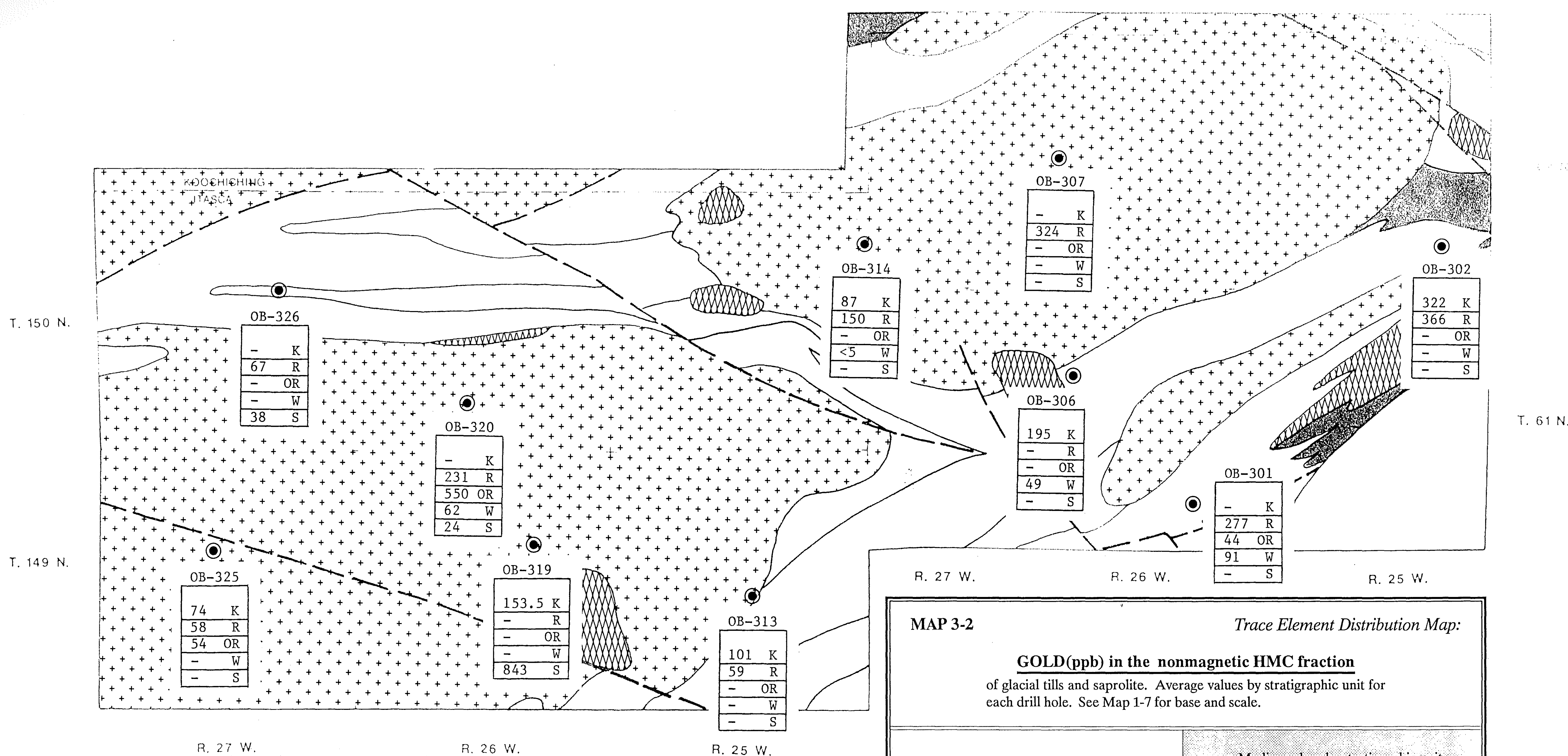
PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-2



R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
1080 K
13,954 R
– OR
– W
– S
OB-310
406 K
83 R
– OR
– W
– S
OB-312
153 K
– R
– OR
– W
– S
OB-323
470 K
<8 R
– OR
– W
– S
OB-329
– K
– R
26 OR
– W
36 S
OB-322
– K
75 R
89 OR
– W
– S
OB-311
186 K
87 R
– OR
– W
– S
OB-304
273 K
– R
– OR
– W
– S
OB-327
– K
346 R
1050 OR
– W
6 S
OB-303
326 K
– R
76 OR
– W
158 S
OB-315
– K
188 R
314 OR
– W
– S
OB-331
2310 K
– R
– OR
9 W
– S
OB-321
– K
– R
201 OR
– W
– S



MAP 3-2 *Trace Element Distribution Map:*

GOLD(ppb) in the nonmagnetic HMC fraction

of glacial tills and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306 ←—— DRILL HOLE

36	K	← KOOCHICHING TILLS
--	R	← RAINY TILLS
--	OR	← OLD RAINY TILLS
37	W	← WINNIPEG TILLS
--	S	← SAPROLITE SAMPLES

— Means Not Present

— Average Au (ppb) for the nonmagnetic HMC in Koochiching Till Samples in OB-306

Median values by stratigraphic unit for 23 drill holes:

Au (ppb) in the nonmagnetic HMC fraction

Unit	Samples Overlying Granite	Samples Overlying Greenstone
K	89	115
R	77	113
OR	97	44
W	8	45
S	--	--

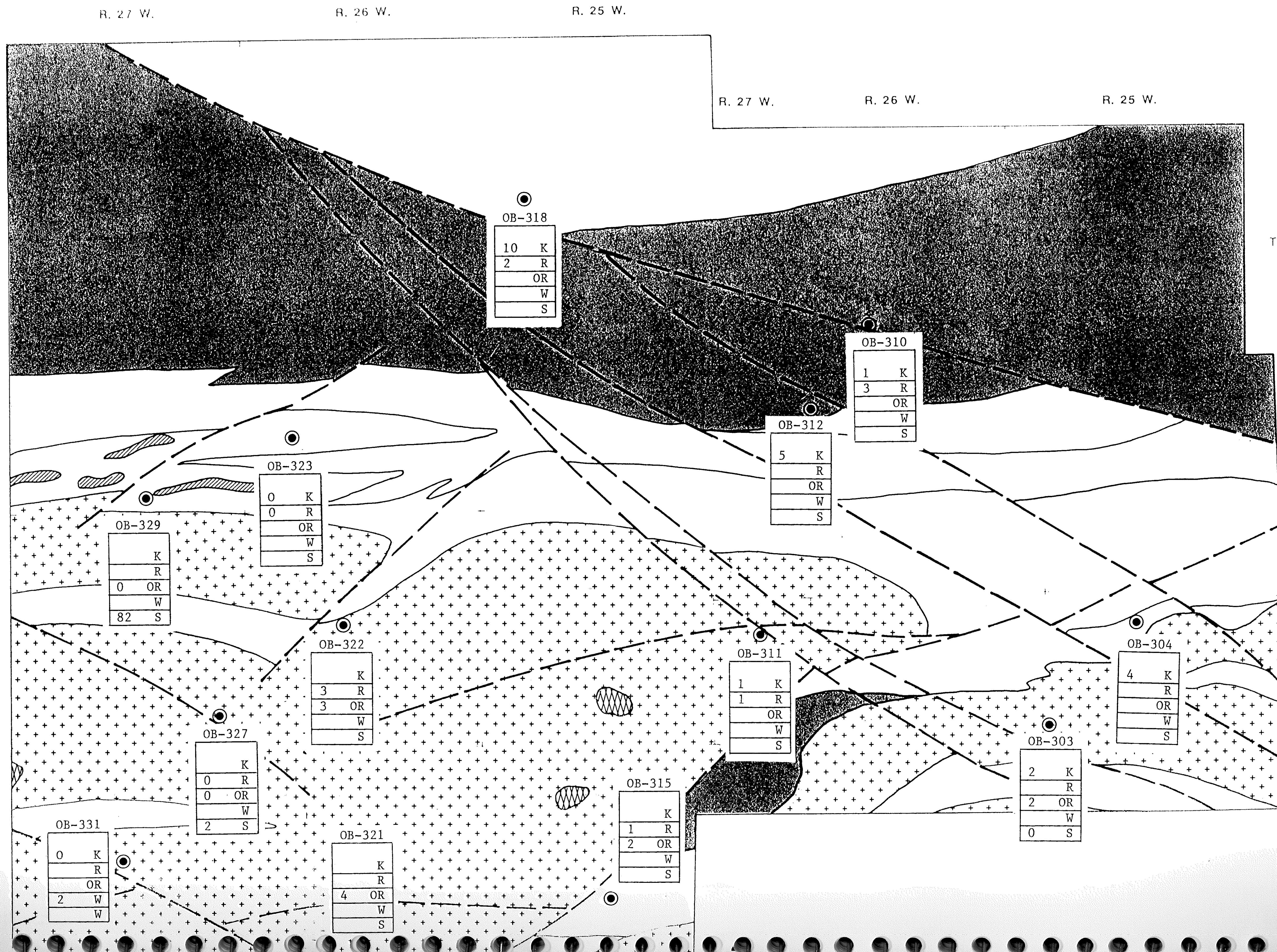
Minnesota Department of Natural Resources

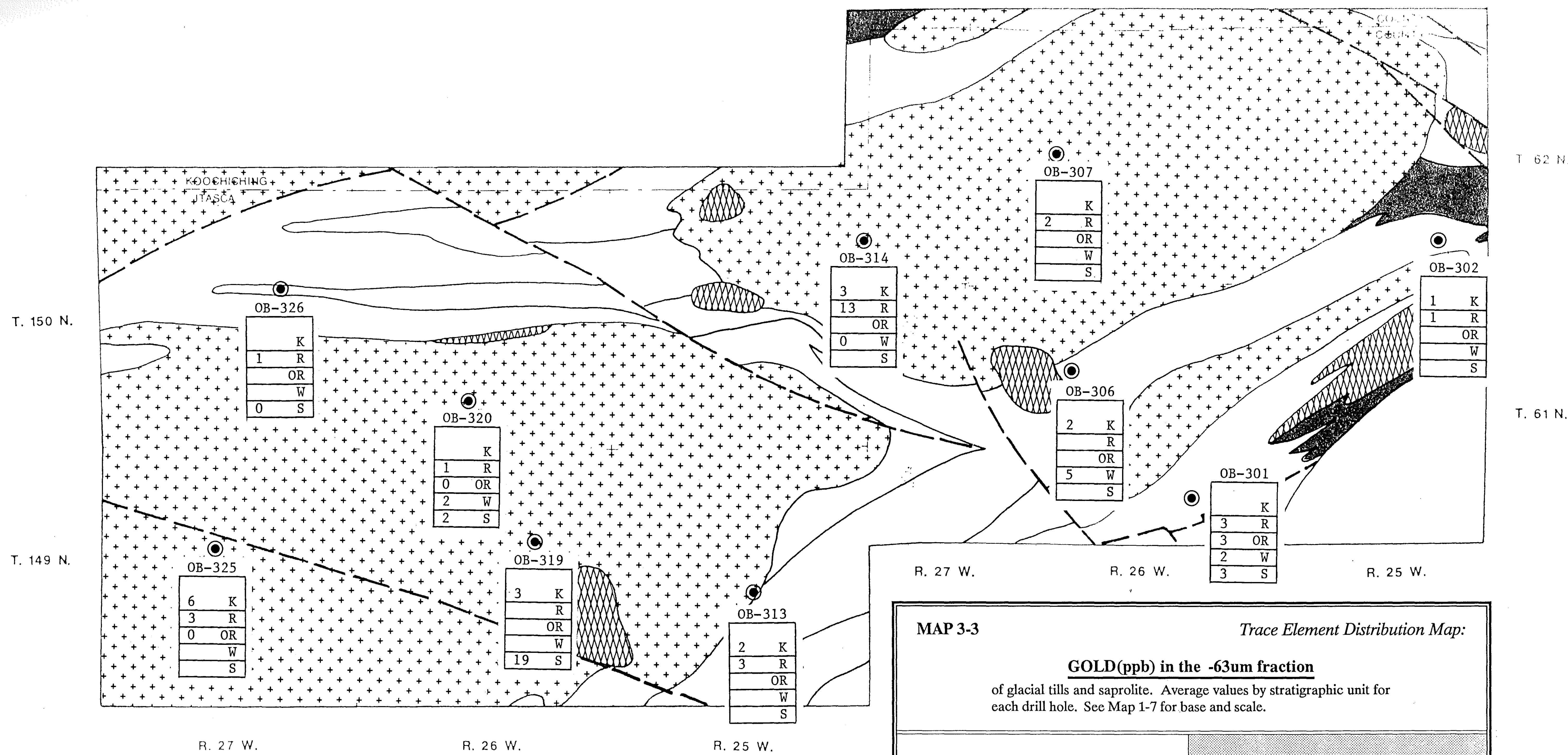
Division of Minerals

PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-3


R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
10 K
2 R
OR
W
S
OB-310
1 K
3 R
OR
W
S
OB-312
5 K
R
OR
W
S
OB-323
0 K
0 R
OR
W
S
OB-329
K
R
0 OR
W
82 S
OB-322
K
3 R
3 OR
W
S
OB-311
1 K
1 R
OR
W
S
OB-304
4 K
R
OR
W
S
OB-327
K
0 R
0 OR
W
2 S
OB-303
2 K
R
2 OR
W
0 S
OB-315
K
1 R
2 OR
W
S
OB-331
0 K
R
OR
2 W
W
OB-321
K
R
4 OR
W
S



MAP 3-3 *Trace Element Distribution Map:*

GOLD(ppb) in the -63um fraction

of glacial tills and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306 ←— DRILL HOLE

36	K	←KOOCHICHING TILLS
--	R	←— RAINY TILLS
--	OR	←— OLD RAINY TILLS
37	W	←— WINNIPEG TILLS
--	S	←SAPROLITE SAMPLES

Means Not Present

Average Au (ppb) for the -63um fraction in Koochiching Till Samples in OB-306

Median values by stratigraphic unit for 23 drill holes:
Au (ppb) in the -63um fraction

Unit	Samples Overlying Granite	Samples Overlying Greenstone
K	2	1
R	2	5/8
OR	5/8	5/8
W	1	1
S	--	--

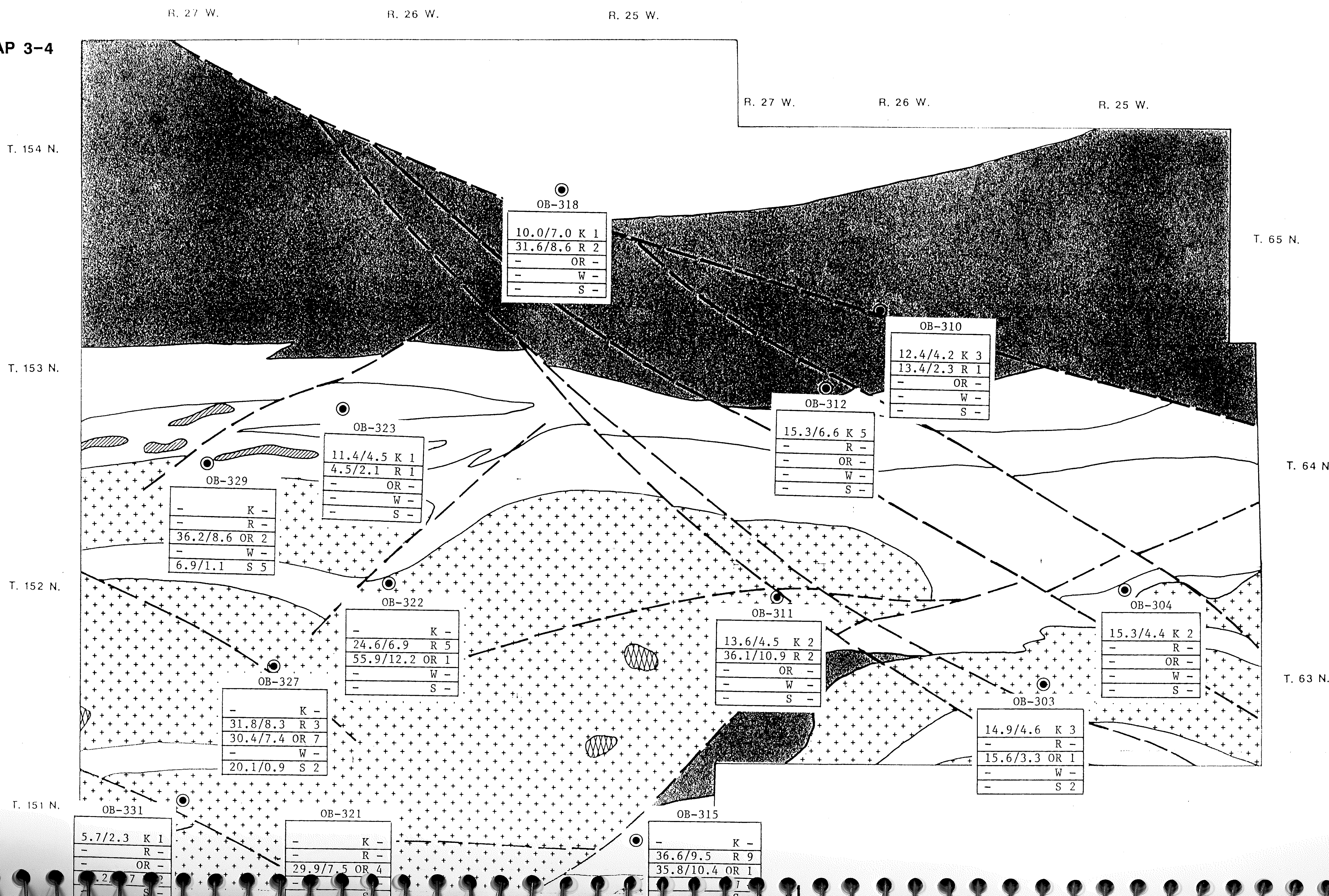
Minnesota Department of Natural Resources

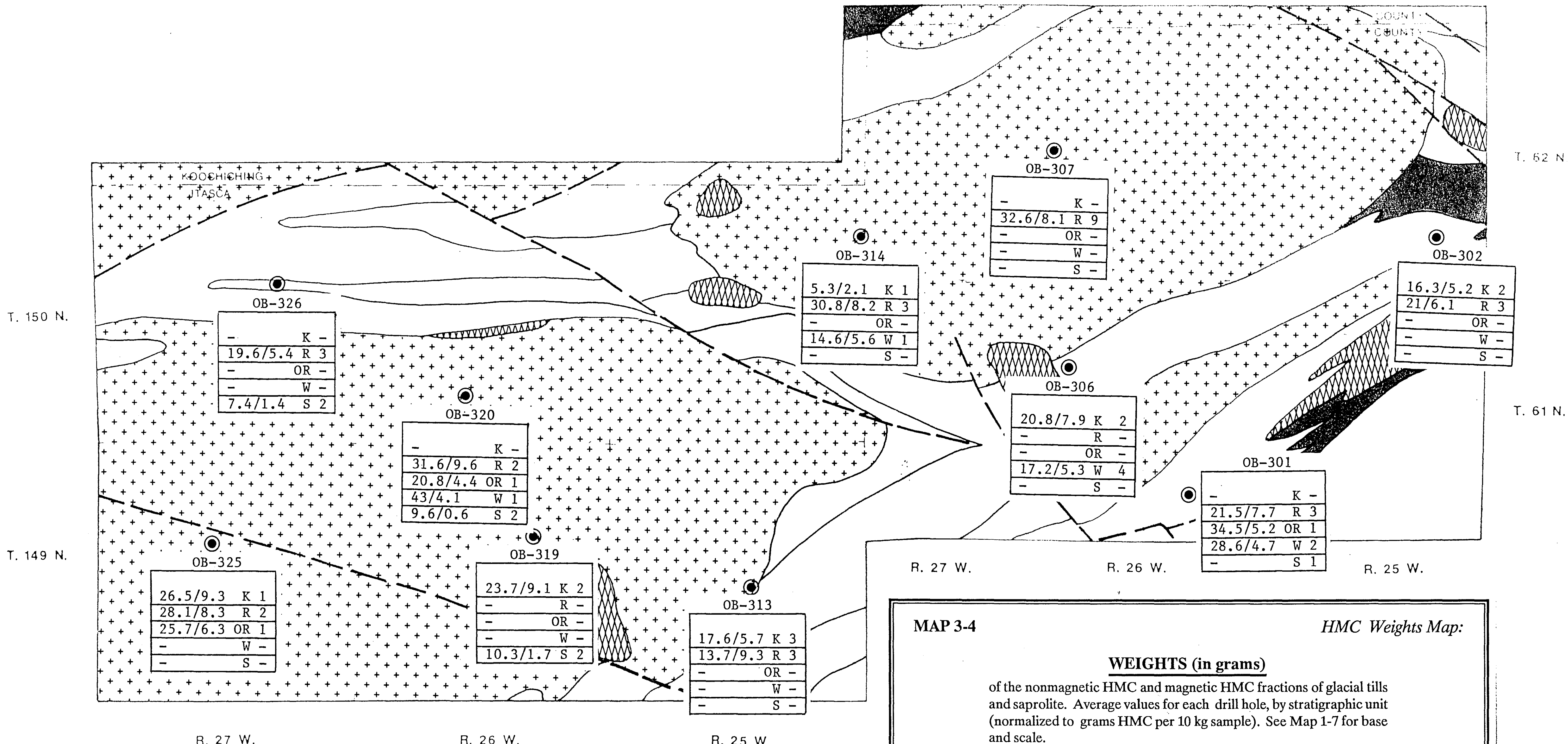
Division of Minerals

PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-4


R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
10.0/7.0 K 1
31.6/8.6 R 2
– OR –
– W –
– S –
OB-310
12.4/4.2 K 3
13.4/2.3 R 1
– OR –
– W –
– S –
OB-312
15.3/6.6 K 5
– R –
– OR –
– W –
– S –
OB-323
11.4/4.5 K 1
4.5/2.1 R 1
– OR –
– W –
– S –
OB-329
– K –
– R –
36.2/8.6 OR 2
– W –
6.9/1.1 S 5
OB-322
– K –
24.6/6.9 R 5
55.9/12.2 OR 1
– W –
– S –
OB-311
13.6/4.5 K 2
36.1/10.9 R 2
– OR –
– W –
– S –
OB-304
15.3/4.4 K 2
– R –
– OR –
– W –
– S –
OB-327
– K –
31.8/8.3 R 3
30.4/7.4 OR 7
– W –
20.1/0.9 S 2
OB-303
14.9/4.6 K 3
– R –
15.6/3.3 OR 1
– W –
– S 2
OB-331
5.7/2.3 K 1
– R –
– OR –
OB-321
– K –
– R –
29.9/7.5 OR 4
OB-315
– K –
36.6/9.5 R 9
35.8/10.4 OR 1



MAP 3-4 *HMC Weights Map:*

WEIGHTS (in grams)

of the nonmagnetic HMC and magnetic HMC fractions of glacial tills and saprolite. Average values for each drill hole, by stratigraphic unit (normalized to grams HMC per 10 kg sample). See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306 ←DRILL HOLE
36 K ←KOOCHICHING TILLS
-- R ←RAINY TILLS
-- OR ←OLD RAINY TILLS
37 W ←WINNIPEG TILLS
-- S ←SAPROLITE SAMPLES

Unit	Average wt. (grams) Nonmag HMC	Average wt. (grams) Magnetic HMC	Median value Nonmag HMC	Median value Magnetic HMC
K	15.5	5.7	16.1	6.2
R	28.1	8.0	28.5	8.3
OR	32.3	8.2	35.2	7.5
W	22.4	5.8	19.9	5.7
S	11.1	1.3	--	--

Indicates Unit not Present
Average Value of Koochiching Till Samples in OB-306

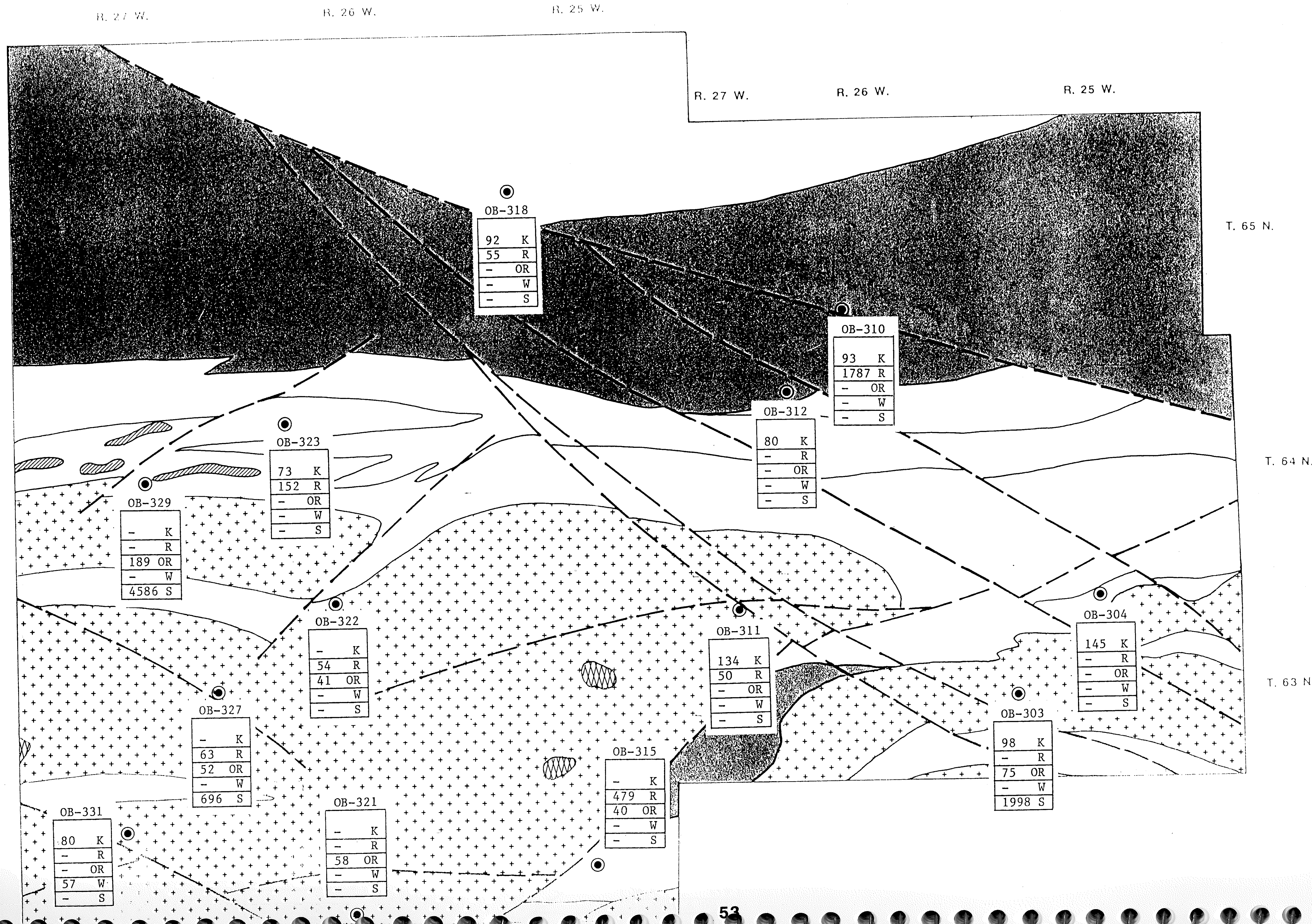
Minnesota Department of Natural Resources

Division of Minerals

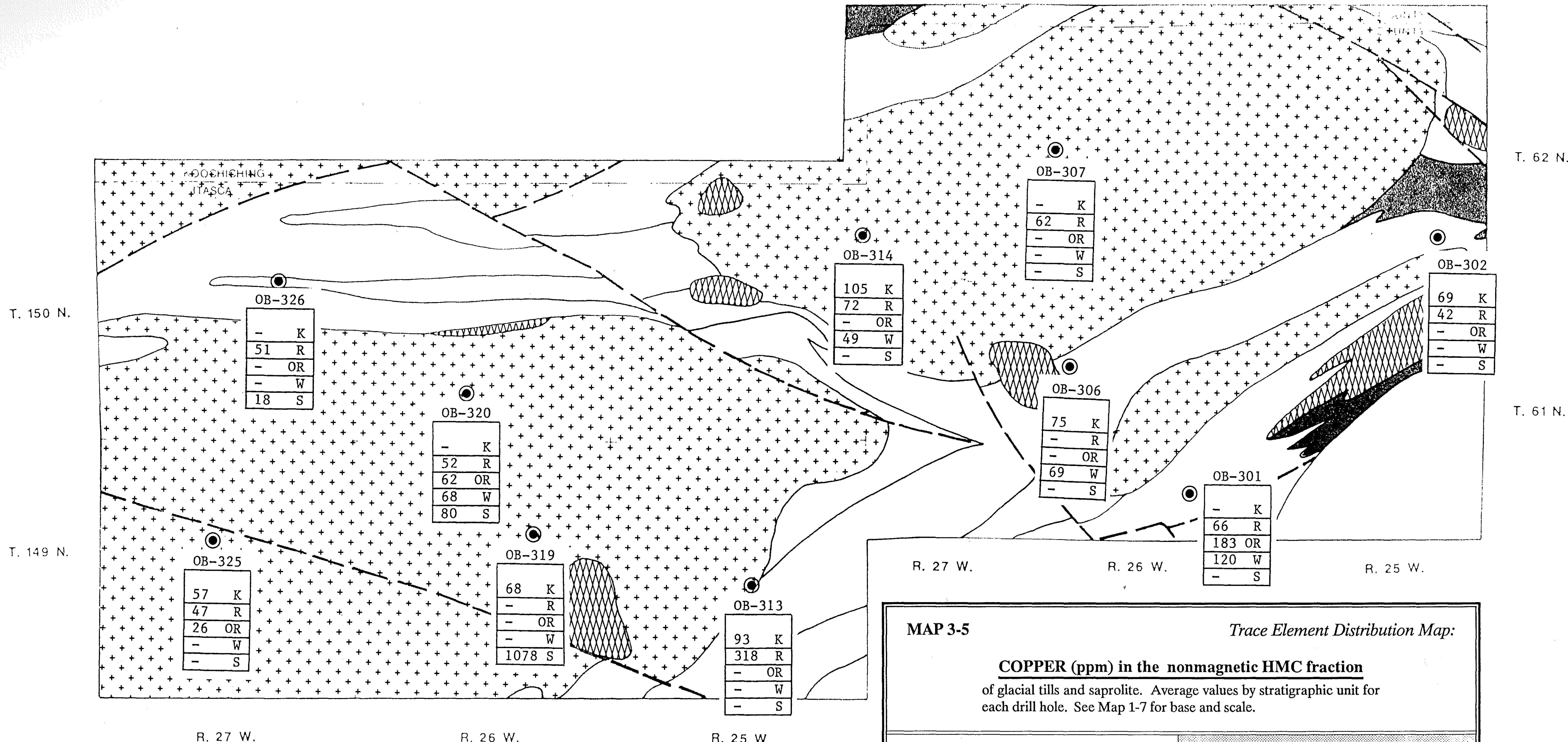
PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-5



R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
92 K
55 R
– OR
– W
– S
OB-310
93 K
1787 R
– OR
– W
– S
OB-312
80 K
– R
– OR
– W
– S
OB-323
73 K
152 R
– OR
– W
– S
OB-329
– K
– R
189 OR
– W
4586 S
OB-322
– K
54 R
41 OR
– W
– S
OB-311
134 K
50 R
– OR
– W
– S
OB-304
145 K
– R
– OR
– W
– S
OB-327
– K
63 R
52 OR
– W
696 S
OB-303
98 K
– R
75 OR
– W
1998 S
OB-315
– K
479 R
40 OR
– W
– S
OB-321
– K
– R
58 OR
– W
– S
OB-331
80 K
– R
– OR
57 W
– S



MAP 3-5 *Trace Element Distribution Map:*

COPPER (ppm) in the nonmagnetic HMC fraction

of glacial tills and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306		← DRILL HOLE
36	K	← KOOCHICHING TILLS
--	R	← RAINY TILLS
--	OR	← OLD RAINY TILLS
37	W	← WINNIPEG TILLS
--	S	← SAPROLITE SAMPLES

-- Means Not Present

36 = Average Cu (ppm) for the nonmagnetic HMC in Koochiching Till Samples in OB-306

Median values by stratigraphic unit for 23 drill holes:
Cu (ppm) in the nonmagnetic HMC fraction

Unit	Samples Overlying Granite	Samples Overlying Greenstone
K	98	84
R	58	57
OR	50	53
W	56	68
S	--	--

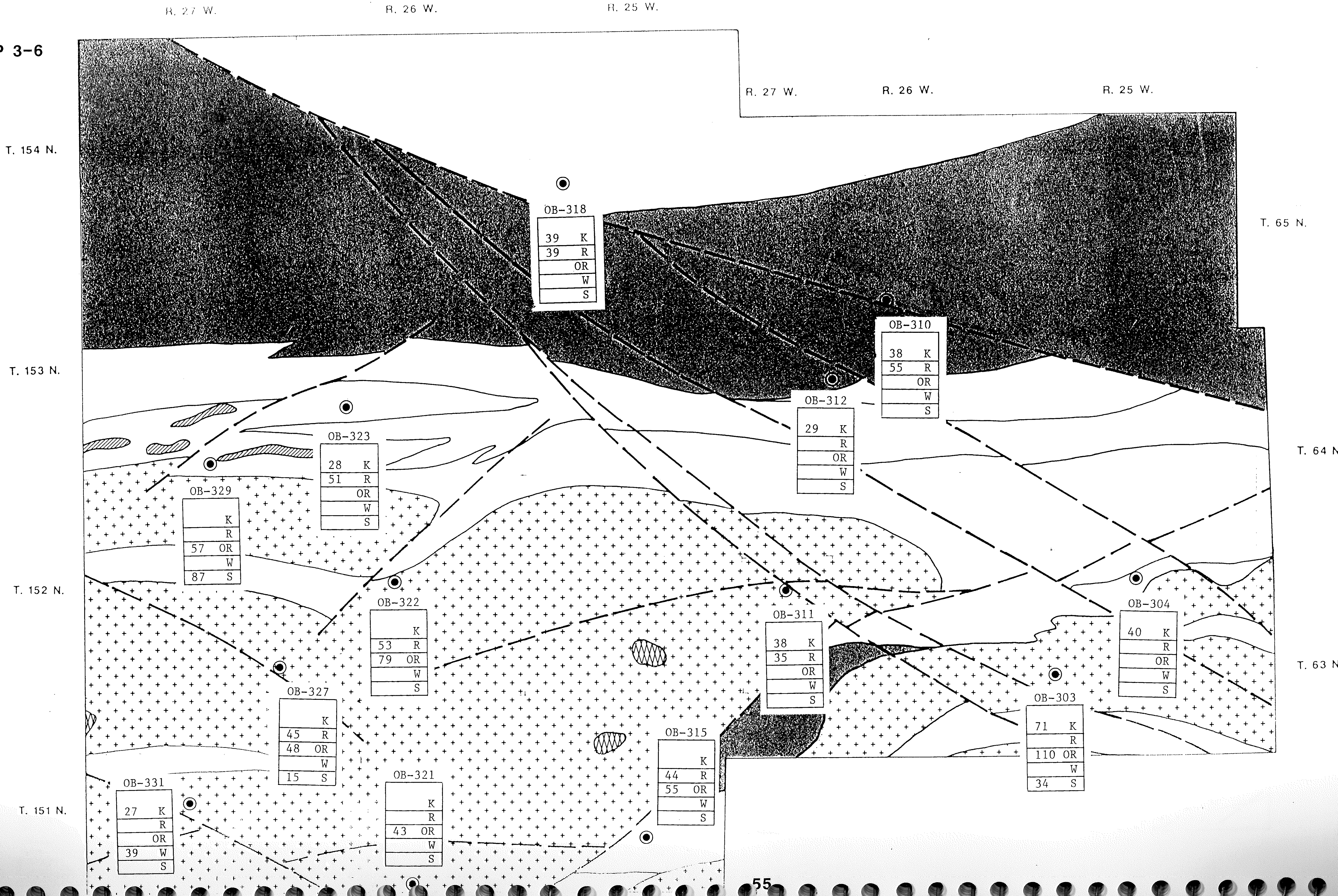
Minnesota Department of Natural Resources

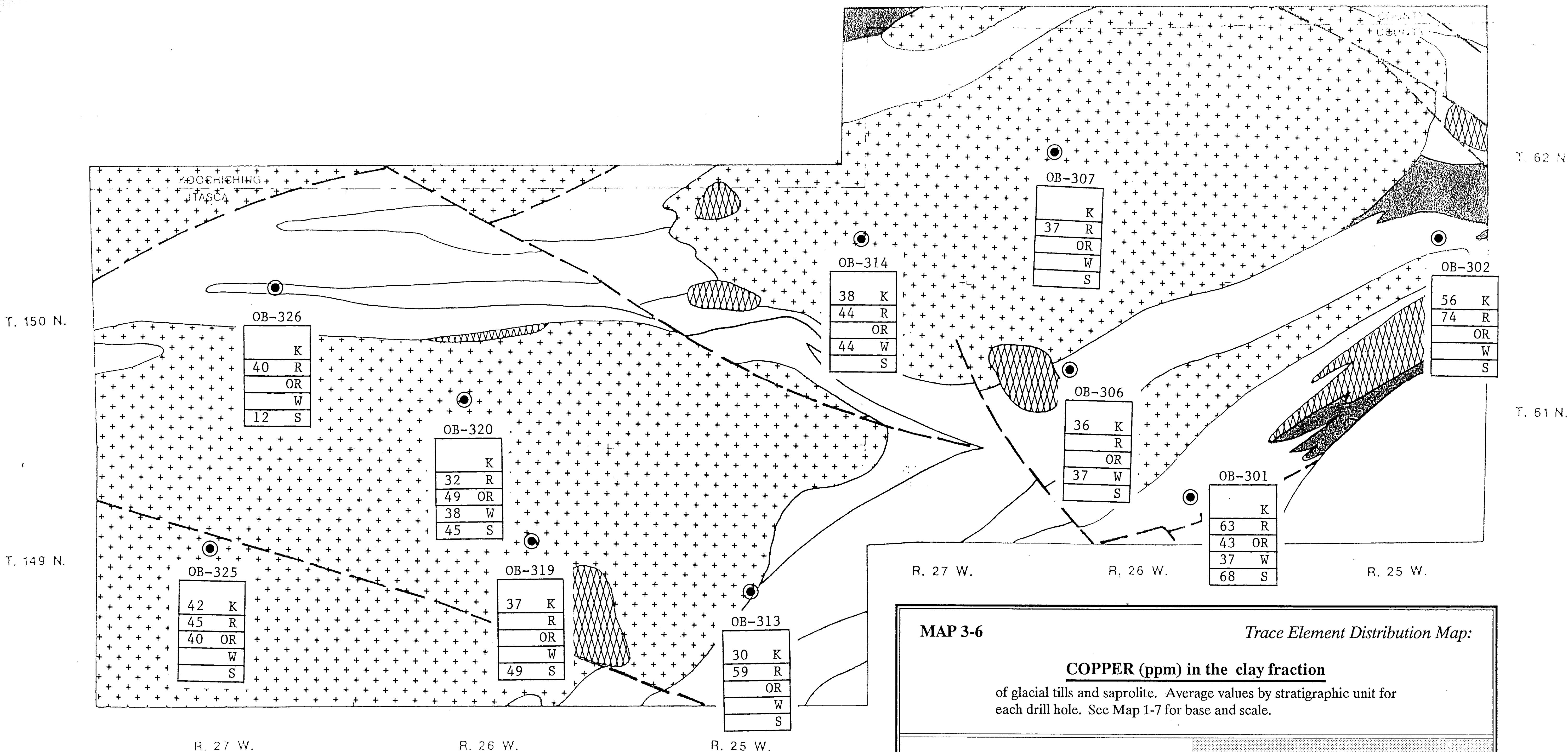
Division of Minerals

PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-6


R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
39 K
39 R
OR
W
S
OB-310
38 K
55 R
OR
W
S
OB-312
29 K
R
OR
W
S
OB-323
28 K
51 R
OR
W
S
OB-329
K
R
57 OR
W
87 S
OB-322
K
53 R
79 OR
W
S
OB-311
38 K
35 R
OR
W
S
OB-304
40 K
R
OR
W
S
OB-327
K
45 R
48 OR
W
15 S
OB-303
71 K
R
110 OR
W
34 S
OB-315
K
44 R
55 OR
W
S
OB-321
K
R
43 OR
W
S
OB-331
27 K
R
OR
39 W
S



MAP 3-6 *Trace Element Distribution Map:*

COPPER (ppm) in the clay fraction

of glacial tills and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306		
36	K	← KOOCHICHING TILLS
--	R	← RAINY TILLS
--	OR	← OLD RAINY TILLS
37	W	← WINNIPEG TILLS
--	S	← SAPROLITE SAMPLES

OB-306 ← DRILL HOLE

-- Means Not Present

36 Average Cu (ppm) for the clay fraction in Koochiching Till Samples in OB-306

Median values by stratigraphic unit for 23 drill holes:
Cu (ppm) in the clay fraction

Unit	Samples Overlying Granite	Samples Overlying Greenstone
K	38	36
R	43	48
OR	49	52
W	38	34
S	--	--

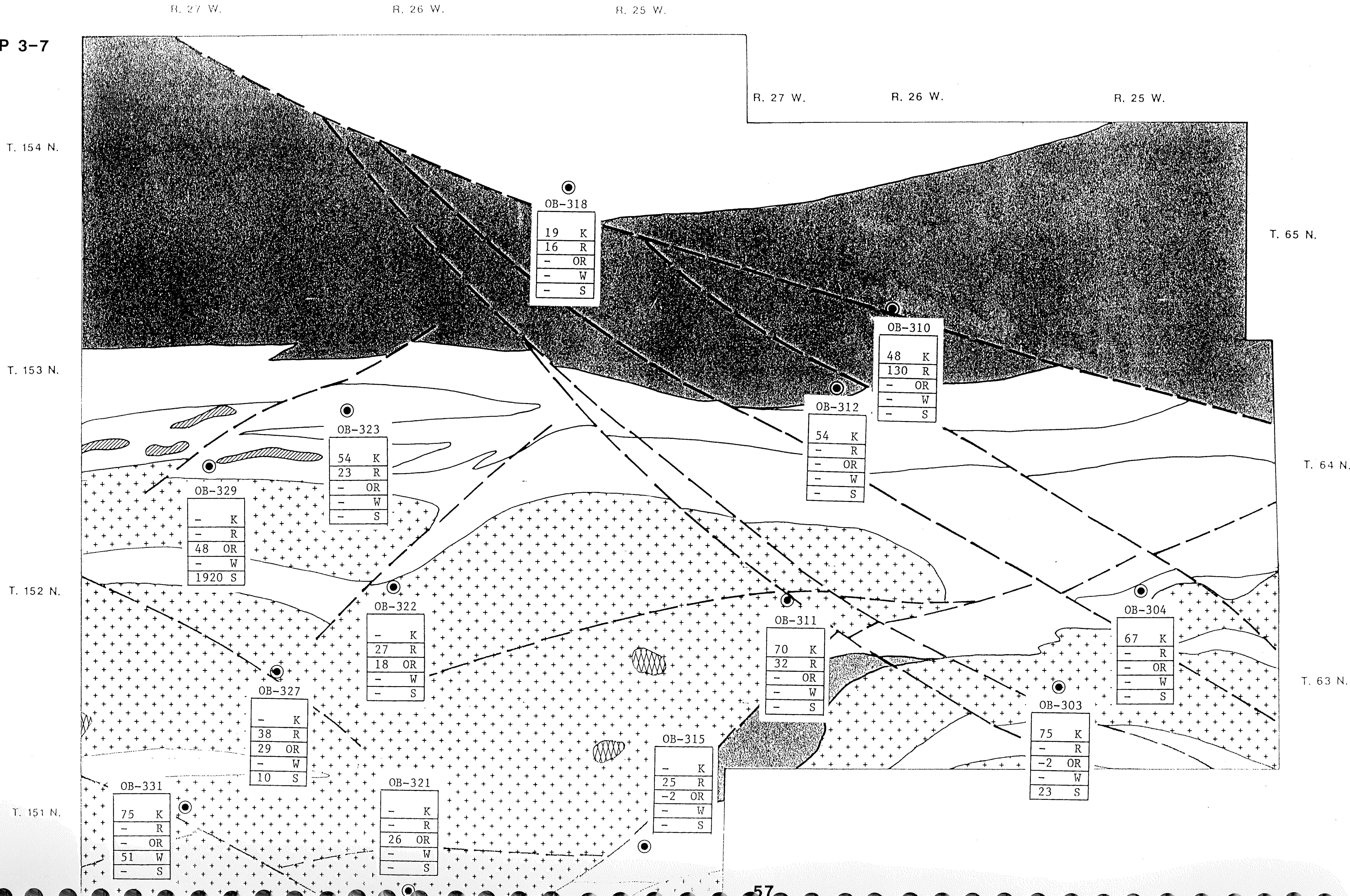
Minnesota Department of Natural Resources

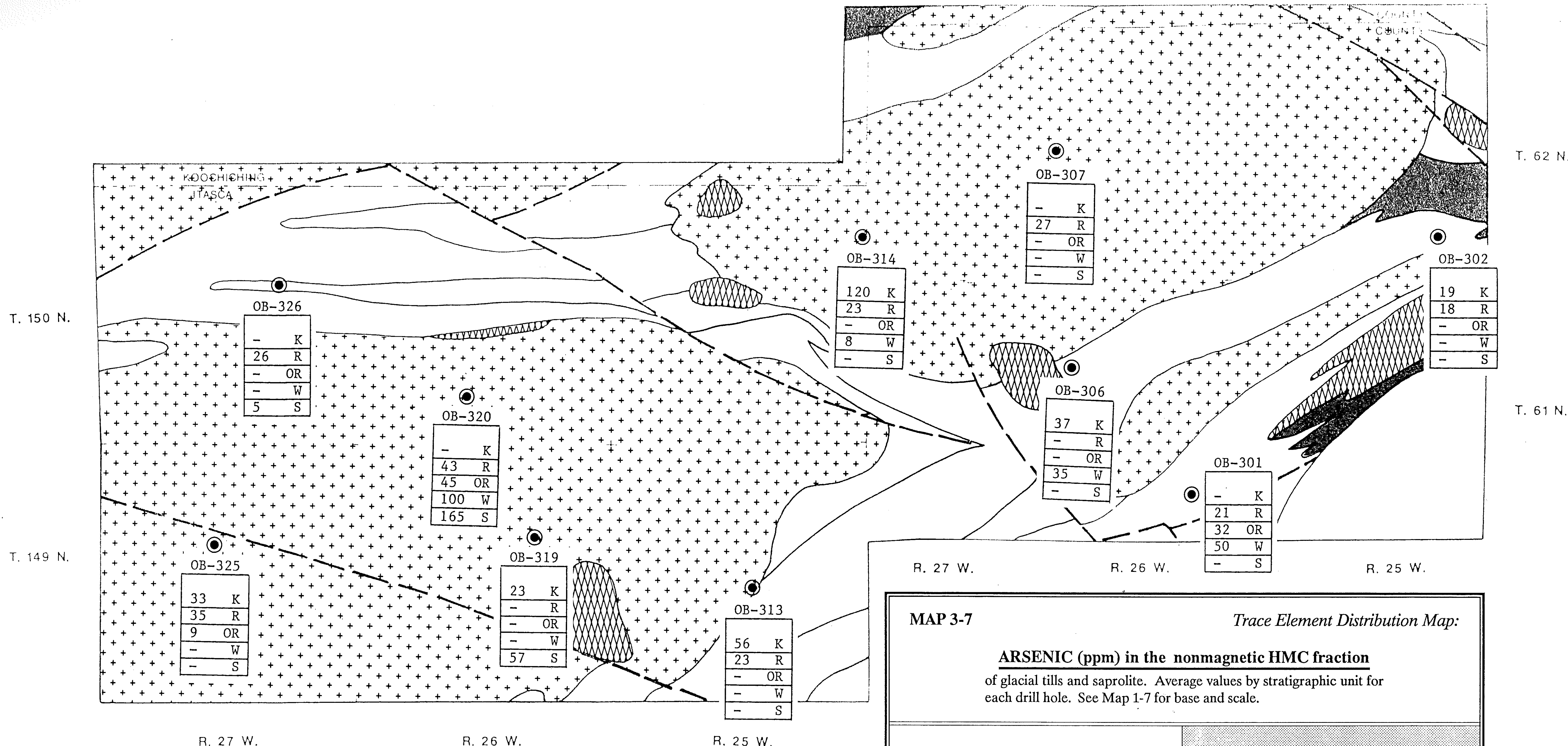
Division of Minerals

PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3–7


R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
19 K
16 R
– OR
– W
– S
OB-310
48 K
130 R
– OR
– W
– S
OB-312
54 K
– R
– OR
– W
– S
OB-323
54 K
23 R
– OR
– W
– S
OB-329
– K
– R
48 OR
– W
1920 S
OB-322
– K
27 R
18 OR
– W
– S
OB-311
70 K
32 R
– OR
– W
– S
OB-304
67 K
– R
– OR
– W
– S
OB-303
75 K
– R
-2 OR
– W
23 S
OB-327
– K
38 R
29 OR
– W
10 S
OB-315
– K
25 R
-2 OR
– W
– S
OB-331
75 K
– R
– OR
51 W
– S
OB-321
– K
– R
26 OR
– W
– S



MAP 3-7 *Trace Element Distribution Map:*

ARSENIC (ppm) in the nonmagnetic HMC fraction

of glacial tills and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306		← DRILL HOLE
36	K	← KOOCHICHING TILLS
--	R	← RAINY TILLS
--	OR	← OLD RAINY TILLS
37	W	← WINNIPEG TILLS
--	S	← SAPROLITE SAMPLES

Means Not Present

Average As (ppm) for the nonmagnetic HMC in Koochiching Till Samples in OB-306

Median values by stratigraphic unit for 23 drill holes:
As (ppm) in the nonmagnetic HMC fraction

Unit	Samples Overlying Granite	Samples Overlying Greenstone
K	54	41
R	29	23
OR	24	32
W	45	38
S	--	--

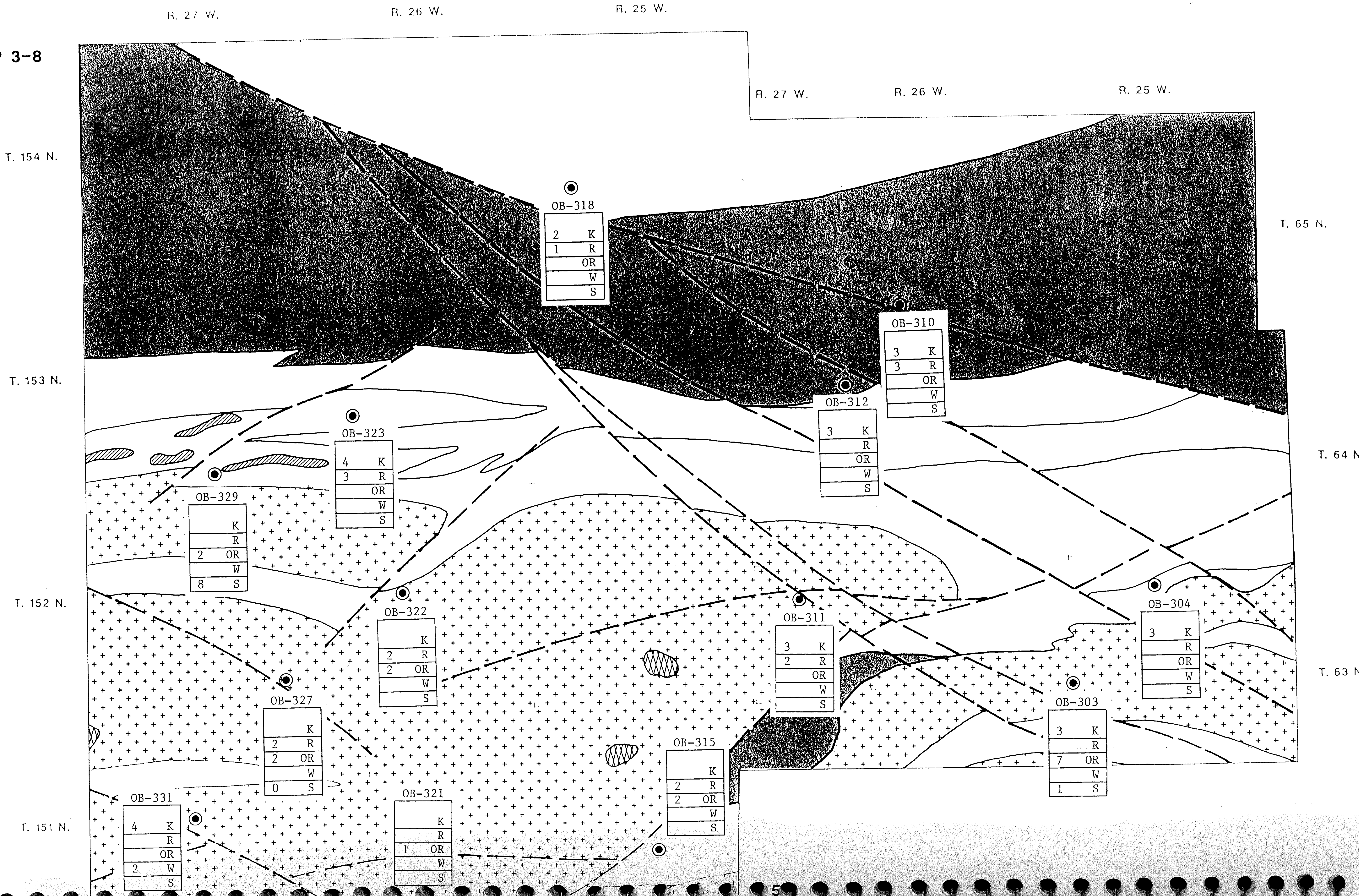
Minnesota Department of Natural Resources

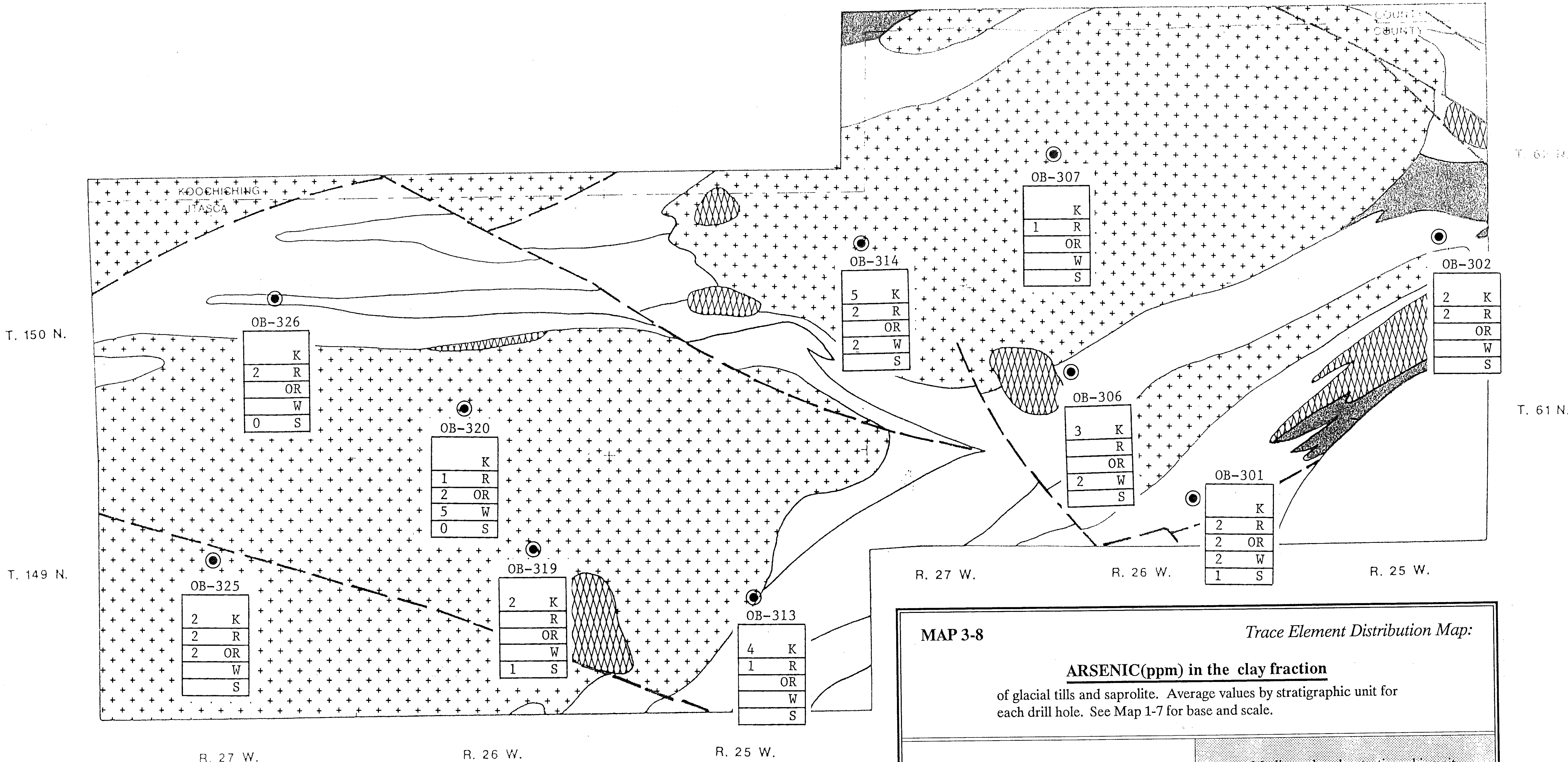
Division of Minerals

PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-8


R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
2 K
1 R
OR
W
S
OB-310
3 K
3 R
OR
W
S
OB-312
3 K
R
OR
W
S
OB-323
4 K
3 R
OR
W
S
OB-329
K
R
2 OR
W
8 S
OB-322
K
2 R
2 OR
W
S
OB-311
3 K
2 R
OR
W
S
OB-304
3 K
R
OR
W
S
OB-303
3 K
R
7 OR
W
1 S
OB-327
K
2 R
2 OR
W
0 S
OB-315
K
2 R
2 OR
W
S
OB-321
K
R
1 OR
W
S
OB-331
4 K
R
OR
2 W
S



MAP 3-8 *Trace Element Distribution Map:*

ARSENIC(ppm) in the clay fraction

of glacial tills and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306		←DRILL HOLE
36	K	←KOOCHICHING TILLS
--	R	←RAINY TILLS
--	OR	←OLD RAINY TILLS
37	W	←WINNIPEG TILLS
--	S	←SAPROLITE SAMPLES

Means Not Present

Average As (ppm) for the clay fraction in Koochiching Till Samples in OB-306

Median values by stratigraphic unit for 23 drill holes:
As (ppm) in the clay fraction

Unit	Samples Overlying Granite	Samples Overlying Greenstone
K	3	3
R	5/8	2
OR	5/8	2
W	5/8	2
S	--	--

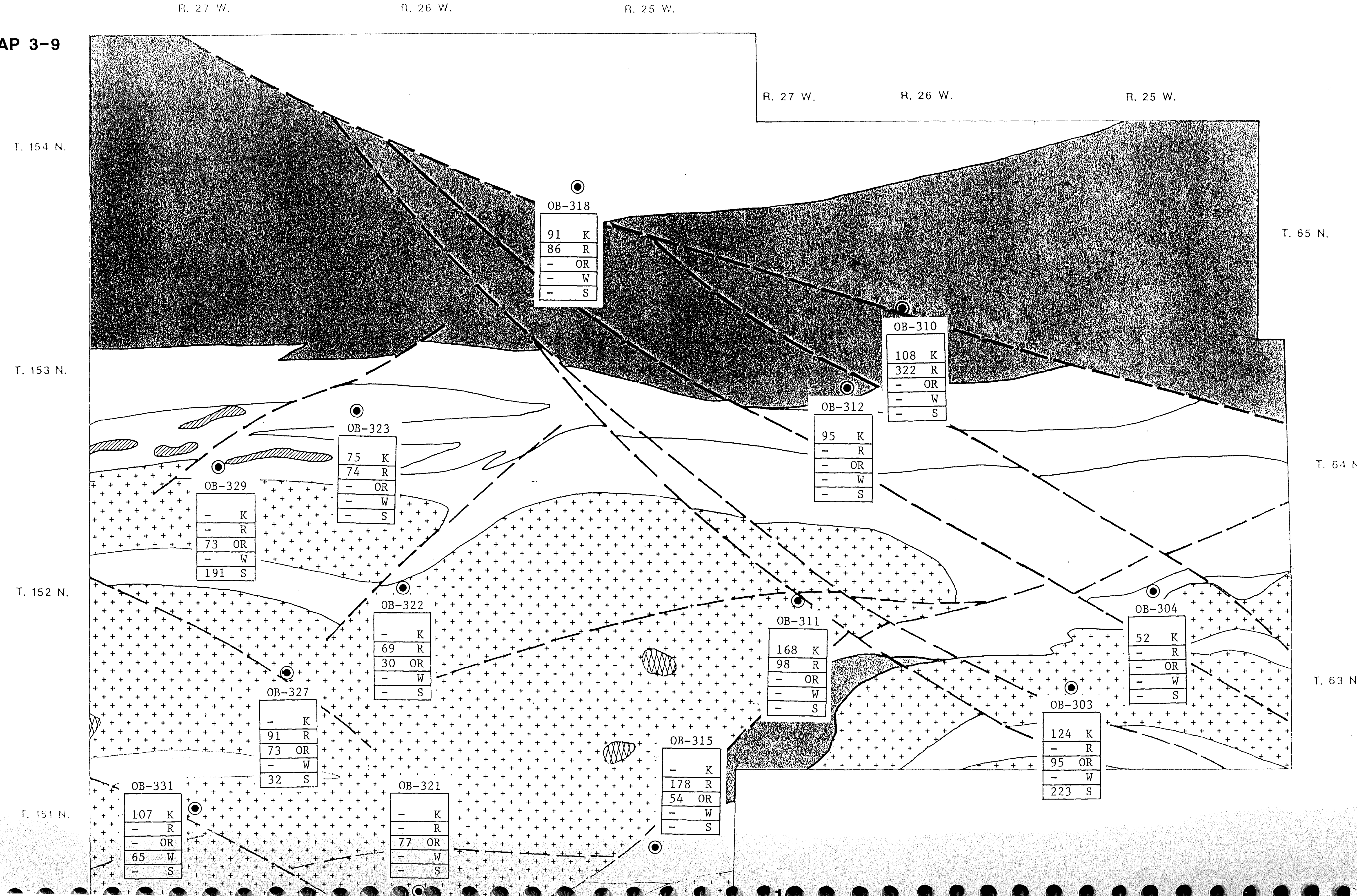
Minnesota Department of Natural Resources

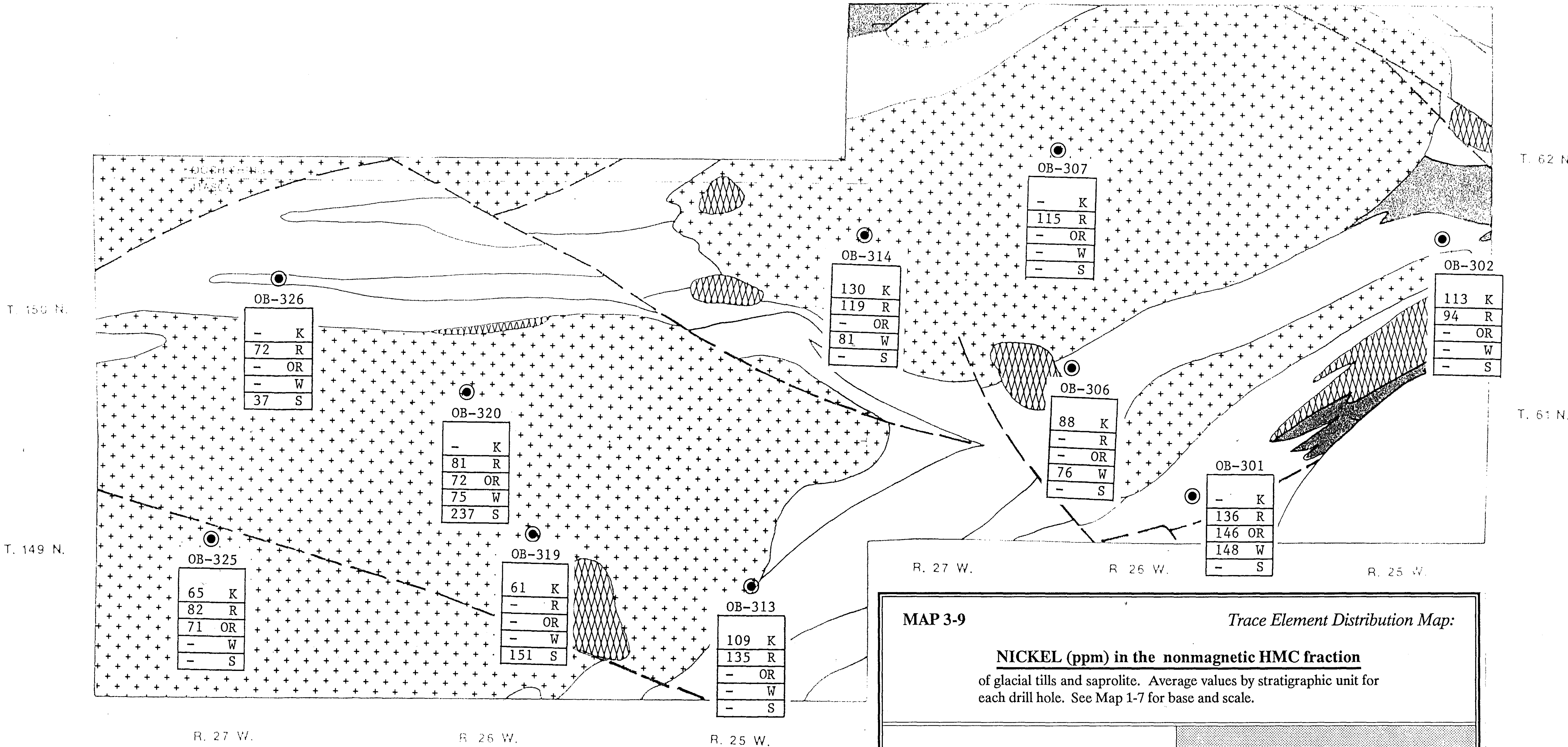
Division of Minerals

PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-9


R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
91 K
86 R
– OR
– W
– S
OB-310
108 K
322 R
– OR
– W
– S
OB-312
95 K
– R
– OR
– W
– S
OB-323
75 K
74 R
– OR
– W
– S
OB-329
– K
– R
73 OR
– W
191 S
OB-322
– K
69 R
30 OR
– W
– S
OB-311
168 K
98 R
– OR
– W
– S
OB-304
52 K
– R
– OR
– W
– S
OB-327
– K
91 R
73 OR
– W
32 S
OB-303
124 K
– R
95 OR
– W
223 S
OB-315
– K
178 R
54 OR
– W
– S
OB-331
107 K
– R
– OR
65 W
– S
OB-321
– K
– R
77 OR
– W
– S



MAP 3-9 *Trace Element Distribution Map:*

NICKEL (ppm) in the nonmagnetic HMC fraction

of glacial tills and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306		←DRILL HOLE
36	K	←KOOCHICHING TILLS
--	R	←RAINY TILLS
--	OR	←OLD RAINY TILLS
37	W	←WINNIPEG TILLS
--	S	←SAPROLITE SAMPLES

Means Not Present

Average Ni (ppm) for the nonmagnetic HMC in Koochiching Till Samples in OB-306

Median values by stratigraphic unit for 23 drill holes:
Ni (ppm) in the nonmagnetic HMC fraction

Unit	Samples Overlying Granite	Samples Overlying Greenstone
K	118	94
R	100	87
OR	74	71
W	68	76
S	--	--

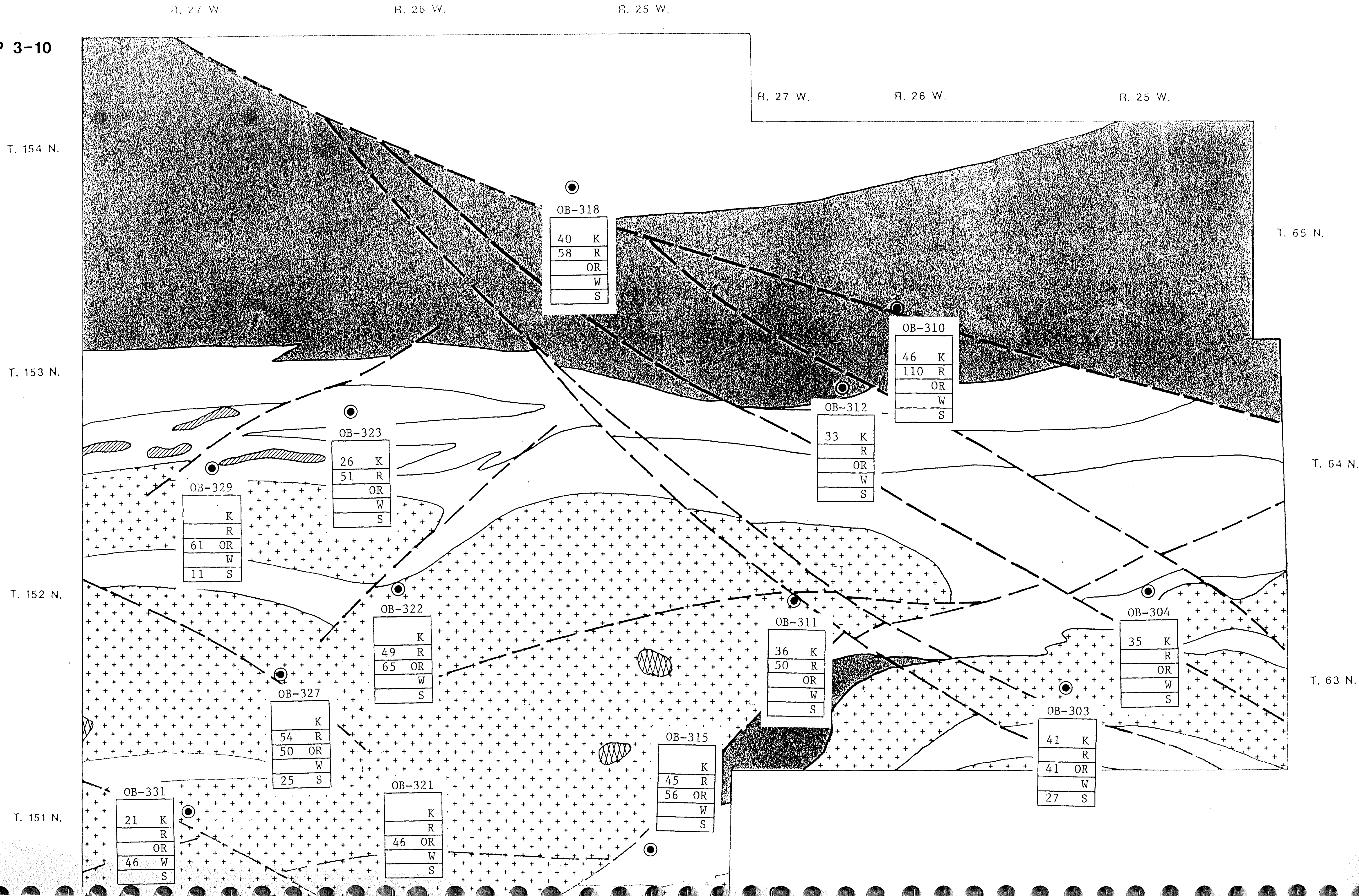
Minnesota Department of Natural Resources

Division of Minerals

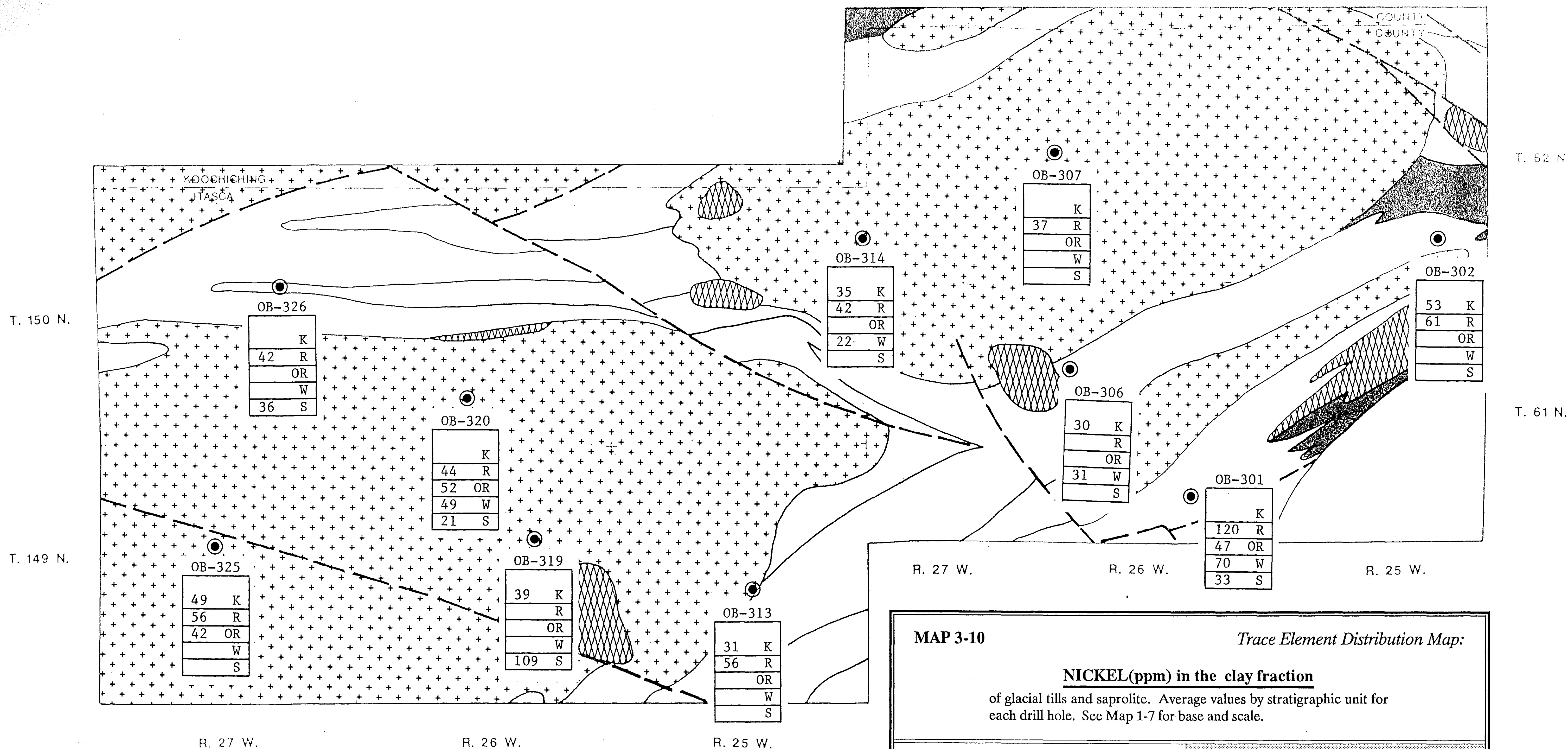
PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-10



R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
40 K
58 R
OR
W
S
OB-310
46 K
110 R
OR
W
S
OB-312
33 K
R
OR
W
S
OB-323
26 K
51 R
OR
W
S
OB-329
K
R
61 OR
W
11 S
OB-322
K
49 R
65 OR
W
S
OB-311
36 K
50 R
OR
W
S
OB-304
35 K
R
OR
W
S
OB-303
41 K
R
41 OR
W
27 S
OB-327
K
54 R
50 OR
W
25 S
OB-315
K
45 R
56 OR
W
S
OB-321
K
R
46 OR
W
S
OB-331
21 K
R
OR
46 W
S



MAP 3-10 *Trace Element Distribution Map:*

NICKEL(ppm) in the clay fraction

of glacial tills and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306 ←——DRILL HOLE
36 K ←—KOOCHICHING TILLS
-- R ←——RAINY TILLS
-- OR ←— OLD RAINY TILLS
37 W ←— WINNIPEG TILLS
-- S ←—SAPROLITE SAMPLES

-- Means Not Present
Average Ni (ppm) for the clay fraction in Koochiching Till Samples in OB-306

Median values by stratigraphic unit for 23 drill holes:
Ni (ppm) in the clay fraction

Unit	Samples Overlying Granite	Samples Overlying Greenstone
K	35	36
R	47	50
OR	49	53
W	38	32
S	--	--

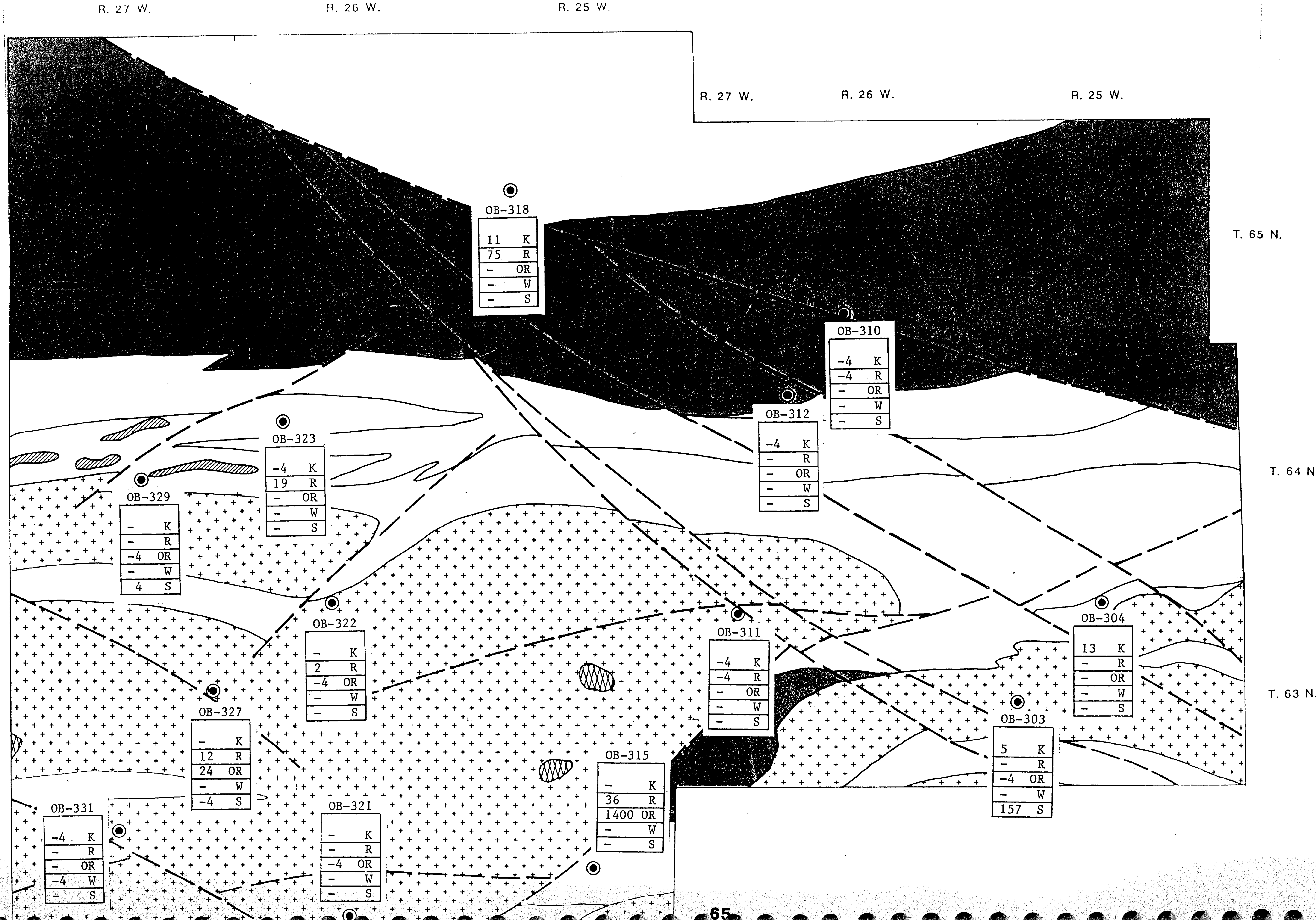
Minnesota Department of Natural Resources

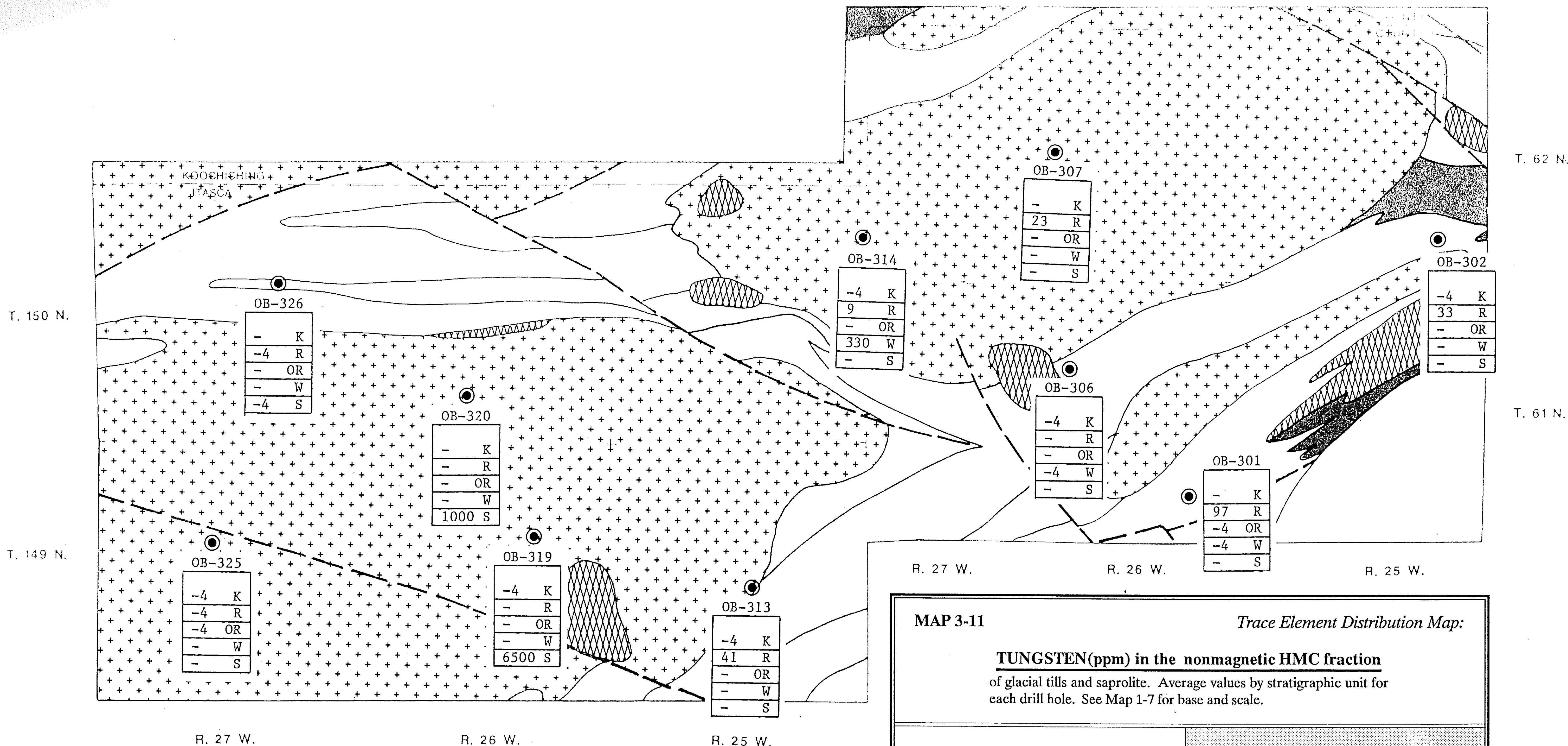
Division of Minerals

PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3–11


R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
11 K
75 R
– OR
– W
– S
OB-310
-4 K
-4 R
– OR
– W
– S
OB-312
-4 K
– R
– OR
– W
– S
OB-323
-4 K
19 R
– OR
– W
– S
OB-329
– K
– R
-4 OR
– W
4 S
OB-322
– K
2 R
-4 OR
– W
– S
OB-311
-4 K
-4 R
– OR
– W
– S
OB-304
13 K
– R
– OR
– W
– S
OB-327
– K
12 R
24 OR
– W
-4 S
OB-303
5 K
– R
-4 OR
– W
157 S
OB-315
– K
36 R
1400 OR
– W
– S
OB-331
-4 K
– R
– OR
-4 W
– S
OB-321
– K
– R
-4 OR
– W
– S



MAP 3-11 *Trace Element Distribution Map:*

TUNGSTEN(ppm) in the nonmagnetic HMC fraction

of glacial tills and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306		← DRILL HOLE
36	K	← KOOCHICHING TILLS
--	R	← RAINY TILLS
--	OR	← OLD RAINY TILLS
37	W	← WINNIPEG TILLS
--	S	← SAPROLITE SAMPLES

Means Not Present

Average W (ppm) for the nonmagnetic HMC in Koochiching Till Samples in OB-306

Median values by stratigraphic unit for 23 drill holes:
W (ppm) in the nonmagnetic HMC fraction

Unit	Samples Overlying Granite	Samples Overlying Greenstone
K	20/8	20/8
R	9	20/8
OR	20/8	20/8
W	20/8	20/8
S	--	--

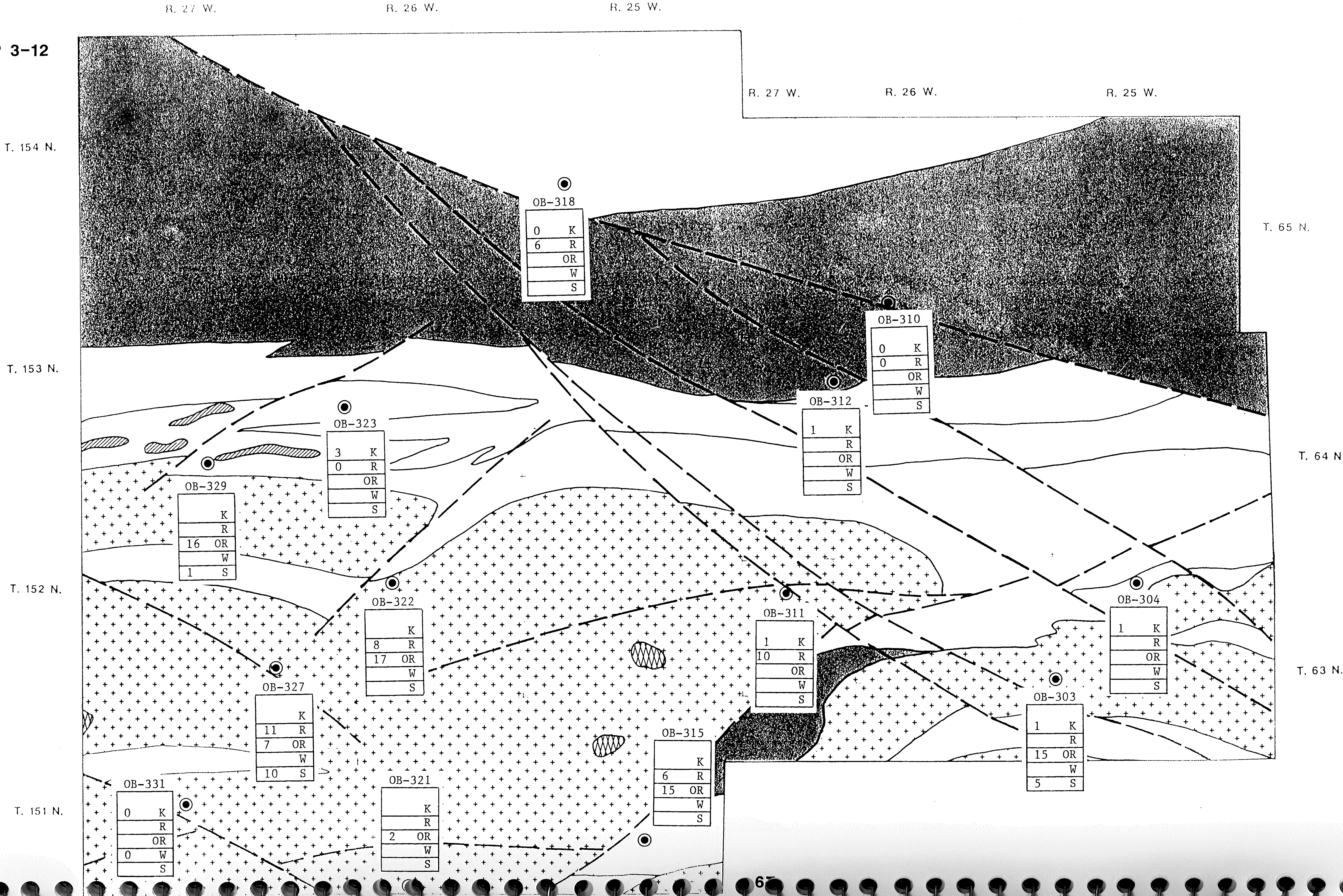
Minnesota Department of Natural Resources

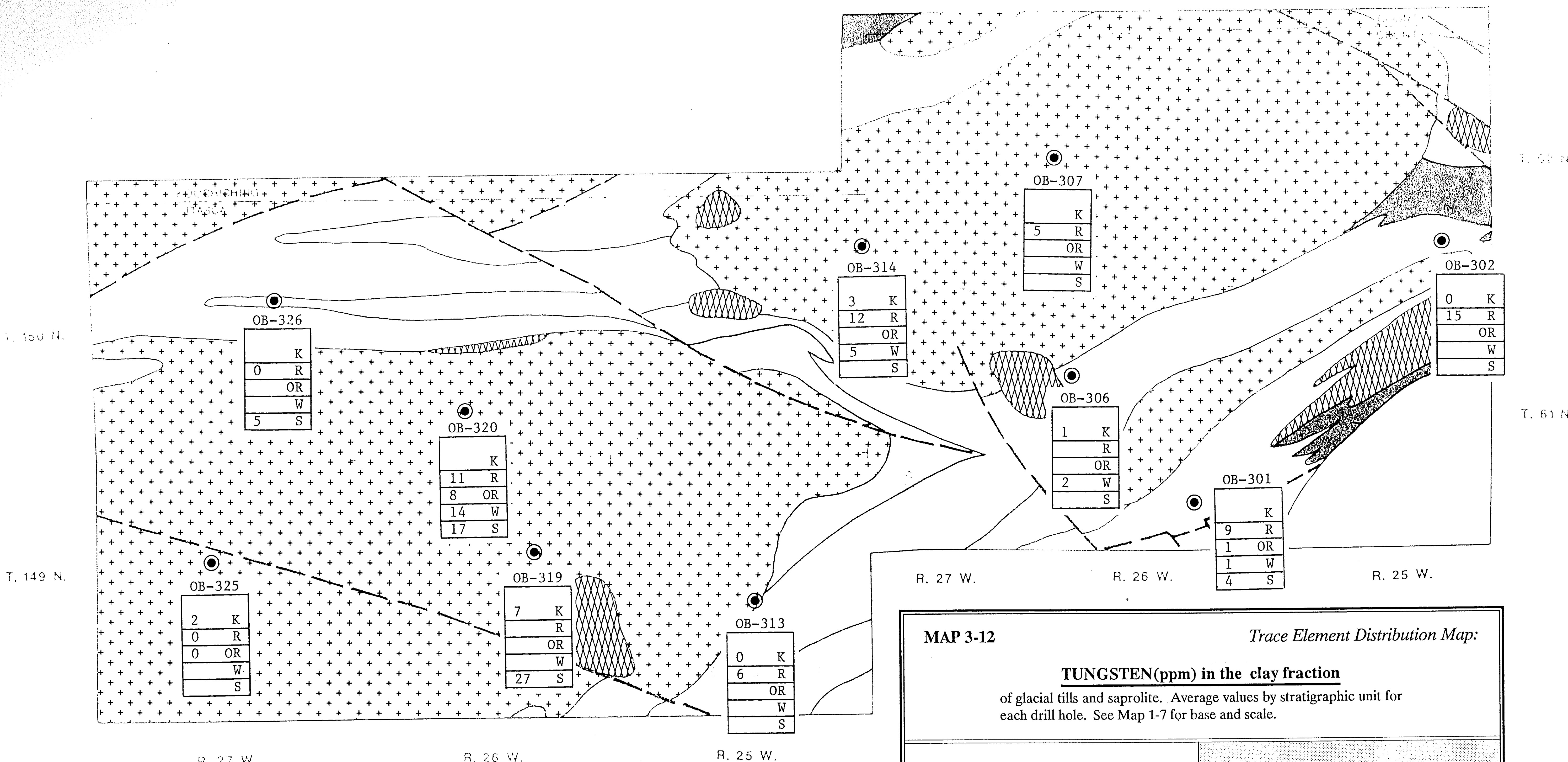
Division of Minerals

PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-12


R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
0 K
6 R
OR
W
S
OB-310
0 K
0 R
OR
W
S
OB-312
1 K
R
OR
W
S
OB-323
3 K
0 R
OR
W
S
OB-329
K
R
16 OR
W
1 S
OB-322
K
8 R
17 OR
W
S
OB-311
1 K
10 R
OR
W
S
OB-304
1 K
R
OR
W
S
OB-327
K
11 R
7 OR
W
10 S
OB-303
1 K
R
15 OR
W
5 S
OB-315
K
6 R
15 OR
W
S
OB-331
0 K
R
OR
0 W
S
OB-321
K
R
2 OR
W
S



MAP 3-12 *Trace Element Distribution Map:*

TUNGSTEN(ppm) in the clay fraction

of glacial tills and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306		←	DRILL HOLE
36	K	←	KOOCHICHING TILLS
--	R	←	RAINY TILLS
--	OR	←	OLD RAINY TILLS
37	W	←	WINNIPEG TILLS
--	S	←	SAPROLITE SAMPLES

Means Not Present

Average W (ppm) for the clay fraction in Koochiching Till Samples in OB-306

Median values by stratigraphic unit for 23 drill holes:
W (ppm) in the clay fraction

Unit	Samples Overlying Granite	Samples Overlying Greenstone
K	5/8	5/8
R	8	2
OR	6	9
W	5/8	5/8
S	--	--

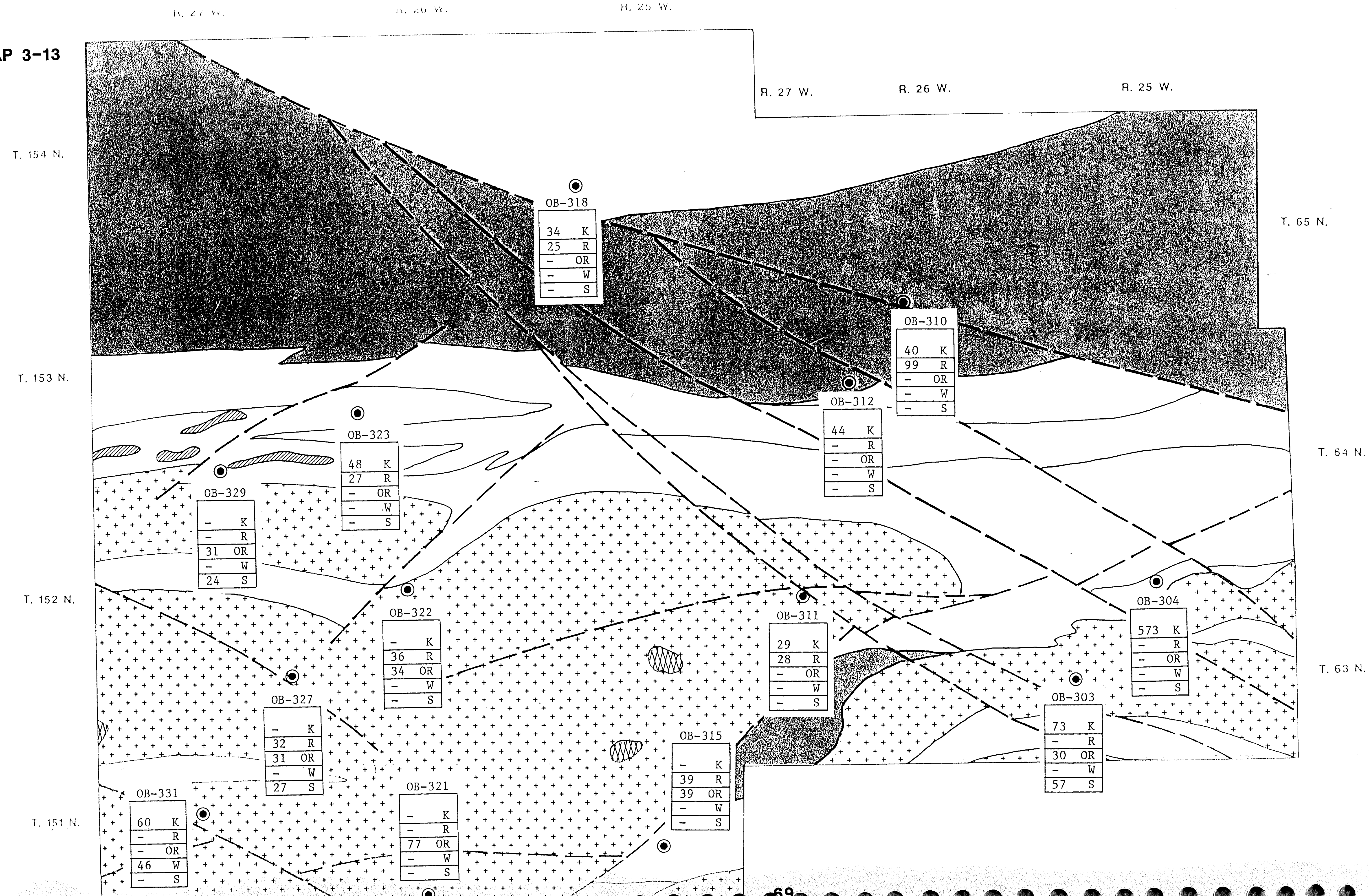
Minnesota Department of Natural Resources

Division of Minerals

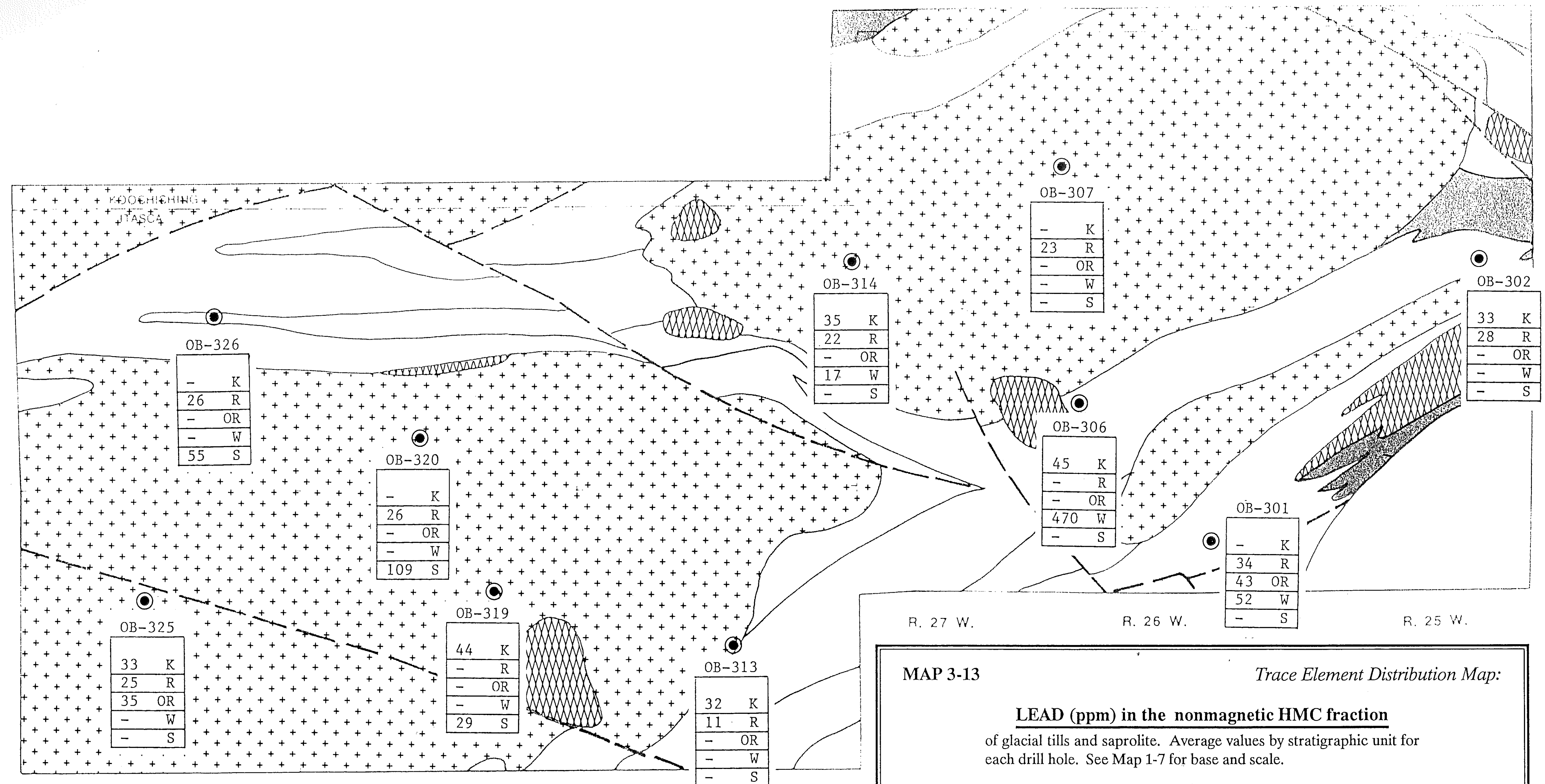
PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-13



R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
34 K
25 R
– OR
– W
– S
OB-310
40 K
99 R
– OR
– W
– S
OB-312
44 K
– R
– OR
– W
– S
OB-323
48 K
27 R
– OR
– W
– S
OB-329
– K
– R
31 OR
– W
24 S
OB-322
– K
36 R
34 OR
– W
– S
OB-311
29 K
28 R
– OR
– W
– S
OB-304
573 K
– R
– OR
– W
– S
OB-303
73 K
– R
30 OR
– W
57 S
OB-327
– K
32 R
31 OR
– W
27 S
OB-315
– K
39 R
39 OR
– W
– S
OB-321
– K
– R
77 OR
– W
– S
OB-331
60 K
– R
– OR
46 W
– S



MAP 3-13 *Trace Element Distribution Map:*

LEAD (ppm) in the nonmagnetic HMC fraction

of glacial tills and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306		←— DRILL HOLE
36	K	←— KOOCHICHING TILLS
--	R	←— RAINY TILLS
--	OR	←— OLD RAINY TILLS
37	W	←— WINNIPEG TILLS
--	S	←— SAPROLITE SAMPLES

Means Not Present

Average Pb (ppm) for the nonmagnetic HMC in Koochiching Till Samples in OB-306

Median values by stratigraphic unit for 23 drill holes:

Pb (ppm) in the nonmagnetic HMC fraction

Unit	Samples Overlying Granite	Samples Overlying Greenstone
K	35	43
R	25	30
OR	34	32
W	33	178
S	--	--

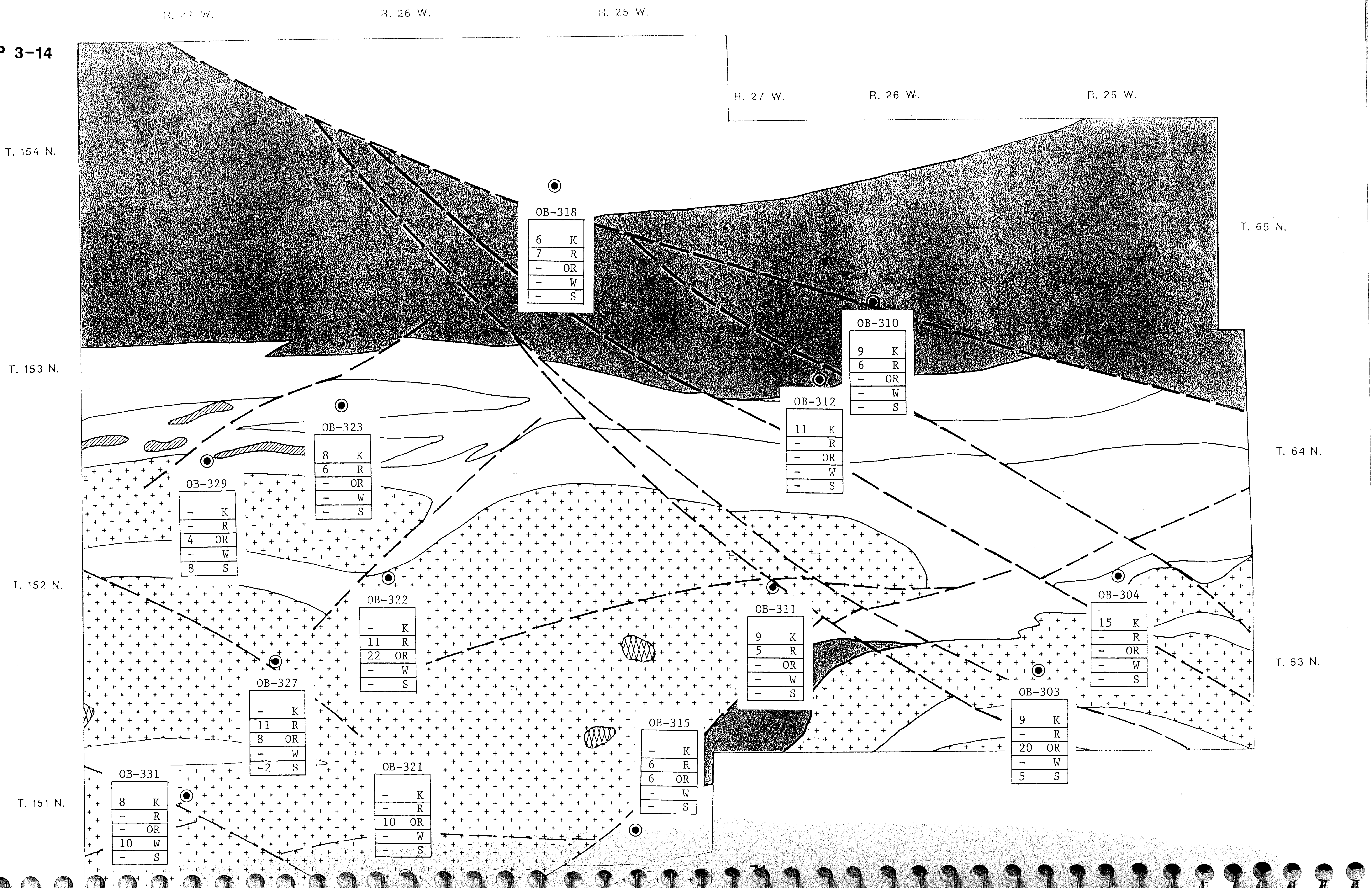
Minnesota Department of Natural Resources

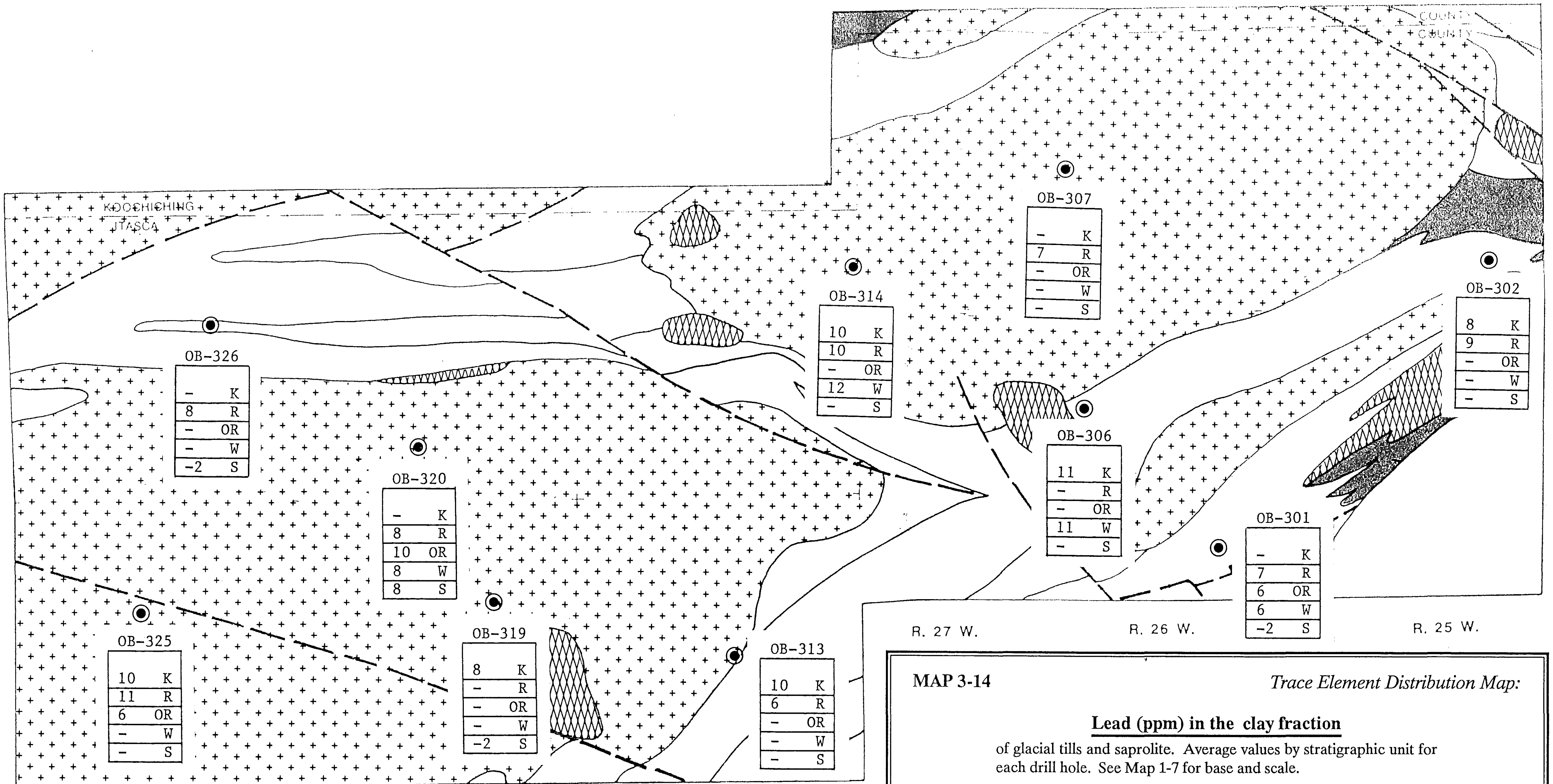
Division of Minerals

PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-14


R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
6 K
7 R
- OR
- W
- S
OB-310
9 K
6 R
- OR
- W
- S
OB-312
11 K
- R
- OR
- W
- S
OB-323
8 K
6 R
- OR
- W
- S
OB-329
- K
- R
4 OR
- W
8 S
OB-322
- K
11 R
22 OR
- W
- S
OB-311
9 K
5 R
- OR
- W
- S
OB-304
15 K
- R
- OR
- W
- S
OB-303
9 K
- R
20 OR
- W
5 S
OB-327
- K
11 R
8 OR
- W
-2 S
OB-315
- K
6 R
6 OR
- W
- S
OB-321
- K
- R
10 OR
- W
- S
OB-331
8 K
- R
- OR
10 W
- S



MAP 3-14 *Trace Element Distribution Map:*

Lead (ppm) in the clay fraction

of glacial tills and saprolite. Average values by stratigraphic unit for each drill hole. See Map 1-7 for base and scale.

KEY TO MAP DATA

OB-306		
36	K	← KOOCHICHING TILLS
--	R	← RAINY TILLS
--	OR	← OLD RAINY TILLS
37	W	← WINNIPEG TILLS
--	S	← SAPROLITE SAMPLES

OB-306 ← DRILL HOLE

-- Means Not Present

36 Average Pb (ppm) for the clay fraction in Koochiching Till Samples in OB-306

Median values by stratigraphic unit for 23 drill holes:
Pb (ppm) in the clay fraction

Unit	Samples Overlying Granite	Samples Overlying Greenstone
K	10	10
R	8	6
OR	8	6
W	8	8
S	--	--

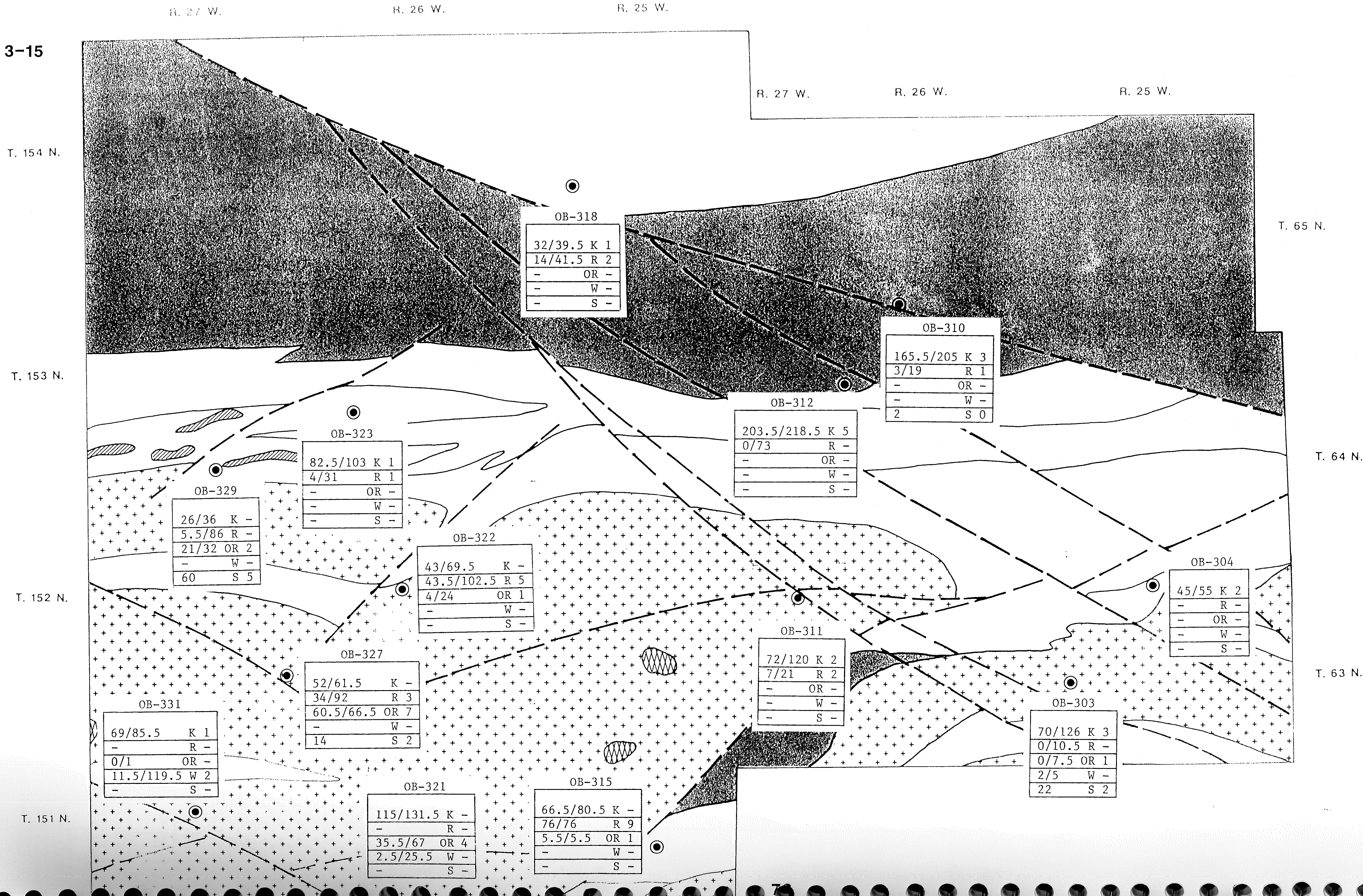
Minnesota Department of Natural Resources

Division of Minerals

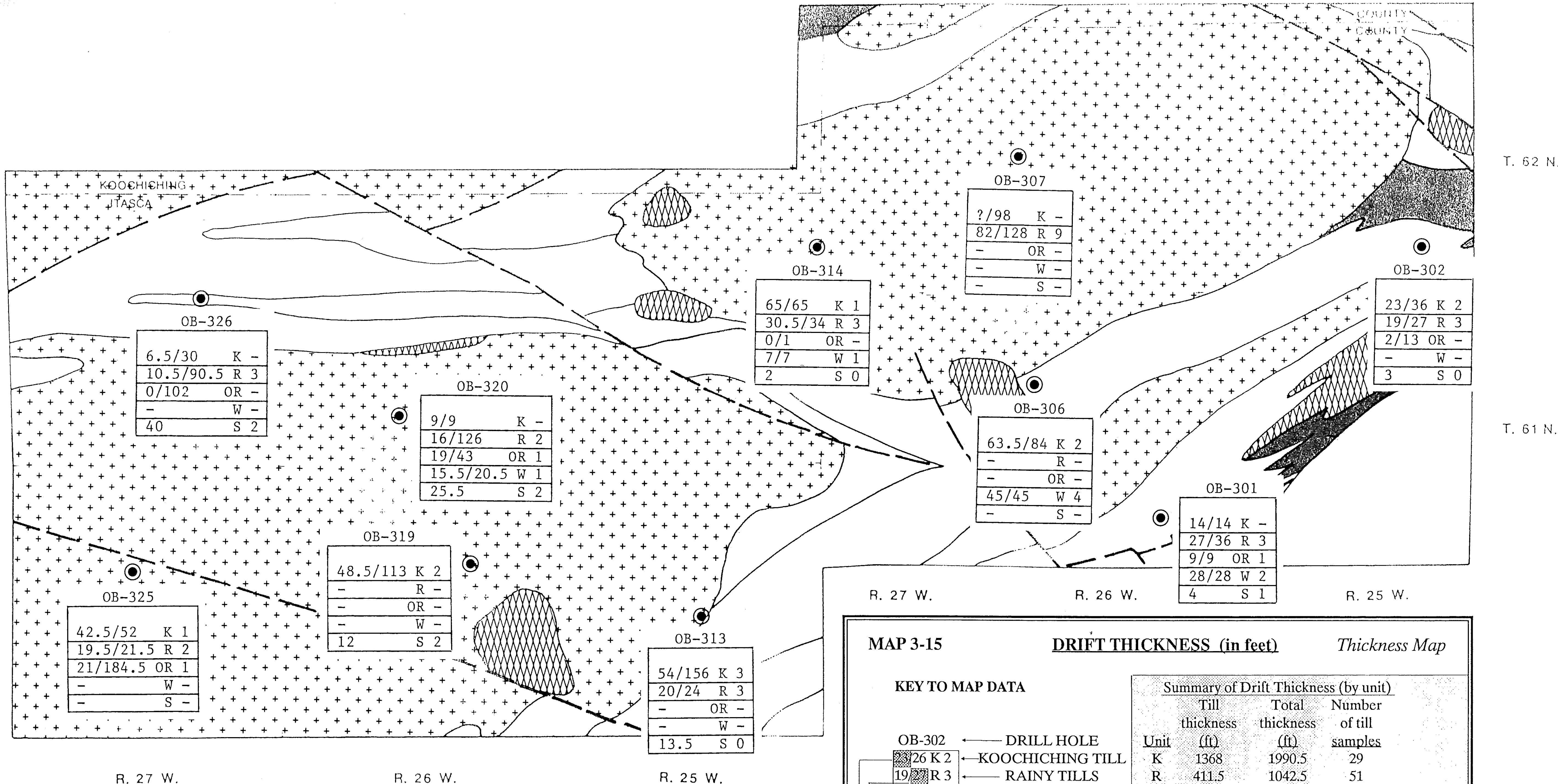
PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-15



R. 27 W.
R. 26 W.
R. 25 W.
R. 27 W.
R. 26 W.
R. 25 W.
T. 154 N.
T. 153 N.
T. 152 N.
T. 151 N.
T. 65 N.
T. 64 N.
T. 63 N.
OB-318
32/39.5 K 1
14/41.5 R 2
- OR -
- W -
- S -
OB-310
165.5/205 K 3
3/19 R 1
- OR -
- W -
2 S 0
OB-312
203.5/218.5 K 5
0/73 R -
- OR -
- W -
- S -
OB-323
82.5/103 K 1
4/31 R 1
- OR -
- W -
- S -
OB-329
26/36 K -
5.5/86 R -
21/32 OR 2
- W -
60 S 5
OB-322
43/69.5 K -
43.5/102.5 R 5
4/24 OR 1
- W -
- S -
OB-304
45/55 K 2
- R -
- OR -
- W -
- S -
OB-311
72/120 K 2
7/21 R 2
- OR -
- W -
- S -
OB-327
52/61.5 K -
34/92 R 3
60.5/66.5 OR 7
- W -
14 S 2
OB-331
69/85.5 K 1
- R -
0/1 OR -
11.5/119.5 W 2
- S -
OB-303
70/126 K 3
0/10.5 R -
0/7.5 OR 1
2/5 W -
22 S 2
OB-321
115/131.5 K -
- R -
35.5/67 OR 4
2.5/25.5 W -
- S -
OB-315
66.5/80.5 K -
76/76 R 9
5.5/5.5 OR 1
- W -
- S -



Minnesota Department of Natural Resources

Division of Minerals

PROJECT 263

Geologic base map modified from unpublished work of the Minnesota Geological Survey, 1988 compilation, scale 1:250,000.

MAP 3-15 **DRIFT THICKNESS (in feet)** *Thickness Map*

KEY TO MAP DATA

OB-302 ←— DRILL HOLE
23/26 K 2 ←KOOCHICHING TILL
19/27 R 3 ←— RAINY TILLS
2/13 OR- ←— OLD RAINY TILLS
W-- ←— WINNIPEG TILLS
3 S 0 ←SAPROLITE SAMPLES

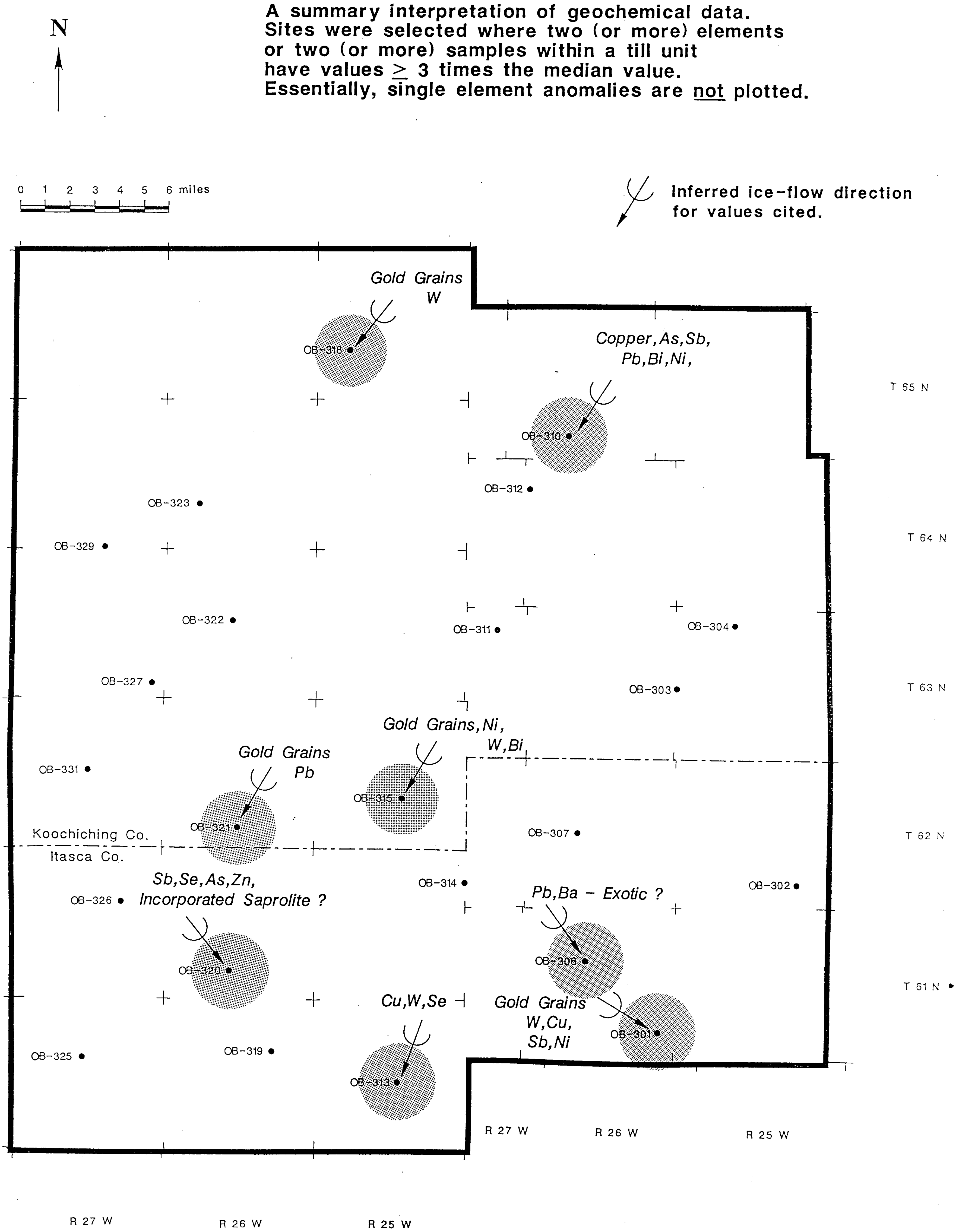
Number of Till Samples
Indicates Unit not Present
Unit Total Thickness
Till Thickness

Summary of Drift Thickness (by unit)

Unit	Till thickness (ft)	Total thickness (ft)	Number of till samples	
K	1368	1990.5	29	
R	411.5	1042.5	51	
OR	177.5	569.5	19	
W	111.5	250.0	10	
S	--	(198)	(16)	
Totals	2068.5	4050.5	125	
K	59.5	86.5	1	Averages
R	18	45	2	
OR	8	25	1	
W	5	11	1/2	
S	--	(9)	(1/2)	
Avg	90.5	176.5	5	

Map 3-16

A summary interpretation of geochemical data. Sites were selected where two (or more) elements or two (or more) samples within a till unit have values ≥ 3 times the median value. Essentially, single element anomalies are <u>not</u> plotted.



Appendix 1-A. Legend for columnar sections and geochemical graphs.

1. Units are in ppm unless otherwise noted

2. Magnetic susceptibility scale
   units = cm/gm/sec
   scale = 0.00 to 0.20 x 0.001

3. Glacial Drift Unit Abbreviations

K:	Koochiching lobe
R:	Rainy lobe
W:	Winnipeg lobe
OR:	Old Rainy lobe
SL:	St. Louis sublobe
SP:	Superior lobe
S:	Saprolite

4. ■ Denotes the bedrock wholerock assay, which is not equivalent to the HMC or silt/clay fractions.

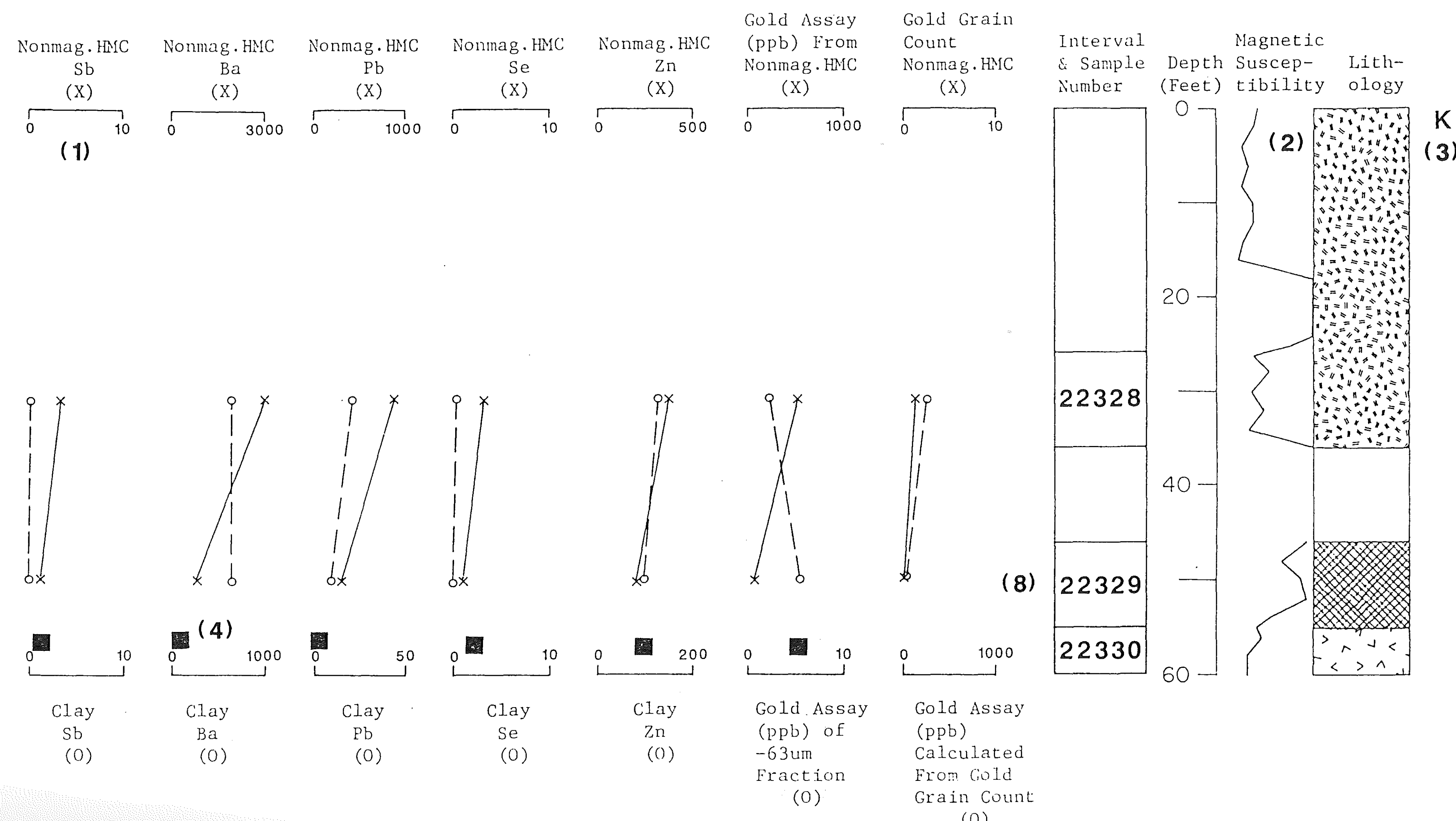
5. Geologic descriptions by Gary Meyer (MGS). Bedrock descriptions by Mark Jirsa (MGS).

6. Detailed descriptions of saprolite can be found in Appendix 4-1.
   Detailed descriptions of bedrock can be found in the individual Drill Hole reports (App. 1-1A to 1-26A).

7. Key to abbreviated Geologic Descriptions.

APAR:	Apparently	LAM:	Laminae	SL:	Slightly
CALC:	Calcareous	LITH:	Lithology	SM:	Small
CARB:	Carbonate	MGR:	Medium-Grained	UNOX:	Unoxidized
CGR:	Coarse-Grained	MOD:	Moderate(ly)	V:	Very
COBS:	Cobbles	NONCALC:	Noncalcareous	W/:	With
FT:	Feet	OCC:	Occasional		
FGR:	Fine-Grained	OX:	Oxidized		
GNL:	Granules	PEBS:	Pebbles		
GVL:	Gravel	SED:	Sediment		
GRN:	Green	SEV:	Several		
INCL:	Including	SH:	Shale		

8. CO_2 assay results (if given) are from the -63um fraction of the sample interval indicated.



OB-304

(5) (6)

Geologic Descriptions

(0 - 15 1/2) CLAY TILL; OXIDIZED TO 12 ft; leached to 2, carb pebs common below; sh peb at 14.

(7)

(15 1/2 - 25) CLAY TILL; UNOXIDIZED; interbedded w/ox silty, pebbly sand; two cobs at about 18 ft, prob much sand below, lost from core.

(25 - 36) CLAY LOAM TILL; UNOXIDIZED; sl more grn in color than above; sh & carb pebs; large cob at 30 - 36 plugged barrel so little core.

(36 - 46) NO CORE

(46 - 53 1/2) LOAM TILL; UNOXIDIZED; calc, carb pebs common; sm cob at 49 ft, but most pebs not large.
(53 1/2 - 55) CLAY LOAM TILL; UNOXIDIZED; mixed w/saprolite, could be older till; calc w/carb pebs.

(55 - 60) BEDROCK; AMPHIBOLITE; strongly foliated, mgr.

Appendix 1-B. Legend for HMC report.

Overburden Drilling Management Limited - Laboratory Sample Log

Clast:

Size of Clast:

- G: Granules
- P: Pebbles
- C: Cobbles
- BL: Boulder Chips
- BK: Bedrock Chips

% Clast Composition:

- V/S: Volcanics and Sediments
- GR: Granitics
- LS: Limestone
- OT: Other Lithologies (refer to footnotes below)
- TR: Only Trace Present
- NA: Not Applicable

Matrix:

S/U: Sorted or Unsorted

SD:	Sand	Y:	Yes Fraction Present	F:	Fine
ST:	Silt	N:	Fraction Not Present	M:	Medium
CY:	Clay			C:	Coarse

Color:

- B: Beige
- GY: Grey
- GB: Grey Beige
- GN: Green
- GG: Grey Green
- BN: Brown
- BK: Black
- OC: Ochre
- PK: Pink
- OE: Orange

Description:

- BLD: Boulder Chips
- BDK: Bedrock Chips

Number of Grains:

- T: Number found on Shaking Table
- P: Number found after Panning

Diameter:

Measured in Microns

Thickness:

- C: Calculated Thickness of Grain (microns)
- M: Actual Measured Thickness of Grain (microns)

Footnotes:

A - Gritty Clay Lumps Present

B - Smooth Clay Lumps Present

C - Organics Present

D - Sample Highly Oxidized

Appendix 1-C. Legend for Sample Information and Analyses Sheet.

MASTER SAMPLE LIST

(1) SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	(2) SAMPLE INTERVAL	FEET SAMPLED	(3) SUBSAMPLES ANALYZED	(4) TWP SEC RNG	(5) FORTY	(6) COUNTY	(7) DRIFT TYPE	(8) DRIFT TYPE KEY	(9) UNDERLYING BEDROCK TYPE	(10) BEDROCK TYPE KEY	REMARKS
22,328		304	26.0- 36.0	10.0	ABCJ	63-25- 4	SE-SW	K	KOOCHICHING LOBE TILL	21	VOLCANICLASTIC ROCKS	VC	
22,329		304	46.0- 55.0	9.0	AB	63-25- 4	SE-SW	K	KOOCHICHING LOBE TILL	21	VOLCANICLASTIC ROCKS	VC	
22,330		304	55.0- 60.0	5.0	HI	63-25- 4	SE-SW	K	BEDROCK	34	VOLCANICLASTIC ROCKS	VC	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	(11) GOLD GRAIN COUNT (HMC)	(12) TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	(13) WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	(14) WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	(15) NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,328		21	1	10.7	1.8	5.9	100	20	18	62	5	15	18	62	1.2	13.2	2.2
22,329		21	0	25.2	9.6	2.6	100	36	31	33	6	30	31	33	0.0	17.4	6.6

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	(16) AU ASSAY EST.FROM GOLD GRAINS	(17) CALC BULK AU ASSAY	(18) INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,328		21	1	140	0.660	7.2	500	< 5.0	73	3.0	2.8	1	16	12	2900	159	854	365	1	340	36	17.6	6730	8.1	60.0	718	< 2	260.0
22,329		21	0	0	0.078	18.3	45	< 7.0	60	1.2	1.1	< 1	10	3	800	130	291	185	102	440	68	20.9	8300	16.0	140.0	2070	8	630.0

(1) Special Sample Type: R = Replicate; SS = Special Sample, see Remarks.
(2) in feet
(3) See legend on preceding page of Summary Sheet for: A=silt/clay fraction, etc.
(4) Township-Range-Section location. T61N-R26W.
(5) 40 acre parcel (e.g., SE¼ of SW¼).
(6) I = Itasca, K = Koochiching
(7) includes saprolite or bedrock
(8) database abbreviation for drift type
(9) lithologic type from Bedrock Map 1-7
(10) database abbreviation for bedrock type
(11) HMC = Heavy Mineral Concentrate; all HMC data from O.D.M. lab
(12) in grams
(13) feed weight = 100 gram split. See Sample Prep Flowsheet.
(14) VCGR sand + MGR sand = +250 um fraction. VCGR sand wt. % comes from the +10 mesh data on HMC Report.
(15) HMC sample results are normalized to 10 kg bulk sample.
(16) Estimate from O.D.M. lab, prior to assay, based on gold grain sizes. See HMC Report.
(17) Represents $\frac{\text{[Nonmag HMC Au assay (ppb) x Nonmag HMC wt. (gms)]}}{\text{Bulk Sample Wt. (gms)}}$
Estimates bulk sample gold content from only that gold recovered and assayed in the Nonmag HMC.
Normalizes variations in original bulk sample size and Nonmag HMC weight.

(18) Wt. in grams of the Nonmag HMC assayed. Is a 3/4 split of Nonmag HMC. 1/4 split permanently saved in Hibbing.

Assay data key
-1 = not analyzed
-2 = not sampled
N 0 = insufficient sample for analysis

Mineralogy data key
-1 = trace amount
-2 = rare trace amount

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #/KEY	(19) FA-ICP Au ASSAY SAMP WGT	(20) -63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,328		21	30	2	<.2	4	< 1	< 1	< 2	< 1	< 2	613	45	20	120	36	46	14	34,164	320	-1	14.20	9.39	3.52	2.08	0.64	2.50	1.61
22,329		21	30	5	<.2	2	< 1	< 1	< 2	1	< 2	611	35	10	93	33	72	15	38,562	310	-1	14.52	10.41	4.01	2.83	0.64	2.73	1.83

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	(21) TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,328		21	1.8	< 0.5	5	< 1	18	143	86	301	260	1,831	4,946	25,360	1,859	1,749	101	88.31	4.89	1.20	0.72	0.07	0.26	0.06	70	27	160	6

304

BEDROCK AND SAPROLITE ANALYSIS

(22) SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,330		55.0- 60.0	< 10	< 2	5	< 0.2	< 1	1.0	2	< 1	< 30	< 2	68	123	< 3	100	123	279	61	13.89	0.21	7.66	1.37	10.66	1.73	0.42	14.40	47.22	0.14

304

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,330	302	< 50	< 5	0.14	390	< 10	< 1	< 1	14	150	87	0.14	< 5	41	23	3	7	42	< 50	< 2

304

(23) MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	(24) QUARTZ & FELDSPAR	REMARKS
22,328		26.0- 36.0	21	3	26	8	4	2	7	-1	1	1	18	0	10	13	7	0	100	6	

(19) in grams

(20) Note Au, Ag, & Co_2 assayed on -63 um screen fraction, whereas other elements are on clay fraction that was separated by centrifuge. See Sample Prep Flowsheet.

(21) Magnetic fraction wt. in grams, reported by ODM lab (see HMC Report). Includes minor drill steel. Steel removed before assay by fine grinding, then screening at 150 ums. Most malleable steel flakes remain on the screen, thus excluded from the assays.

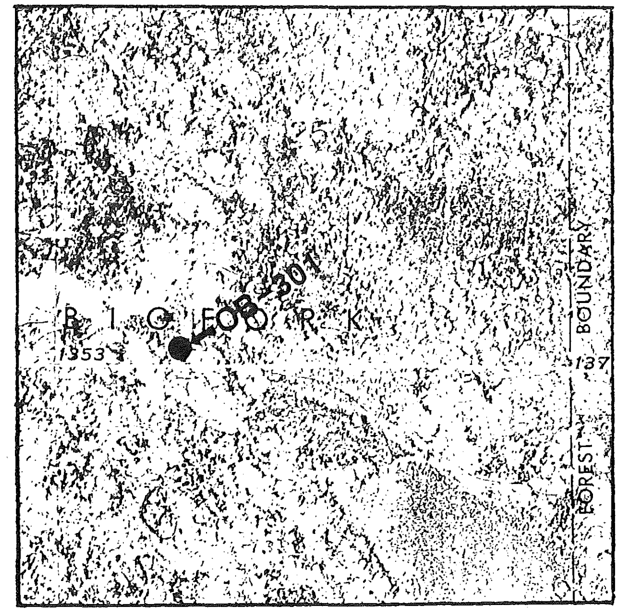
(22) These are "wholerock" or for saprolite "total bulk sample" analyses. Note some intervals are small and represent selected vein-rich material, as indicated in the remarks.

(23) See Methodology Section 9.3. Performed by ODM lab.

(24) A measure of impurities in HMC. ODM convention is to exclude this from 100% total.

DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-301
Drilling Completion Date: 5/20/88



LOCATION (see map at right)
S-T-R: SE¼-SW¼ - S25 - T61N - R26W
County: Itasca
Quadrangle: Coon Lake 7.5
Regional Survey Area: Effie
UTM Coordinates: 453,980mE; 5287380mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1367 ± 3 ft.
Total Depth: 95 ft.
Elevation, Top of Precambrian Bedrock: 1276 ft.
Elevation, Top of Saprolite: 1280 ft.
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-14	Kooch. lobe gl. drift	G		
14-50	Rainy lobe gl. drift	B,C,G	A,B,C	A=Ni B=Au,W,Co,Sb, C=Cr,Zn,Mo
50-78	Winnipeg lobe gl. drift	B,C,G	A,B,C	B=Sb,Se,Ni C=Cr,Zn
78-87	Old Rainy lobe gl. drift	B,C,G	A,B,C	B=Bi,Cu,Ni,Se
87-91	Saprolite	G	A	
91-95	Sound bedrock	G,H	I	

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

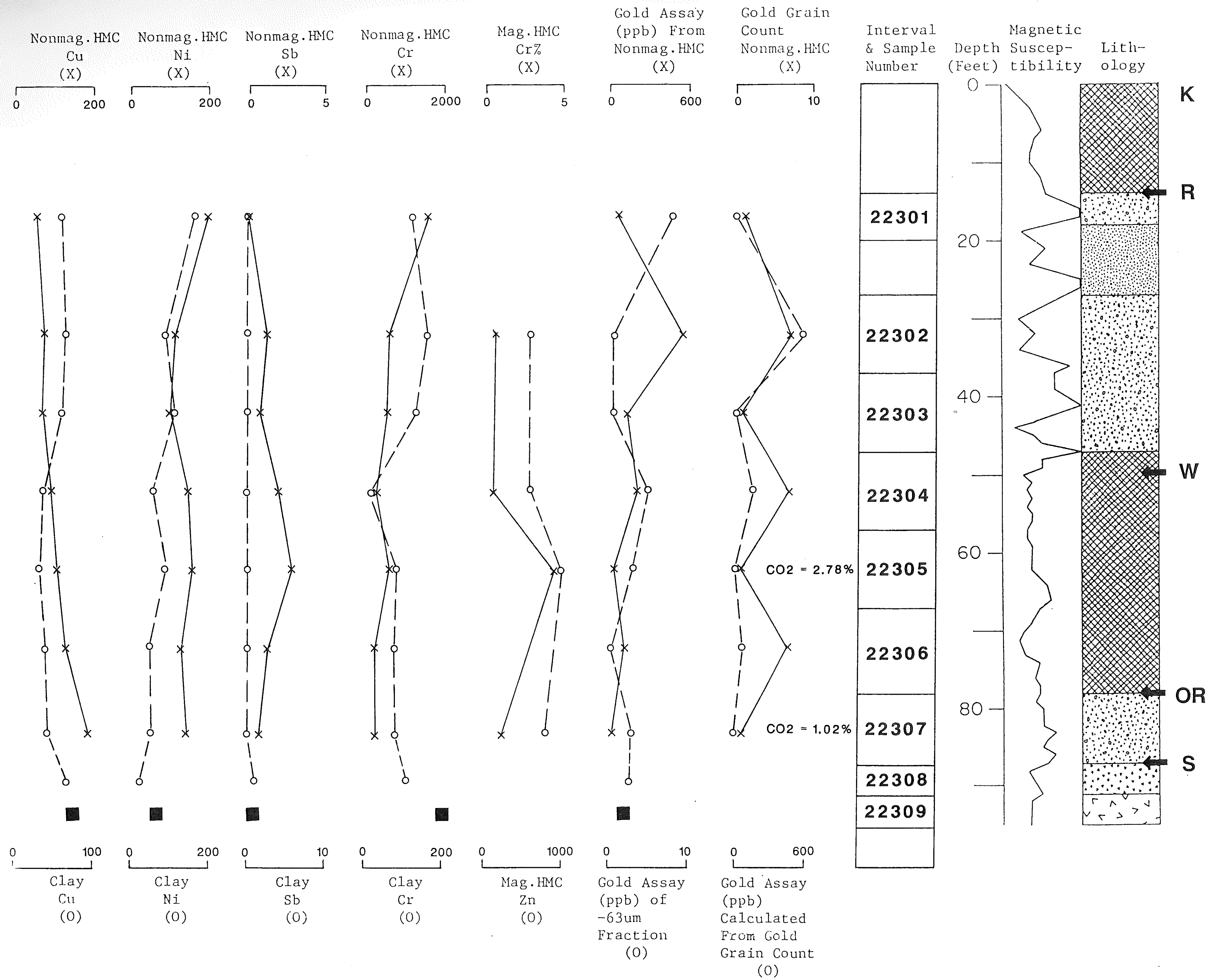
Core Description: Dark green, massive metabasalt or fine-grained metadiabase. Trace % disseminated pyrite. Thin section is representative of bulk of core. Magnetic susceptibility; 0.03 x 10-3 CGS units.

Thin Section Description: OB-301, 92 ft. Fine- to medium-grained, massive meta-basalt or diabase. Estimated mode (volume %): Amphibole (dominantly actinolite) 45; Plagioclase (including saussurite) 49; Quartz 3; Opaque Fe-Ti Oxides 3; Chlorite Tr. Non-foliated amphibole-rich rock which has undergone extensive retrograde metamorphism. Initial prograde metamorphism produced 0.3 to 0.5 mm prisms and 2 to 3 mm poikiloblasts of hornblende in a groundmass of plagioclase and minor quartz. Subsequent retrograde metamorphism has thoroughly saussuritized the plagioclase and altered the hornblende to fibrous, matted actinolite and minor chlorite. A fine-grained, white, fibrous or micaceous mineral is also present as an alteration product of hornblende and along fractures; this mineral may be talc or tremolite (?). Rock is transected by a few brittle, open fractures which are non-mineralized and have slightly broken the rock.

Scintillometer Reading (cps): 85-95

OB-301

Appendix 1-1B.



Geologic Descriptions

(0 - 14) LOAM TILL; OXIDIZED; mod calc by 3 ft, calc by 10; top 1 1/2 ft silty, mgr sand; most pebs small, carb common; unox by 13 1/2; cob at base.

(14 - 18) COBBLY SANDY LOAM TILL; UNOXIDIZED; sl calc.

(18 - 27) GRAVELLY MEDIUM - COARSE SAND; UNOXIDIZED; sl calc; compact; cobbly zone at 22 ft, possibly till; clayey silt bed below; grades to cobbly, sandy loam till at 23 1/2; 25 - 26 mgr to cgr sand; 26 - 27 silty gvl.

(27 - 50) COBBLY, SANDY LOAM TILL; UNOXIDIZED; sl calc; inc generally thin beds of somewhat sorted material; iron stained in places; 47 - 50 ft mixed w/calc clay loam till, mostly clayey till below 47 1/2.

(50 - 78) LOAM - CLAY LOAM TILL; UNOXIDIZED; calc; carb common; few sh grains, Cretaceous limestone pebs; 64 - 67 ft more rocky w/smears of grnish saprolite, only mod calc in places; 67 - 76 1/2 mod calc to calc, carb almost uncommon, couple cobs 73 - 73 1/2, loamy from 76; 76 1/2 - 78 common Precambrian cobs, mod calc to calc.

(78 - 87) LOAM TILL; UNOXIDIZED; mod calc; rocky; hard & compact as above; carb pebs small.

(87 - 91) SAPROLITE; apar sl reworked rock & saprolite to 90 1/2 ft.

(91 - 95) BEDROCK; METABASALT; fgr to mgr; massive.

Appendix 1-1C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,301		301	14.0- 20.0	6.0	ABJ	61-26-25	SE-SW	I	RAINY LOBE TILL	11	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,302		301	27.0- 37.0	10.0	ABCJ	61-26-25	SE-SW	I	RAINY LOBE TILL	11	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,303		301	37.0- 47.0	10.0	ABJ	61-26-25	SE-SW	I	RAINY LOBE TILL	11	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,304		301	47.0- 57.0	10.0	ABCJ	61-26-25	SE-SW	I	WINNIPEG LOBE COMPOSITE TILL SAMPLES	68	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,305		301	57.0- 67.0	10.0	ABCJ	61-26-25	SE-SW	I	WINNIPEG LOBE TILL	61	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,306		301	67.0- 78.0	11.0	ABJ	61-26-25	SE-SW	I	WINNIPEG LOBE TILL	61	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,307		301	78.0- 87.0	9.0	ABCJ	61-26-25	SE-SW	I	OLD RAINY LOBE TILL	51	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,308		301	87.0- 91.0	4.0	A	61-26-25	SE-SW	I	REWORKED SAPROLITE	49	ULTRAMAFIC-INTERMED. VOLC	VU/I	SILT/CLAY SAMPLE ONLY
22,309		301	91.0- 95.0	4.0	HI	61-26-25	SE-SW	I	BEDROCK	34	ULTRAMAFIC-INTERMED. VOLC	VU/I	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	WEIGHT (GRAMS) +250um FRACTION	WEIGHT (GRAMS) -250 +63um FRACTION	WEIGHT (GRAMS) -63um FRACTION	WEIGHT % >= VCGR SAND	WEIGHT % MGR SAND	WEIGHT % FGR SAND	WEIGHT % SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NORMALIZED TO 10KG SAMPLE NMAG HMC WEIGHT(g)	NORMALIZED TO 10KG SAMPLE MAG HMC WEIGHT(g)
22,301		11	1	18.0	8.0	2.3	100	55	18	26	22	33	18	26	1.2	22.0	9.8
22,302		11	7	43.7	14.6	3.0	100	54	15	32	19	35	15	32	3.3	20.3	6.8
22,303		11	1	28.8	8.4	3.4	100	47	25	28	18	29	25	28	0.8	22.2	6.5
22,304		68	7	46.3	5.1	9.1	100	34	21	45	9	25	21	45	5.0	33.3	3.7
22,305		61	1	27.6	3.9	7.1	100	30	17	53	5	25	17	53	0.8	21.9	3.1
22,306		61	7	46.8	8.4	5.6	100	37	19	44	9	28	19	44	5.3	35.2	6.3
22,307		51	1	34.2	5.1	6.7	100	37	25	38	13	24	25	38	1.0	34.5	5.2

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,301		11	1	21	0.171	12.5	78	< 5.0	17	< 0.2	0.9	< 1	< 4	3	< 200	49	34	111	192	1600	55	11.8	12880	10.0	120.0	1740	< 2	470.0
22,302		11	7	529	1.187	22.2	584	< 5.0	21	1.1	0.9	< 1	290	2	< 200	83	27	110	111	770	120	18.0	9200	12.0	160.0	3210	< 2	620.0
22,303		11	1	7	0.377	20.5	170	< 6.0	25	0.8	0.8	< 1	< 4	4	< 200	67	41	137	106	620	49	16.6	10440	13.0	120.0	2080	6	490.0
22,304		68	7	156	0.743	30.0	223	< 5.0	54	1.9	3.1	< 1	< 4	16	< 200	92	32	348	147	270	42	21.4	7440	10.0	92.0	870	< 2	360.0
22,305		61	1	3	0.099	18.0	45	< 6.0	64	2.8	2.8	< 1	< 4	18	< 200	109	43	342	163	650	54	25.7	7750	16.0	130.0	1090	< 3	540.0
22,306		61	7	61	0.479	21.5	136	< 6.0	35	1.3	0.7	< 1	< 4	4	< 200	131	61	147	132	280	67	24.2	8450	10.0	110.0	1340	< 2	470.0
22,307		51	1	2	0.152	23.7	44	< 5.0	32	0.8	0.9	1	< 4	4	< 200	183	43	160	146	280	66	23.9	9190	8.5	90.0	1190	< 2	390.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,301		11	30	8	<.2	2	< 1	< 1	< 2	10	< 2	559	60	10	95	160	120	23	53,854	240	-1	16.79	2.24	5.73	3.19	0.60	2.87	1.12
22,302		11	30	< 1	<.2	2	< 1	< 1	< 2	9	< 2	666	65	6	100	90	160	25	64,102	330	-1	17.58	2.43	3.76	4.14	0.67	3.15	2.29
22,303		11	30	< 1	<.2	3	< 1	< 1	< 2	8	< 2	594	63	6	92	110	130	20	60,771	300	-1	16.75	2.60	4.14	4.40	0.64	2.79	3.16
22,304		68	30	5	<.2	4	< 1	1	< 2	7	< 2	375	38	6	72	60	54	15	49,952	210	-1	20.00	4.74	2.73	2.06	0.61	2.21	2.08
22,305		61	30	3	<.2	3	< 1	1	4	1	< 2	292	34	6	71	95	80	15	47,331	210	2.78	20.88	4.88	2.57	1.57	0.62	2.09	1.92
22,306		61	30	< 1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	277	40	6	77	45	76	16	50,273	170	-1	25.41	1.45	2.24	1.99	0.63	1.85	2.69
22,307		51	30	3	<.2	2	< 1	< 1	< 2	1	< 2	271	43	6	74	47	80	16	57,810	150	1.02	24.32	1.32	2.58	1.80	0.64	1.67	1.94
22,308		49	30	3	<.2	1	< 1	< 1	< 2	4	< 2	137	68	< 2	56	33	110	17	69,458	130	-1	15.45	4.65	7.15	3.92	0.40	0.78	3.14

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,302		11	14.6	< 0.5	3	< 1	72	93	12	592	235	11,764	4,584	31,715	2,246	1,907	305	84.61	6.26	1.72	0.89	0.05	0.10	0.07	63	50	155	5
22,304		68	5.1	< 0.5	1	< 1	12	38	10	594	235	8,401	3,136	0	2,556	2,355	182	88.29	3.02	1.28	0.48	0.05	0.19	0.03	38	25	104	6
22,305		61	3.9	< 0.5	2	< 1	10	46	14	1,197	400	45,125	4,644	34,892	2,556	2,348	285	83.03	2.65	2.18	0.18	0.04	0.10	0.02	30	22	78	5
22,307		51	5.1	< 0.5	3	< 1	8	126	20	788	228	11,036	4,343	62,530	3,408	3,027	233	83.06	3.40	1.74	0.71	0.05	0.10	0.04	227	37	144	9

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,309		91.0- 95.0	23	< 2	2	< 0.2	< 1	1.0	2	< 1	< 30	< 2	101	75	19	79	69	438	49	10.21	0.16	7.71	0.75	9.45	2.60	0.80	14.95	51.48	0.11

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,309	218	< 50	< 5	0.04	320	< 10	< 1	< 1	24	130	154	0.11	< 5	37	22	4	13	59	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,301		14.0- 20.0	11	-1	3	1	10	0	14	-1	1	3	29	0	19	18	2	0	100	6	
22,302		27.0- 37.0	11	2	1	1	13	1	8	-1	0	-1	27	0	29	11	7	0	100	5	
22,303		37.0- 47.0	11	2	6	1	18	0	12	2	-1	1	23	0	10	22	5	0	100	7	
22,304		47.0- 57.0	68	3	22	27	5	2	5	1	-1	-1	7	-2	18	3	7	0	100	4	
22,305		57.0- 67.0	61	1	25	28	7	1	9	0	0	0	11	0	11	3	4	0	100	4	
22,306		67.0- 78.0	61	10	0	32	3	2	19	1	0	0	7	2	11	5	8	0	100	5	
22,307		78.0- 87.0	51	-1	4	35	7	3	3	-1	0	-1	11	-2	21	9	7	0	100	6	

HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

LE O.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22301	8.2	1.8	6.4	95.2	69.2	26.0	18.0	8.0	1	21	C	65	35	NA	NA	U	Y	Y	Y	B	B	TILL
22302	21.5	4.0	17.5	234.2	175.9	58.3	43.7	14.6	7	529	P	60	40	TR	NA	U	Y	Y	Y	B	B	TILL
22303	13.0	2.4	10.6	146.1	108.9	37.2	28.8	8.4	1	7	P	70	30	TR	NA	U	Y	Y	Y	B	B	TILL
22304	13.9	1.2	12.7	240.0	188.6	51.4	46.3	5.1	7	156	P	60	40	TR	NA	U	Y	Y	Y	B	GB	TILL
22305	12.6	0.6	12.0	145.7	114.2	31.5	27.6	3.9	1	3	P	50	50	TR	NA	U	Y	Y	Y	GB	GY	TILL
22306	13.3	1.2	12.1	195.1	139.9	55.2	46.8	8.4	7	61	P	25	75	TR	NA	U	Y	Y	Y	B	GY	TILL
22307	9.9	1.3	8.6	156.3	117.0	39.3	34.2	5.1	1	2	P	50	50	TR	NA	U	Y	Y	Y	GY	GY	TILL

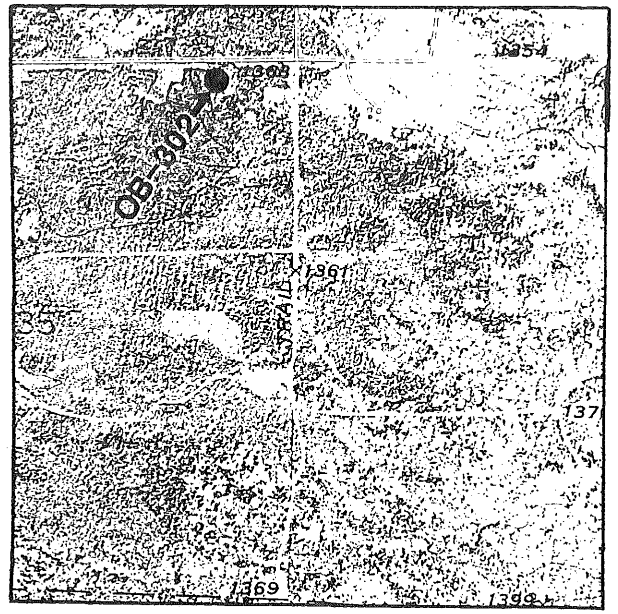
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22301	N	50 X 75	13 C	1						1			
										1	18.0	21	
22302	Y	50 X 50	10 C		2					2			EST.6% PYRITE
		50 X 75	13 C	1						1			PHOTO MICROGRAPH AVAILABLE
		75 X 100	18 C	1						1			FILM REF#150
		75 X 125	20 C	1						1			
		125 X 150	27 C	1						1			
		200 X 250	42 C	1						1			
										7	43.7	529	
22303	N	50 X 50	10 C	1						1			
										1	28.8	7	
22304	Y	25 X 50	8 C		1					1			EST.3% PYRITE
		25 X 75	10 C		1					1			EST.3% MARCASITE
		50 X 50	10 C	1						1			PHOTO MICROGRAPH AVAILABLE
		75 X 100	18 C		1					1			FILM REF#150
		75 X 125	20 C		1					1			
		100 X 125	22 C		1	1				2			
										7	46.3	156	
22305	N	25 X 50	8 C	1						1			
										1	27.6	3	
22306	Y	25 X 25	5 C		1					1			EST.8% MARCASITE
		50 X 50	10 C	3						3			EST.2% PYRITE
		50 X 75	13 C	1	1					2			PHOTO MICROGRAPH AVAILABLE
		75 X 125	20 C	1						1			FILM REF#150
										7	46.8	61	
22307	N	25 X 50	8 C	1						1			
										1	34.2	2	

Appendix 1-2A.

DRILL HOLE SUMMARY SHEET



IDENTIFICATION
DNR Drill Hole Number: OB-302
Drilling Completion Date: 5/21/88

LOCATION (see map at right)
S-T-R: NE¼-NE¼ - S35 - T62N - R25W
County: Itasca
Quadrangle: Deer Lake W 7.5
Regional Survey Area: Effie
UTM Coordinates: 463,230mE; 5296760mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1366 ± 2 ft.
Total Depth: 86 ft.
Elevation, Top of Precambrian Bedrock: 1287 ft.
Elevation, Top of Saprolite: 1290 ft.
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-36.5	Kooch. lobe gl. drift	B,C,G	A,B,C	B=Au
36.5-63	Rainy lobe gl. drift	B,C,G	A,B,C	A=Cu,W B=Au,Ba,W
63-76	Old Rainy lobe gl. drift	B,C,G	A,B,C	A=Ni B=Au,Pb C=Cr,Zn,As,Pb
76-79	Saprolite			
79-86	Sound bedrock	G,H	I	

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

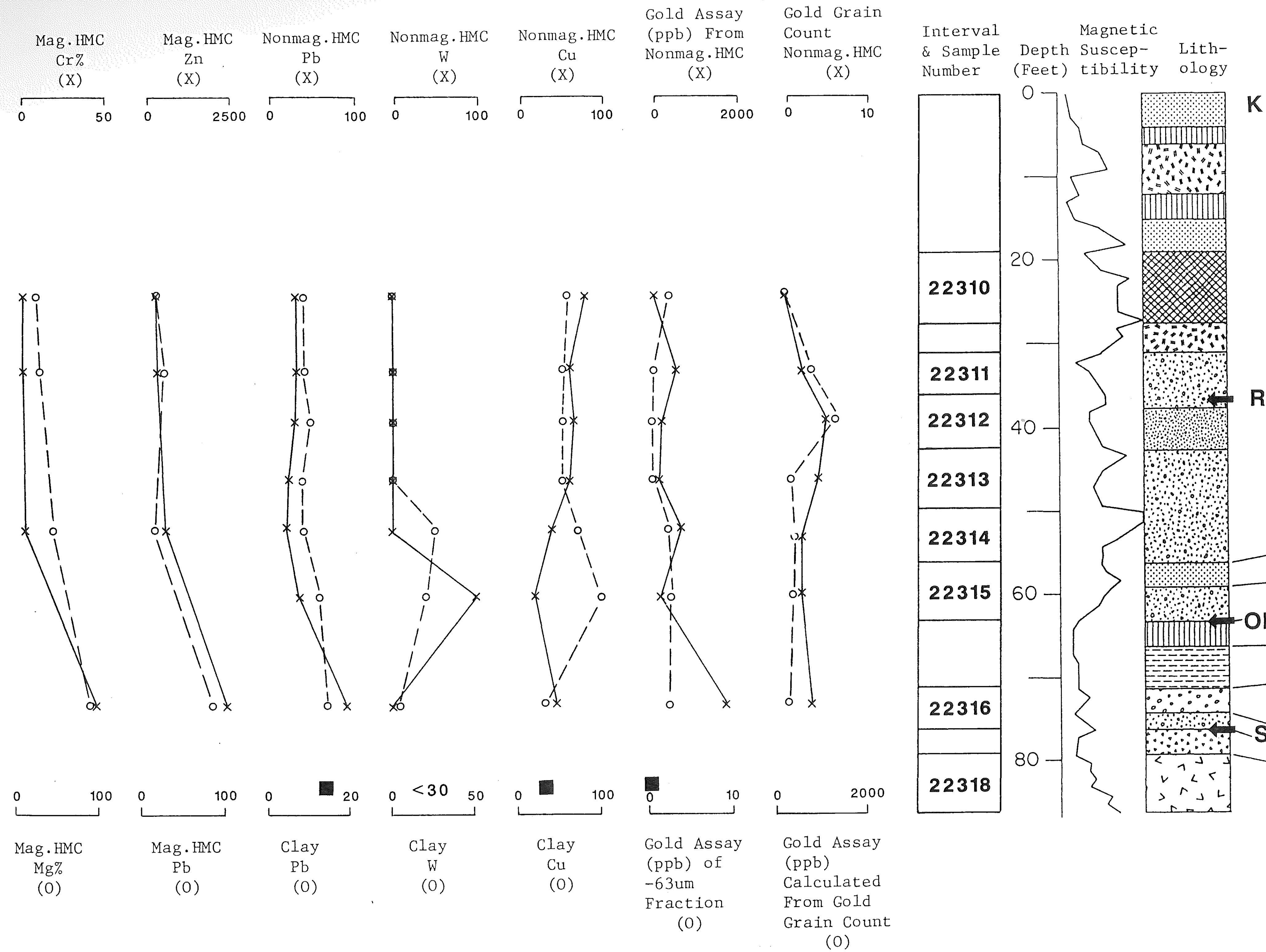
Core Description: Fine-grained, dark to medium greenish-gray meta-andesite. Relatively pristine-textured but weakly lineated at about 80° (degrees from horizontal). Minor disseminated pyrite and unmineralized fractures. Thin section is representative of core.

Thin Section Description: OB-302, 83 ft. Fine-grained, weakly foliated meta-andesite/basalt. Estimated mode (volume %): Hornblende plus actinolite 20; Epidote 7; Sphene (?) 6; Quartz 24 (Quartz to feldspar ratio uncertain); Feldspar 18; Chlorite 15; Clinozoisite (?) 10. Rock consists of subhedral prismatic hornblende (up to 0.5 mm long), clots of subhedral epidote, and clots of scaly chlorite in a groundmass of very fine-grained quartz, feldspar, sphene (altered to leucoxene), and Ca-(Fe)-Al silicate (possibly clinozoisite, occurs in somewhat tabular clots, has anomalous blue birefringence). Feldspar is recognizable but very heavily recrystallized and sausuritized. Rare elliptical 0.5 mm clots of sutured quartz are present, one of which has a crude outline of possibly euhedral volcanic quartz. Foliation is defined by elongate chlorite masses and a weak preferred orientation of hornblende. Relict textures imply a protolith of flow rock. Rock is transected by a 'vein' in which Fe-mg silicates have been removed; this 'vein' is oriented approximately 50° to the foliation.

Scintillometer Reading (cps): 80-90

OB-302

Appendix 1-2B.



Geologic Descriptions

(0 - 4) FINE - MEDIUM SAND; OXIDIZED; silty from 2 ft, mgr to cgr from 3.

(4 - 6) CLAY; OXIDIZED; calc by 4 1/2 ft; fine clay loam 4 - 4 1/2.

(6 - 12) CLAY LOAM TILL; UNOXIDIXED; calc, ox silty sand & fine gvl lenses at 8 ft, 9 - 10, & couple from 10 - 10 1/2; much carb, little sh.

(12 - 16) CLAY; UNOXIDIZED; calc; mottled; few pebs; 15 - 16 ft pebbly loam to sandy loam flow deposit, most pebs carb.

(16 - 19) MEDIUM - COARSE SAND; UNOXIDIZED; interbedded w/calc silt from 18 1/2 ft, few sm pebs.

(19 - 27 1/2) LOAM TILL; UNOXIDIZED; calc; sandy side of loam; carb pebs sm & uncommon, Precambrian dominant; two cobs at base.

(27 1/2 - 31) CLAY LOAM TILL; UNOXIDIXED; calc; lith similar to above, carb possibly less common; cob at 30 ft, till more loamy below.

(31 - 37 1/2) SANDY LOAM TILL; UNOXIDIZED; sl to mod calc; little more rocky than above; 36 - 36 1/2 ft noncalc to sl calc pebbly sand w/layer mod calc sandy till, no carb noted in sand; 36 1/2 - 37 1/2 v sl calc, grnish gray, sandy loam till.

(37 1/2 - 42 1/2) GRAVELLY SAND; UNOXIDIXED; large cob near top; pebbly cgr sand to 38 1/2 ft; cobbly cgr sand & gvl to 39; pebbly cgr sand to 39 1/2; silty, pebbly fgr to cgr sand to 40 1/2; cobbly, silty, cgr sand to base.

(42 1/2 - 56) SANDY LOAM TILL; UNOXIDIZED; sl calc; large cob at top, also fairly loamy; occ carb grains; more fgr, less pebs from 47 ft, mottled; rocky & more sandy by 50; large cob at 54, not many pebs below.

(56 - 59) MEDIUM - COARSE SAND; UNOXIDIZED; sev inches of sl calc sandy till at 57 1/2 ft; silty and pebbly below till bed.

(59 - 63) SANDY LOAM TILL; UNOXIDIZED; sl calc; cobbly in upper foot, apar 'washed,' v abrupt basal contact.

(63 - 66) SILTY CLAY; UNOXIDIZED; noncalc; greenish gray; few sand grains; silty fgr sand bed w/coarse grains at 64 1/2 ft; silty fgr sand lens near base, cgr sand lens at base.

(66 - 71) SILT; UNOXIDIZED; 66 - 68 1/2 ft silt to clayey silt, silty sand bed w/few sm pebs at 68, little silty clay to 68 1/2 couple inches silty sand, then v fgr sandy silt to 71.

(71 - 74) COBBLY GRAVEL; UNOXIDIZED; couple inches silty, cgr sand over foot thick boulder, couple more inches pebbly cgr sand over boulder 72 1/2 - 73 ft; gvlly cgr sand to 73 1/2, mgr sand to base.

(74 - 76) COBBLY, SANDY LOAM TILL; UNOXIDIZED; grnish gray; noncalc; no carb.

(76 - 79) SAPROLITE; rocky clay; possibly reworked in upper foot.

(79 - 86) BEDROCK; BASALTIC ANDESITE; fgr; weakly foliated.

Appendix 1-2C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,310		302	19.0- 27.5	8.5	ABCJ	62-25-35	NE-NE	I	KOOCHICHING LOBE TILL	21	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,311		302	31.0- 36.0	5.0	ABCJ	62-25-35	NE-NE	I	KOOCHICHING LOBE TILL	21	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,312		302	36.0- 42.5	6.5	ABJ	62-25-35	NE-NE	I	RAINY LOBE GRAVELLY SAND	13	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,313		302	42.5- 49.5	7.0	AB	62-25-35	NE-NE	I	RAINY LOBE TILL	11	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,314		302	49.5- 56.0	6.5	ABCJ	62-25-35	NE-NE	I	RAINY LOBE TILL	11	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,315		302	56.0- 63.0	7.0	AB	62-25-35	NE-NE	I	RAINY LOBE TILL	11	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,316		302	71.0- 76.0	5.0	ABCJ	62-25-35	NE-NE	I	OLD RAINY LOBE GRAVELLY SAND	53	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,318		302	79.0- 86.0	7.0	HI	62-25-35	NE-NE	I	BEDROCK	34	ULTRAMAFIC-INTERMED. VOLC	VU/I	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,310		21	0	14.7	4.6	3.2	100	30	29	42	6	24	29	42	0.0	15.0	4.7
22,311		21	2	17.8	5.7	3.1	100	45	33	23	15	30	33	23	2.0	17.5	5.6
22,312		13	5	20.8	6.5	3.2	100	61	24	15	22	39	24	15	4.4	18.4	5.8
22,313		11	4	15.9	5.3	3.0	100	40	30	29	11	29	30	29	4.4	17.5	5.8
22,314		11	2	21.3	6.5	3.3	100	47	27	26	12	35	27	26	1.7	17.6	5.4
22,315		11	2	24.4	6.3	3.9	100	67	17	17	21	46	17	17	2.3	28.0	7.2
22,316		53	3	17.8	2.4	7.4	100	54	25	21	22	32	25	21	3.0	18.0	2.4

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,310		21	0	0	0.066	10.7	44	< 5.0	21	< 0.2	0.7	< 1	< 4	3	< 200	78	32	135	113	280	41	11.9	22311	8.1	85.0	1670	4	380.0
22,311		21	2	552	1.047	13.1	600	< 5.0	16	< 0.2	0.7	< 1	< 4	3	< 200	59	34	120	112	270	43	11.5	15660	8.9	120.0	1680	< 2	470.0
22,312		13	5	1218	0.412	15.1	224	< 8.0	20	< 0.2	0.7	1	< 4	2	< 200	65	31	136	118	390	50	17.7	15950	9.6	140.0	2150	< 2	560.0
22,313		11	4	124	0.388	10.8	222	< 5.0	20	< 0.2	0.7	< 1	< 4	2	< 200	62	28	138	103	310	36	12.1	13510	-1	-1	-1	-1	-1
22,314		11	2	249	1.162	15.6	660	< 7.0	20	< 0.2	0.5	< 1	< 4	< 1	1200	42	22	129	91	530	49	16.3	14420	8.0	110.0	1460	6	420.0
22,315		11	2	198	0.603	17.8	215	< 7.0	15	< 0.2	0.3	< 1	100	2	760	21	35	147	87	470	50	16.0	11990	6.9	130.0	2100	< 2	540.0
22,316		53	3	58	3.200	13.1	1,780	< 7.0	7	< 0.2	0.1	1	< 4	3	< 200	46	93	126	51	910	21	10.5	13890	8.5	130.0	2200	< 2	460.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,310		21	30	2	<.2	2	< 1	< 1	< 2	< 1	< 2	541	56	8	120	57	98	21	48,478	400	-1	16.34	6.78	3.88	3.01	0.63	2.48	1.84
22,311		21	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	605	55	8	110	49	98	19	55,904	290	-1	18.50	3.15	3.76	3.32	0.67	2.97	1.78
22,312		13	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	602	57	10	120	44	100	20	54,518	260	-1	17.66	2.56	3.55	4.51	0.70	3.06	1.75
22,313		11	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	614	53	8	95	60	120	20	56,897	270	-1	18.05	2.35	3.26	4.19	0.71	2.95	2.82
22,314		11	30	2	<.2	2	< 1	< 1	< 2	25	< 2	653	70	8	86	64	140	24	56,915	360	-1	17.25	2.36	3.35	3.88	0.61	2.97	1.09
22,315		11	30	2	<.2	1	< 1	< 1	< 2	20	< 2	638	100	12	97	60	150	24	59,422	350	-1	17.13	2.28	2.98	4.08	0.60	3.00	1.89
22,316		53	30	2	<.2	1	< 1	< 1	< 2	2	< 2	389	31	14	96	130	430	31	81,650	230	-1	17.09	1.85	6.51	2.73	0.75	1.99	1.41

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,310		21	4.6	< 0.5	5	< 1	8	27	14	358	159	2,022	1,990	26,919	1,782	1,847	109	92.55	2.95	0.96	0.53	0.05	0.10	0.03	38	25	84	1
22,311		21	5.7	< 0.5	4	< 1	4	24	22	404	105	1,601	2,413	36,990	2,169	2,042	121	89.21	3.61	1.17	0.63	0.07	0.17	0.02	47	32	115	4
22,314		11	6.5	< 0.5	3	< 1	2	24	12	525	149	2,722	4,222	48,561	2,634	2,548	142	85.97	4.16	1.27	0.72	0.04	0.10	0.02	50	32	240	6
22,316		53	2.4	< 0.5	10	< 1	18	87	88	2,516	284	46,051	8,022	55,036	5,500	2,527	233	73.14	5.16	3.38	1.41	0.08	0.10	0.06	147	42	107	10

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,318		79.0- 86.0	< 10	< 2	< 1	< 0.2	< 1	< 1.0	1	< 1	< 30	< 2	131	35	14	97	108	183	51	11.11	0.19	5.56	1.39	7.73	2.37	0.48	16.12	50.99	0.15

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,318	243	< 50	< 5	0.02	450	< 10	< 1	< 1	17	270	292	0.15	< 5	23	15	8	18	77	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,310		19.0- 27.5	21	-1	3	3	14	1	8	-1	0	1	27	1	25	9	8	0	100	0	
22,311		31.0- 36.0	21	1	4	3	17	3	7	1	0	-1	36	1	14	7	6	0	100	6	
22,312		36.0- 42.5	13	4	0	1	14	2	8	1	0	1	38	2	11	14	4	0	100	9	
22,314		49.5- 56.0	11	0	1	2	11	1	20	1	2	-1	23	2	18	15	4	0	100	5	
22,316		71.0- 76.0	53	0	-1	-1	10	1	25	1	2	1	16	3	21	12	8	0	100	6	

HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

LE	WEIGHT (KG.WET)			WEIGHT (GRAMS DRY)		M. I. CONC			AU		DESCRIPTION: CLAST						DESCRIPTION: MATRIX						CLASS
	TABLE SPLIT	+10 CHIPS	TABLE FEED	TABLE CONC	M.I. LIGHTS	CONC. TOTAL	NON MAG	MAG	NO. V.G.	CALC PPB	SIZE	% V/S	% GR	% LS	% OT	S/U	SD	ST	CY	COLOR SD	COLOR CY	
22310	9.8	0.6	9.2	141.0	121.7	19.3	14.7	4.6	0	NA	P	60	35	5	NA	U	Y	Y	Y	GY	GY	TILL
22311	10.2	1.5	8.7	128.3	104.8	23.5	17.8	5.7	2	552	P	40	60	TR	NA	U	Y	Y	Y	B	B	TILL
22312	11.3	2.5	8.8	168.6	141.3	27.3	20.8	6.5	5	1218	P	70	30	TR	NA	U	Y	Y	Y	B	B	TILL
22313	9.1	1.0	8.1	112.9	91.7	21.2	15.9	5.3	4	124	P	50	50	TR	NA	U	Y	Y	Y	B	B	TILL
22314	12.1	1.5	10.6	211.2	183.4	27.8	21.3	6.5	2	249	P	40	60	TR	NA	U	Y	Y	Y	B	B	TILL
22315	8.7	1.8	6.9	131.5	100.8	30.7	24.4	6.3	2	198	P	50	45	5	NA	U	Y	Y	Y	B	B	TILL
22316	9.9	2.2	7.7	128.3	108.1	20.2	17.8	2.4	3	58	P	80	20	NA	NA	U	Y	Y	Y	GN	GN	TILL

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS: ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22310	N	NO VISIBLE GOLD											
22311	Y	50 X 75	13 C	1						1			EST.2% MARCASITE
		125 X 250	36 C	1						1			EST.0.5% PYRITE
										2	17.8	552	
22312	Y	50 X 50	10 C		1					1			EST.2% MARCASITE
		50 X 100	15 C		1					1			EST.0.5% PYRITE
		100 X 150	25 C	1						1			PHOTO MICROGRAPH AVAILABLE
		125 X 125	25 C	1						1			FILM REF#150-151
		175 X 300	44 C	1						1			
										5	20.8	1218	
22313	Y	25 X 25	5 C		1					1			EST.0.5% PYRITE
		25 X 50	8 C		1					1			EST.0.5% MARCASITE
		50 X 75	13 C	1						1			
		100 X 100	20 C	1						1			
										4	15.9	124	
22314	Y	50 X 75	13 C			1				1			EST.0.5% PYRITE
		125 X 175	29 C	1						1			EST.0.5% MARCASITE
										2	21.3	249	
22315	Y	50 X 125	18 C	1						1			EST.0.5% PYRITE
		100 X 175	27 C	1						1			EST.0.5% MARCASITE
										2	24.4	198	
22316	Y	25 X 25	8 C	1						1			EST.0.0% PYRITE AND MARCASITE
		50 X 75	13 C	1						1			
		50 X 100	15 C	1						1			
										3	17.8	58	

DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-303
Drilling Completion Date: 5/22/88

LOCATION (see map at right)
S-T-R: NW¼-NW¼ - S19 - T63N - R25W
County: Koochiching
Quadrangle: Craigville 7.5
Regional Survey Area: Effie
UTM Coordinates: 455,600mE; 5309430mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1285 ± 4 ft.
Total Depth: 171 ft.
Elevation, Top of Precambrian Bedrock: <1124 ft.
Elevation, Top of Saprolite: 1146 ft.
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-126	Kooch. lobe gl. drift	B,C,G	A,B,C	B=Au,Sb,As,Ba,Pb,Se,W
126-136.5	Rainy lobe gl. drift	B,C,G	A,B,C	B=Bi
136.5-144	Old Rainy lobe gl. drift	B,C,G	A,B,C	
144-149	Winnipeg lobe gl. drift	B,C,G	A,B,C	
149-171	Weathered bedrock	B,C,G	A,B,C,J	A=Zn B=Cu,Ni,Cr,W C=Cr,Zn

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

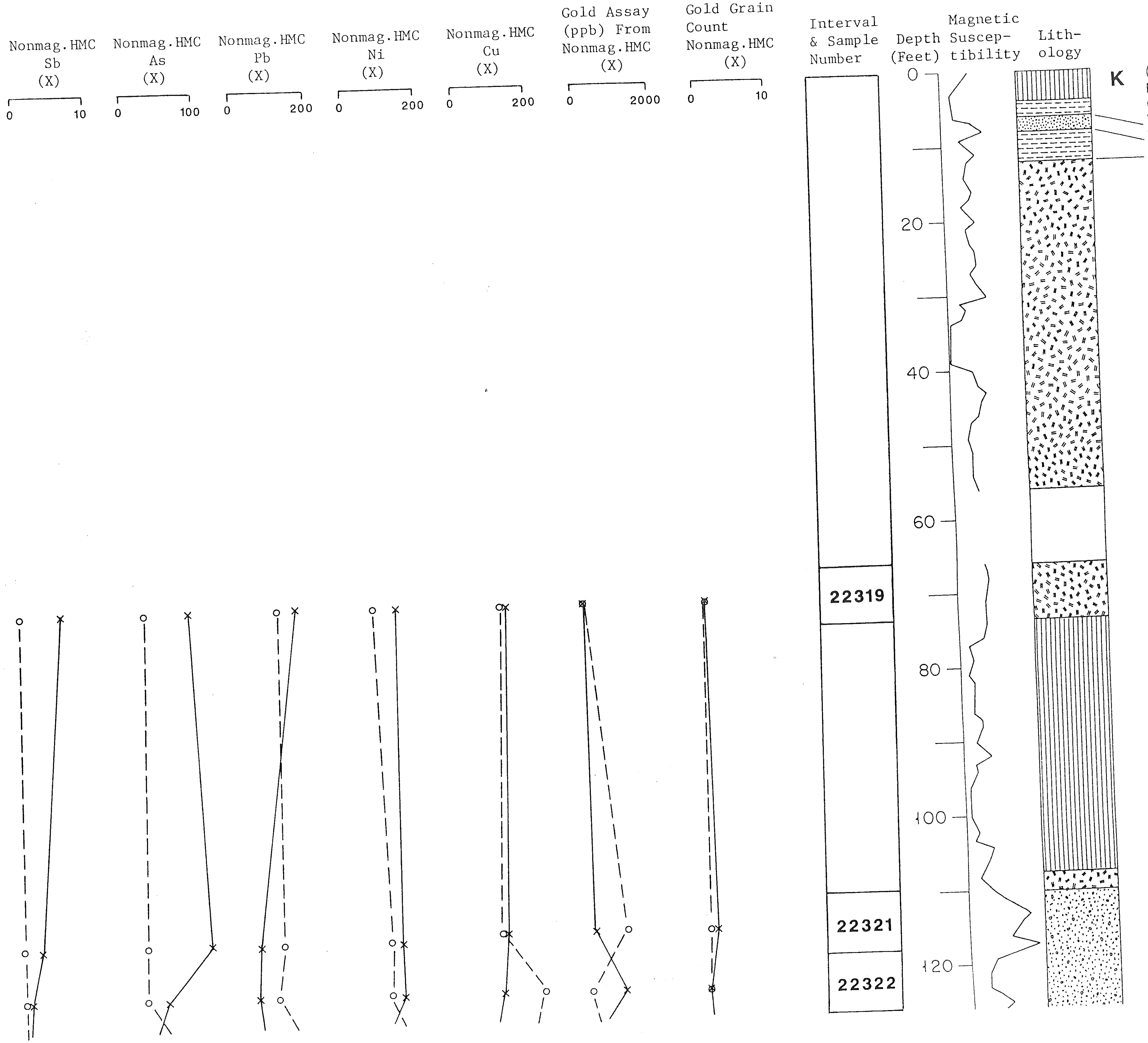
Core Description: Saprolite and fragmental fresh rock. Saprolite consists of varied colors of green clay with scattered 2.0 mm quartz grains. Freshest rock is weathered granodiorite. Granodiorite is unlineated and equigranular, with 1-2 mm, euhedral, light pink to white kspar; white powdery clay which presumably was plagioclase; minor fresh biotite quartz and green clayey Fe-Mg minerals (actinolite-chlorite after hornblende is likely). Approximode: Quartz 10%; Fe-Mg (weathered) 30%; Plag. 20%; Biotite 5%; Kspar 35%. Magnetic susceptibility = 0.00 x 10-3 CGS-10. No thin sections.

Thin Section Description:

Scintillometer Reading (cps):

BLANK PAGE

0B-303



Geologic Descriptions

(0 - 4) SILTY CLAY; OXIDIZED; calc by 3 ft; few sand grains; 0 - 1 road gravel,1 - 1 1/2 peat.

(4 - 6) SILT - SILT LOAM; OXIDIZED; more pebs w/depth; 5 1/2 - 6 ft pebbly clay (flow ti w/silt lam; carb pebs dominate.

(6 - 8) LOAMY GRAVELLY SAND; carb rich; may be slump from road gravel above.

(8 - 12) SILT - CLAYEY SILT; OXIDIZED; much sand & pebs (drop stones); highly calc.

(12 - 56) CLAY - SILTY CLAY TILL; UNOXIDIZED by 16 ft; may be till by 9; carb rich, highly calc; sh peb at 31.

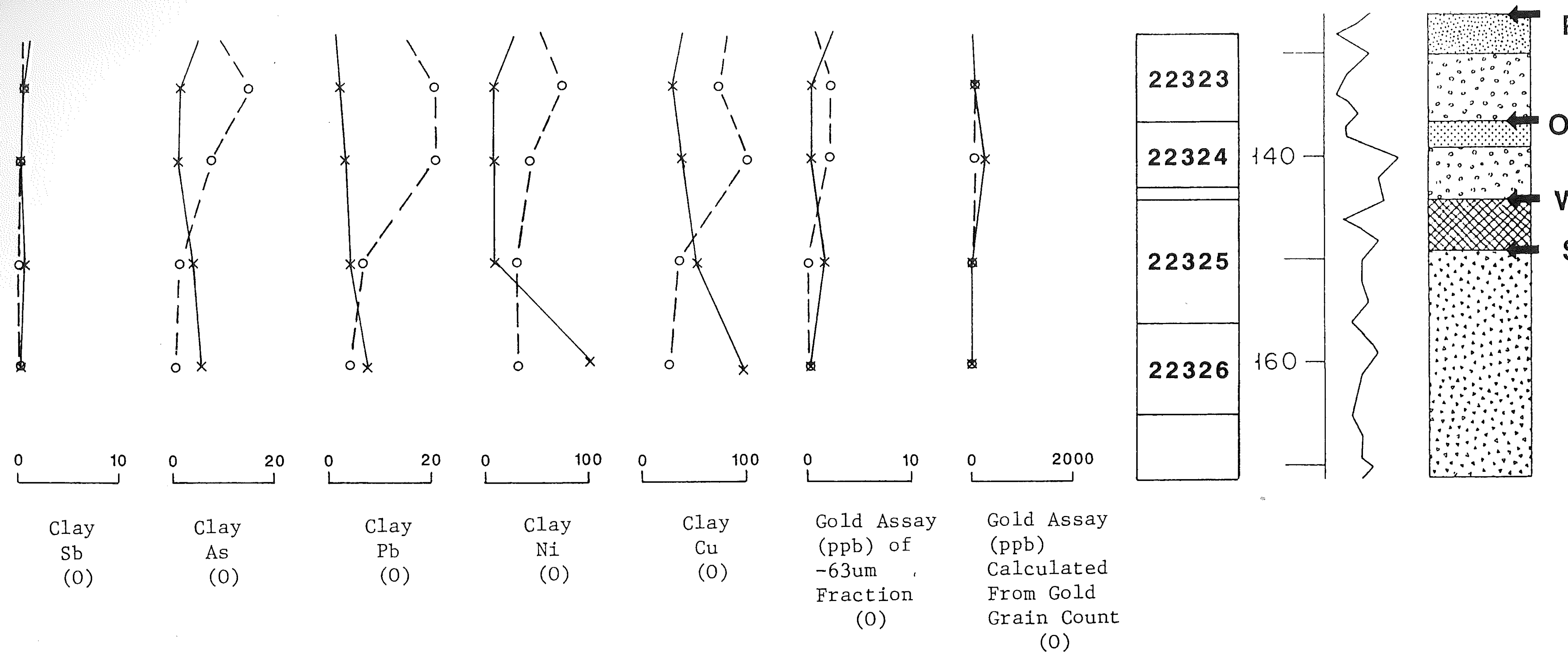
(56 - 66) NO CORE

(66 - 73 1/2) CLAY TILL; UNOXIDIZED; as above.

(73 1/2 - 107 1/2) CLAY & SILTY CLAY; UNOXIDIZED; obscurely laminated; gradational upper contact; v few sand grains, more from about 88 ft; few silt lam, increasing below 103; 106 - 107 1/2 trans zone, laminated silt, clay, clayey till.

(107 1/2 - 110) CLAY LOAM TILL; UNOXIDIZED; calc.

(110 - 126) SANDY LOAM TILL; UNOXIDIZED; calc, carb common; sev sh grains noted; 110 1/2 - 111 ft loamy, pebbly sand; fine gvl layer at 113 1/2; cobs at 110 1/2, 115, 117, 119 1/2, 123 1/2, 125; mod calc from 117; no carb in sand lens from 120 1/2 - 121 1/2, may be inclusion; possibly till is reworked Rainy lobe; sev layers of clayey till at about 119; gradational contact w/sand below.



(126 - 130) GRAVELLY SAND; OXIDIZED; loamy cgr to v cgr sand w/sev cobs to 128 ft, then v cgr pebbly sand; little or no carb; unox by 129.

(130 - 136 1/2) SAND & GRAVEL; UNOXIDIZED; cobs to 134 ft, then fine gvl; carb peb at 131.

(136 1/2 - 139) SAND; OXIDIZED; cgr to v cgr; unox by 137 1/2 ft except at base.

(139 - 144) LOAMY SAND & GRAVEL; UNOXIDIZED; v cobbly, poorly sorted, could be till; noncalc; boulder 143 - 144 ft.

(144 - 149) SAPROLITE & TILL; calc; obvious carb pebs, but bulk is saprolite; cobs from 147 ft; sl to mod calc towards base.

(149 - 171) GRANODIORITE SAPROLITE; 149 - 156 ft hard rock cores w/gritty clay rinds, possibly sorted towards top; 156 - 159 1/2 punky rock w/thin bands of silt; 159 1/2 - 161 1/2 as above but darker, finer xyline; 161 1/2 - 165 punky rock w/horizontal, wider silt bands, layered; 165 - 169 sandy clay loam, more decomposed; 169-171 punky rock.

MASTER SAMPLE LIST

Appendix 1-3C.

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,319		303	66.0- 73.5	7.5	ABCJ	63-25-19	NW-NW	K	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22,321		303	110.0-118.0	8.0	ABCJ	63-25-19	NW-NW	K	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22,322		303	118.0-126.0	8.0	AB	63-25-19	NW-NW	K	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22,323		303	128.0-136.5	8.5	AB	63-25-19	NW-NW	K	RAINY LOBE GRAVEL	12	GRANITE, GRANODIORITE	GR/GD	
22,324		303	136.5-143.0	6.5	AB	63-25-19	NW-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,325		303	144.0-156.0	12.0	ABCJ	63-25-19	NW-NW	K	DRIFT AND SAPROLITE MIXTURE	48	GRANITE, GRANODIORITE	GR/GD	
22,326		303	156.0-165.0	9.0	ABCJ	63-25-19	NW-NW	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	GRANITE, GRANODIORITE	GR/GD	
22,566	SS	303	156.0 157.0	1.0	J	63-25-19	NW-NW	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERALOGY
22,567	SS	303	167.0 168.0	1.0	IJ	63-25-19	NW-NW	K	SAPROLITE: CLAY WITH GRANULES	42	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERAL&ASSAY

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,319		21	0	1.7	0.7	2.4	100	5	9	86	2	3	9	86	0.0	2.0	0.8
22,321		21	1	28.1	9.7	2.9	100	46	27	27	22	24	27	27	0.6	16.9	5.8
22,322		21	0	24.2	6.9	3.5	100	61	20	20	26	35	20	20	0.0	25.7	7.3
22,323		12	0	6.7	1.1	6.1	100	90	5	5	54	36	5	5	0.0	8.0	1.3
22,324		51	1	13.4	2.8	4.8	100	85	7	7	41	44	7	7	1.2	15.6	3.3
22,325		48	0	15.7	2.5	6.3	100	58	18	24	36	22	18	24	0.0	16.0	2.6
22,326		43	0	1.1	0.1	11.0	100	49	20	32	16	33	20	32	0.0	1.3	0.1

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,319		21	0	0	0.002	1.6	8	< 5.0	80	5.4	2.3	1	< 4	7	2000	108	152	235	120	470	46	20.5	7250	12.0	120.0	1220	< 3	530.0
22,321		21	1	23	0.118	19.9	70	< 6.0	100	2.5	2.9	< 1	< 4	5	< 200	100	36	144	118	360	66	20.6	9180	12.0	110.0	1660	< 2	460.0
22,322		21	0	0	2.317	17.5	900	< 6.0	45	0.8	1.3	< 1	15	3	< 200	87	32	121	135	450	66	22.8	9680	8.0	110.0	2100	< 2	500.0
22,323		12	0	0	0.097	4.9	121	< 6.0	< 2	< 0.2	0.2	1	< 4	2	< 200	46	19	92	50	350	29	16.7	15330	11.0	130.0	1230	< 2	540.0
22,324		51	1	48	0.118	9.8	76	< 5.0	< 2	< 0.2	0.3	< 1	< 4	2	< 200	75	30	136	95	250	33	12.0	9790	6.4	95.0	1150	4	410.0
22,325		48	0	0	0.412	11.2	257	< 5.0	20	0.5	0.4	< 1	43	6	< 200	96	39	106	96	160	35	14.4	10070	6.8	64.0	994	< 1	300.0
22,326		43	0	0	0.007	1.1	58	< 6.0	26	< 0.2	0.1	< 1	270	20	< 200	3900	74	158	349	820	77	16.6	5150	10.0	120.0	2420	< 3	600.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO_2 %	Clay Al_2O_3 %	Clay CaO %	Clay MgO %	Clay Na_2O %	Clay TiO_2 %	Clay K_2O %	Clay P_2O_5 %
22,319		21	30	< 1	<.2	4	< 1	< 1	< 2	3	< 2	472	55	10	84	30	28	10	32,932	230	-1	14.52	10.99	4.11	1.55	0.65	2.54	1.11
22,321		21	30	5	<.2	3	< 1	< 1	< 2	< 1	< 2	570	49	10	120	45	60	17	45,815	280	-1	16.81	5.04	3.48	2.89	0.66	2.46	2.34
22,322		21	30	< 1	<.2	3	< 1	< 1	< 2	< 1	< 2	539	110	8	110	47	64	19	53,376	250	-1	18.30	3.43	3.57	3.10	0.76	2.48	1.97
22,323		12	30	2	<.2	14	< 1	< 1	< 2	13	< 2	580	70	24	120	73	130	29	85,008	290	-1	18.12	1.48	3.10	4.69	0.77	2.79	4.29
22,324		51	30	2	<.2	7	< 1	< 1	< 2	15	< 2	947	110	20	95	41	100	25	75,168	210	-1	17.81	2.17	2.90	5.13	0.70	3.34	2.04
22,325		48	30	< 1	<.2	1	< 1	< 1	< 2	8	< 2	701	34	6	200	27	46	21	39,329	170	-1	20.13	2.56	1.81	5.02	0.94	2.31	1.41
22,326		43	30	< 1	<.2	< 1	< 1	< 1	< 2	1	< 2	409	25	4	150	30	72	14	35,246	200	-1	20.25	2.95	1.56	5.03	0.84	2.19	1.43

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe_2O_3 %	SiO_2 %	Al_2O_3 %	CaO %	Na_2O %	K_2O %	P_2O_5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,319		21	0.7	NS	NS	NS	NS	23	NS	288	101	2,350	3,197	16,667	1,549	1,362	92	89.44	4.46	1.69	0.77	0.10	0.10	0.16	105	30	210	2
22,321		21	9.7	< 0.5	1	< 1	2	19	16	304	103	1,696	2,594	25,779	1,859	1,741	118	91.46	3.26	0.92	0.67	0.04	0.10	0.05	30	27	132	4
22,325		48	2.5	< 0.5	2	< 1	18	98	10	365	125	1,301	5,428	61,871	3,253	2,596	441	73.73	8.53	2.28	2.91	0.15	0.10	0.05	68	82	180	12
22,326		43	0.1	NS	NS	NS	NS	96	NS	3,655	495	21,209	11,761	28,657	3,486	1,416	3,679	55.60	17.77	5.96	5.44	0.54	1.05	0.09	110	214	78	12

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe_2O_3 %	MnO %	MgO %	TiO_2 %	CaO %	Na_2O %	K_2O %	Al_2O_3 %	SiO_2 %	P_2O_5 %
22,567	SS	167.0 168.0	< 10	< 2	< 1	< 0.5	4	< 0.2	< 5	< 1	< 30	< 2	591	18	8	67	50	121	19	1.98	0.03	1.12	0.25	1.99	5.69	2.37	16.90	65.53	0.10

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P_2O_5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,567	30	< 50	< 1	0.02	140	< 10	2	< 1	9	36	480	0.10	8	3	5	5	11	69	<100	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,319		66.0- 73.5	21	4	17	7	9	0	9	5	-1	1	22	0	14	5	7	0	100	7	
22,319		66.0- 73.5	21	6	14	-1	14	0	11	3	0	2	17	0	21	6	6	0	100	5	DUPLICATE GRAIN COUNT
22,319		66.0- 73.5	21	1	15	5	2	0	12	1	0	3	24	0	23	7	7	0	100	5	DUPLICATE GRAIN COUNT
22,321		110.0-118.0	21	1	7	8	10	1	15	-1	1	1	22	1	11	13	9	0	100	7	
22,325		144.0-156.0	48	2	7	14	9	2	7	0	1	-1	6	0	29	17	6	0	100	6	
22,326		156.0-165.0	43	0	7	3	3	0	3	0	0	2	2	0	78	2	0	0	100	4	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

¨LE ·O.	WEIGHT (KG.WET)			WEIGHT (GRAMS DRY)					AU		DESCRIPTION												CLASS
						M. I. CONC					CLAST					MATRIX							
	TABLE SPLIT	+10 CHIPS	TABLE FEED	TABLE CONC	M.I. LIGHTS	CONC. TOTAL	NON MAG	MAG	NO. V.G.	CALC PPB	SIZE	% V/S	% GR	% LS	% OT	S/U	SD	ST	CY	COLOR SD	COLOR CY	
22319	8.6	0.2	8.4	105.2	102.8	2.4	1.7	0.7	0	NA	P	10	20	70	NA	S	F,M	N	Y	B	GY	SAND
22321	16.6	3.6	13.0	216.3	178.5	37.8	28.1	9.7	1	23	P	35	35	30	NA	U	Y	Y	Y	B	B	TILL
22322	9.4	2.4	7.0	264.2	233.1	31.1	24.2	6.9	0	NA	P	55	40	5	NA	U	Y	Y	Y	B	B	TILL
22323	8.4	4.5	3.9	127.7	119.9	7.8	6.7	1.1	0	NA	P	35	65	TR	NA	S	C,M	N	Y	B	B	GRAVEL
22324	8.6	3.5	5.1	122.2	106.0	16.2	13.4	2.8	1	48	C	30	70	NA	NA	S	C	Y	Y	B	B	GRAVEL
22325	9.8	3.5	6.3	103.6	85.4	18.2	15.7	2.5	0	NA	P	35	65	NA	NA	S	C	Y	Y	GN	GN	GRAVEL
22326	8.6	1.4	7.2	86.2	85.0	1.2	1.1	0.1	0	NA	BK	NA	100	NA	NA	U	Y	Y	Y	GB	GB	TILL

GOLD CLASSIFICATION

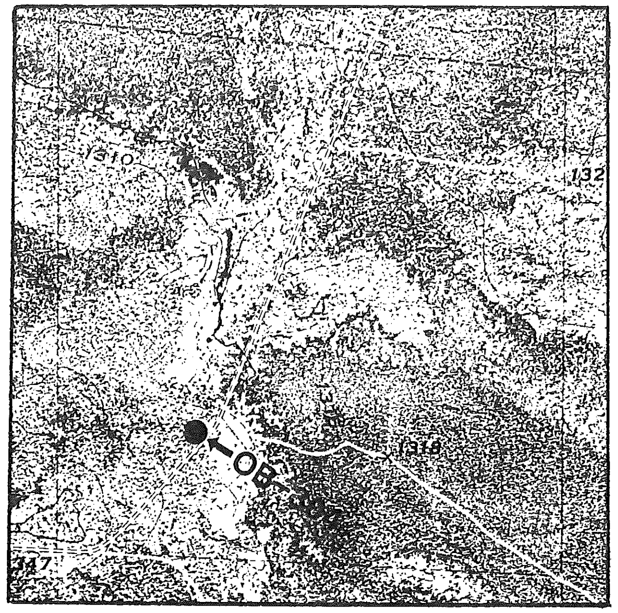
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS: ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22319	N	NO VISIBLE GOLD											
22321	N	50 X 100	15 C	1						1			
										1	28.1	23	
22322	N	NO VISIBLE GOLD											
22323	N	NO VISIBLE GOLD											
22324	N	75 X 75	15 C	1						1			
										1	13.4	48	
22325	N	NO VISIBLE GOLD											
22326	N	NO VISIBLE GOLD											

Appendix 1-4A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-304
Drilling Completion Date: 5/22/88

LOCATION (see map at right)
S-T-R: SE¼-SW¼ - S4 - T63N - R25W
County: Koochiching
Quadrangle: Craigville 7.5
Regional Survey Area: Effie
UTM Coordinates: 459,150mE; 5313170mN; 15,N.



HOLE PARAMETERS
Surface Elevation: 1322 ± 3 ft.
Total Depth: 60 ft.
Elevation, Top of Precambrian Bedrock: 1267 ft.
Elevation, Top of Saprolite:
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-55	Kooch. lobe gl. drift	B,C,G	A,B,C	A=Pb B=Pb,Zn,W,Ba,Sb,Se C=Pb,Cu,Ni
55-60	Sound bedrock	G,H	I	

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

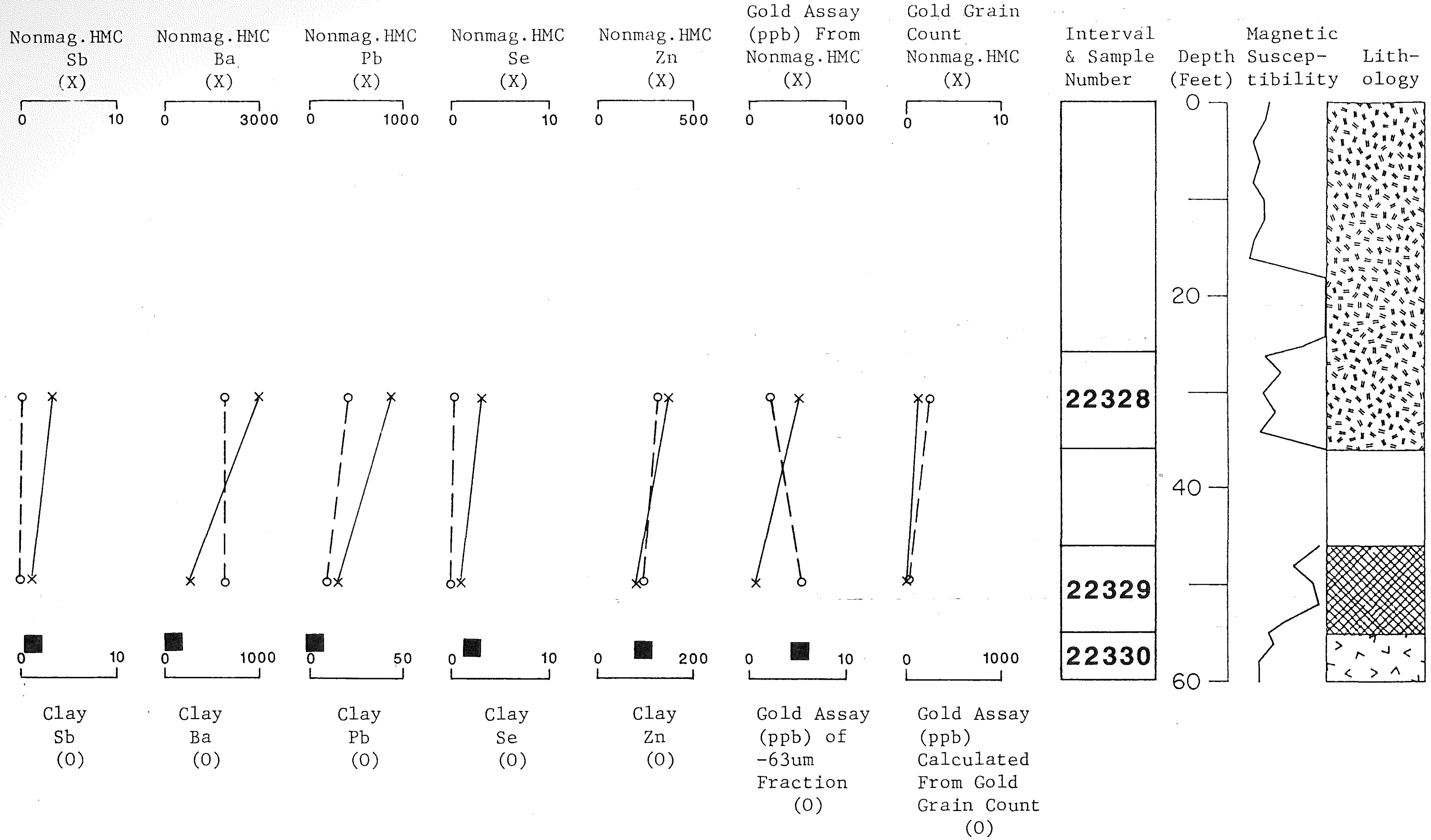
Core Description: Black to dark green, fine-grained amphibolitic schist, probably of basaltic protolith. Outcrops about mile west of drill hole are an assemblage of mafic flows and tuffs with interbedded dacitic clastic rocks. All are strongly schistose and metamorphosed (amphibolite facies?) and intruded by a myriad of granodioritic rocks creating local migmatite. Foliation defined by elongate hornblende and plagioclase and is oriented about 75-80°. Rock is multiply veined with white calcite and quartz with a trace % of epidote and pyrite. Veins generally are brittle and unfolded (post-foliation), and dip less steeply than the foliation. Magnetic susc. 0.02-0.04 x 10-3 CGS. Thin-section is representative.

Thin Section Description: OB-304, 56 ft. Strongly foliated amphibolite. Estimated mode (volume %): Hornblende 74; Plagioclase (plus alteration products) 19; Quartz 4; Opaques 3; Calcite Tr; Epidote Tr. Fresh, well-foliated amphibolite is cut by late brittle, calcite-filled fractures at a high angle to foliation; these fractures are up to 1 mm wide. Hornblende forms subhedral 0.2 to 1.0 mm prisms and contains abundant tiny quartz inclusions. Plagioclase is heavily altered to sericite and fine, dusty epidote or zoisite; a few grains of plagioclase retain polysynthetic twinning. Fine-grained blocky Fe-Ti oxides are disseminated throughout in clotted aggregates and are also included within hornblende. In addition to calcite, the fractures contain a small amount of a colorless, moderately birefringent, anhedral mineral of unknown composition, and minor quartz and epidote are present near the fracture margins.

Scintillometer Reading (cps): 60-70

OB-304

Appendix 1-4B.



Geologic Descriptions

K (0 - 15 1/2) CLAY TILL; OXIDIZED TO 12 ft; leached to 2, carb pebs common below; sh peb at 14.

(15 1/2 - 25) CLAY TILL; UNOXIDIZED; interbedded w/ox silty, pebbly sand; two cobs at about 18 ft, prob much sand below, lost from core.

(25 - 36) CLAY LOAM TILL; UNOXIDIZED; sl more grn in color than above; sh & carb pebs; large cob at 30 - 36 plugged barrel so little core.

(36 - 46) NO CORE

(46 - 53 1/2) LOAM TILL; UNOXIDIZED; calc, carb pebs common; sm cob at 49 ft, but most pebs not large.
(53 1/2 - 55) CLAY LOAM TILL; UNOXIDIZED; mixed w/saprolite, could be older till; calc w/carb pebs.

(55 - 60) BEDROCK; AMPHIBOLITE; strongly foliated, mgr.

Appendix 1-4C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,328		304	26.0- 36.0	10.0	ABCJ	63-25- 4	SE-SW	K	KOOCHICHING LOBE TILL	21	VOLCANICLASTIC ROCKS	VC	
22,329		304	46.0- 55.0	9.0	AB	63-25- 4	SE-SW	K	KOOCHICHING LOBE TILL	21	VOLCANICLASTIC ROCKS	VC	
22,330		304	55.0- 60.0	5.0	HI	63-25- 4	SE-SW	K	BEDROCK	34	VOLCANICLASTIC ROCKS	VC	

HMC AND LAB DATA

							WEIGHT (GRAMS)				WEIGHT %				NORMALIZED TO 10KG SAMPLE		
SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	>= VCGR SAND	MGR SAND	FGR SAND	SILT	#GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,328		21	1	10.7	1.8	5.9	100	20	18	62	5	15	18	62	1.2	13.2	2.2
22,329		21	0	25.2	9.6	2.6	100	36	31	33	6	30	31	33	0.0	17.4	6.6

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,328		21	1	140	0.660	7.2	500	< 5.0	73	3.0	2.8	1	16	12	2900	159	854	365	1	340	36	17.6	6730	8.1	60.0	718	< 2	260.0
22,329		21	0	0	0.078	18.3	45	< 7.0	60	1.2	1.1	< 1	10	3	800	130	291	185	102	440	68	20.9	8300	16.0	140.0	2070	8	630.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,328		21	30	2	<.2	4	< 1	< 1	< 2	< 1	< 2	613	45	20	120	36	46	14	34,164	320	-1	14.20	9.39	3.52	2.08	0.64	2.50	1.61
22,329		21	30	5	<.2	2	< 1	< 1	< 2	1	< 2	611	35	10	93	33	72	15	38,562	310	-1	14.52	10.41	4.01	2.83	0.64	2.73	1.83

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,328		21	1.8	< 0.5	5	< 1	18	143	86	301	260	1,831	4,946	25,360	1,859	1,749	101	88.31	4.89	1.20	0.72	0.07	0.26	0.06	70	27	160	6

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,330		55.0- 60.0	< 10	< 2	5	< 0.2	< 1	1.0	2	< 1	< 30	< 2	68	123	< 3	100	123	279	61	13.89	0.21	7.66	1.37	10.66	1.73	0.42	14.40	47.22	0.14

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,330	302	< 50	< 5	0.14	390	< 10	< 1	< 1	14	150	87	0.14	< 5	41	23	3	7	42	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,328		26.0- 36.0	21	3	26	8	4	2	7	-1	1	1	18	0	10	13	7	0	100	6	

OB-304

HEAVY MINERAL CONCENTRATE REPORT

Appendix 1-4D.

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

#	WEIGHT (KG.WET)			WEIGHT (GRAMS DRY)					AU		DESCRIPTION											CLASS
						M. I. CONC					CLAST					MATRIX						
	TABLE SPLIT	+10 CHIPS	TABLE FEED	TABLE CONC	M.I. LIGHTS	CONC. TOTAL	NON MAG	MAG	NO. V.G.	CALC PPB	SIZE	% V/S	GR	LS	OT	S/U	SD	ST	CY	COLOR SD	COLOR CY	
22328	8.1	0.4	7.7	74.0	61.5	12.5	10.7	1.8	1	140	P	40	20	40	NA	S	F.C	Y	Y	GB	GB	SAND
22329	14.5	0.8	13.7	172.2	137.4	34.8	25.2	9.6	0	NA	P	40	20	40	NA	U	Y	Y	Y	B	B	TILL

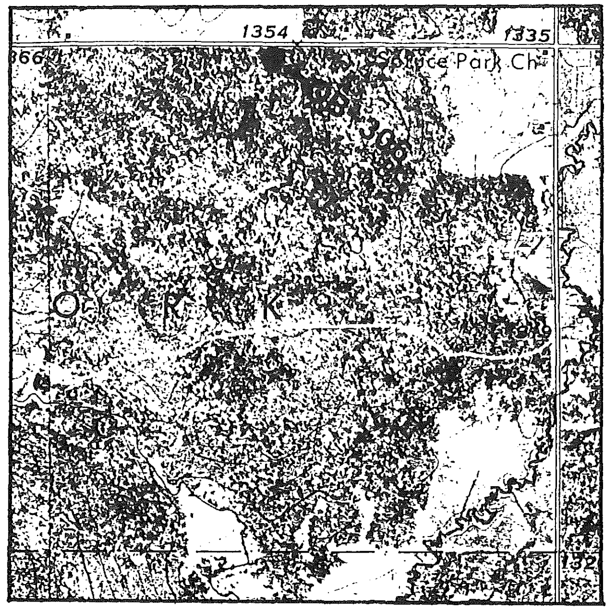
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS: ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22328	N	100 X 100	20 C	1						1			
										1	10.7	140	
22329	N	NO VISIBLE GOLD											

Appendix 1-5A.

DRILL HOLE SUMMARY SHEET



IDENTIFICATION

DNR Drill Hole Number: OB-306
Drilling Completion Date: 5/19/88

LOCATION (see map at right)

S-T-R: NE¼-NW¼ - S16 - T61N - R26W
County: Itasca
Quadrangle: Effie 7.5
Regional Survey Area: Effie
UTM Coordinates: 449,500mE; 5292140mN; 15,N.

HOLE PARAMETERS

Surface Elevation: 1352 ± 2 ft.
Total Depth: 136.5 ft.
Elevation, Top of Precambrian Bedrock: 1223 ft.
Elevation, Top of Saprolite:
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-84	Kooch. lobe gl. drift	B,C,G	A,B,C	
84-129	Winnipeg lobe gl. drift	B,C,G	A,B,C	A=Au,Pb,Ba B=Pb,Ba
129-136.5	Sound bedrock	G,H	I	

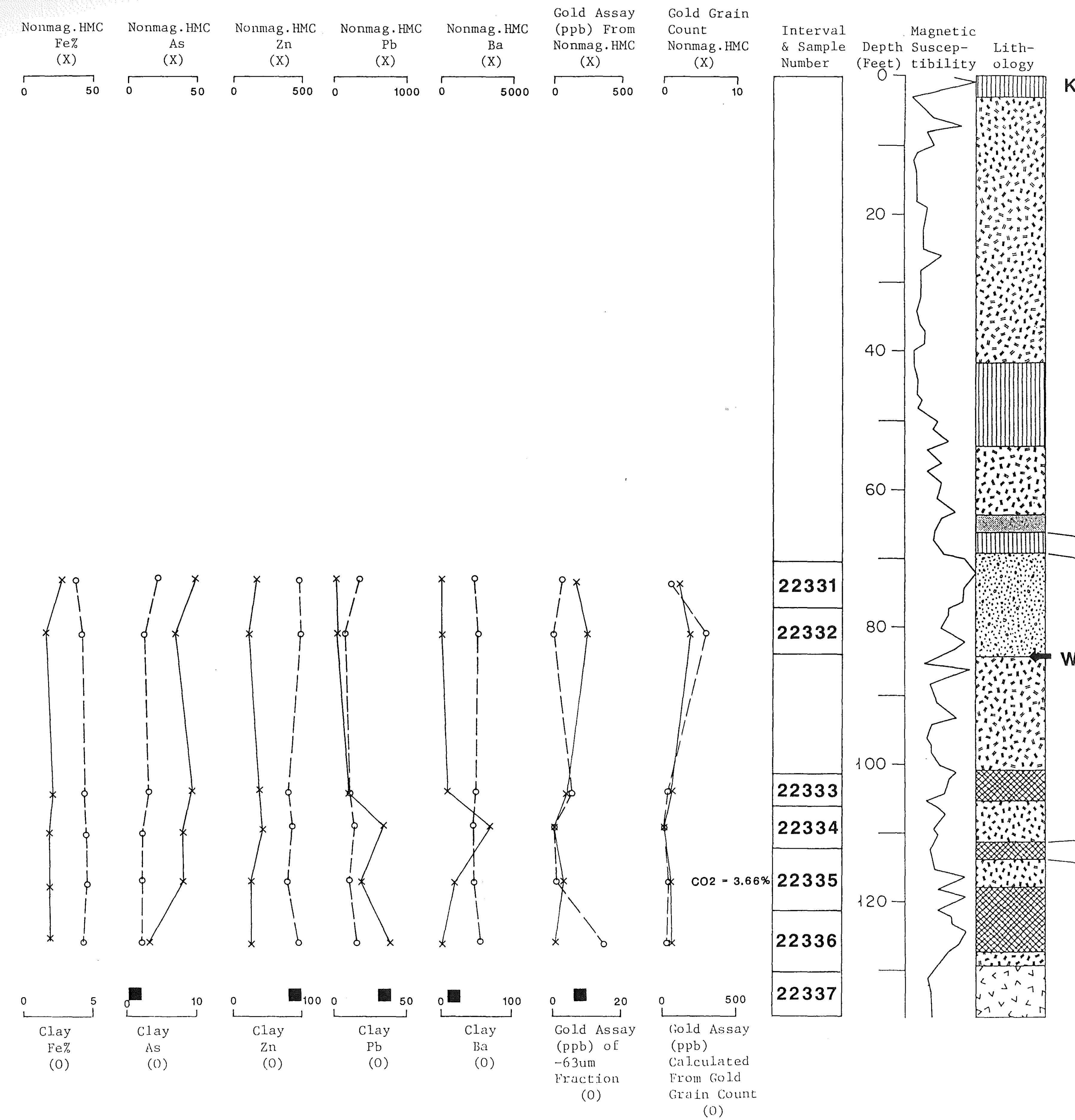
A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

Core Description: Medium greenish-gray, aphanitic to fine grained, felsic to intermediate volcanic rock. Locally it is clearly volcaniclastic and appears to be crystal tuff, but much is too fine-grained to elucidate. Near 136′ is thin unit of darker gray, porphyritic andesite with 2.0 - 4.0 mm altered plagioclase laths in aphanitic groundmass. Elongation of minerals defines a vague lineation oriented 70-80°. Rock is cut by calcite and quartz veins at 60-70° dip. Several interesting sulfides, including clots of chalcopyrite surrounding quartz grains or amygdules, and vague zones of disseminated pyrrhotite. Magnetic suscept. 0.01 x 10-3 CGS. Thin section (@ 134 ft.) is from portion of core which is more felsic-looking than the bulk of core.

Thin Section Description: OB-306, 134 ft. Reworked felsic crystal tuff. Quartz-rich rock contains abundant 0.5 mm (monocrystalline) to 3.0 mm (polycrystalline) quartz grains and minor euhedral plagioclase set in a foliated matrix of fine-grained, felty feldspar, actinolite(?), chlorite, and epidote or zoisite(?). The larger quartz grains are typically very round or oval and do not show volcanic quartz habit, and become progressively more stretched and elongate across the width of the slide. The smaller silt- and sand-sized unit quartz grains have irregular boundaries due to infringing actinolite in the groundmass. Minor amounts of equant to tabular plagioclase crystals are present, these range in size from 0.5 mm phenocrysts down to microlites in the groundmass which form a trachytic flow texture. A 3mm-wide, finer-grained and more quartz-poor layer cross-cuts foliation; this layer apparently represents a volcanic clast as another smaller, angular clast of similar lithology is also present elsewhere in the slide. The layer contains relatively large aggregates of epidote and quartz which may represent amygdules, and also smaller epidote-rich clots which have sharp boundaries and appear to pseudomorph a primary mafic mineral. Thin, straight, brittle quartz veins transect the length of the slide, oblique to the foliation, and minor chalcopyrite and pyrite are concentrated around the fine-grained layer or clast.

Scintillometer Reading (cps): 80-90



OB-306

Appendix 1-5B.

Geologic Descriptions

(0 - 3) CLAY; OXIDIZED; calc by 1 1/2 ft; few sand grains, could be till.

(3 - 41 1/2) CLAY TILL; UNOXIDIZED by 26 ft; calc; apar no concentration of grains, no bedding, but mostly clay; gypsum crystals at 28; tougher w/depth.

(41 1/2 - 53 1/2) CLAY; UNOXIDIZED; calc; silt lam at top, occ below; more sand grains by 49 ft, many are sh; about as many clasts as above but grouped, bedded.

(53 1/2 - 63 1/2) CLAY LOAM TILL; UNOXIDIZED; calc; pebs common but carb not dominant; sm cob at 58 1/2 ft; incorporated lenses of silty, v fgr sand from 61 increase to base.

(63 1/2 - 66) FINE SAND; UNOXIDIZED; top 1/2 foot silty, v fgr sand; sev clay loam till beds 65 - 65 1/2 ft.

(66 - 69) CLAY; calc; large peb at 67 ft; few concentrated clasts; laminated silt & clay from 67 1/2.

(69 - 84) SANDY LOAM TILL; UNOXIDIZED; calc; reddish brown clay smears from 69 - 72 ft, then grnish gray to 74; 70 - 71 mgr sand; carb pebs common; sand lam at 73 1/2; more loamy w/depth; sev inches pebbly, cgr sand at 77; ox, pebbly, cgr sand bed at 80; 83 - 84 boulder.

(84 - 100 1/2) CLAY TILL; UNOXIDIZED; highly calc; ox spot at 92 ft; harder w/depth; apar more clasts from 93; clay loam till by 96; sandy gvl lenses at 96, 96 1/2.

(100 1/2 - 105) LOAM TILL; UNOXIDIZED; calc; lenses & lam of fgr sand, sev inches silty, fgr sand at top; carb pebs common; thin ox zones along horizontal joints; pebbly fgr sand lens at 104 ft, & from 104 1/2 - 105.

(105 - 111) CLAY TILL; UNOXIDIZED; calc; carb common; laminated silt & clay at 109 ft, possibly inclusion; hard, tough; abrupt basal contact.

(111 - 113 1/2) LOAM TILL; UNOXIDIZED; many more pebs than above; cobbly from 112 ft, inc carb cob.

(113 1/2 - 129) CLAY LOAM - LOAM TILL; UNOXIDIZED; clay till to 114 ft; saprolite smears from 117 1/2 - 121; sandy silt lam at 122 1/2 & 123, more beds of sandy silt to silty, v fgr sand below; laminated clay, silty clay, and silt from 128 1/2, possibly thicker.

(129 - 136 1/2) BEDROCK; FELSIC TUFFACEOUS GRAYWACKE; fgr to mgr; quartz rich; mod foliated.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,331		306	69.0- 76.0	7.0	AB	61-26-16	NE-NW	I	KOOCHICHING LOBE TILL	21	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,332		306	76.0- 83.0	7.0	ABCJ	61-26-16	NE-NW	I	KOOCHICHING LOBE TILL	21	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,333		306	100.5-105.0	4.5	ABCJ	61-26-16	NE-NW	I	WINNIPEG LOBE TILL	61	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,334		306	105.0-111.0	6.0	AB	61-26-16	NE-NW	I	WINNIPEG LOBE TILL	61	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,335		306	111.0-120.0	9.0	AB	61-26-16	NE-NW	I	WINNIPEG LOBE TILL	61	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,336		306	120.0-129.0	9.0	ABCJ	61-26-16	NE-NW	I	WINNIPEG LOBE TILL	61	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,337		306	131.0-136.5	5.5	I	61-26-16	NE-NW	I	BEDROCK	34	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22,338	SS	306	133.5-134.5	1.0	HIJ	61-26-16	NE-NW	I	BEDROCK	34	ULTRAMAFIC-INTERMED. VOLC	VU/I	SPECIAL SAMPLE VEIN MATERIAL

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,331		21	2	22.1	7.9	2.8	100	16	13	71	8	8	13	71	2.0	21.7	7.7
22,332		21	3	16.0	6.5	2.5	100	30	22	48	11	19	22	48	3.7	19.8	8.0
22,333		61	1	30.1	8.7	3.5	100	18	17	65	7	11	17	65	0.9	27.1	7.8
22,334		61	0	9.7	2.2	4.4	100	29	29	42	0	29	29	42	0.0	12.4	2.8
22,335		61	1	10.8	3.8	2.8	100	26	20	55	13	13	20	55	1.3	13.8	4.9
22,336		61	1	12.3	4.6	2.7	100	19	20	62	6	13	20	62	1.3	15.6	5.8

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm
22,331		21	2	54	0.347	16.1	160	< 7.0	46	1.4	0.7	< 1	< 4	4
22,332		21	3	249	0.454	11.6	230	< 5.0	27	< 0.2	0.4	< 1	< 4	4
22,333		61	1	21	0.249	21.7	92	< 9.0	45	< 0.2	0.4	< 1	< 4	3
22,334		61	0	0	0.007	6.7	6	< 5.0	38	< 0.2	0.2	< 1	< 4	5
22,335		61	1	18	0.100	7.1	72	< 5.0	40	< 0.2	0.6	< 1	< 4	7
22,336		61	1	16	0.040	8.1	26	< 5.0	16	1.0	0.3	< 1	< 4	8

SAMPLE NUMBER	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,331	< 200	68	44	145	99	380	71	25.5	7880	15.0	110.0	2050	< 3	530.0
22,332	< 200	82	45	121	76	290	32	12.6	7910	11.0	89.0	1430	4	400.0
22,333	720	64	178	175	80	530	51	19.7	8910	11.0	140.0	1870	< 3	720.0
22,334	3200	68	662	210	76	350	28	13.1	6080	10.0	91.0	1340	< 2	450.0
22,335	1100	92	346	145	75	390	27	13.0	9200	14.0	120.0	958	< 2	480.0
22,336	< 200	51	695	137	72	410	26	12.1	9030	15.0	110.0	1410	< 2	490.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,331		21	30	3	<.2	4	< 1	< 1	< 2	< 1	< 2	530	35	16	94	29	68	14	36,483	350	-1	14.11	12.48	3.79	2.67	0.63	2.44	1.95
22,332		21	30	< 1	<.2	2	< 1	< 1	< 2	2	< 2	517	37	6	92	31	78	16	39,411	350	-1	14.73	10.73	4.02	2.92	0.63	2.69	1.67
22,333		61	30	5	<.2	3	< 1	< 1	< 2	3	< 2	408	33	8	78	32	64	15	42,745	270	-1	14.97	12.50	4.00	2.25	0.61	2.49	1.76
22,334		61	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	466	40	12	84	31	74	17	42,658	320	-1	15.73	10.59	3.73	2.53	0.64	2.58	1.89
22,335		61	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	461	34	10	78	20	62	14	39,528	290	3.66	14.20	13.36	3.82	2.33	0.62	2.34	1.71
22,336		61	30	15	<.2	2	< 1	< 1	< 2	3	< 2	546	42	12	95	41	68	15	42,834	360	-1	15.52	9.46	3.67	2.35	0.62	2.63	1.06

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,332	21		6.5	< 0.5	3	< 1	6	39	10	471	111	2,024	2,654	21,103	1,704	1,663	120	91.89	3.39	1.03	0.72	0.06	0.40	0.07	39	30	241	3
22,333	61		8.7	< 0.5	3	< 1	6	55	6	360	96	2,461	1,990	29,916	1,937	1,944	126	91.35	2.62	0.89	0.57	0.04	0.35	0.04	34	27	152	3
22,336	61		4.6	< 0.5	2	< 1	4	33	24	297	94	2,237	2,292	20,144	1,627	1,585	114	92.41	3.64	1.03	0.73	0.04	0.21	0.05	306	48	206	3

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,337		131.0-136.5	< 10	8	8	< 0.2	< 1	< 1.0	2	< 1	< 30	< 2	179	53	34	92	64	100	36	7.80	0.13	4.09	0.72	7.22	2.81	0.71	14.97	57.34	0.17
22,338	SS	133.5-134.5	< 10	< 2	4	0.2	< 1	< 1.0	1	< 1	< 30	< 2	120	308	17	82	61	136	27	5.94	0.10	3.52	0.55	7.62	3.00	0.41	12.31	61.64	0.15

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,337	173	< 50	< 5	0.02	560	< 10	< 1	< 1	15	225	133	0.17	< 5	17	14	11	25	95	< 50	< 2
22,338	146	< 50	< 5	0.03	430	< 10	< 1	< 1	11	230	100	0.15	< 5	16	12	7	15	67	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,332		76.0- 83.0	21	-1	3	5	9	1	5	2	1	1	21	1	22	15	14	0	100	4	
22,333		100.5-105.0	61	1	2	8	5	0	16	2	1	1	18	-1	22	10	14	0	100	6	
22,336		120.0-129.0	61	-1	2	5	5	2	11	-1	1	1	16	1	25	18	13	0	100	4	

HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

MPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22331	10.2	0.8	9.4	156.2	126.2	30.0	22.1	7.9	2	54	P	40	20	40	NA	U	Y	Y	Y	B	B	TILL
22332	8.1	0.9	7.2	153.4	130.9	22.5	16.0	6.5	3	249	P	40	20	40	NA	U	Y	Y	Y	B	B	TILL
22333	11.1	0.8	10.3	147.8	109.0	38.8	30.1	8.7	1	21	P	20	20	60	NA	U	Y	Y	Y	B	B	TILL
22334	7.8	0.0	7.8	62.4	50.5	11.9	9.7	2.2	0	NA	TR	NA	NA	NA	NA	S	F,C	Y	Y	B	B	SAND
22335	7.8	1.0	6.8	80.6	66.0	14.6	10.8	3.8	1	18	P	30	20	50	NA	U	Y	Y	Y	B	B	TILL
22336	7.9	0.5	7.4	78.9	62.0	16.9	12.3	4.6	1	16	P	30	30	40	NA	U	Y	Y	Y	B	B	TILL

GOLD CLASSIFICATION

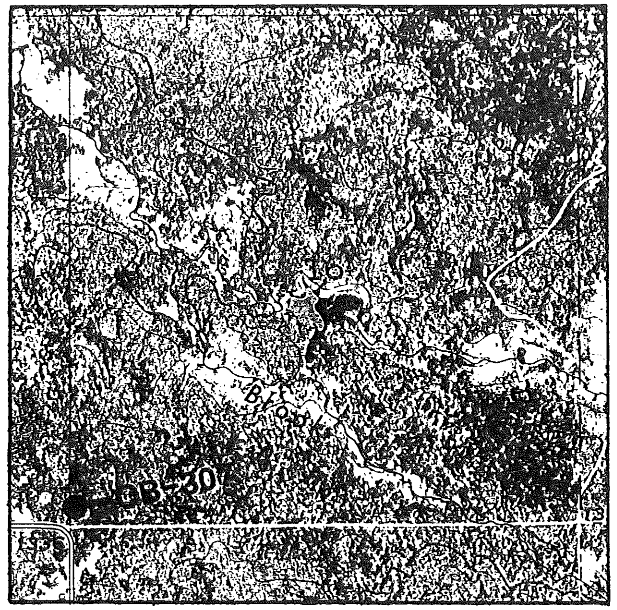
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22331	Y	50 X 50	10 C	1						1			EST.4% MARCASITE
		75 X 100	18 C	1						1			EST.1% PYRITE
										2	22.1	54	
22332	Y	25 X 50	8 C	1						1			EST.2.0% MARCASITE
		75 X 100	18 C	1						1			EST.10 GRAINS ARSENOPYRITE
		100 X 150	25 C	1						1			
										3	16.0	249	
22333	N	50 X 100	15 C	1						1			
										1	30.1	21	
22334	N	NO VISIBLE GOLD											
22335	N	50 X 50	10 C	1						1			
										1	10.8	18	
22336	N	50 X 50	10 C	1						1			
										1	12.3	16	

Appendix 1-6A.

DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-307
Drilling Completion Date: 6/26/88



LOCATION (see map at right)
S-T-R: SW¼-SW¼ - S16 - T62N - R26W
County: Itasca
Quadrangle: Effie 7.5
Regional Survey Area: Effie
UTM Coordinates: 449,030mE; 5300200mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1335 ± 2 ft.
Total Depth: 226 ft.
Elevation, Top of Precambrian Bedrock: <1109 ft.
Elevation, Top of Saprolite: Unknown
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Subsamples Tested	Geochem Assays Worthy of Further Review
0-98.5	Kooch. lobe gl. drift	G		
98-226	Rainy lobe gl. drift	B,C,G	A,B,C	B=Au,Sb,Ba,W

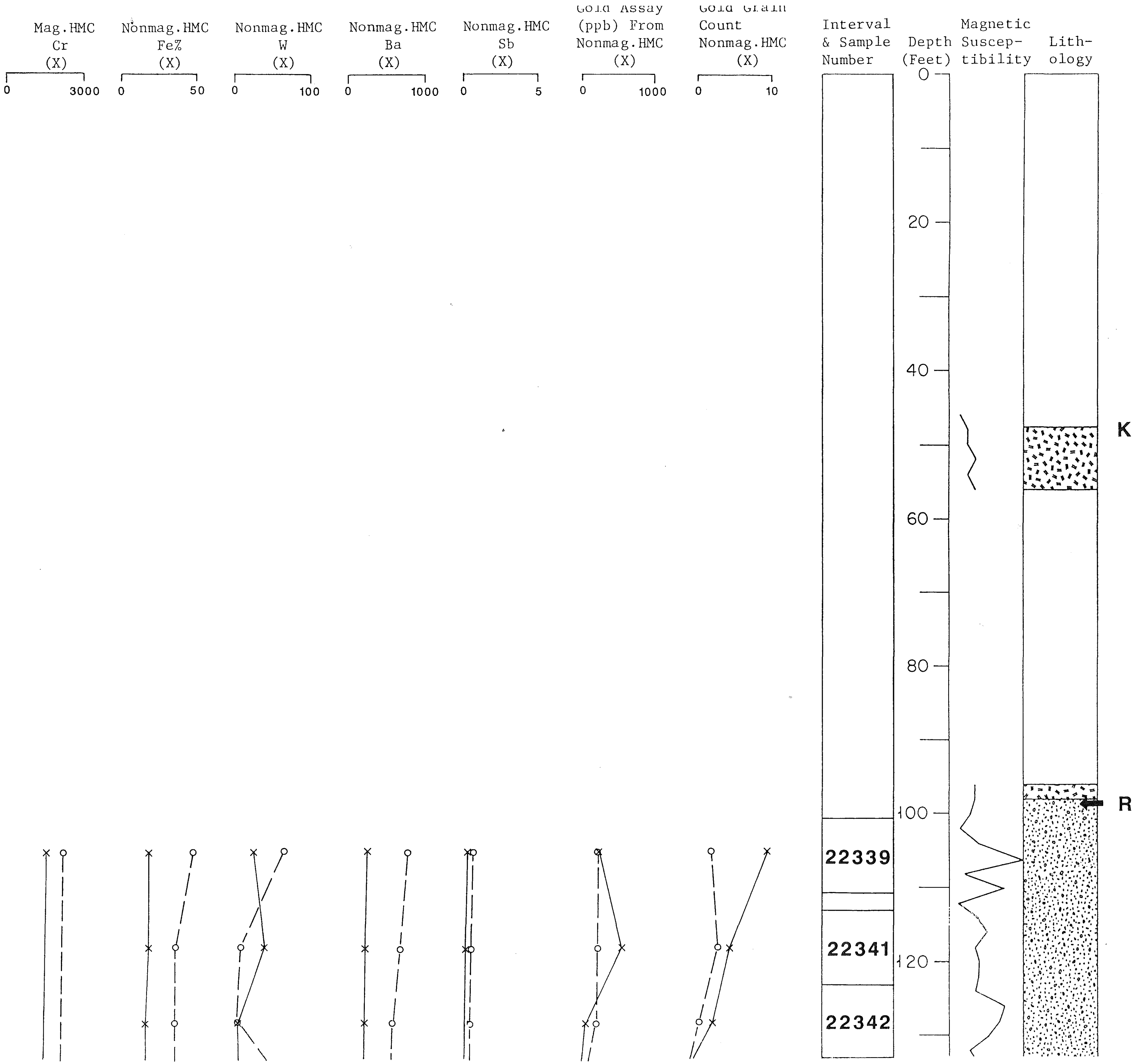
A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core

H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK
No bedrock reached in this hole.

BLANK PAGE

OB-307



Geologic Descriptions

(0 - 46) NO CORE

(46 - 56) CLAY TILL; UNOXIDIZED; calc; carb pebs common; little more grit from about 50 1/2 ft.

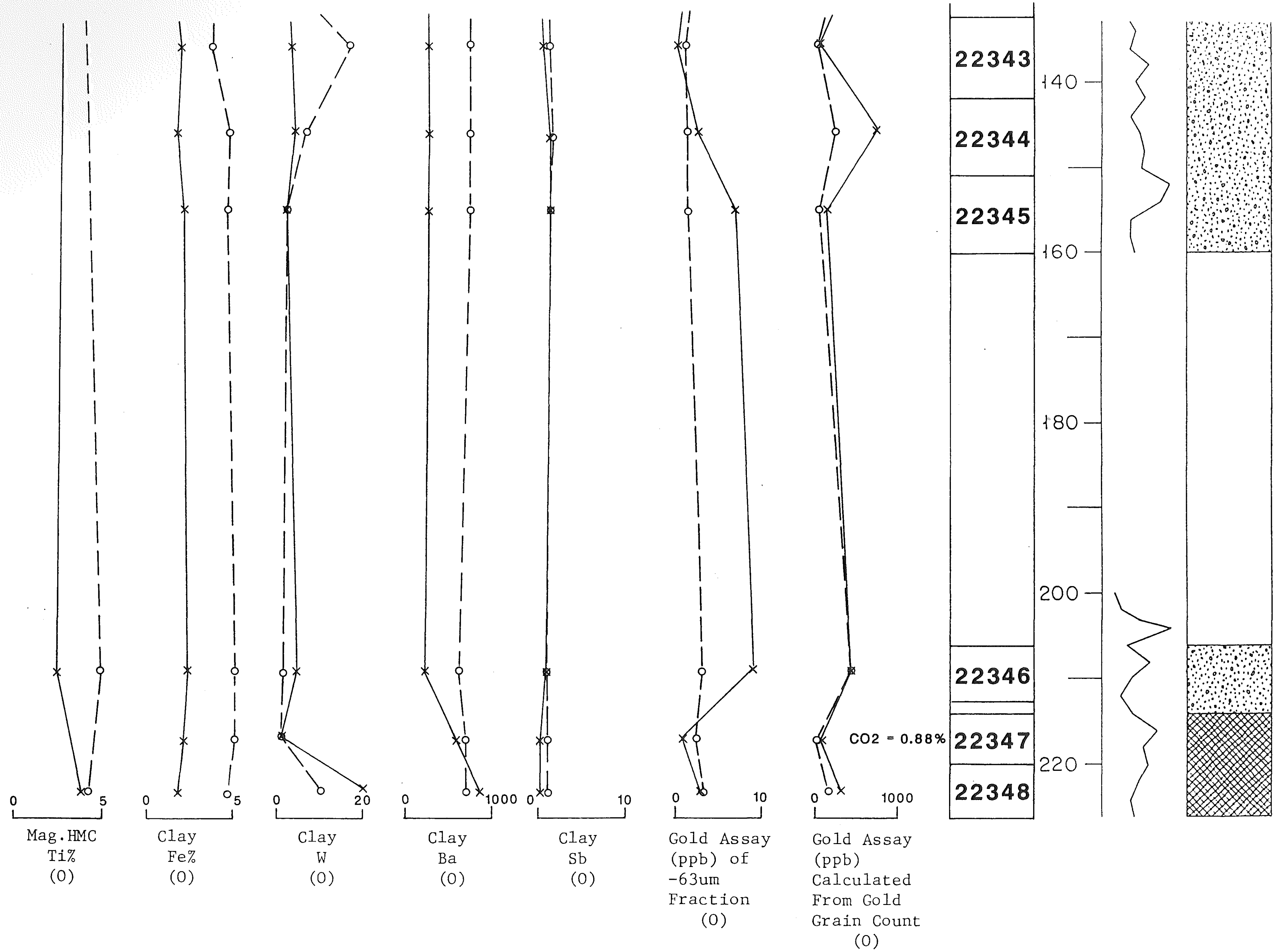
(56-96) NO CORE

(96 - 98) CLAY LOAM TILL; UNOXIDIZED; sand lam; only mod calc from 97 ft; cobs at 97 1/2, 98.

(98 - 110 1/2) LOAMY SAND TILL; UNOXIDIZED; v sl calc to noncalc; carb rare; 98 - 98 1/2 ft v fine sandy silt w/sand lam, mod calc; grnish gray by 108; occ cobs; pebbly coarse sand bed at 105 1/2, cleaner sand lam in spots; sl calc at 108 1/2

(110 1/2 - 113) SCHIST BOULDER

(113 - 160) LOAMY SAND - SANDY LOAM TILL; UNOXIDIZED; harder than above; sl calc; cobs fairly common; boulder 122 1/2 - 123 1/2, more compact below; carb pebs present; grnish gray to 128; sandy loam till from 141; mottled from 140; fewer pebs, no cobs from 142 - 145 1/2; mod calc by 156; sm cobs 155 - 156.



(160 - 206) NO CORE; driller indicates till to 183 ft, sand to 200, then hard stony till.

(206 - 214) COBBLY SANDY LOAM TILL; UNOXIDIZED; sl calc; loamy sand till in upper part; grnish gray to 212 1/2 ft; more silty from 212 1/2; sl to mod calc by 210.

(214 - 226) LOAM TILL; UNOXIDIZED; silty side of loam (sandy silt); mod calc, sl calc in places; not much carb; upper contact gradational over sev ft; no large pebs, cobs; more sandy w/depth w/sandy intervals, sandy loam from 225, cob at 225 1/2.

Appendix 1-6C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,339		307	100.5-110.5	10.0	ABCJ	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,341		307	113.0-123.0	10.0	AB	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,342		307	123.0-133.0	10.0	AB	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,343		307	133.0-142.0	9.0	AB	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,344		307	142.0-151.0	9.0	ABJ	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,553	R	307	142.0-151.0	9.0	AB	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22,345		307	151.0-160.0	9.0	ABJ	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,345	R	307	151.0 160.0	9.0	0	62 26 16	SW-SW	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	REPLICATE B,C, NO ASSAY
22,346		307	206.0-212.5	6.5	ABCJ	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,346	R	307	206.0 212.5	6.5	0	62 26 16	SW-SW	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	REPLICATE B,C, NO ASSAY
22,347		307	214.0-220.0	6.0	AB	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,348		307	220.0-226.0	6.0	ABCJ	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	

HMC AND LAB DATA

							WEIGHT (GRAMS)				WEIGHT %				NORMALIZED TO 10KG SAMPLE		
SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	>= VCGR SAND	MGR SAND	FGR SAND	SILT	#GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,339		11	9	33.9	10.1	3.4	100	41	27	32	15	26	27	32	7.8	29.5	8.8
22,341		11	4	23.6	6.3	3.7	100	53	28	19	19	34	28	19	5.2	30.6	8.2
22,342		11	2	29.8	7.6	3.9	100	50	25	25	17	33	25	25	2.3	33.9	8.6
22,343		11	0	30.5	7.2	4.2	100	45	29	26	15	30	29	26	0.0	32.1	7.6
22,344		11	7	30.2	8.0	3.8	100	47	26	27	14	33	26	27	7.5	32.5	8.6
22,553	R	11	0	89.0	9.0	9.9	100	40	30	30	13	27	30	30	0.0	69.5	7.0
22,345		11	1	27.7	7.1	3.9	100	48	23	29	12	36	23	29	1.2	33.4	8.6
22,345	R	11	0	27.4	6.7	4.1	100	-1	-1	-1	8	-1	-1	-1	0	0	0
22,346		11	4	31.0	6.3	4.9	100	21	33	46	32	-1	33	46	5.1	39.7	8.1
22,346	R	11	7	28.9	6.0	4.8	100	-1	-1	-1	32	-1	-1	-1	0	0	0
22,347		11	1	24.4	6.0	4.1	100	28	32	41	6	22	32	41	1.3	30.5	7.5
22,348		11	3	25.5	5.9	4.3	100	39	16	46	6	33	16	46	3.7	31.5	7.3

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,339		11	9	151	0.737	24.6	250	< 8.0	24	< 0.2	0.4	< 1	22	2	< 200	61	27	109	133	340	71	18.3	11290	14.0	110.0	2210	< 3	580.0
22,341		11	4	244	1.627	16.3	531	< 7.0	27	< 0.2	0.4	< 1	39	2	< 200	70	25	122	123	380	69	18.4	11850	8.2	130.0	2780	< 2	590.0
22,342		11	2	28	0.196	21.2	58	< 6.0	18	< 0.2	0.4	< 1	< 4	2	< 200	58	19	132	130	320	66	16.5	8200	7.0	90.0	2610	< 2	430.0
22,343		11	0	0	0.019	21.4	6	< 6.0	30	< 0.2	0.4	< 1	9	2	< 200	44	17	104	110	350	61	16.9	11440	10.0	95.0	2600	5	420.0
22,344		11	7	174	0.688	22.0	212	< 5.0	30	0.8	0.5	< 1	15	2	< 200	61	21	124	112	300	49	14.6	10070	7.9	86.0	2640	< 1	360.0
22,553	R	11	0	0	9.734	31.1	1,400	0.2	26	< 0.2	0.4	< 1	< 4	2	< 200	50	26	109	86	320	58	16.0	5960.00	6.5	91.0	1660	< 2	420.0
22,345		11	1	13	2.093	19.7	627	< 6.0	18	0.7	0.2	< 1	< 4	< 1	< 200	49	23	126	107	410	53	17.7	10340	8.1	110.0	2180	< 2	490.0
22,346		11	4	412	3.557	22.4	895	< 5.0	36	1.0	0.4	< 1	23	3	< 200	74	22	104	115	350	78	22.7	9160	5.5	85.0	2070	< 2	370.0
22,347		11	1	3	0.235	17.4	77	< 7.0	31	< 0.2	0.4	< 1	< 4	3	590	65	26	128	105	390	59	21.5	9400	11.0	130.0	1870	8	590.0
22,348		11	3	148	0.819	18.8	260	< 6.0	26	< 0.2	0.4	< 1	100	5	890	77	25	125	100	390	56	20.0	7420	9.2	110.0	1940	< 2	490.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,339		11	30	2	<.2	1	< 1	< 1	< 2	12	< 2	706	41	8	83	45	88	18	44,636	230	-1	17.31	2.94	3.11	4.03	0.64	3.37	1.62
22,341		11	30	2	<.2	1	< 1	< 1	< 2	1	< 2	680	30	6	76	39	94	21	38,943	260	-1	15.77	3.65	2.92	4.03	0.63	2.96	1.44
22,342		11	30	2	<.2	1	< 1	< 1	< 2	1	< 2	687	30	6	82	25	88	17	36,851	240	-1	15.89	3.69	2.78	4.29	0.59	3.03	1.47
22,343		11	30	< 1	<.2	1	< 1	< 1	< 2	15	< 2	719	27	6	80	32	86	19	35,983	240	-1	16.16	3.46	2.73	4.17	0.56	2.99	1.18
22,344		11	30	< 1	<.2	1	< 1	< 1	< 2	5	< 2	687	33	8	77	37	94	17	42,613	270	-1	15.84	4.42	3.10	3.77	0.61	2.79	1.39
22,553	R	11	30	< 1	<.2	2	< 1	1	< 2	8	< 2	648	59	12	110	80	110	17	53,470	87	-1	13.14	11.57	3.96	2.54	0.54	2.53	1.54
22,345		11	30	< 1	<.2	1	< 1	< 1	< 2	1	< 2	706	43	8	90	38	94	19	43,255	330	-1	15.38	5.40	3.11	3.80	0.60	2.62	2.02
22,346		11	30	3	<.2	2	< 1	< 1	< 2	1	< 2	606	43	6	79	42	86	18	51,802	380	-1	17.19	4.98	2.98	2.99	0.63	2.68	1.65
22,347		11	30	2	<.2	1	< 1	< 1	< 2	< 1	< 2	648	43	8	80	20	82	19	50,856	320	0.88	18.03	4.22	2.97	3.27	0.65	2.85	1.85
22,348		11	30	3	<.2	1	< 1	< 1	< 2	10	< 2	722	38	8	75	52	84	18	48,855	300	-1	15.81	5.00	3.49	3.51	0.60	2.59	1.22

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,339		11	10.1	< 0.5	2	< 1	2	45	10	380	91	1,434	2,955	35,492	2,091	1,967	144	88.50	3.99	0.96	0.76	0.05	0.25	0.03	39	30	126	3
22,346		11	6.3	< 0.5	< 1	< 1	2	54	6	398	154	1,440	3,498	47,182	2,556	2,214	203	84.80	4.50	1.33	1.04	0.08	0.42	0.03	48	32	106	8
22,348		11	5.9	< 0.5	1	< 1	6	40	< 2	441	147	2,252	2,654	40,588	2,246	2,319	177	88.16	3.37	1.09	0.97	0.04	0.14	0.03	497	39	107	4

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %

No bedrock obtained in drilling

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm

No bedrock obtained in drilling

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,339		100.5-110.5	11	2	2	2	8	0	10	1	1	-1	32	3	16	12	11	0	100	6	
22,344		142.0-151.0	11	3	0	1	8	-1	16	0	1	1	17	-1	20	23	10	0	100	8	
22,345	R	151.0-160.0	11	-1	0	0	10	-1	8	0	-1	0	23	-1	30	22	7	0	100	6	
22,346		206.0-212.5	11	1	2	8	4	1	13	0	2	-1	22	1	18	22	6	0	100	5	
22,348		220.0-226.0	11	-1	5	15	7	2	11	-1	-1	0	13	1	23	11	12	0	100	4	

HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22339	11.5	1.7	9.8	158.0	114.0	44.0	33.9	10.1	9	151	P	29	70	1	NA	U	Y	Y	Y	B	B	TILL
22341	7.7	1.5	6.2	143.0	113.1	29.9	23.6	6.3	4	244	P	30	70	NA	NA	U	Y	Y	Y	B	B	TILL
22342	8.8	1.5	7.3	183.2	145.8	37.4	29.8	7.6	2	28	P	40	60	NA	NA	U	Y	Y	Y	B	B	TILL
23343	9.5	1.4	8.1	183.9	146.2	37.7	30.5	7.2	0	NA	P	30	70	TR	NA	U	Y	Y	Y	B	B	TILL
22344	9.3	1.3	8.0	181.6	143.4	38.2	30.2	8.0	7	174	P	40	60	NA	NA	U	Y	Y	Y	B	B	TILL
22345	8.3	1.0	7.3	144.9	110.1	34.8	27.7	7.1	1	13	P	25	75	TR	NA	U	Y	Y	Y	B	B	TILL
22246	7.8	2.5	5.3	185.4	148.1	37.3	31.0	6.3	4	412	C	50	50	NA	NA	U	Y	Y	Y	B	B	TILL
22347	8.0	0.5	7.5	149.6	119.2	30.4	24.4	6.0	1	3	P	40	50	10	NA	U	Y	Y	Y	B	B	TILL
22348	8.1	0.5	7.6	174.2	142.8	31.4	25.5	5.9	3	148	P	30	70	TR	NA	U	Y	Y	Y	B	B	TILL
22553	12.8	1.6	11.2	309.5	211.5	98.0	89.0	9.0	0	NA	P	50	50	NA	NA	U	Y	Y	Y	B	B	TILL
22345R	10.5	0.8	9.7	175.6	141.5	34.1	27.4	6.7	0	NA	P	40	55	5	NA	U	Y	Y	Y	B	B	TILL
22346R	8.5	2.7	5.8	154.3	119.4	34.9	28.9	6.0	7	602	P	50	45	5	NA	U	Y	Y	Y	B	B	TILL

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22339	Y	25 X 75	10 C	1						1			EST.2% MARCASITE
		50 X 50	10 C	1					1	2			EST.2% PYRITE
		50 X 75	13 C	2						2			ONE GRAIN MOLYBDENITE
		50 X 100	15 C	1						1			PHOTO MICROGRAPH AVAILABLE
		50 X 125	18 C		1					1			FILM REF#151
		75 X 75	15 C				1			1			
		100 X 100	20 C	1						1			
										9	33.9	151	
22341	Y	75 X 75	15 C	1						1			EST.2% MARCASITE
		75 X 125	20 C	1						1			EST.2% PYRITE
		75 X 150	22 C	1						1			
		100 X 100	20 C		1					1			
										4	23.6	244	

GOLD CLASSIFICATION

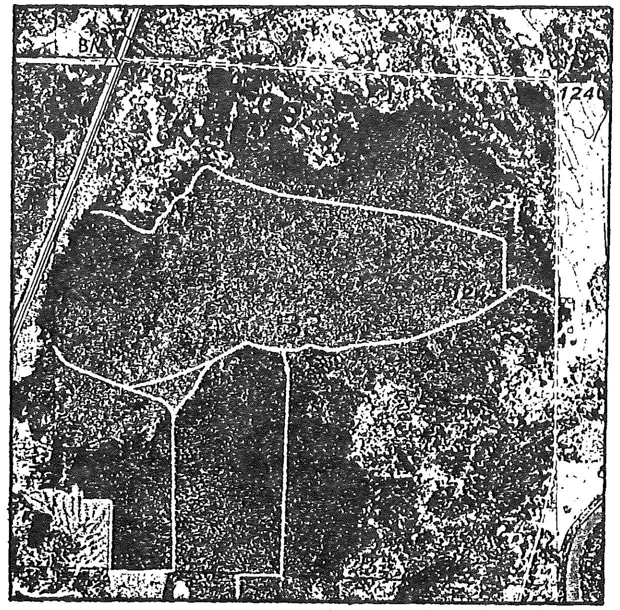
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22342	Y	50 X 50	10 C	1						1			EST.3% MARCASITE
		50 X 100	15 C	1						1			EST.2% PYRITE
										2	29.8	28	
22343	N	NO VISIBLE GOLD											
22344	Y	25 X 50	8 C		3					3			EST.4% MARCASITE
		50 X 75	13 C		1					1			EST.1% PYRITE
		75 X 100	18 C	1						1			PHOTO MICROGRAPH AVAILABLE
		75 X 150	22 C	1						1			FILM REF#151
		100 X 100	20 C		1					1			
										7	30.2	174	
22345	N	50 X 75	13 C	1						1			
										1	27.7	13	
22346	Y	50 X 75	13 C	1	1					2			EST.7% MARCASITE
		50 X 100	15 C	1						1			EST.1% PYRITE
		125 X 275	38 C	1						1			EST.10% SIDRITE
										4	31.0	412	
22347	N	25 X 50	8 C	1						1			
										1	24.4	3	
22348	Y	75 X 75	15 C		1					1			EST.5% MARCASITE
		75 X 100	18 C	1						1			EST.1% PYRITE
		75 X 150	22 C	1						1			EST.8% SIDRITE
										3	25.5	148	
22553	N	NO VISIBLE GOLD											
22345R	N	NO VISIBLE GOLD											
22346R	Y	25 X 50	8 C		1					1			EST. 2% PYRITE
		50 X 50	10 C		1					1			PHOTOMICROGRAPH AVAILBLE
		50 X 100	15 C				1			1			PICTURE REFERENCE #163
		100 X 100	20 C		1					1			
		100 X 175	27 C	1						1			
		150 X 150	29 C	1						1			
		150 X 175	31 C	1						1			
										7	28.9	602	

Appendix 1-7A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-310
Drilling Completion Date: 6/16/88



LOCATION (see map at right)
S-T-R: NE¼-NW¼ - S33 - T65N - R26W
County: Koochiching
Quadrangle: Johnson Landing 7.5
Regional Survey Area: Effie
UTM Coordinates: 448,230mE; 5325740mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1238 ± 3 ft.
Total Depth: 236 ft.
Elevation, Top of Precambrian Bedrock: 1012 ft.
Elevation, Top of Saprolite: 1013.5 ft.
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-203	Kooch. lobe gl. drift	B,C,G	A,B,C	B=Au
205-224	Rainy lobe gl. drift	B,C,G	A,B,C	A=Ni,Fe,Ba B=Cu,Sb,As,Ni,Bi,Co,Pb C=Mg
224-226	Saprolite	G		
226-236	Sound bedrock	G,H	I	

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

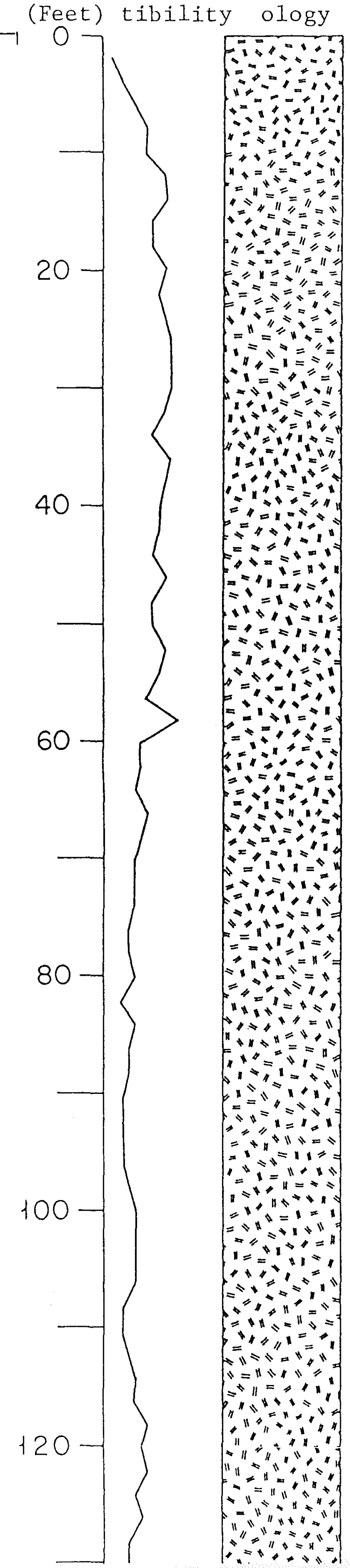
Core Description: Medium gray to greenish-gray tuff, tuffaceous siltstone and argillite. Sedimentary breccia occurs locally with angular clasts of aphanitic tuff/argillite in darker-colored matrix. Rock is moderately well foliated with pristine-looking bedding defined by grain size and color variations. Siltstone beds contain 0.8 mm quartz grains lineated parallel to bedding. Aphanitic units have a phyllitic sheen. Bedding and primary cleavage dip about 75°. A vague crenulation dips about 30°. Pyrite is ubiquitous; some beds contain as much as 15%. Pyrite occurs as disseminated small crystals, along bedding and cleavage planes, and in fractures. Much of the rock apparently is impregnated with calcite which now are voids in surface of core. Veins of calcite, quartz and pyrite dip 45-55° and are not folded. Magnetic Susc. = 0.01 x 10-3 CGS. Thin sections represent both the coarser tuffaceous siltstone(310A) and the aphanitic argillite (310B).

Thin Section Descriptions: OB-310A, 228 ft. Felsic crystal tuff (reworked). Estimated mode (volume %): Quartz crystals 12%; Plagioclase crystals 12%; Quartzofeldspathic matrix 60%; Calcite 8%; Chlorite 4%; Sericite 3%; Sphene 1%; Pyrite, chalcopyrite Tr-1%; Zircon Tr. Well-foliated rock consisting of abundant (25%) sand-sized, subangular quartz and feldspar crystals in a fine-grained matrix of chlorite, sericite, and cherty-appearing quartz plus feldspar. A vague foliation-parallel bedding is defined by variations in size and amount of sandy grains. Quartz crystals are dominantly monocrystalline undulose, plagioclase crystals are fresh and well twinned. Both crystaltypes are variably rounded and modified in shape by recrystallization and possible mechanical rounding. Calcite is disseminated throughoutin elongate blebs and in a thin vein which is slightly oblique to foliation. Pyrite and chalcopyrite occur as disseminated clotted masses of irregular to blocky grains, and also in the calcite vein.
OB-310B, 231 ft. Fine-grained, reworked felsic tuff or argillite. Similar to 310B except much finer grained and more sericitic. Bulk of thin section consists of a fine-grained, strongly foliated sericite schist with 6-8% sand-sized subangular quartz and feldspar crystals. This is in sharp contact with a very fine-grained sericitic bed which is at least 2 mm thick. This finer bed contains flattened 0.2 to 0.3mm long clots of recrystallized quartz plus feldspar, of obscure origin. A weak crenulation cleavage at 40° to the primary cleavage wraps assymetrically around these feldspathic clots, which appear to have been slightly rotated. The rock is cut by thin, irregular quartz veins, at a high angle to foliation. The volume of calcite is very low, in contrast to OB-310A.

Scintillometer Reading (cps): 50-60

OB-310

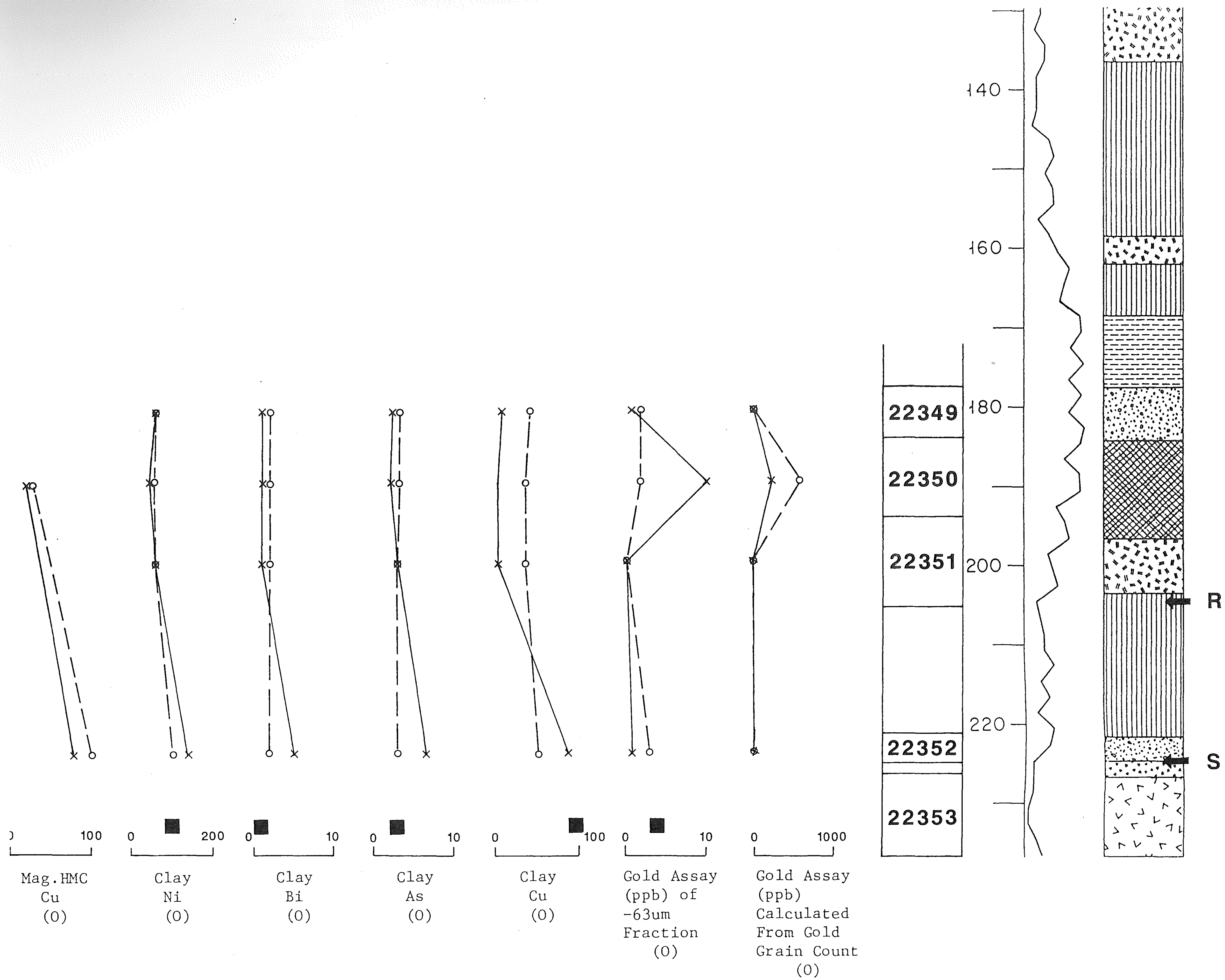
Nonmag.HMC Mg% (X)	Nonmag.HMC Ni (X)	Nonmag.HMC Bi (X)	Nonmag.HMC As (X)	Nonmag.HMC Cu (X)	Gold Assay (ppb) From Nonmag.HMC (X)	Gold Grain Count Nonmag.HMC (X)	Interval & Sample Number	Depth (Feet)	Magnetic Suscep-tibility	Lith-ology
0 1	0 500	0 10	0 200	0 2000	0 1000	0 10				



Geologic Descriptions

K (0 - 35) CLAY LOAM TILL; UNOXIDIZED by 16 1/2 ft; calc by 1 1/2; carb pebs dominate, sh prob fairly common.

(36 - 136) CLAY TILL; UNOXIDIZED; as above, increasingly clayey w/depth; possibly silty clay texture; thin pebbly sand layers at about 58 ft; generally only sm pebs; sh fairly common, apar increasing w/depth; sl ox along few joints around 127.



(136 - 158) CLAY & SILTY CLAY; UNOXIDIZED; laminated; calc; sm silt lens at 146 ft, more lenses & lam below, also sand lam; pebs at 153 1/2, 155; increasing sand grains in last few feet.

(158 - 161 1/2) CLAY TILL; UNOXIDIZED; gradational upper & lower contacts.

(161 1/2 - 168) SILTY CLAY; UNOXIDIZED; calc; little clay till at 164 ft; much clayey silt by 166; sand grains v rare.

(168 - 177) SILT; UNOXIDIZED; intervals of clay; small carb peb at 175 1/2 ft, more sand grains below.

(177 - 183 1/2) LOAM - SANDY LOAM TILL; UNOXIDIZED; calc; carb pebs; clayey silt beds at 178, 178 1/2, & from 179 - 179 1/2; occ thin lenses of sand and silt; 183 - 183 1/2 clayey silt & silt.

(183 1/2 - 196) LOAM TILL; UNOXIDIZED; more compact, massive; carb pebs common, not dominant; silty interval at 186 ft; fair amount of large pebs; cob at 189 1/2.

(196 - 203) CLAY LOAM TILL; UNOXIDIZED; as above; cob at 200 ft; clay till in last foot.

(203 - 210) CLAY & SILTY CLAY; UNOXIDIZED; thin lenses sandy silt in top 1/2 foot; laminated; calc to 205 ft, then non calc w/reddish beds; brnish bands by 206; pebbly layer at 206 1/2, some bands here are mod calc; from 207 laminated noncalc clay and sl to mod calc clayey silt; back to reddish bands by 209, fade out by 210.

(210 - 221) VARVED CLAY & SILT; UNOXIDIZED; generally sl calc clay beds twice as thick as mod calc silt beds; fgr silt lam & few pebs in last 1/2 foot.

(221 - 224) COBBLY, SANDY LOAM TILL; sl calc; no carb pebs noted.

(224 - 226) SAPROLITE; clayey broken rock; mixed w/till in upper 1/2 foot.

(226 - 236) BEDROCK; TUFFACEOUS ARGILLITE; fgr; strongly foliated.

Appendix 1-7C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,349		310	177.0-183.5	6.5	AB	65-26-33	NE-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22,350		310	183.5-193.5	10.0	ABCJ	65-26-33	NE-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22,351		310	193.5-203.0	9.5	AB	65-26-33	NE-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22,352		310	221.0-224.5	3.5	ABCJ	65-26-33	NE-NW	K	RAINY LOBE TILL	11	METASEDIMENTS	MS	
22,353		310	226.0-236.0	10.0	HI	65-26-33	NE-NW	K	BEDROCK	34	METASEDIMENTS	MS	
22,354	SS	310	227.0-228.0	1.0	HIJ	65-26-33	NE-NW	K	BEDROCK	34	METASEDIMENTS	MS	SPECIAL SAMPLE VEIN MATERIAL

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	WEIGHT (GRAMS) +250um FRACTION	WEIGHT (GRAMS) -250 +63um FRACTION	WEIGHT (GRAMS) -63um FRACTION	WEIGHT % >= VCGR SAND	WEIGHT % MGR SAND	WEIGHT % FGR SAND	WEIGHT % SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NORMALIZED TO 10KG SAMPLE NMAG HMC WEIGHT(g)	NORMALIZED TO 10KG SAMPLE MAG HMC WEIGHT(g)
22,349		21	0	9.1	3.3	2.8	100	23	22	55	5	18	22	55	0.0	10.5	3.8
22,350		21	2	11.5	5.1	2.3	100	22	20	58	6	16	20	58	2.5	14.4	6.4
22,351		21	0	8.4	3.2	2.6	100	15	15	69	5	10	15	69	0.0	11.1	4.2
22,352		11	0	12.1	2.1	5.8	100	51	21	28	44	7	21	28	0.0	13.4	2.3

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,349		21	0	0	0.107	6.1	102	< 5.0	43	1.3	1.2	< 1	< 4	4	< 200	94	45	174	106	290	44	14.3	10180	8.8	100.0	1070	< 2	430.0
22,350		21	2	575	1.567	8.0	1,090	< 5.0	39	< 0.2	0.8	< 1	< 4	5	< 200	94	38	208	99	280	39	13.3	9980	11.0	93.0	1090	< 2	400.0
22,351		21	0	0	0.030	5.8	27	< 5.0	61	< 0.2	0.6	< 1	< 4	4	< 200	92	37	157	118	260	45	12.2	7460	8.3	75.0	1170	4	360.0
22,352		11	0	0	0.110	8.5	82	< 5.0	130	10.0	0.5	5	< 4	4	< 200	1787	99	216	322	160	120	16.3	10540	4.2	60.0	1920	< 2	390.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm
22,349		21	30	2	<.2	3	< 1	< 1	< 2	< 1	< 2	536	42
22,350		21	30	2	<.2	3	< 1	< 1	< 2	< 1	< 2	572	36
22,351		21	30	< 1	<.2	3	< 1	< 1	< 2	1	< 2	620	37
22,352		11	30	3	<.2	3	< 1	< 1	< 2	< 1	< 2	916	55

SAMPLE NUMBER	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO_2 %	Clay Al_2O_3 %	Clay CaO %	Clay MgO %	Clay Na_2O %	Clay TiO_2 %	Clay K_2O %	Clay P_2O_5 %
22,349	10	120	48	54	14	41,672	350	-1	15.43	9.49	3.78	2.67	0.64	2.50	2.63
22,350	10	96	39	62	13	41,350	330	-1	15.07	10.65	4.09	2.47	0.62	2.65	1.64
22,351	8	93	51	82	14	35,569	360	-1	14.18	10.22	4.08	2.47	0.59	2.65	0.95
22,352	6	120	110	150	28	77,779	350	-1	19.98	1.91	6.23	2.27	0.85	3.83	1.33

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm
22,350		21	5.1	< 0.5	< 1	< 1	6	27	4	277	104	1,816	1,990	17,866	1,472	1,511
22,352		11	2.1	< 0.5	1	< 1	4	113	12	344	181	1,100	7,479	49,341	3,021	1,847

SAMPLE NUMBER	Co ppm	Fe_2O_3 %	SiO_2 %	Al_2O_3 %	CaO %	Na_2O %	K_2O %	P_2O_5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,350	103	93.92	2.28	0.75	0.50	0.01	0.26	0.05	30	20	158	2
22,352	144	74.10	10.05	1.70	3.30	0.13	0.10	0.05	61	53	192	14

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm
22,353		226.0-236.0	< 10	< 2	< 1	< 0.2	3	< 1.0	2	< 1	< 30	< 2	409	109	16	99
22,354	SS	227.0-228.0	19	< 2	4	< 0.2	4	1.0	1	< 1	< 30	< 2	283	76	14	101

SAMPLE NUMBER	Ni ppm	Cr ppm	Co ppm	Fe_2O_3 %	MnO %	MgO %	TiO_2 %	CaO %	Na_2O %	K_2O %	Al_2O_3 %	SiO_2 %	P_2O_5 %
22,353	94	209	38	7.41	0.11	5.29	0.74	0.79	3.86	1.35	16.25	60.50	0.22
22,354	100	232	37	8.07	0.15	5.72	0.81	1.93	3.75	0.81	15.60	57.92	0.22

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P_2O_5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,353	138	< 50	< 5	0.18	1100	< 10	1	< 1	50	270	181	0.22	< 5	14	10	35	65	135	< 50	< 2
22,354	145	< 50	< 5	0.18	1050	< 10	< 1	< 1	55	310	194	0.22	< 5	14	11	40	73	144	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,350		183.5-193.5	21	2	9	10	8	-1	6	2	1	-1	23	-1	19	7	13	0	100	6	
22,352		221.0-224.5	11	1	21	2	7	1	5	-1	0	2	26	-1	14	13	8	0	100	5	

HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22349	8.7	0.4	8.3	103.1	90.7	12.4	9.1	3.3	0	NA	P	40	30	30	NA	U	Y	Y	Y	B	B	TILL
22350	8.0	0.5	7.5	101.7	85.1	16.6	11.5	5.1	2	575	P	20	40	40	NA	U	Y	Y	Y	B	B	TILL
22351	7.6	0.4	7.2	103.1	91.5	11.6	8.4	3.2	0	NA	P	40	40	20	NA	U	Y	Y	Y	B	B	TILL
22352	9.0	4.0	5.0	122.5	108.3	14.2	12.1	2.1	0	NA	P	95	5	NA	NA	U	Y	Y	Y	GN	B	TILL/BDK

GOLD CLASSIFICATION

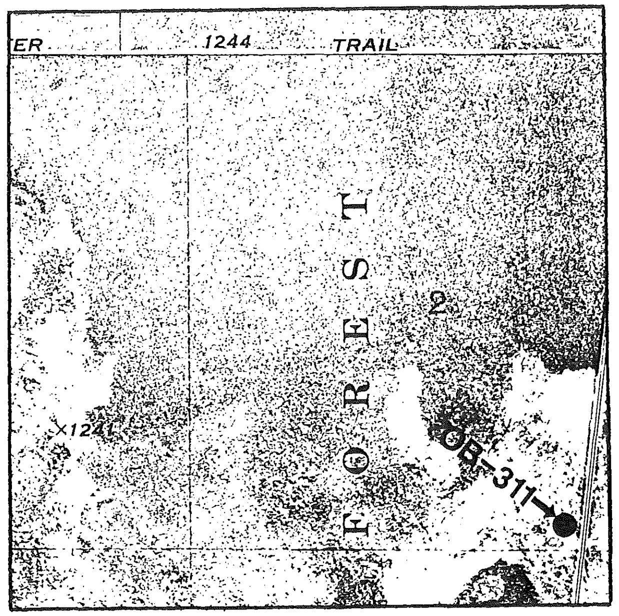
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22349	N	NO VISIBLE GOLD											
22350	Y	50 X 75	13 C	1						1			EST.10% MARCASITE
		150 X 175	31 C	1						1			EST.1% PYRITE
													EST.2 PIECES CU CONT.
										2	11.5	575	
22351	N	NO VISIBLE GOLD											
22352	N	NO VISIBLE GOLD											

Appendix 1-8A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-311
Drilling Completion Date: 6/21/88

LOCATION (see map at right)
S-T-R: SW¼-SE¼ - S2 - T63N - R27W
County: Koochiching
Quadrangle: Wildwood NE 7.5
Regional Survey Area: Effie
UTM Coordinates: 433,890mE; 5313200mN; 15,N.



HOLE PARAMETERS
Surface Elevation: 1247 ± 4 ft.
Total Depth: 146 ft.
Elevation, Top of Precambrian Bedrock: 1106 ft.
Elevation, Top of Saprolite:
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-120	Kooch. lobe gl. drift	B,C,G	A,B,C	A=Sb,As,Ba,Ni
120-141	Rainy lobe gl. drift	B,C,G	A,B,C	
141-146	Sound bedrock	G,H	I	

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

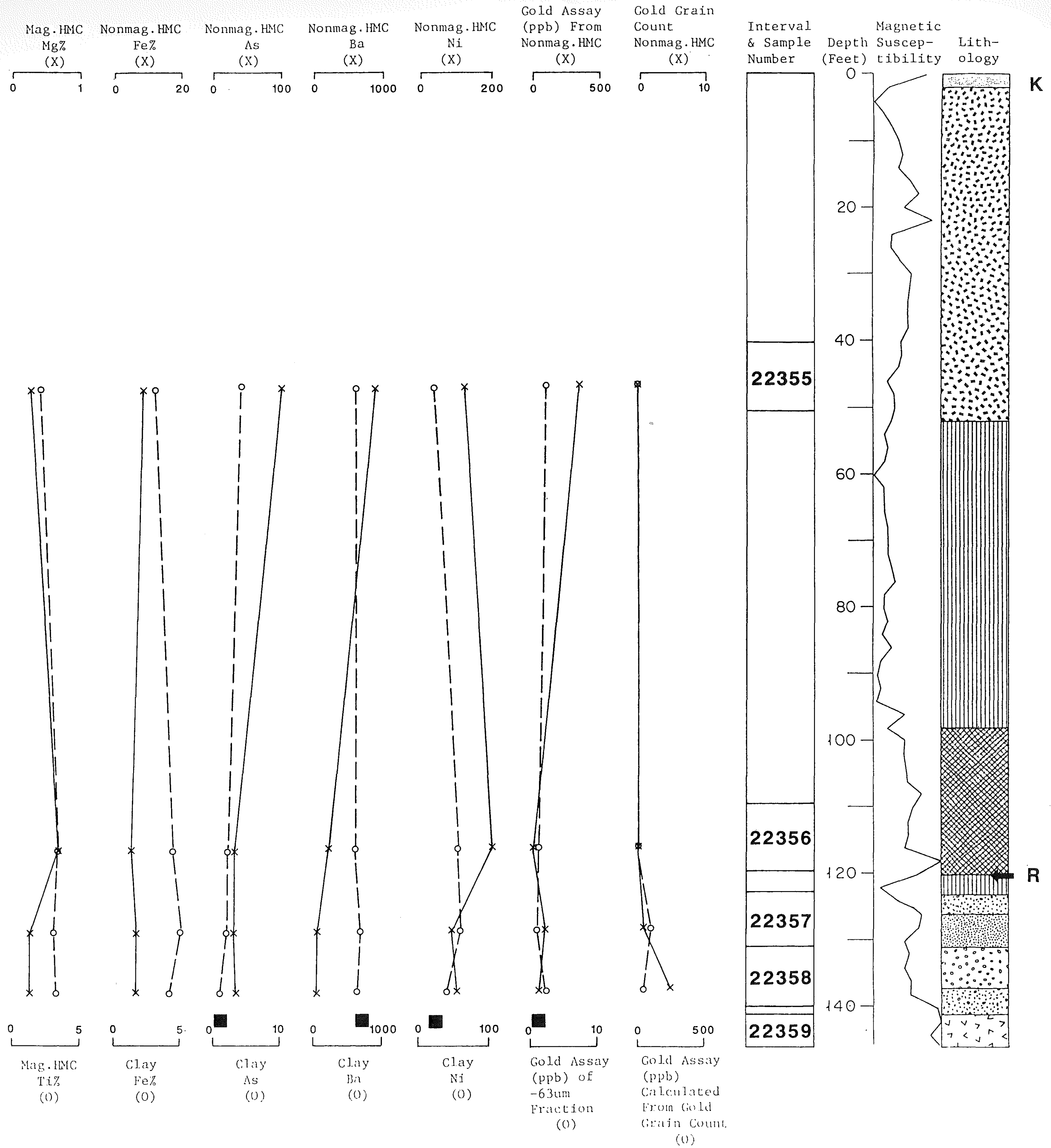
BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

Core Description: Foliated hornblende-bearing quartz diorite/monzodiorite (based on thin section mode; see description). Color varies depending on the degree to which feldspar is oxidized. Rock is equigranular and medium-grained (1-3mm). Generally the rock is fresh with feldspar oxidized adjacent to epidote veinlets. No obvious modal banding, but the orientation of Fe-Mg and irregular feldspar-quartz zones dip 75°. Mineralization is minor with a trace percent of disseminated pyrite and thin irregularly oriented epidote veins. Magnetic Susc. 0.46-1.40 x 10-3 CGS. Source of more magnetic zone (1.0-1.4) can't be macroscopically defined, but thin section was taken from that zone.

Thin Section Description: OB-311, 146 ft. Medium-coarse grained, foliated quartz diorite/monzodiorite (Streckeissen classification). Estimated mode (volume %): Plagioclase 63%; Quartz 9%; Orthoclase 8%; Hornblende 15%; Epidote 1%; Sphene 1%; Chlorite 1-2%; Fe-Ti Oxides 2%; Calcite Tr; Zircon Tr; Apatite Tr. Primary igneous foliation is defined by the preferred orientation of inequant hornblende, sphene, and plagioclase. Plagioclase is stained by red dusty hematite(?) and is moderately saussuritized to sericite and epidote, preferentially in the cores. The grains are sub- to anhedral and equant, but the polysynthetic twinning is typically aligned parallel to the foliation. Orthoclase is fresh, slightly stained by reddish hematite; and both quartz and orthoclase are anhedral-interstitial, locally forming a myrmekitic intergrowth. Hornblende forms subhedral, tabular grains which are commonly twinned,and contain small inclusions of quartz, plagioclase, and apatite, and partially enclose blocky oxide grains. Chlorite, and relatively large subhedral epidote, occur along late, random fractures, most likely as a late deuteric alteration product of plagioclase and hornblende.

Scintillometer Reading (cps): 75-85

OB-311



Geologic Descriptions

K (0 - 2) FINE - MEDIUM SAND; OXIDIZED; few inches of peat on top; calc towards base; abrupt basal contact.

(2 - 52) CLAY LOAM TILL; UNOXIDIZED by 13 ft; upper 1/2 foot could be sorted; carb pebs common to abundant; some sh; small cobs at 22, clay texture from 22; v sm lenses of silty sand at 46; v clayey by 46 1/2.

(52 - 98) SILTY CLAY - CLAY; UNOXIDIZED; calc; thin silty lam to about 55 ft; occ pebs, incl carb & sh; few v thin silt lam by 86, increasing from 91; thin flow till layers from 94 1/2, clayey till layer 95 1/2 - 96.

Note: Solid square denotes the bedrock assay, which was performed on the total bedrock sample rather than on the silt/clay or HMC fraction.

(98 - 120) LOAM TILL; UNOXIDIZED; calc; 98 - 99 1/2 ft loam to clay loam till; carb pebs common, noted sh; v fgr sand lens at 110, gravelly sand 113 - 113 1/2, 114 - 115; cobs at 106, 115; clay loam till from 119.

R (120 - 123) CLAY; UNOXIDIZED; thin silt lam; noncalc to sl calc, silt mod calc; grnish gray.

(123 - 126) SANDY LOAM TILL; UNOXIDIZED; sl calc, few carb grains; grnish gray.

(126 - 131) GRAVELLY LOAMY SAND; UNOXIDIZED; hard, compact, could be till; few carb pebs.

(131 - 137) COBBLY SAND & GRAVEL; UNOXIDIZED; 131 - 133 loamy cobbly sand, could be till; 133 - 134 clean gvlly sand, couple cobs, carb pebs fairly common; 134 - 135 1/2 loamy, cobbly sand; 135 1/2 - 136 1/2 cobs; 136 1/2 - 137 loamy, cobbly sand.

(137 - 141) COBBLY SANDY LOAM TILL; UNOXIDIZED; sl to mod calc; 139 - 140 clean coarse sand; 140 - 141 loamy till; no carb, prob saprolite mix, over clear coarse sand bed, over sl calc pebbly clay—apar reworked saprolite.

(141 - 146) BEDROCK; QUARTZ MONZODIORITE; cgr, mod igneous foliation.

Appendix 1-8C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,355		311	42.0- 52.0	10.0	ABCJ	63-27- 2	SW-SE	K	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22,356		311	110.0-120.0	10.0	ABCJ	63-27- 2	SW-SE	K	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22,357		311	123.0-131.0	8.0	ABCJ	63-27- 2	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,358		311	131.0-140.0	9.0	ABCJ	63-27- 2	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,359		311	141.0-146.0	5.0	I	63-27- 2	SW-SE	K	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	
22,361		311	143.0-144.0	1.0	I	63-27- 2	SW-SE	K	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,355		21	0	4.1	1.7	2.4	100	15	18	68	4	11	18	68	0.0	5.1	2.1
22,356		21	0	17.6	5.5	3.2	100	37	19	44	10	27	19	44	0.0	22.0	6.9
22,357		11	1	41.4	11.5	3.6	100	48	21	31	15	33	21	31	0.8	35.1	9.7
22,358		11	5	31.9	10.3	3.1	100	56	33	11	23	33	33	11	5.8	37.1	12.0

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,355		21	0	0	0.179	3.9	353	< 5.0	110	3.2	1.8	< 1	< 4	6	3500	125	31	279	126	570	57	21.9	6050	23.0	120.0	1290	< 2	580.0
22,356		21	0	0	0.042	12.9	19	< 5.0	29	< 0.2	0.6	< 1	< 4	5	830	142	26	171	210	220	48	12.5	6350	6.2	66.0	1550	< 1	310.0
22,357		11	1	70	0.351	28.7	100	< 7.0	29	< 0.2	0.5	< 1	< 4	2	< 200	47	26	90	93	290	61	18.4	7160	6.7	790.0	1880	8	490.0
22,358		11	5	37	0.274	23.4	74	< 8.0	34	< 0.2	0.4	< 1	< 4	< 1	< 200	52	30	121	103	400	60	18.6	9760	7.2	120.0	1790	< 3	630.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,355		21	30	2	<.2	4	< 1	< 1	< 2	< 1	< 2	496	31	8	74	17	24	8	30,995	250	-1	13.43	12.26	4.08	1.56	0.59	2.39	1.63
22,356		21	30	< 1	<.2	2	< 1	< 1	< 2	1	< 2	605	44	10	100	54	74	17	43,873	370	-1	15.89	8.32	4.09	2.72	0.64	2.70	1.56
22,357		11	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	690	45	6	130	58	96	23	52,351	320	-1	17.65	3.96	3.78	3.61	0.78	2.69	1.74
22,358		11	30	2	<.2	1	< 1	< 1	< 2	19	< 2	660	24	4	73	42	60	17	43,509	240	-1	15.57	4.49	3.50	3.92	0.66	2.61	1.08

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,355		21	1.7	< 0.5	4	< 1	2	48	8	258	90	1,708	2,533	17,626	1,549	1,396	98	92.41	3.09	0.72	0.64	0.03	0.10	0.07	58	42	203	4
22,356		21	5.5	< 0.5	1	< 1	4	55	10	372	128	1,342	6,574	33,213	1,937	1,926	127	85.26	6.95	1.40	1.45	0.17	0.10	0.06	48	37	165	5
22,357		11	11.5	< 0.5	3	< 1	4	31	12	327	108	1,372	2,955	30,216	1,859	2,002	130	88.81	3.71	1.00	0.83	0.07	0.36	0.07	29	30	122	3
22,358		11	10.3	< 0.5	2	< 1	< 2	32	14	361	86	1,647	2,533	32,374	2,014	1,971	134	90.43	3.02	0.82	0.68	0.03	0.24	0.05	29	29	124	2

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,359		141.0-146.0	< 10	< 2	< 1	< 0.2	< 1	< 1.0	1	< 1	< 30	< 2	706	3	12	100	23	80	25	6.51	0.12	3.06	0.60	4.46	5.31	1.84	17.07	59.37	0.26
22,361		143.0-144.0	< 10	< 2	2	< 0.2	1	< 1.0	2	< 1	< 30	< 2	258	10	7	79	18	93	23	5.55	0.09	2.60	0.62	5.16	5.99	0.90	16.12	61.81	0.25

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,359	130	< 50	< 5	0.03	840	< 10	1	< 1	13	170	770	0.26	< 5	12	13	26	54	127	< 50	< 2
22,361	115	< 50	< 5	0.01	1900	< 10	1	< 1	11	110	1,051	0.25	< 5	12	11	26	53	115	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,355		42.0- 52.0	21	1	15	8	6	0	12	5	0	1	25	0	14	9	4	0	100	6	
22,355		42.0- 52.0	21	-1	13	5	8	0	14	2	1	1	27	0	16	9	4	0	100	3	DUPLICATE GRAIN COUNT
22,355		42.0- 52.0	21	-1	17	7	12	0	7	3	0	3	17	0	20	12	2	0	100	7	DUPLICATE GRAIN COUNT
22,355		42.0- 52.0	21	0	16	3	3	1	12	-1	0	5	18	0	25	12	5	0	100	3	DUPLICATE GRAIN COUNT
22,356		110.0-120.0	21	1	2	1	6	0	3	-1	2	1	21	1	24	27	11	0	100	7	
22,357		123.0-131.0	11	0	-1	12	9	2	10	-1	1	-1	12	1	31	10	12	0	100	4	
22,358		131.0-140.0	11	1	1	5	11	2	9	1	2	-1	20	1	23	17	7	0	100	6	

HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22355	8.1	0.3	7.8	87.6	81.8	5.8	4.1	1.7	0	NA	P	30	20	50	NA	U	Y	Y	Y	B	GY	TILL
22356	8.0	0.8	7.2	137.7	114.6	23.1	17.6	5.5	0	NA	P	40	30	30	NA	U	Y	Y	Y	B	B	TILL
22357	11.8	1.8	10.0	223.2	170.3	52.9	41.4	11.5	1	70	P	35	60	5	NA	U	Y	Y	Y	B	B	TILL
22358	8.6	2.0	6.6	123.7	81.5	42.2	31.9	10.3	5	37	P	45	50	5	NA	U	Y	Y	Y	B	B	TILL

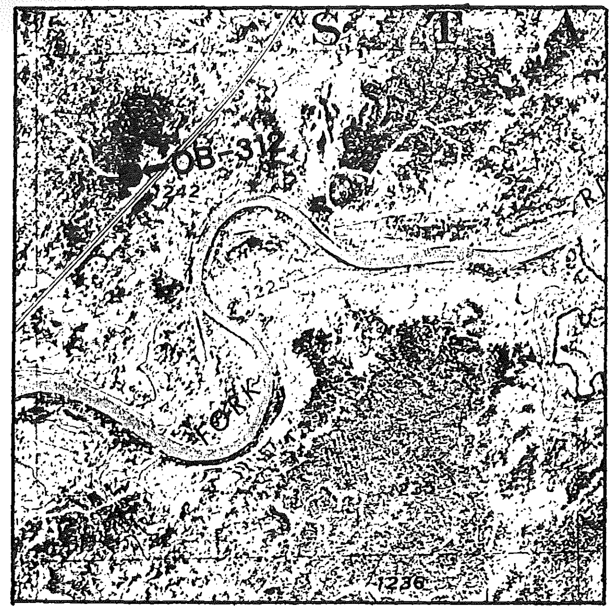
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22355	N	NO VISIBLE GOLD											
22356	N	NO VISIBLE GOLD											
22357	N	100 X 150	25 C	1						1			
										1	41.4	70	
22358	Y	25 X 25	5 C	2						2			EST.1% PYRITE EST.4% MARCASITE
		50 X 75	13 C	2	1					3			PHOTO MICROGRAPH AVAILABLE FILM REF# 151
										5	31.9	37	

Appendix 1-9A.

DRILL HOLE SUMMARY SHEET



IDENTIFICATION
DNR Drill Hole Number: OB-312
Drilling Completion Date: 6/23/88

LOCATION (see map at right)
S-T-R: NW¼-NW¼ - S7 - T64N - R26W
County: Koochiching
Quadrangle: Johnson Landing 7.5
Regional Survey Area: Effie
UTM Coordinates: 446,100mE; 5322340mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1239 ± 3 ft.
Total Depth: 296 ft.
Elevation, Top of Precambrian Bedrock: <943 ft.
Elevation, Top of Saprolite: Unknown
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

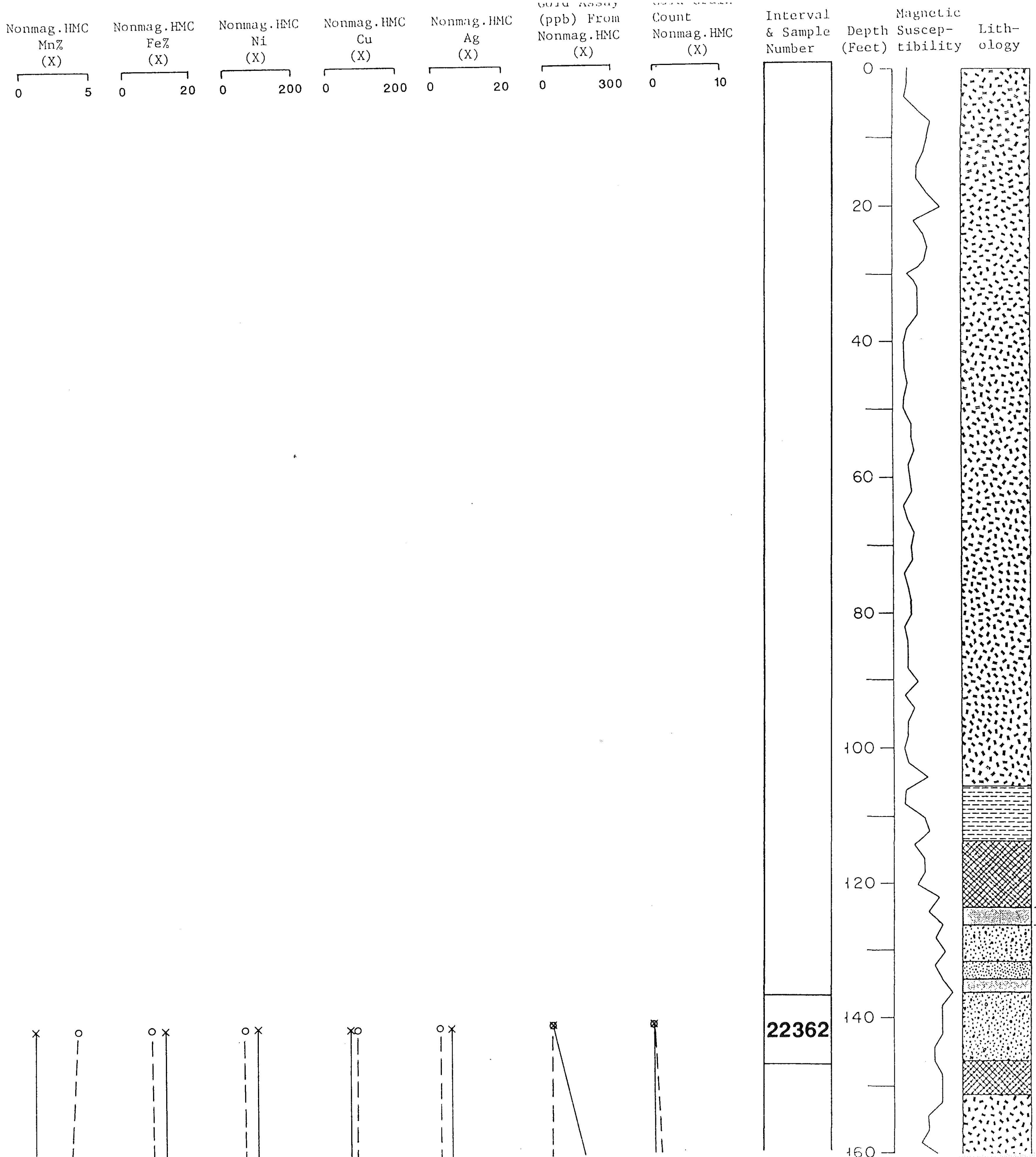
INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-218.5	Kooch. lobe gl. drift	B,C,G	A,B,C	A=Au B=Au,As
218.5-291.5	Rainy lobe gl. drift	B,C,G	A,B,C	A=Au,Ni B=Ag,Bi,Cu,Ni

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK
No bedrock reached in this hole.

BLANK PAGE



Geologic Descriptions

K

(0 - 30 1/2) CLAY LOAM TILL; UNOXIDIZED by 15 ft; calc by 2; 0 - 1 few inches of peat over silty, v fgr sand; carb & sh pebs; large pebs fairly common, carb dominant; more clayey, less pebs w/depth.

(30 1/2 - 105 1/2) CLAY TILL; UNOXIDIZED; few v thin silt lam; thin lenses of sandy silt 54 - 54 1/2 ft; 78 - 79 loam till, apar laminated w/clay till; sh pebs fairly common; few thin lenses of sandy silt from 84 1/2 - 85, 91 - 91 1/2; pebs fairly common by 91 1/2; loam till lam at 98.

(105 1/2 - 113 1/2) SILT, CLAY, & CLAYEY TILL; laminated; calc; mostly clayey silt from 111 ft; sand grains mostly sh; last 1/2 foot laminated silt & clay.

(113 1/2 - 123 1/2) LOAM TILL; UNOXIDIZED; grades into lake sed in upper foot; carb pebs common; large cob at 116 ft.

(123 1/2 - 126) FINE SAND; UNOXIDIZED; v fgr by 124 1/2 ft; few sm pebs & sm till lenses; grades into till below.

(126 - 131 1/2) SANDY LOAM TILL; UNOXIDIZED; v little clay; sand lens at 128 ft; laminated sandy till, mgr sand, v fgr sand & silt from 129.

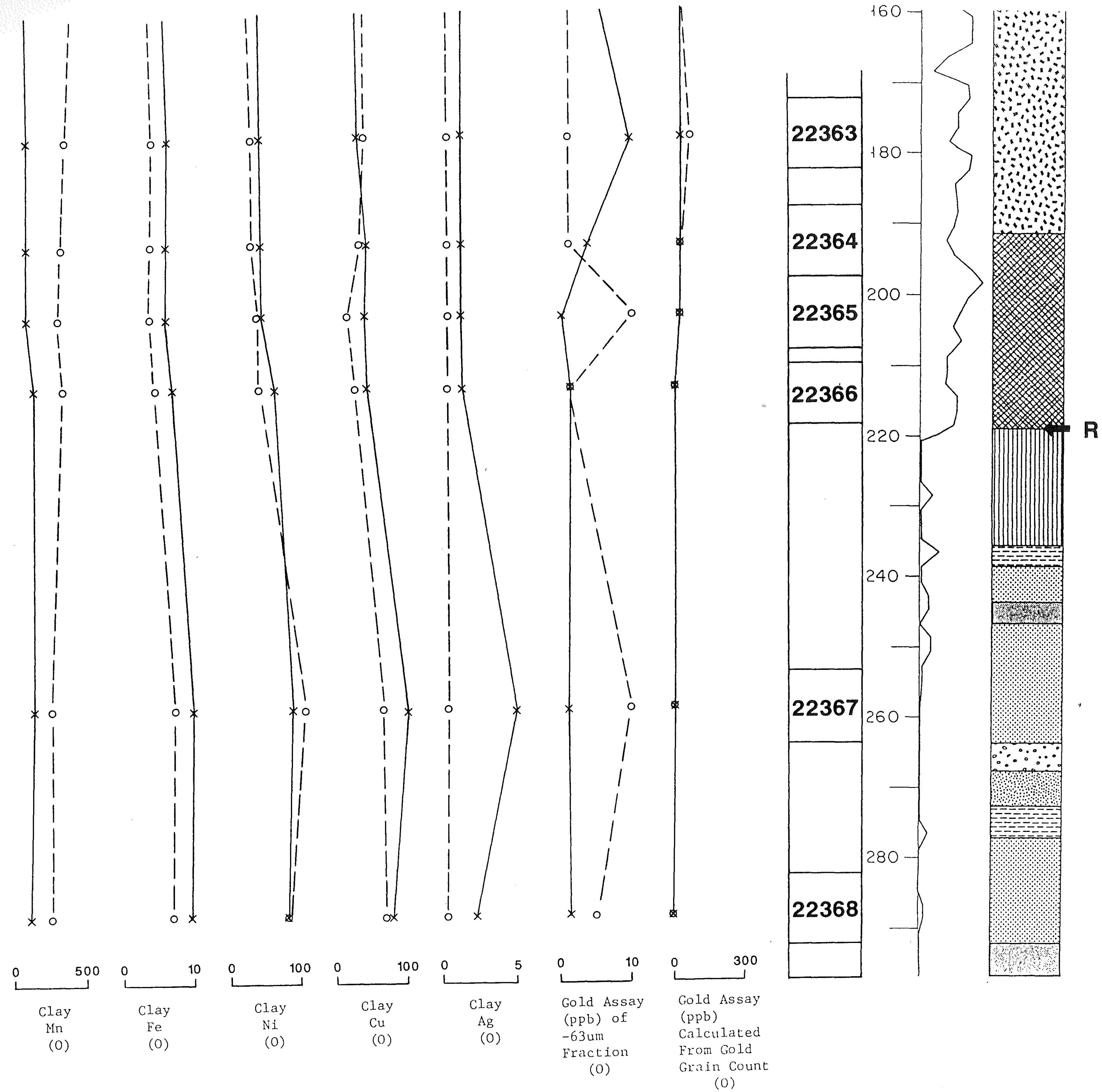
(131 1/2 - 134) GRAVELLY COARSE SAND; UNOXIDIZED; coarsens upward.

(134 - 136) FINE SAND; UNOXIDIZED; v fgr to 134 1/2 ft; pebbly in last 1/2 foot; carb pebs common.

(136 - 146) SANDY LOAM - LOAM TILL; UNOXIDIZED; appears laminated; v little clay as above till.

(146 - 151) LOAM TILL; UNOXIDIZED; sev large pebs; mgr sand bed at 147 ft, lenses at 148.

(151 - 191) LOAM - CLAY LOAM TILL; UNOXIDIZED; calc; carb pebs common to abundant; occ sh grains; thin cgr sand lenses at 168 ft; large pebs fairly common.



(191 - 218 1/2) LOAM TILL; UNOXIDIZED; calc; 198 - 199 1/2 ft sandy loam till, mod calc, upper contact v abrupt, lower gradational; below 199 1/2 mod calc to calc, little less carb pebs, few sh pebs; cob at 204 1/2, 213 1/2; clayey till in last foot.

(218 1/2 - 235) CLAY; UNOXIDIZED; v sl to sl calc; couple calc loam till lenses in upper 1/2 foot; reddish sl calc to noncalc bed at top; clayey silt lam from 219 1/2 ft; finely bedded w/varying colors, brn to grn casts; no dropstones; reddish beds 221 1/2 - 222 1/2; few brnish below, gone by 223 1/2; about twice as much clay beds to silt, about equal 224 1/2 - 225 1/2; some silt beds mod calc; sl to mod calc by 230, also sand grains; sl calc by 233.

(235 - 238) SILT; UNOXIDIZED; sl calc; by 236 1/2 ft v fgr sandy silt beds, few sm pebs; cob near base.

(238 - 243) FINE - MEDIUM SAND; UNOXIDIZED; mgr to cgr from 242 ft.

(243 - 246) FINE SAND; UNOXIDIZED; few silty lam at top.

(246 - 263) FINE - MEDIUM SAND; UNOXIDIZED; biotite flakes common; no pebs but few coarse grains; noncalc; 252 - 253 ft pebbly cgr sand, no carb noted; silty from 253 1/2 - 254 1/2; grnish sandy silt bed at 254 1/2, over cgr sand w/some silt, few sm pebs to base.

(263 - 267) COBBLY SAND & GRAVEL; some silt.

(267 - 272) GRAVELLY SAND; silty in upper foot; cobs at 268 & 268 1/2 ft; more silty from 270 w/silt to sandy silt lenses.

(272 - 276 1/2) SILT; UNOXIDIZED; v sl calc; sand lam, more sandy w/depth; clay beds at base.

(276 1/2 - 291 1/2) FINE - MEDIUM SAND; silty bed toward top; cgr sand bed at 278 ft; varies from silty, fgr sand to cgr sand; abundant mica flakes; all fgr to mgr by 282.

(291 1/2 - 296) SILTY, VERY FINE SAND; UNOXIDIZED; grnish gray; dropstones; sl calc; clay bed at 293 1/2 ft over v cgr sand to 294 1/2, couple cobs below 294; v fgr sandy silt from 294 1/2, cob and sand bed at 295, large peb at 295 1/2; cobbly, sandy till in last few inches.

Appendix 1-9C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,362		312	136.0-146.0	10.0	ABCJ	64-26- 7	NW-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22,363		312	173.0-183.0	10.0	AB	64-26- 7	NW-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22,364		312	188.0-198.0	10.0	AB	64-26- 7	NW-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22,365		312	198.0-208.0	10.0	ABCJ	64-26- 7	NW-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22,366		312	208.0-218.5	10.5	AB	64-26- 7	NW-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22,367		312	253.0-263.0	10.0	AB	64-26- 7	NW-NW	K	RAINY LOBE VFGR TO FGR SAND	15	METASEDIMENTS	MS	
22,368		312	281.5-291.5	10.0	ABCJ	64-26- 7	NW-NW	K	RAINY LOBE MGR TO VCGR SAND	14	METASEDIMENTS	MS	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	WEIGHT (GRAMS) +250um FRACTION	WEIGHT (GRAMS) -250 +63um FRACTION	WEIGHT (GRAMS) -63um FRACTION	WEIGHT % >= VCGR SAND	WEIGHT % MGR SAND	WEIGHT % FGR SAND	WEIGHT % SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NORMALIZED TO 10KG SAMPLE NMAG HMC WEIGHT(g)	NORMALIZED TO 10KG SAMPLE MAG HMC WEIGHT(g)
22,362		21	0	15.3	6.4	2.4	100	22	32	46	4	18	32	46	0.0	19.4	8.1
22,363		21	1	10.7	4.8	2.2	100	23	27	50	5	18	27	50	0.9	10.1	4.5
22,364		21	1	14.5	6.6	2.2	100	23	27	50	7	16	27	50	1.1	15.9	7.3
22,365		21	1	13.4	6.3	2.1	100	28	27	45	10	18	27	45	1.2	16.1	7.6
22,366		21	0	11.8	4.3	2.7	100	27	23	50	6	21	23	50	0.0	15.1	5.5
22,367		15	0	22.1	5.4	4.1	100	41	48	11	0	41	48	11	0.0	27.6	6.8
22,368		14	0	30.9	6.8	4.5	100	31	57	11	0	31	57	11	0.0	33.6	7.4

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,362		21	0	0	0.052	11.2	27	< 5.0	28	< 0.2	0.6	< 1	< 4	2	790	67	52	168	94	320	34	11.8	6860	15.0	86.0	1240	< 2	390.0
22,363		21	1	60	0.580	7.9	575	< 5.0	47	1.3	0.5	< 1	< 4	2	< 200	65	44	160	81	330	38	12.8	8540	15.0	120.0	1440	< 2	490.0
22,364		21	1	26	0.183	10.4	115	< 5.0	41	0.6	0.5	< 1	< 4	3	450	93	43	157	85	290	37	12.1	7540	14.0	96.0	1220	< 1	400.0
22,365		21	1	28	0.008	9.7	5	< 5.0	120	0.8	0.5	< 1	< 4	2	360	84	39	155	94	300	37	12.1	7960	15.0	95.0	1270	< 1	430.0
22,366		21	0	0	0.071	8.6	47	< 5.0	32	< 0.2	0.5	< 1	< 4	< 1	710	89	43	146	120	290	45	13.4	10170	9.9	90.0	1570	< 2	420.0
22,367		15	0	0	0.094	16.1	34	24.0	30	0.9	0.6	2	< 4	< 1	< 200	232	43	123	173	320	91	20.3	12240	13.0	160.0	2050	12	870.0
22,368		14	0	0	0.168	22.3	50	< 9.0	21	0.9	0.5	< 1	< 4	< 1	< 200	160	36	134	164	360	75	19.2	9850	14.0	140.0	2170	9	740.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,362		21	30	< 1	<.2	3	< 1	< 1	< 2	2	< 2	572	35	14	99	26	56	14	38,281	390	-1	14.13	11.20	3.94	2.72	0.58	2.48	2.39
22,363		21	30	< 1	<.2	3	< 1	< 1	< 2	< 1	< 2	560	39	10	93	32	60	12	37,896	360	-1	14.30	11.95	4.13	2.52	0.58	2.55	1.81
22,364		21	30	< 1	<.2	3	< 1	< 1	< 2	1	< 2	577	35	10	88	29	58	12	35,943	320	-1	13.84	12.24	4.22	2.29	0.58	2.57	1.24
22,365		21	30	25	<.2	3	< 1	< 1	< 2	< 1	< 2	579	14	14	85	38	54	11	36,094	290	-1	13.81	11.60	4.16	2.41	0.58	2.61	1.37
22,366		21	30	< 1	<.2	3	< 1	< 1	< 2	< 1	< 2	591	24	8	91	38	56	12	39,336	320	-1	14.61	9.54	4.09	2.56	0.58	2.70	1.29
22,367		15	30	14	<.2	3	< 1	< 1	< 2	< 1	< 2	668	66	18	140	94	120	24	70,303	250	-1	19.08	1.79	3.59	3.39	1.05	3.24	1.84
22,368		14	30	5	<.2	3	< 1	1	< 2	8	< 2	642	70	10	120	82	140	24	67,699	240	-1	18.88	1.69	3.84	3.85	0.92	3.44	2.21

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,362		21	6.4	< 0.5	1	< 1	2	29	8	280	79	1,843	2,413	17,626	1,549	1,530	100	93.53	3.00	0.76	0.64	0.04	0.13	0.06	41	29	242	4
22,365		21	6.3	< 0.5	2	< 1	2	70	8	285	93	1,794	2,232	16,787	1,472	1,531	112	93.97	2.63	0.58	1.12	0.03	0.50	0.07	179	73	217	2
22,368		14	6.8	< 0.5	2	< 1	2	41	12	417	138	1,747	2,654	39,868	2,246	2,229	141	88.69	3.42	0.86	0.76	0.05	0.53	0.03	43	37	113	5

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %

No bedrock obtained in drilling

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm

No bedrock obtained in drilling

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,362		136.0-146.0	21	2	7	5	7	2	6	1	2	2	23	1	29	12	1	0	100	5	
22,365		198.0-208.0	21	1	6	3	9	1	7	-1	1	-1	29	1	16	16	10	0	100	4	
22,368		281.5-291.5	14	3	-1	10	8	1	10	0	-1	1	28	-1	18	13	8	0	100	4	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

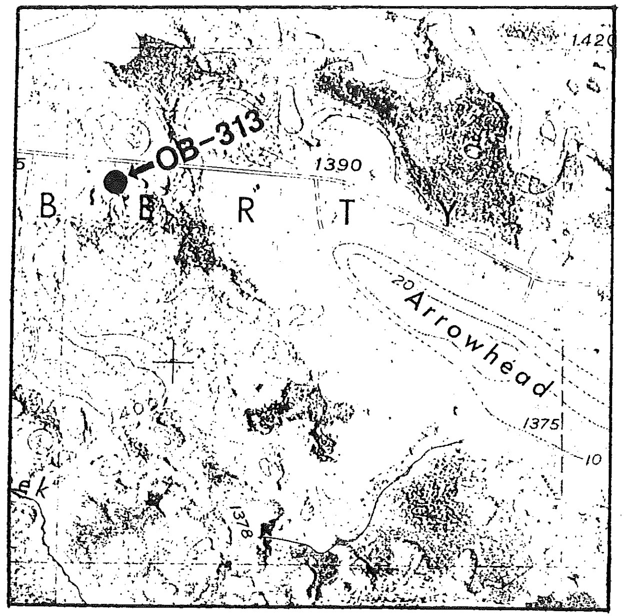
SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22362	7.9	0.3	7.6	187.7	166.0	21.7	15.3	6.4	0	NA	P	30	40	30	NA	U	Y	Y	Y	B	B	TILL
22363	10.6	0.5	10.1	76.3	60.8	15.5	10.7	4.8	1	60	P	30	40	30	NA	U	Y	Y	Y	B	B	TILL
22364	9.1	0.6	8.5	132.9	111.8	21.1	14.5	6.6	1	26	P	25	50	25	NA	U	Y	Y	Y	B	B	TILL
22365	8.3	0.8	7.5	121.2	101.5	19.7	13.4	6.3	1	28	P	20	35	45	NA	U	Y	Y	Y	B	B	TILL
22366	7.8	0.5	7.3	152.2	136.1	16.1	11.8	4.3	0	NA	P	40	35	25	NA	U	Y	Y	Y	B	B	TILL
22367	8.0	0.0	8.0	117.2	89.7	27.5	22.1	5.4	0	NA	TR	NA	NA	NA	NA	U	Y	Y	Y	B	B	TILL
22368	9.2	0.0	9.2	101.9	64.2	37.7	30.9	6.8	0	NA	TR	NA	NA	NA	NA	S	F,M	Y	Y	B	B	SAND

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22362	N	NO VISIBLE GOLD											
22363	N	75 X 75	15 C	1						1			
										1	10.7	60	
22364	N	50 X 75	13 C	1						1			
										1	14.5	26	
22365	N	25 X 100	13 C					1		1			EST.1% PYRITE
										1	13.4	28	EST.3% MARCASITE
22366	N	NO VISIBLE GOLD											
22367	N	NO VISIBLE GOLD											
22368	N	NO VISIBLE GOLD											

 DRILL HOLE SUMMARY SHEET



IDENTIFICATION
DNR Drill Hole Number: OB-313
Drilling Completion Date: 6/18/88

LOCATION (see map at right)
S-T-R: SW¼-NW¼ - S22 - T149N - R25W
County: Itasca
Quadrangle: Spring Lake 7.5
Regional Survey Area: Effie
UTM Coordinates: 437,300mE; 5284580mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1385 ± 5 ft.
Total Depth: 203 ft.
Elevation, Top of Precambrian Bedrock: 1191.5 ft.
Elevation, Top of Saprolite: 1194.5 ft.
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-156	Kooch. lobe gl. drift	B,C,G	A,B,C	B=Ba,Se,Sb
156-180	Rainy lobe gl. drift	B,C,G	A,B,C	A=Cu B=Cu,Se,W C=Ti,Mn,Mg,Cu
180-193.5	Saprolite	G	J	
193.5-203	Sound bedrock	G,H	I	

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

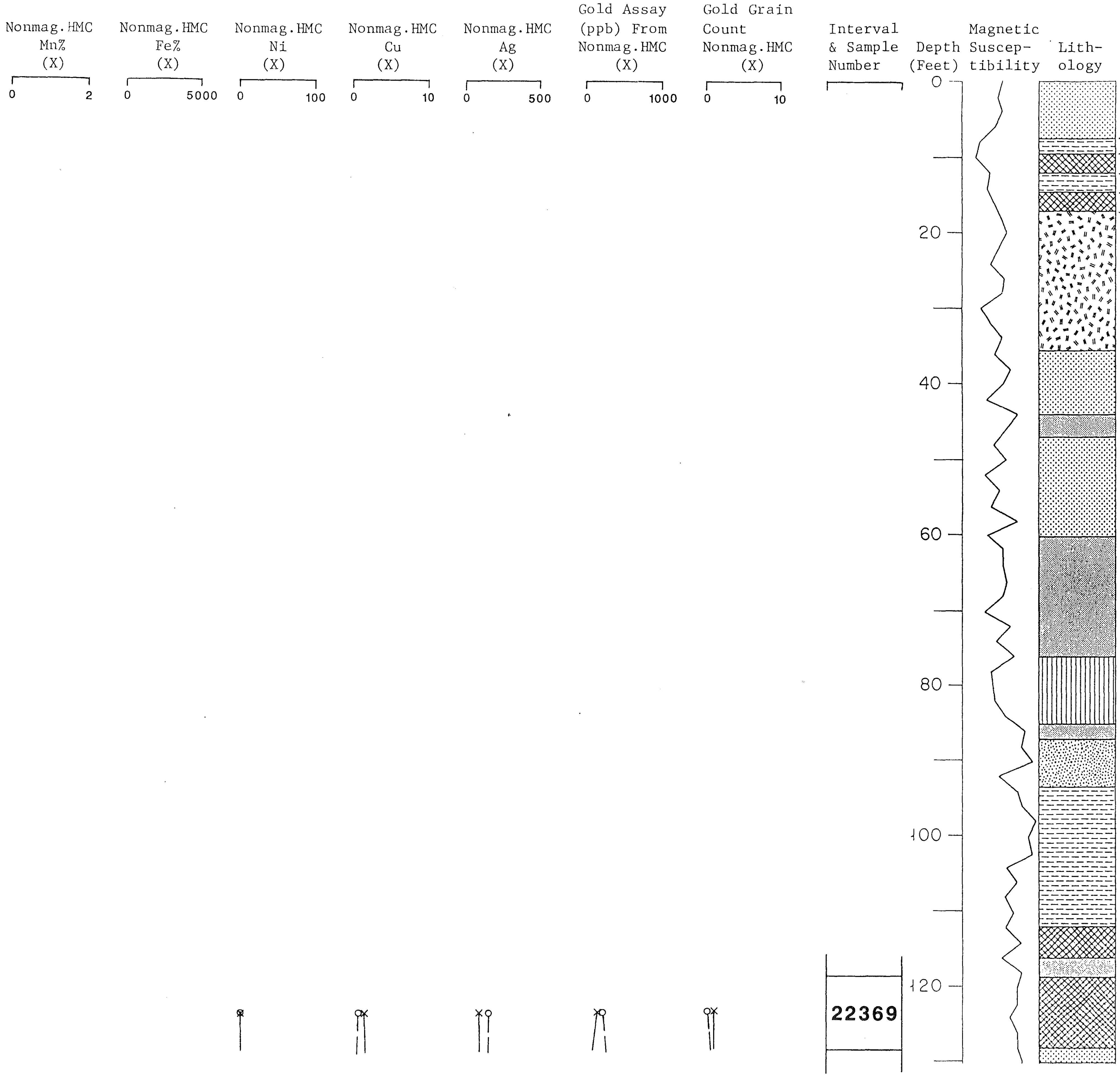
Core Description: Core contains 2 dominant rock-types; red to pink granitoid and a dark greenish gray metavolcanic rock (basaltic andesite): 188-193.5 Weathered (clayey) volcanic rock with irregular, weathered zones of granitoid: 193.5-195 Granitoid; 195-196 Metavolcanic rock. Metavolcanic is very fine-grained trachyitic and contains a weak flow(?) foliation that is parallel to contacts dipping 80-85°. Thin section 313A is typical. Granitoid may be classified as tonalite, but is unusual in lacking Kspar and being quartz rich. Thin section 313B is representative. Grain size is 2-5mm; coarser than might be expected for intrusions that are < 1m thick. Modal banding is absent, however, irregular wispy zones of slightly more melanocratic rock exist. It is uncertain whether the granitoid is intrusive into, or contains xenoliths of the metavolcanic rock; but the latter relationship is favored as no chilled margin exists near the Metavolcanic rocks. Multiple irregular fractures with Fe-oxide and several thin veinlets of epidote and plagioclase(?) occur in the metavolcanic rock. Magnetic Susc: metavolcanic 0.02-0.04 x 10-3 CGS; granitoid 0.00-0.02 x 10-3 CGS.

Thin Section Description: OB-313A, 185 ft. Fine-grained, massive basaltic andesite. Rock consists of minute decussate to weakly trachytic, lath-shaped plagioclase in a groundmass of chlorite, fine-grained feldspar plus quartz, and clots of dusty Fe-oxides (hematite?; 3-5% of rock volume). Rare plagioclase phenocrysts are present, as are small amygdules of chlorite and quartz. Rock is transected by randomly-oriented, narrow alteration zones which are depleted in chlorite and enriched in quartz; these still retain plagioclase. A few narrow brittle fractures filled with quartz are also present.
OB-313B, 188 ft. Moderately tectonized trondhjemite or leucotonalite (Streckeissen Classification). Estimated Mode (volume %): Quartz 40%; Plagioclase (albite) 35%; Antiperthite/anorthoclase 20%; Chlorite (pennine) 3%; Epidote 2%; Zircon Tr. Quartz-rich plutonic rock which originally consisted of medium- to coarse-grained quartz and zoned plagioclase (composition unknown) which have prominent overgrowth rims of antiperthite (anorthoclase or albite). Subsequent brittle deformation has resulted in the present texture of strained and broken quartz and feldspar grains up to 2 mm wide in a groundmass of mortar-textured quartz and feldspar. Crude optical tests indicate a composition of An05 for the plagioclase; this high albite content appears to be a primary composition, as no evidence for albitization of an initially more calcic feldspar exists. Both the albitic core and anorthoclase/antiperthite rims are slightly sericitized. The mafic component is very small, consisting of chlorite along fractures and clots of granular epidote. Evidence for any appreciable content of ferro-magnesian minerals is nil.

Scintillometer Reading (cps): 60-80

OB-313

Appendix 1-10B.



Geologic Descriptions

K

(0 - 7 1/2) FINE - MEDIUM SAND; OXIDIZED; few sm pebs, silty in spots; sandy silt bed at 4 ft, silty, v fgr to mgr sand below; at 7 silty mgr w/some cgr sand.

(7 1/2 - 9 1/2) SANDY SILT; OXIDIZED; 8 - 8 1/2 ft clay beds, mostly silt below; calc towards base; gradational basal contact.

(9 1/2 - 12) LOAM TILL; OXIDIZED; calc; few clay lam, gradational w/lake sed to about 11 ft.

(12 - 14 1/2) SANDY SILT; OXIDIZED; flow till beds?

(14 1/2 - 17) LOAM TILL; OXIDIZED; clay lam at 15 ft; silty, v fgr sand bed at 16, sandy silt beds to 16 1/2.

(17 - 35 1/2) CLAY LOAM TILL; UNOXIDIZED; abrupt upper contact; carb pebs common, sh present; large cob near top; approaching loam till by 26 ft; clay till from 29, few lenses of loamy till; large cob at base.

(35 1/2 - 44) FINE - MEDIUM SAND; UNOXIDIZED; silty bands at top; some mgr sand beds, few sm carb pebs.

(44 - 47) SILTY, VERY FINE SAND; UNOXIDIZED; sandy silt at top.

(47 - 60) MEDIUM - COARSE SAND; UNOXIDIZED; sand & fine gvl bed at top; sh & carb pebs; fgr to mgr from 56 ft.

(60 - 76) FINE SAND; UNOXIDIZED; fgr to mgr from 62 - 71 ft; few sh grains; silt lam at 71, & from 74 - 76.

(76 - 85) CLAY & SILT; UNOXIDIZED; laminated, more clay than silt; mod calc; no sand or pebs; thin, fgr to mgr sand bed at 84 1/2.

(85 - 87) SILTY, VERY FINE SAND; UNOXIDIZED; coarser beds.

(87 - 93 1/2) GRAVELY MEDIUM - COARSE SAND; UNOXIDIZED; pebs sm, mostly carb; 89 - 90 ft sandy silt w/few sm pebs, beds of sandy silt to silt below.

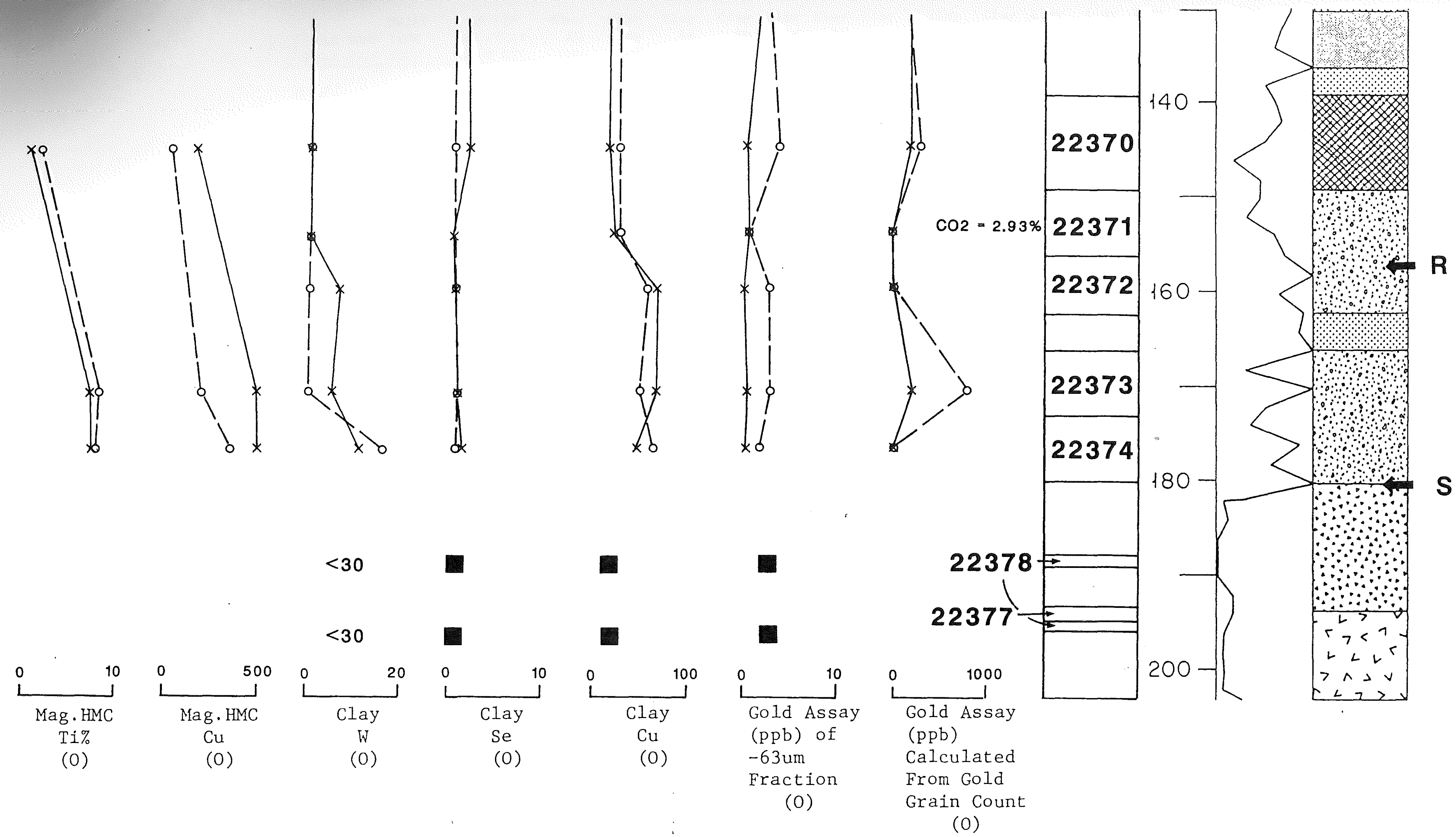
(93 1/2 - 112) VERY FINE SANDY SILT; UNOXIDIZED; pebbly at top, few pebs below; till-like 96 - 97 1/2 ft, few possible till layers; sh pebs; large cob at 104, more pebs below, prob dropstones; pebbly sand bed near base.

(112 - 116) CLAY LOAM - SANDY LOAM TILL; UNOXIDIZED; bedded flow till; sh & carb pebs common; sand & gvl beds.

(116 - 118 1/2) LOAMY SAND; UNOXIDIZED; sm pebs.

(118 1/2 - 128) LOAM TILL; UNOXIDIZED; grnish gray; carb & sh pebs; silty, pebbly sand lense at 120 ft, sm cob at 122; pebbly cgr sand lens near base.

(128 - 130) GRAVELLY SANDY SILT - SAND; UNOXIDIZED; few thin till beds.



(130 - 136) SILTY, VERY FINE SAND; UNOXIDIZED; few pebs; 134 1/2 - 136 ft pebbly, sandy silt, prob not till; large cob at base.

(136 - 139) COARSE SAND; sh peb layer at 136 1/2 ft.

(139 - 149) LOAM - CLAY LOAM TILL; UNOXIDIZED; carb, abundant sh pebs; sev sm cobs at top.

(149 - 156) LOAM - SANDY LOAM TILL; UNOXIDIZED; calc; upper contact fairly abrupt; cobs at 151 1/2, 155; more sandy w/depth, sandy loam till by 155; no sh noted.

(156 - 162) GRAVELLY, SANDY LOAM TILL; UNOXIDIZED; capped by foot of laminated mod calc silt & sl calc clay; grnish gray; sl calc; cob near top, many large pebs.

(162 - 166) MEDIUM - COARSE SAND; UNOXIDIZED; grnish gray; some silt.

(166 - 180) VERY GRAVELLY SILT LOAM - SANDY LOAM TILL; UNOXIDIZED; grnish gray, sl calc; many large cobs; more sandy matrix by 171 ft; v compact.

(180 - 193 1/2) SAPROLITE; 180 - 190 1/2 ft core stones w/residual debris removed by drilling action or fluvial/lacustrine processes, or stack of locally derived boulders; 190 1/2 - 193 1/2 clay & broken rock.

(193 1/2 - 203) BEDROCK; BASALT; intruded by weakly tectonized trondhjemite.

Appendix 1-10C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,369		313	118.5-128.0	9.5	AB	149-25-22	SW-NW	I	KOOCHICHING LOBE TILL	21	GRANITE AND VOLCANICLASTIC	GR-VC	
22,370		313	139.0-149.0	10.0	ABCJ	149-25-22	SW-NW	I	KOOCHICHING LOBE TILL	21	GRANITE AND VOLCANICLASTIC	GR-VC	
22,371		313	149.0-156.0	7.0	AB	149-25-22	SW-NW	I	KOOCHICHING LOBE TILL	21	GRANITE AND VOLCANICLASTIC	GR-VC	
22,372		313	156.0-162.0	6.0	AB	149-25-22	SW-NW	I	RAINY LOBE TILL	11	GRANITE AND VOLCANICLASTIC	GR-VC	
22,373		313	166.0-173.0	7.0	ABCJ	149-25-22	SW-NW	I	RAINY LOBE TILL	11	GRANITE AND VOLCANICLASTIC	GR-VC	
22,374		313	173.0-180.0	7.0	ABCJ	149-25-22	SW-NW	I	RAINY LOBE TILL	11	GRANITE AND VOLCANICLASTIC	GR-VC	
22,378		313	188.0-189.0	2.0	HI	149-25-22	SW-NW	I	BEDROCK	34	GRANITE	GR	PLUS SAMPLE INTERVAL 195-196
22,565	SS	313	190.0 191.0	1.0	IJ	149-25-22	SW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE AND VOLCANICLASTIC	GR-VC	SPEC.MINERAL&ASSAY
22,377		313	193.5-195.0	8.5	HI	149-25-22	SW-NW	I	BEDROCK	34	VOLCANICLASTIC ROCKS	VC	PLUS SAMPLE INTERVAL 196-203

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,369		21	1	13.5	3.4	4.0	100	43	19	37	18	25	19	37	1.3	17.1	4.3
22,370		21	2	13.6	5.0	2.7	100	27	27	47	7	20	27	47	2.5	16.8	6.2
22,371		21	0	20.9	7.4	2.8	100	33	32	36	8	25	32	36	0.0	19.0	6.7
22,372		11	0	14.3	5.0	2.9	100	53	21	26	42	11	21	26	0.0	18.8	6.6
22,373		11	2	13.6	8.5	1.6	100	59	10	31	49	10	10	31	2.2	14.9	9.3
22,374		11	0	5.4	8.8	0.6	100	67	12	21	50	17	12	21	0.0	7.3	11.9

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,369		21	1	47	0.239	9.8	140	< 5.0	54	2.2	1.7	< 1	< 4	7	1700	74	26	251	123	260	41	15.0	9810	8.2	62.0	1330	< 1	300.0
22,370		21	2	240	0.123	9.9	73	< 5.0	53	2.0	2.3	< 1	< 4	4	1900	98	31	253	110	310	34	14.3	5590	11.0	90.0	1160	< 2	380.0
22,371		21	0	0	0.169	15.3	89	< 7.0	61	1.2	0.6	< 1	< 4	4	590	107	39	149	94	460	65	21.9	8080	17.0	140.0	2210	< 3	620.0
22,372		11	0	0	0.103	10.3	55	< 5.0	23	< 0.2	1.0	< 1	39	2	< 200	358	16	167	138	220	90	12.5	5100	5.8	40.0	1960	3	240.0
22,373		11	2	821	0.075	9.7	50	< 5.0	18	0.4	1.3	< 1	28	< 1	260	351	9	160	129	150	110	11.6	6490	< 0.5	26.0	2520	3	170.0
22,374		11	0	0	0.052	6.4	71	< 5.0	29	0.6	1.4	< 1	56	2	< 200	246	8	162	138	180	170	16.5	5390	6.3	34.0	3740	6	280.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,369		21	30	2	<.2	4	< 1	< 1	< 2	< 1	< 2	504	32	10	90	35	38	11	38,410	360	-1	13.80	6.37	3.01	2.38	0.52	2.24	2.31
22,370		21	30	4	<.2	4	< 1	< 1	< 2	1	< 2	513	29	12	85	28	32	10	38,141	360	-1	14.21	7.66	3.13	2.25	0.53	2.48	2.26
22,371		21	30	< 1	<.2	3	< 1	< 1	< 2	< 1	< 2	505	29	8	73	29	44	11	42,625	330	2.93	14.55	11.04	3.94	2.45	0.58	2.60	1.51
22,372		11	30	3	<.2	2	< 1	< 1	< 2	1	< 2	487	60	10	94	58	92	19	58,480	330	-1	16.07	5.73	4.61	3.35	0.65	2.34	1.75
22,373		11	30	3	<.2	1	< 1	< 1	< 2	< 1	< 2	418	53	6	94	63	98	21	61,780	320	-1	16.35	4.52	4.50	3.59	0.64	2.04	1.57
22,374		11	30	2	<.2	< 1	< 1	< 1	< 2	17	< 2	293	64	< 2	71	47	68	24	71,683	280	-1	15.49	3.92	4.30	3.89	0.68	1.53	0.64

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,370		21	5.0	< 0.5	4	< 1	2	37	12	311	157	1,949	2,594	19,484	1,627	1,511	118	93.19	2.88	0.70	0.64	0.04	0.60	0.07	82	29	268	5
22,373		11	8.5	< 0.5	< 1	< 1	6	219	4	293	147	474	14,174	83,333	5,035	3,300	191	58.11	16.34	4.09	4.81	0.46	0.64	0.07	70	50	155	18
22,374		11	8.8	< 0.5	< 1	< 1	10	359	< 2	343	218	333	15,682	78,717	4,957	2,741	302	56.10	17.51	3.73	4.96	0.35	0.10	0.09	50	146	303	22

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,378		188.0-189.0	< 10	< 2	3	< 0.2	1	< 1.0	1	< 1	< 30	< 2	117	22	< 3	35	25	134	10	2.02	0.02	0.67	0.15	1.40	5.25	0.62	12.55	73.47	0.06
22,565	SS	190.0 191.0	< 10	4	2	< 0.5	3	< 0.2	< 5	< 1	100	< 2	109	52	6	55	78	126	91	7.64	0.05	2.79	0.47	1.15	3.63	0.90	13.65	66.44	0.13
22,377		193.5-195.0	< 10	< 2	3	< 0.2	< 1	< 1.0	1	< 1	< 30	< 2	220	42	11	76	119	143	49	11.26	0.13	5.78	0.78	3.84	3.40	1.03	16.62	51.33	0.13

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,378	7	< 50	< 5	0.02	480	< 10	1	< 1	4	44	113	0.06	< 5	4	29	26	49	179	< 50	< 2
22,565	114	< 50	< 1	0.04	230	< 10	< 1	< 1	16	13	99	0.13	20	13	23	14	25	105	<100	< 2
22,377	191	< 50	< 5	0.01	1250	< 10	< 1	< 1	28	340	181	0.13	< 5	24	14	6	14	58	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,370		139.0-149.0	21	8	10	6	6	0	10	-1	-1	1	15	1	14	16	13	0	100	6	
22,373		166.0-173.0	11	1	3	1	8	1	8	-1	1	0	7	-1	18	41	11	0	100	4	
22,374		173.0-180.0	11	2	1	3	6	1	12	0	1	0	9	-1	21	31	13	0	100	6	

HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22369	7.9	1.4	6.5	154.3	137.4	16.9	13.5	3.4	1	47	P	50	20	30	NA	U	Y	Y	Y	B	B	TILL
22370	8.1	0.6	7.5	108.2	89.6	18.6	13.6	5.0	2	240	P	60	15	25	NA	U	Y	Y	Y	B	B	TILL
22371	11.0	0.9	10.1	161.9	133.6	28.3	20.9	7.4	0	NA	P	20	70	10	NA	U	Y	Y	Y	B	B	TILL
22372	7.6	3.2	4.4	155.7	136.4	19.3	14.3	5.0	0	NA	P	60	40	NA	NA	U	Y	Y	Y	B	B	TILL
22373	9.1	4.5	4.6	185.7	163.6	22.1	13.6	8.5	2	821	P	60	40	NA	NA	U	Y	Y	Y	B	B	TILL
22374	7.4	3.7	3.7	240.1	225.9	14.2	5.4	8.8	0	NA	P	60	40	NA	NA	U	Y	Y	Y	B	B	TILL

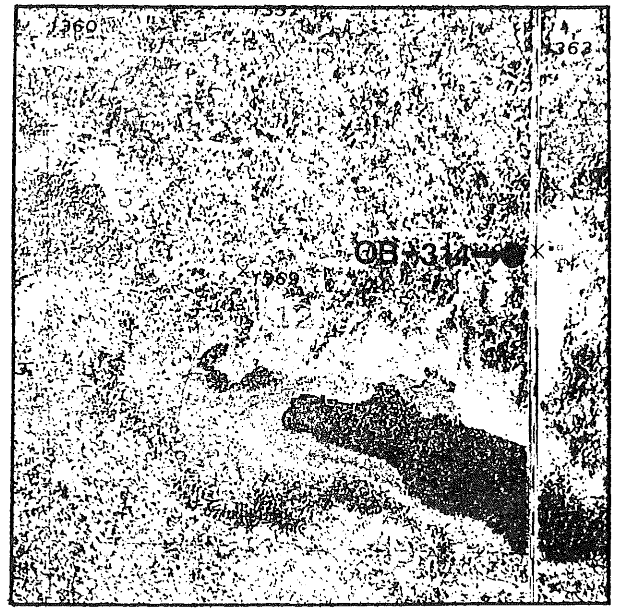
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22369	N	75 X 75	15 C	1						1			
										1	13.5	47	
22370	Y	50 X 75	13 C	1						1			EST.1% PYRITE
		100 X 150	25 C	1						1			EST.5% MARCASITE
										2	13.6	240	
22371	N	NO VISIBLE GOLD											
22372	N	NO VISIBLE GOLD											
22373	Y	150 X 150	29 C	1						1			EST.1% PYRITE AND 4% MARCASITE
		150 X 175	31 C	1						1			EST.2% SIDERITE
										2	13.6	821	
22374	N	NO VISIBLE GOLD											

Appendix 1-11A.

DRILL HOLE SUMMARY SHEET



IDENTIFICATION
DNR Drill Hole Number: OB-314
Drilling Completion Date: 6/24/88

LOCATION (see map at right)
S-T-R: SE¼-NE¼ - S12 - T150N - R25W
County: Itasca
Quadrangle: Wildwood SE 7.5
Regional Survey Area: Effie
UTM Coordinates: 441,850mE; 5297040mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1371 ± 3 ft.
Total Depth: 115 ft.
Elevation, Top of Precambrian Bedrock: 1258 ft.
Elevation, Top of Saprolite: 1259 ft.
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-65	Kooch. lobe gl. drift	B,C,G	A,B,C	B=Ag,Sb,As,Ba
65-99	Rainy lobe gl. drift	B,C,G	A,B,C	A=Au B=Ag
99-106	Winnipeg lobe gl. drift	B,C,G	A,B,C	B=W C=As
106-107	Old Rainy lobe gl. drift	B,C,G	A,B,C	A=W B=W C=Mo
107-109	Saprolite			
109-115	Sound Bedrock	G,H	I	

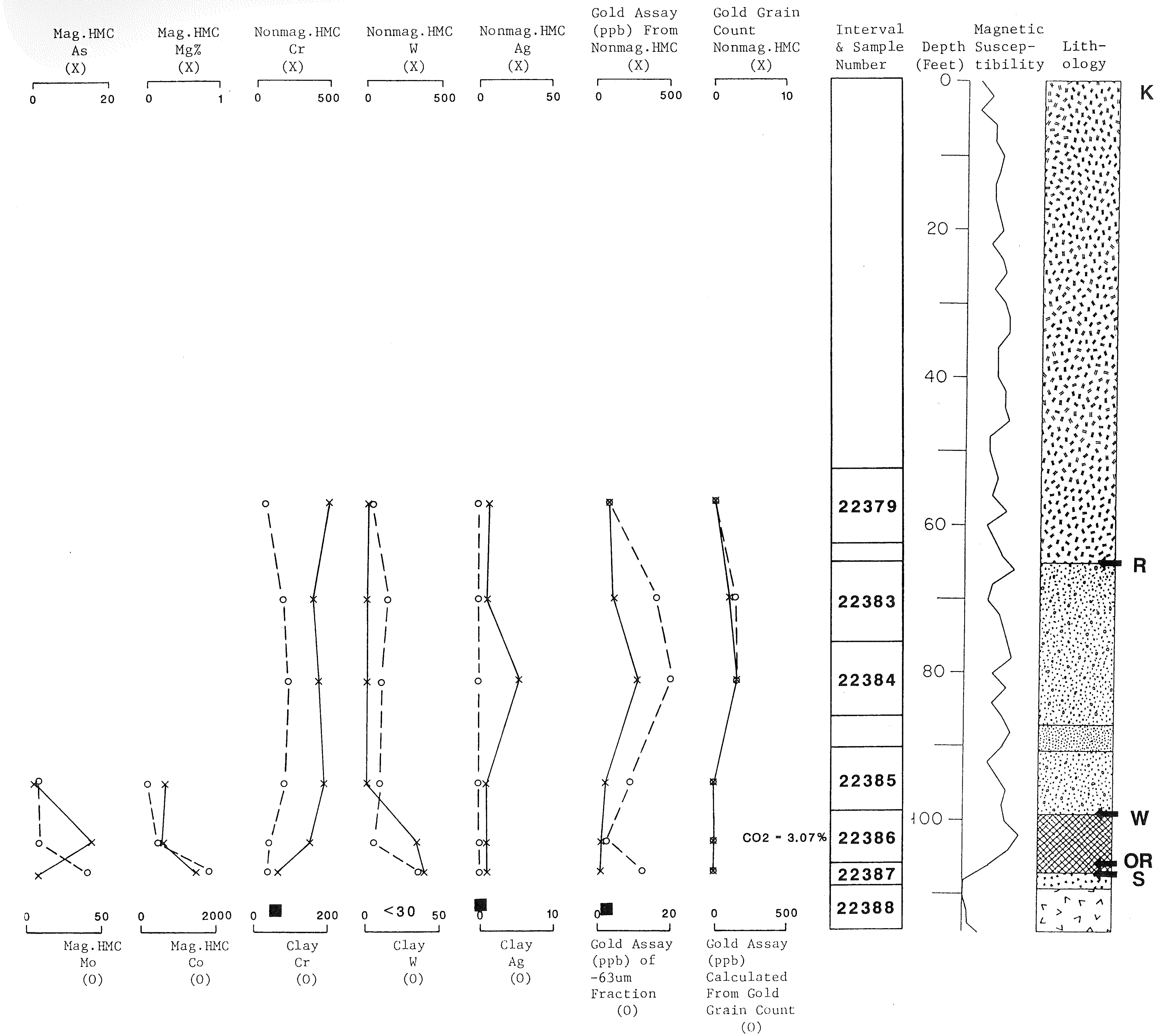
A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

Core Description: Altered tonalite. Rock is equigranular and coarse grained (2-3mm). Color varies from white in freshest parts to red in oxidized zones adjacent to ubiquitous veins. No obvious modal banding, except at 109-111' where a pegmatoid zone occurs. This zone contains 2.0 cm salmon-colored feldspar and minor interstitial quartz and aegirine. Pegmatoid zone has irregular borders that dip about 55°. Veining is complex and pervasive: two vein systems exist, described in relative order from earliest to latest below: 1.) Vertical, closely spaced veins are main feature of the rock. They are 1.0 mm to 2.0 cm wide and consist of aegirine (based on thin sections) and calcite with minor quartz and pyrite. Host rock is altered in 0.5 - 1.0 cm wide bands adjacent to veins. This alteration is manifested in red color; petrography indicates color due to oxidized adularia in alteration zones along with calcite, apatite and aegirine. Thin section is from this alteration zone. 2.) Two very thin veins of green mineral (aegirine?) dip about30°. No obvious adjacent wall-rock alteration exists. Magnetic Susc. 0.01 - 0.03 x 10-3 CGS.

Thin Section Description: OB-314, 111 ft. Highly altered (carbonatized), coarse-grained tonalitic rock. Estimated Mode (volume %): Quartz 16%; Plagioclase (twinning still visible) 40%; Calcite 19%; Aegirine 9%; Anorthoclase 5%; Apatite 1%; Adularia (? unidentifiable 'groundmass') 10%; Zircon Tr. Very altered rock, primary coarse-grained texture of plagioclase and quartz is still evident in half of section (red-colored area on heel). Recognizable plagioclase grains are blocky, moderately altered to white mica, and locally altered in patches to replacement assemblage of the rest of the slide. The bulk of the slide is altered to an assemblageof calcite, aegirine, adularia, and apatite. Apatite comprises up to 1% of the overall volume of the rock, but in local patches is very abundant as euhedral, hexagonal prisms of variable size (0.3 mm maximum diameter). These clusters of apatite occur in patches of red-stained, very fine-grained feldspar (adularia?) or feldspathoid (?). Aegirine forms long, splintery crystals which have weakly pleochroic, pale yellowish-green to deep green colors. The aegirine occurs with carbonate alteration, and forms felty mats in the most highly altered portions of the slide, along with calcite, quartz, and apatite. The high volume of calcite, aegirine, and apatite in the alteration assemblage indicate that the rock may have undergone fenitization, or possibly the rock itself may have been part of a volatile-rich, highly evolved intrusion which supplied the volatiles for deuteric alteration.

Scintillometer Reading (cps): 120-140



OB-314

Geologic Descriptions

(0 - 65) CLAY LOAM TILL; UNOXIDIZED by 15 ft; cob at top; sh, carb pebs dominate; little more sandy from 40, loam till in spots; sandy lam at 47, sandy & pebbly lam at 54; 62 1/2 - 65 mixed zone, clayey & sandy till.

(65 - 87) LOAMY SAND - SANDY LOAM TILL; UNOXIDIZED; sl calc; little carb; fairly compact, not real rocky; sandy lens at 72 ft, others below; mostly sandy loam till from 75, also mod calc w/increasing carb content; sev cobs at 84, and below; 86 - 86 1/2 mgr to cgr sand, pebbly at base.

(87 - 90 1/2) GRAVELLY FINE - COARSE SAND; UNOXIDIZED; cob at 88 ft, pebbly below; 89 1/2 - 90 silty, v fgr sand.

(90 1/2 - 99) LOAMY SAND - SANDY LOAM TILL; UNOXIDIZED; sl calc; not many large pebs; 96 - 98 hard, grnish, sandy loam till, sl to mod calc, cob at base; 98 - 99 fgr to v fgr sand.

(99 - 107) LOAM - SILT LOAM TILL; UNOXIDIZED; calc; horizontal mottling, apar joint related; pebbly zone at top; cobs at 102, 106 ft; carb pebs common; 106 - 107 mgr to cgr ang sand over cobbly gvl, little carb.

(107 - 109) SAPROLITE; upper foot prob reworked, gravelly sandy loam; rock 108 - 108 1/2 ft, over rocky clay.

(109 - 115) BEDROCK; TONALITIC ROCK; cgr; highly altered & carbonized.

Appendix 1-11C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,379		314	52.5- 62.5	10.0	AB	150-25-12	SE-NE	I	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22,383		314	65.0- 76.0	11.0	AB	150-25-12	SE-NE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,384		314	76.0- 86.0	10.0	AB	150-25-12	SE-NE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,385		314	90.5- 99.0	8.5	ABCJ	150-25-12	SE-NE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,386		314	99.0-106.0	8.0	ABCJ	150-25-12	SE-NE	I	WINNIPEG LOBE TILL	61	GRANITE, GRANODIORITE	GR/GD	
22,387		314	106.0-109.0	3.0	ABCJ	150-25-12	SE-NE	I	OLD RAINY LOBE COMPOSITE TILL SAMPLES	58	GRANITE, GRANODIORITE	GR/GD	
22,388		314	109.0-115.0	6.0	HI	150-25-12	SE-NE	I	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	
22,389	SS	314	109.0-112.5	3.5	IJ	150-25-12	SE-NE	I	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	SPECIAL SAMPLE VEIN MATERIAL

HMC AND LAB DATA

							WEIGHT (GRAMS)				WEIGHT %				NORMALIZED TO 10KG SAMPLE		
SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	>= VCGR SAND	MGR SAND	FGR SAND	SILT	#GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,379		21	0	5.7	2.3	2.5	100	18	17	65	4	14	17	65	0.0	5.3	2.1
22,383		11	2	44.2	12.3	3.6	100	37	40	24	7	30	40	24	1.5	32.5	9.0
22,384		11	4	40.0	10.0	4.0	100	45	37	18	10	35	37	18	2.6	26.1	6.5
22,385		11	0	28.0	7.5	3.7	100	43	31	26	8	35	31	26	0.0	33.7	9.0
22,386		61	0	13.0	5.0	2.6	100	26	25	49	70	-1	25	49	0.0	14.6	5.6
22,387		58	0	16.6	3.6	4.6	100	52	21	27	41	11	21	27	0.0	20.2	4.4

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,379		21	0	0	0.046	3.7	87	8.0	120	2.6	1.4	< 1	< 4	5	1200	105	35	285	130	530	60	21.5	6460	16.0	110.0	1390	< 2	530.0
22,383		11	2	120	0.335	29.7	103	< 7.0	22	0.6	0.5	< 1	< 4	3	< 200	58	23	141	127	390	56	16.5	7800	8.6	80.0	2620	< 2	450.0
22,384		11	4	145	0.729	29.1	279	28.0	25	0.8	0.4	< 1	16	2	< 200	88	24	139	125	430	59	17.9	6600	10.0	90.0	2110	< 2	450.0
22,385		11	0	0	0.226	20.5	67	< 6.0	22	< 0.2	0.3	< 1	12	< 1	< 200	69	20	149	106	470	57	17.8	9280	7.3	100.0	2570	< 2	500.0
22,386		61	0	0	0.007	9.3	5	< 5.0	8	< 0.2	0.2	< 1	330	3	< 200	49	17	128	81	370	41	11.0	8070	8.4	80.0	1470	< 1	360.0
22,387		58	0	0	0.016	12.0	8	< 5.0	15	0.7	0.4	< 1	400	5	< 200	52	16	121	82	160	100	12.6	5100	< 0.8	39.0	15000	< 2	230.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO_2 %	Clay Al_2O_3 %	Clay CaO %	Clay MgO %	Clay Na_2O %	Clay TiO_2 %	Clay K_2O %	Clay P_2O_5 %
22,379		21	30	3	<.2	5	< 1	< 1	< 2	3	< 2	452	38	10	84	35	26	9	28,143	260	-1	12.01	12.73	4.53	1.56	0.54	2.35	1.23
22,383		11	30	8	<.2	2	< 1	< 1	< 2	14	< 2	677	47	8	90	34	74	17	43,506	320	-1	15.51	5.94	3.42	3.47	0.59	2.88	1.28
22,384		11	30	21	<.2	2	< 1	< 1	< 2	11	< 2	683	45	8	94	46	88	20	47,204	370	-1	16.02	6.00	3.48	3.50	0.60	2.91	1.17
22,385		11	30	9	<.2	1	< 1	< 1	< 2	10	< 2	694	39	14	94	47	82	18	47,861	310	-1	16.46	5.00	3.44	3.43	0.61	3.09	1.05
22,386		61	30	< 1	<.2	2	< 1	< 1	< 2	5	< 2	567	44	12	89	22	46	12	45,362	430	3.07	15.15	7.44	3.42	2.60	0.61	2.52	2.20
22,387		58	30	6	<.2	2	< 1	< 1	< 2	35	< 2	686	22	8	79	11	36	26	31,601	480	-1	15.86	6.33	2.30	6.16	0.32	2.61	1.23

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe_2O_3 %	SiO_2 %	Al_2O_3 %	CaO %	Na_2O %	K_2O %	P_2O_5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,385		11	7.5	< 0.5	2	< 1	6	57	4	346	131	1,574	3,076	30,935	1,937	2,233	130	90.51	3.78	0.85	0.75	0.07	0.13	0.04	38	30	88	4
22,386		61	5.0	< 0.5	17	< 1	8	26	6	284	114	1,262	2,955	22,182	1,472	1,395	436	85.97	6.01	1.41	1.00	0.16	0.22	0.05	57	42	252	5
22,387		58	3.6	< 0.5	3	1	40	81	4	313	117	1,023	7,117	31,175	2,246	1,532	1,884	75.41	11.06	2.65	2.39	0.41	0.12	0.12	66	62	133	14

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe_2O_3 %	MnO %	MgO %	TiO_2 %	CaO %	Na_2O %	K_2O %	Al_2O_3 %	SiO_2 %	P_2O_5 %
22,388		109.0-115.0	< 10	< 2	< 1	< 0.2	< 1	< 1.0	2	< 1	< 30	< 2	809	3	< 3	45	18	65	10	2.63	0.06	1.33	0.28	3.55	7.12	2.63	16.39	61.35	0.08
22,389	SS	109.0-112.5	< 10	< 2	3	< 0.2	< 1	< 1.0	2	< 1	< 30	< 2	446	5	< 3	36	28	57	10	2.51	0.05	1.07	0.24	4.71	6.62	2.84	14.89	60.23	0.13

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P_2O_5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,388	43	< 50	< 5	0.03	1000	< 10	3	< 1	1	155	241	0.08	< 5	3	3	20	34	98	< 50	2
22,389	42	< 50	< 5	0.03	740	< 10	4	< 1	< 1	155	242	0.13	< 5	4	11	11	19	80	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,385		90.5- 99.0	11	2	3	4	10	1	10	2	2	-1	17	-1	25	14	10	0	100	6	
22,386		99.0-106.0	61	-1	2	1	8	1	10	1	3	1	22	-1	23	18	10	0	100	5	
22,387		106.0-109.0	58	-1	3	1	4	2	3	0	-1	0	15	0	15	46	11	0	100	7	

HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

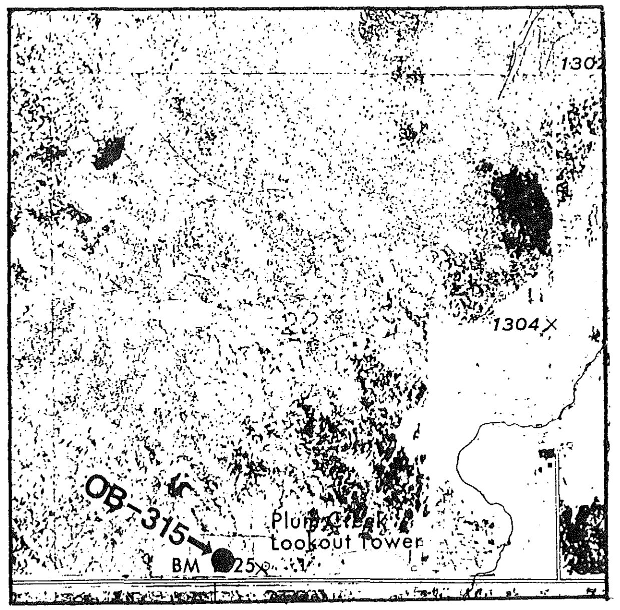
SAMPLE NO.	WEIGHT (KG.WET)			WEIGHT (GRAMS DRY)		M. I. CONC			AU		DESCRIPTION: CLAST					DESCRIPTION: MATRIX						CLASS
	TABLE SPLIT	+10 CHIPS	TABLE FEED	TABLE CONC	M.I. LIGHTS	CONC. TOTAL	NON MAG	MAG	NO. V.G.	CALC PPB	SIZE	% V/S	% GR	% LS	% OT	S/U	SD	ST	CY	COLOR SD	COLOR CY	
22379	10.7	0.4	10.3	90.8	82.8	8.0	5.7	2.3	0	NA	P	20	30	50	NA	U	Y	Y	Y	B	B	TILL
22383	13.6	1.0	12.6	237.4	180.9	56.5	44.2	12.3	2	120	P	55	40	5	NA	U	Y	Y	Y	B	B	TILL
22384	15.3	1.5	13.8	216.0	166.0	50.0	40.0	10.0	4	145	P	35	60	5	NA	U	Y	Y	Y	B	B	TILL
22385	8.3	0.7	7.6	175.1	139.6	35.5	28.0	7.5	0	NA	P	35	60	5	NA	U	Y	Y	Y	B	B	TILL
22386	8.9	6.2	2.7	146.1	128.1	18.0	13.0	5.0	0	NA	P	25	70	5	NA	U	Y	Y	Y	GY	GY	TILL
22387	8.2	3.4	4.8	200.9	180.7	20.2	16.6	3.6	0	NA	P	20	75	5	NA	U	Y	Y	Y	B	B	TILL

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS: ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22379	N	NO VISIBLE GOLD											
22383	Y	50 X 75	13 C	1						1			EST.0.5% PYRITE
		150 X 150	29 C	1						1			EST.0.5% MARCASITE
										2	44.2	120	
22384	Y	25 X 50	8 C		1					1			EST.2% MARCASITE
		50 X 75	13 C	1						1			EST.0.1% PYRITE
		75 X 125	20 C	1						1			
		100 X 175	27 C	1						1			
										4	40.0	145	
22385	N	NO VISIBLE GOLD											
22386	N	NO VISIBLE GOLD											
22387	N	NO VISIBLE GOLD											

Appendix 1-12A. DRILL HOLE SUMMARY SHEET



IDENTIFICATION
DNR Drill Hole Number: OB-315
Drilling Completion Date: 5/24/88

LOCATION (see map at right)
S-T-R: SE¼-SW¼ - S22 - T151N - R25W
County: Koochiching
Quadrangle: Wildwood NE 7.5
Regional Survey Area: Effie
UTM Coordinates: 437,710mE; 5302640mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1327 ± 2 ft.
Total Depth: 171 ft.
Elevation, Top of Precambrian Bedrock: 1165 ft.
Elevation, Top of Saprolite:
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-80.5	Kooch. lobe gl. drift	G		
80.5-156.5	Rainy lobe gl. drift	B,C,G	A,B,C	A=Bi B=Au,Cu,W,Ni,Cr,Pb,Sb
156.5-162	Old Rainy lobe gl. drift	B,C,G	A,B,C	A=W B=W,Co C=Co,Mo
162-171	Sound bedrock	G,H	I	

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

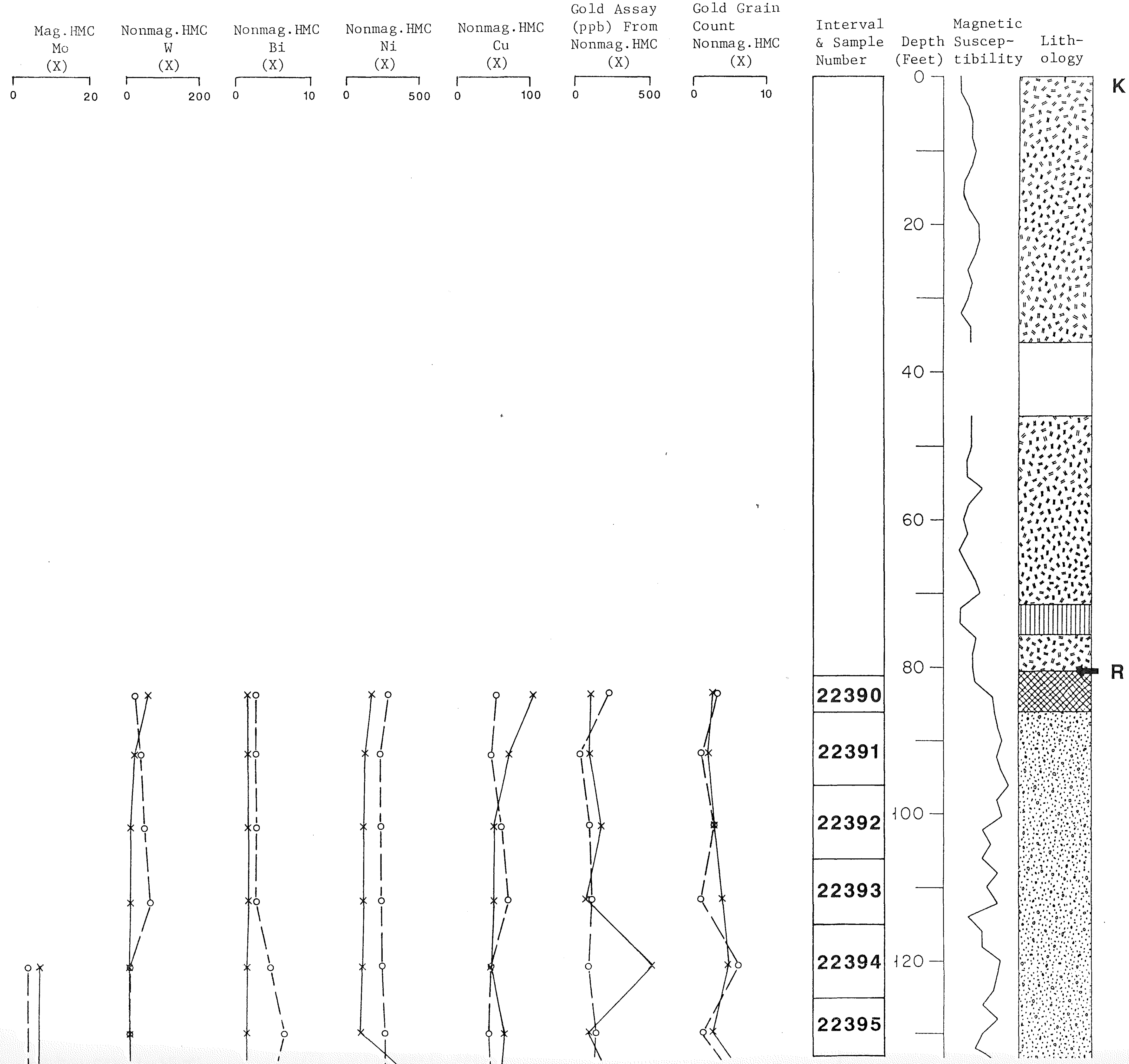
Core Description: Core is composed of solid rock and dark red-brown saprolite with pieces of fresher rock. Most solid at 162-166 feet where it appears to be a very altered felsic to intermediate volcanic protolith. Composed mostly of aphanitic feldspar and carbonate (see thin section description), and 1-3 mm, lineated amphibole crystals. A weak modal banding of more and less amphiboles is nearly parallel to core axis (ie., vertical). Rock and red saprolite from 166-171 feet appears bedded but apparently brecciated with bands and small blocks of coarse vs. fine carbonate. Pyrite is disseminated throughout, but most abundant (1-3%) in rubbly, red, lower part of core (166-171 ft.). This part also contains more apparent carbonate alteration and veining than above. Two nearly vertical vein sets exist: 1.) Earlier veins are subparallel to hornblende foliation and consist of adularia, calcite and pyrite. These typically have red oxidized walls. 2.) Second vein set are close spaced, and though vertical, are perpendicular to the first. They are thin and contain sea-green colored talc and leucoxene. The presumably earliest hornblende-rich veins and latest net-like veinlets described in the thin section (numbers 1 and 4 below, respectively) were not noted in core inspection. Magnetic susc. 0.01 x 10-3 CGS in solid, less pyritic upper part (162-166 feet). 0.04-0.07 x 10-3 CGS in lower, more weathered part.

Thin Section Description: OB-315, 165 ft. Meta-felsic volcanic (silica undersaturated). Estimated mode (volume %): Hornblende poikiloblasts 12% (of which 2% is blue); Feldspar 70%; Fine, fibrous amphibole 16%; Pyrite/hematite 1-2%; Calcite Tr; 'Talc' Tr; Adularia Tr. Subhedral, decussate, inclusion-laden amphibole poikiloblasts up to 1mm length are in a groundmass of granoblastic feldspar, fine-grainedfibrous amphibole, calcite, and disseminated oxidized pyrite. The amphibole poikiloblasts consist of green hornblende with thin, ragged rims of pale grayish-blue to blue reibeckite. Amphibole in proximity to cross-cutting veins is entirely blue, apparently altered by fluids introduced through the vein. The blue amphiboles are also locally abundant in the ground mass as tiny, equant grains; also the pervasive fibrous, radial amphiboles in the groundmass are of the blue variety. Very close inspection of the granoblastic groundmass yields no evidence of quartz. Several narrow veinlets which cut the rock are described below in apparent order of emplacement from earliest to latest: 1.) Veins composed of a linear concentration of ragged green hornblende with vague boundaries. Hornblende is altered to blue where this vein contacts the talc-bearing vein described below. 2.) Moderately well-defined veins that are roughly zoned from adularia (near walls) to calcite (in center) to pyrite (oxidized). 3.) A sea-green colored (macroscopically) intergrown mixture of talc (?sericite), leucoxene(?), and very fine-grained fibrous amphiboles which is relatively sulfide-poor. These veins are very well defined and have altered the adjacent hornblende from green to blue. One of these veins merges into the adularia- and calcite-bearing vein. These talc-bearing veins may be related to Na-metasomatism, an event which may also have albitized the entire rock.

Scintillometer Reading (cps): 120-140

Appendix 1-12B.

OB-315



Geologic Descriptions

(0 - 36) CLAY LOAM TILL; UNOXIDIZED by 16 ft; calc by 2; sh & carb pebs; few sandy lenses at 17 1/2, little more grit from 19; carb cob at 23, but not many large pebs.

(36 - 46) NO CORE

(46 - 71 1/2) CLAY LOAM TILL; UNOXIDIZED; as above; sandy lam at 47 1/2 ft, sand lenses at 50 1/2; 50 1/2 - 51 1/2 fine sand w/carb-rich fine gvl at base; fine sand lenses at 53 & 54; 54 - 55 1/2 loam till w/sand lens at base; more sandy w/depth from 60, approaching loam texture by 63; clay lam at base.

(71 1/2 - 75 1/2) CLAY - SILTY CLAY; UNOXIDIZED; calc; silty clay lam by 75 ft; little clayey silt towards base.

(75 1/2 - 80 1/2) CLAY LOAM TILL; UNOXIDIZED; calc; gradational upper contact from 75 1/2 - 77 1/2 ft; loamy zone at 77, sm cob at 79; little more sandy, grn, & less dark than above till.

(80 1/2 - 86) LOAM TILL; UNOXIDIZED; capped by more than 1/2 ft of mod calc silt; mod calc to calc; not much carb; cobbly zone at 82 ft; matrix mostly silt & sand, sandy loam in places; thinly bedded in places w/silty and sandy beds, possibly mixed in upper part.

(86 - 94) SANDY LOAM TILL; UNOXIDIZED; sl to mod calc; gradational upper contact; more sandy, less calc w/depth; only occ cobs.

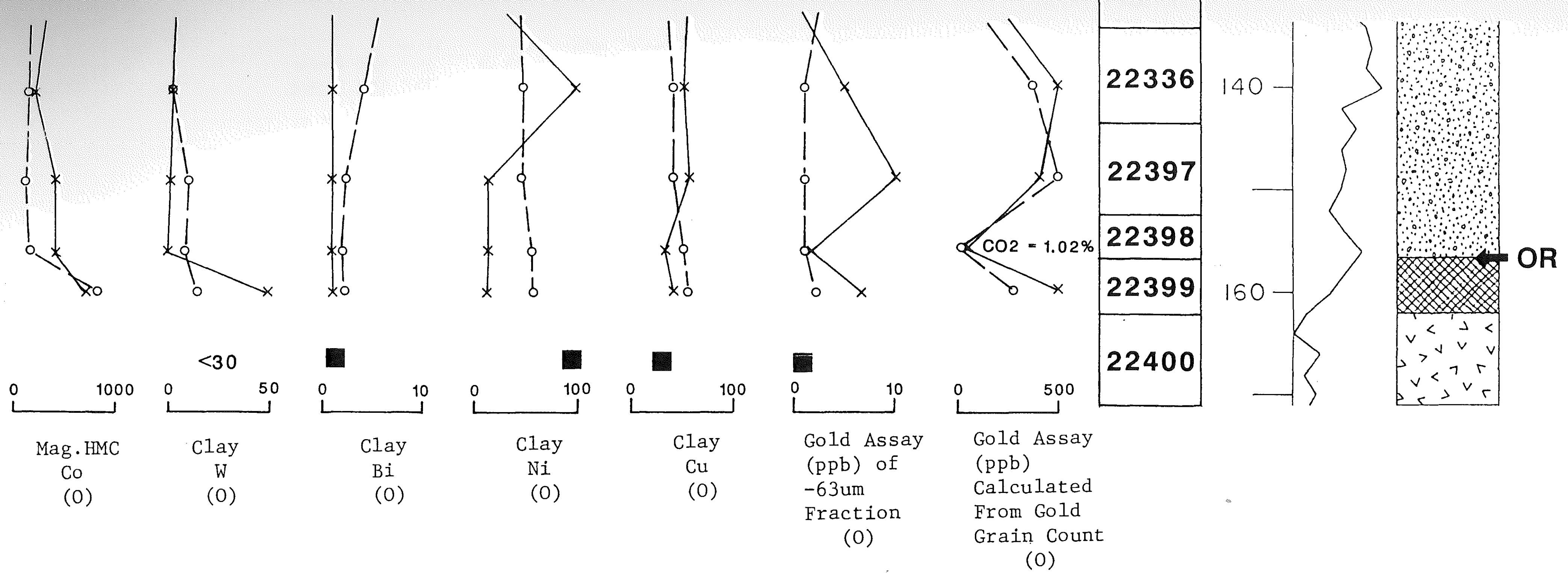
(94 - 99 1/2) LOAMY SAND TILL; UNOXIDIZED; 96 - 96 1/2 ft clean pebbly sand, v sandy, prob somewhat sorted 'flow' till below.

(99 1/2 - 125) SANDY LOAM - LOAMY SAND TILL; UNOXIDIZED; sl calc; cobs fairly common; pebbly cgr sand 106 - 106 1/2, mgr to cgr sand bed at 110 1/2; 114 - 115 fgr sand, mgr in places, silty at top, till lens & silt lam at base; grades to pebbly sand from 118 - 119 1/2; clean sandy zone at 121 1/2; occ sm carb pebs.

(125 - 133 1/2) LOAMY SAND TILL; UNOXIDIZED; interbedded w/pebbly sand; v sandy towards base.

(133 1/2 - 152 1/2) SANDY LOAM TILL; UNOXIDIZED; loamy sand till in upper two ft; sl calc; occ cobs; harder and grner w/depth; darker, clayey calc till lam at 141 (older till); mod calc by 141; more silty w/depth; sm carb cob at 146 1/2, interbedded sand and sandy till to 148; little carb but mostly Precambrian; loam till by 150; 151 - 152 1/2 mgr sand, silty w/sand pebbles in lower part.

(152 1/2 - 156 1/2) SANDY LOAM TILL; UNOXIDIZED; mod calc; carb cob at 154, but not much carb grains in matrix; olive color in places, prob mixed w/till below.



(156 1/2 - 162) LOAM TILL; OXIDIZED to 160 1/2 ft; noncalc; sl calc by 158, top prob leached; more calc w/depth but v few carb grains; matrix mostly silt and sand; cobs fairly common, boulder at base.

(162 - 171) BEDROCK; FELSIC METAVOLCANIC; fgr; lineated.

Appendix 1-12C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,390	315		81.0- 86.0	5.0	AB	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22,391	315		86.0- 96.0	10.0	AB	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22,392	315		96.0-106.0	10.0	AB	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22,393	315		106.0-115.0	9.0	AB	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22,394	315		115.0-125.0	10.0	ABCJ	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22,395	315		125.0-133.5	8.5	AB	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22,396	315		133.5-143.5	10.0	ABCJ	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22,397	315		143.5-152.5	9.0	ABCJ	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22,398	315		152.5-156.5	4.0	ABCJ	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22,399	315		156.5-162.0	5.5	ABCJ	151-25-22	SE-SW	K	OLD RAINY LOBE TILL	51	VOLCANICLASTIC ROCKS	VC	
22,400	315		162.0-171.0	0.0	HI	151-25-22	SE-SW	K	BEDROCK	34	VOLCANICLASTIC ROCKS	VC	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,390		11	2	20.9	5.0	4.2	100	30	21	49	5	25	21	49	2.0	20.7	5.0
22,391		11	1	28.8	7.9	3.6	100	38	30	31	11	27	30	31	1.1	30.3	8.3
22,392		11	2	35.6	9.1	3.9	100	47	35	18	13	34	35	18	2.3	41.4	10.6
22,393		11	3	36.4	11.1	3.3	100	48	35	17	12	36	35	17	2.6	31.9	9.7
22,394		11	4	32.4	8.5	3.8	100	45	32	23	11	34	32	23	4.9	39.5	10.4
22,395		11	2	27.1	7.8	3.5	100	51	33	16	10	41	33	16	2.5	34.3	9.9
22,396		11	11	36.5	8.9	4.1	100	39	31	29	13	26	31	29	11.5	38.0	9.3
22,397		11	8	34.7	8.1	4.3	100	43	32	25	6	37	32	25	9.8	42.3	9.9
22,398		11	1	40.0	10.1	4.0	100	36	28	37	11	25	28	37	1.3	50.6	12.8
22,399		51	11	38.0	11.0	3.5	100	39	26	35	23	16	26	35	10.4	35.8	10.4

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,390		11	2	120	0.178	15.2	86	< 5.0	26	< 0.2	0.7	< 1	44	3	< 200	97	18	113	140	230	50	11.1	8250	6.7	73.0	1300	6	350.0
22,391		11	1	13	0.179	20.6	59	2.0	33	1.0	0.6	< 1	17	14	< 200	64	57	184	97	390	71	18.0	5150	10.0	120.0	2420	< 3	600.0
22,392		11	2	99	0.555	25.8	134	2.0	26	0.6	0.4	< 1	< 4	2	< 200	43	41	119	88	400	64	18.0	5120.00	6.9	93.0	2440	9	490.0
22,393		11	3	8	0.134	25.9	42	2.0	31	< 0.2	0.5	< 1	< 4	2	< 200	41	39	110	87	340	59	16.0	5260.00	9.4	100.0	2310	< 2	530.0
22,394		11	4	275	1.893	23.5	479	1.0	39	< 0.2	0.4	< 1	< 4	< 1	< 200	37	30	118	84	360	71	17.0	5210.00	10.0	86.0	2170	10	470.0
22,395		11	2	37	0.206	19.1	60	1.0	25	1.2	0.5	< 1	< 4	< 1	< 200	58	28	103	83	420	70	19.0	5490.00	10.0	93.0	2420	< 3	520.0
22,396		11	11	373	0.947	26.0	249	1.0	18	< 0.2	0.4	< 1	9	< 1	< 200	50	30	117	627	360	57	16.0	5040.00	9.0	87.0	2320	11	450.0
22,397		11	8	693	2.103	25.0	497	< 0.1	21	0.6	0.4	< 1	< 4	2	< 200	54	59	108	80	340	54	16.0	5110.00	9.5	84.0	2460	< 2	460.0
22,398		11	1	9	0.441	28.3	87	0.2	14	< 0.2	0.2	< 1	< 4	3	< 200	34	34	103	63	390	47	19.0	4920.00	9.7	100.0	2290	< 2	580.0
22,399		51	11	346	1.126	26.9	314	< 0.1	< 2	< 0.2	0.4	< 1	1400	2	< 200	40	39	120	54	460	230	21.0	4700.00	12.0	110.0	3310	< 3	740.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,390		11	30	4	<.2	2	< 1	< 1	< 2	2	< 2	601	45	8	100	50	78	18	48,017	400	-1	16.19	7.23	3.89	3.09	0.63	2.90	1.69
22,391		11	30	< 1	<.2	2	< 1	< 1	< 2	7	< 2	647	39	6	78	40	64	14	41,410	280	-1	15.18	5.64	3.42	3.49	0.62	2.74	1.16
22,392		11	30	< 1	<.2	1	< 1	< 1	< 2	10	< 2	617	48	6	80	37	72	15	42,247	260	-1	15.37	5.00	3.54	3.77	0.61	2.85	1.38
22,393		11	30	< 1	<.2	1	< 1	< 1	< 2	14	< 2	631	60	6	82	38	76	16	38,006	260	-1	14.80	4.84	3.27	3.84	0.58	2.67	1.03
22,394		11	30	< 1	<.2	2	< 1	< 1	4	< 1	< 2	621	39	6	82	44	80	18	42,554	270	-1	15.40	4.77	3.55	3.78	0.59	2.85	1.18
22,395		11	30	2	<.2	2	< 1	< 1	6	< 1	< 2	615	35	4	76	48	68	17	46,202	230	-1	15.91	4.26	3.57	3.67	0.60	2.81	1.08
22,396		11	30	< 1	<.2	1	< 1	< 1	4	< 1	< 2	616	40	8	87	46	88	19	50,140	380	-1	16.19	6.28	3.86	3.45	0.60	2.87	1.34
22,397		11	30	< 1	<.2	1	< 1	< 1	2	10	< 2	583	40	8	87	45	90	19	45,766	360	-1	15.48	6.06	3.56	3.33	0.58	2.71	1.50
22,398		11	30	< 1	<.2	3	< 1	< 1	< 2	8	< 2	573	49	6	87	55	110	20	54,106	400	1.02	16.26	5.07	3.10	3.21	0.66	2.35	1.27
22,399		51	30	2	<.2	2	< 1	< 1	< 2	15	< 2	761	55	6	100	56	130	31	56,129	390	-1	15.79	3.09	3.02	4.10	0.69	2.46	0.97

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,394		11	8.5	< 0.5	< 1	< 1	6	32	8	393	110	1,674	3,197	32,554	1,937	2,101	149	89.42	4.13	1.07	0.74	0.05	0.14	0.03	34	34	133	5
22,396		11	8.9	< 0.5	1	< 1	4	32	10	393	112	1,626	3,136	33,513	2,014	2,125	142	89.60	4.19	1.07	0.76	0.05	0.10	0.03	34	37	109	4
22,397		11	8.1	< 0.5	1	< 1	8	34	10	389	105	1,670	2,835	33,333	1,937	2,102	137	89.51	4.00	1.05	0.68	0.06	0.38	0.04	34	29	108	4
22,398		11	10.1	< 0.5	1	< 1	8	44	8	360	122	2,017	2,473	29,916	1,937	2,101	143	89.95	3.51	1.04	0.79	0.06	0.10	0.10	41	41	141	4
22,399		51	11.0	< 0.5	< 1	< 1	14	53	10	376	128	2,351	2,654	30,636	2,169	2,142	877	89.22	3.81	1.44	0.93	0.11	0.32	0.10	61	67	169	7

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,400		162.0-171.0	< 10	4	< 1	< 0.2	1	< 1.0	2	< 1	< 30	< 2	651	29	7	50	96	185	30	6.20	0.07	3.02	0.55	2.47	7.31	2.81	14.75	59.88	0.12

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,400	112	< 50	< 5	0.05	7200	< 10	2	< 1	6	200	254	0.12	< 5	14	9	24	46	97	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,394		115.0-125.0	11	-1	0	1	8	-2	5	-1	-2	1	13	-1	31	34	7	0	100	1	
22,396		133.5-143.5	11	2	-1	2	13	-2	-1	-2	0	-1	26	-2	15	35	7	0	100	4	
22,397		143.5-152.5	11	3	0	1	13	0	9	-2	-2	0	32	-2	16	22	4	0	100	4	
22,398		152.5-156.5	11	1	0	14	16	0	2	2	1	1	19	1	16	23	4	0	100	5	
22,399		156.5-162.0	51	1	0	5	24	0	1	2	0	1	13	0	26	1	6	0	80	-1	
22,399		156.5-162.0	51	1	0	2	10	-2	10	1	1	-2	14	-1	34	23	4	0	100	-1	DUPLICATE GRAIN COUNT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22390	10.1	0.5	9.6	138.4	112.5	25.9	20.9	5.0	2	120	P	60	40	TR	NA	U	Y	Y	Y	B	B	TILL
22391	9.5	1.0	8.5	150.7	114.0	36.7	28.8	7.9	1	13	P	19	80	1	NA	U	Y	Y	Y	GYB	GYB	TILL
22392	8.6	1.1	7.5	148.1	103.4	44.7	35.6	9.1	2	99	P	29	70	1	NA	U	Y	Y	Y	GYB	GYB	TILL
22393	11.4	1.4	10.0	162.6	115.1	47.5	36.4	11.1	3	8	P	15	80	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22394	8.2	0.9	7.3	144.7	103.8	40.9	32.4	8.5	4	275	P	15	80	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22395	7.9	0.8	7.1	256.7	221.8	34.9	27.1	7.8	2	37	P	25	70	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22396	9.6	1.2	8.4	271.8	226.4	45.4	36.5	8.9	11	373	P	25	70	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22397	8.2	0.5	7.7	236.6	193.8	42.8	34.7	8.1	8	693	P	15	80	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22398	7.9	0.9	7.0	287.7	237.6	50.1	40.0	10.1	1	9	P	15	65	20	NA	U	Y	Y	Y	B	B	TILL
22399	10.6	2.4	8.2	275.5	226.5	49.0	38.0	11.0	11	346	P	60	40	NA	NA	U	Y	Y	Y	B	B	TILL

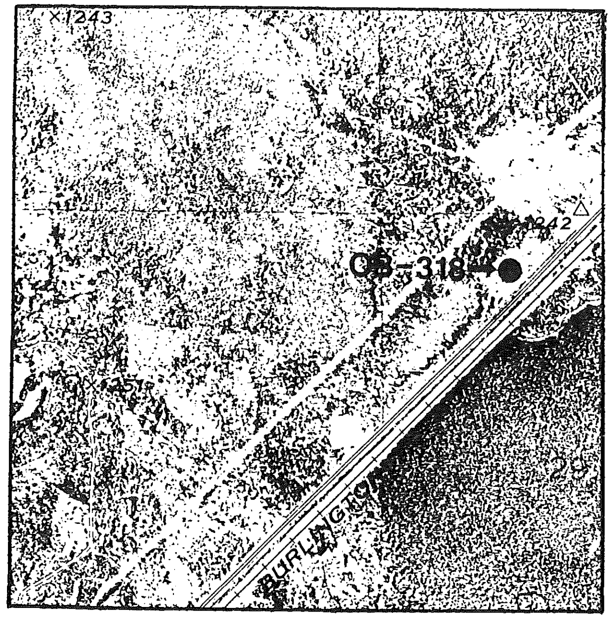
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22390	Y	50 X 125	18 C	1						1			EST.0.5% PYRITE AND 1.0% MARCASITE
		100 X 100	20 C	1						1			<10 GRAINS ARESENOPYRITE
										2	20.9	120	
22391	N	50 X 75	13 C	1						1			
										1	28.8	13	
22392	Y	50 X 100	15 C	1						1			EST. 1% PYRITE
		100 X 150	25 C	1						1			
										2	35.6	99	
22393	Y	25 X 25	5 C		1					1			EST. 5% PYRITE
		25 X 50	8 C	1						1			TRACE ARSENOPYRITE
		50 X 50	10 C	1						1			
										3	36.4	8	
22394	Y	50 X 100	15 C	1						1			EST. 3% PYRITE
		75 X 100	18 C	1	1					2			
		125 X 200	31 C	1						1			
										4	32.4	275	
22395	Y	50 X 75	13 C	1						1			EST. 1% PYRITE
		75 X 75	15 C	1						1			
										2	27.1	37	
22396	Y	25 X 25	5 C	1						1			EST. 1% PYRITE
		25 X 50	8 C			1	1			2			PHOTOMICROGRAPH AVAILABLE
		50 X 50	10 C	3	1					4			FILM REFERENCE #153
		75 X 100	18 C	2						2			
		100 X 150	25 C	1						1			
		175 X 175	34 C	1						1			
										11	36.5	373	
22397	Y	25 X 25	5 C	1			1			2			EST. 1% PYRITE
		50 X 75	13 C	1						1			PHOTOMICROGRAPH AVAILABLE
		50 X 100	15 C		1					1			FILM REFERENCE #153
		50 X 125	18 C	1						1			
		75 X 100	18 C	1						1			
		125 X 175	29 C	1						1			
		175 X 275	42 C	1						1			
										8	34.7	693	
22398	N	50 X 75	13 C	1						1			
										1	40.0	9	
22399	Y	25 X 50	8 C	1						1			EST. 0.5% PYRITE
		50 X 50	10 C	1						1			PHOTOMICROGRAPH AVAILABLE
		75 X 75	15 C	2	1					3			FILM REFERENCE #153
		75 X 100	18 C	2						2			
		75 X 125	20 C	1						1			
		100 X 100	20 C	1						1			
		100 X 125	22 C	1						1			
		100 X 175	27 C	1						1			
										11	38.0	34[illegible]	

Appendix 1-13A.

DRILL HOLE SUMMARY SHEET



IDENTIFICATION
DNR Drill Hole Number: OB-318
Drilling Completion Date: 6/15/88

LOCATION (see map at right)
S-T-R: NE¼-NW¼ - S29 - T154N - R25W
County: Koochiching
Quadrangle: Big Falls NW 7.5
Regional Survey Area: Effie
UTM Coordinates: 434,590mE; 5331420mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1240 ± 3 ft.
Total Depth: 89 ft.
Elevation, Top of Precambrian Bedrock: 1159 ft.
Elevation, Top of Saprolite:
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-39.5	Kooch. lobe gl. drift			A=Au B=Au C=Pb
39.5-81	Rainy lobe gl. drift			B=Au,W
81-89	Sound bedrock	G,H		

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core

H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

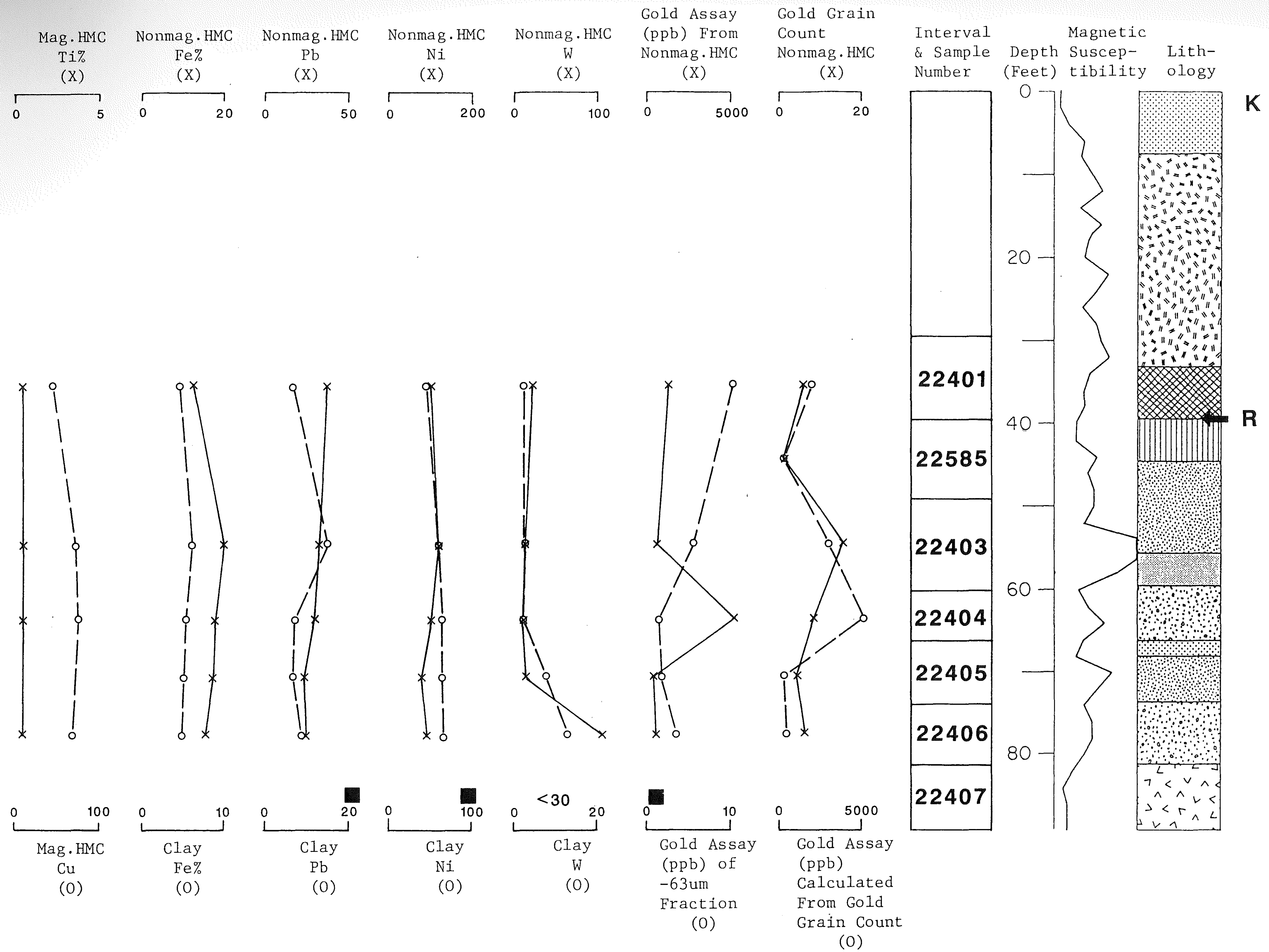
Core Description: Fresh, solid core of gray plagioclase-quartz-biotite schist. Rock is not noticeably banded, but lower part is slightly finer grained and less biotitic than the upper. Protolith may be granitic or sedimentary; however, slightly coarser (1mm) equant feldspar grains and round quartz give a meta-sedimentary appearance, like crystal tuff or volcanogenic wacke. Lineation of biotite dips about 45°. Veins of quartz occur at varied angles and although they cut the main foliation, they are folded. A second set of quartz and quartz-feldspar-pyrite veins are straight and subparallel to foliation. Neither vein set is very abundant. Magnetic Susc. 0.00-0.02 x 10-3 CGS.

Thin Section Description: OB-318, 85 ft. Quartzofeldspathic biotite schist/ gneiss. Estimated mode (volume %): Biotite (including chlorite alteration) 18%; Sphene Tr; Quartz porphyroclasts 6%; Pyrite Tr; Groundmass quartz 30%; Garnet Tr; Groundmass chlorite 6%; Groundmass plagioclase 39%; Apatite Tr; Tourmaline Tr. Moderately well foliated rock with abundant small biotite/ chlorite porphyroblasts and quartz porphyroclasts in a fine-grained matrix of quartz and plagioclase. The biotite is partially altered to chlorite, and contains abundant spindle-shaped inclusions of quartz and feldspar which parallel the biotite cleavage. Although the long dimensions of the biotite grains are parallel to foliation, the internal cleavage ofbiotite is perpendicular to foliation, which combined with the irregular grain shapes implies that the biotite is pre- to syndeformation. Quartz grains are monocrystalline, undulose, and form large (up to 1mm) rounded grains. The matrix is comprised of inequant (foliated) grano-blastic grains of quartz, plagioclase, and fine-grained chlorite; orthoclase content is nil. Minor blocky, fresh pyrite is disseminated throughout, and a single sub-mm vein of quartz and minor plagioclase transects the rock at approximately 15° to the foliation.

Scintillometer Reading (cps): 80-90

OB-318

Appendix 1-13B.



Geologic Descriptions

K (0 - 7 1/2) MEDIUM SAND; OXIDIZED; 0 - 1 ft peat; till lens at 6, sand pebbly & unox below; sh & carb pebs common; sm cob & sev large pebs at base.

(7 1/2 - 33) CLAY LOAM - LOAM TILL; UNOXIDIZED; calc; not many large pebs; 19 - 20 ft clay loam till w/clay & silt beds; 20 - 20 1/2 silty, pebbly sand w/till lenses (could be sluff); carb & sh pebs; large cobs at 27 1/2, 28 1/2, 32 1/2.

(33 - 39 1/2) LOAM TILL; UNOXIDIZED; calc; hard & rocky, possibly mixed w/Rainy; cobs at 35, 36, 37 1/2, 39 1/2.

R (39 1/2 - 44 1/2) SILTY CLAY - CLAYEY SILT; UNOXIDIZED; laminated; scattered, v fine sand grains; v thin red beds, gone by 45 1/2 ft; sand lens at 43 1/2, laminated clay & silt below; large peb near base.

(44 1/2 - 55 1/2) GRAVELLY SAND; 44 1/2 - 45 1/2 silty, pebbly sand w/lens of pebbly silt & silt, sl calc; 45 1/2 - 49 pebbly, cgr sand; 49 - 55 1/2 cgr sand and gvl, few sm cobs, few carb pebs.

(55 1/2 - 59 1/2) FINE SAND; UNOXIDIZED; v fgr at base.

(59 1/2 - 66) GRAVELLY, LOAMY SAND TILL; UNOXIDIZED; sl calc; fairly rocky, mostly cobs w/sandy matrix from 64 1/2 ft; few sm carb pebs.

(66 - 68) VERY COARSE SAND

(68 - 73 1/2) GRAVELLY SAND; UNOXIDIZED; pebbly mgr to cgr sand; little silt; large cob near top & at 69 1/2, 72 ft; silt lens at 70.

(73 1/2 - 81) SANDY LOAM TILL; UNOXIDIZED; sl calc; more compact, silty, & grner w/depth; two cobs near top, others at 75, 77 1/2, 74 1/2, 81 ft.

(81 - 89) BEDROCK; QUARTZOFELDSPATHIC BIOTITE SCHIST; fgr; well foliated.

Appendix 1-13C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,401		318	29.5- 39.5	10.0	ABCJ	154-25-29	NE-NW	K	KOOCHICHING LOBE TILL	21	SCHIST-RICH MIGMATITE	SM	
22,585		318	39.5 49.5	10.0	0	154 25 29	NE-NW	K	RAINY LOBE SANDY SILT	10	SCHIST-RICH MIGMATITE	SM	
22,403		318	49.0- 60.0	11.0	ABCJ	154-25-29	NE-NW	K	RAINY LOBE GRAVELLY SAND	13	SCHIST-RICH MIGMATITE	SM	
22,404		318	60.0- 66.0	6.0	ABCJ	154-25-29	NE-NW	K	RAINY LOBE TILL	11	SCHIST-RICH MIGMATITE	SM	
22,405		318	66.0- 73.5	7.5	AB	154-25-29	NE-NW	K	RAINY LOBE MGR TO VCGR SAND	14	SCHIST-RICH MIGMATITE	SM	
22,406		318	73.5- 81.0	7.5	ABCJ	154-25-29	NE-NW	K	RAINY LOBE TILL	11	SCHIST-RICH MIGMATITE	SM	
22,407		318	81.0- 89.0	8.0	HI	154-25-29	NE-NW	K	BEDROCK	34	SCHIST-RICH MIGMATITE	SM	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,401		21	5	8.3	5.8	1.4	100	29	26	45	7	22	26	45	6.0	10.0	7.0
22,585		10	0	9.4	1.8	5.2	100	-1	-1	-1	10	-1	-1	-1	0	0	0
22,403		13	16	42.4	13.3	3.2	100	-1	-1	-1	20	-1	-1	-1	20.3	53.7	16.8
22,404		11	7	24.5	7.0	3.5	100	65	25	10	28	37	25	10	8.5	29.9	8.5
22,405		14	3	36.5	9.1	4.0	100	69	22	9	16	53	22	9	3.9	48.0	12.0
22,406		11	5	28.9	7.5	3.9	100	49	28	24	17	32	28	24	5.7	33.2	8.6

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,401		21	5	1506	1.080	12.7	1,080	0.3	19	< 0.2	0.7	< 1	11	2	< 200	92	34	121	91	280	50	12.0	5280.00	7.0	79.0	1220	< 1	420.0
22,403		13	16	2745	2.168	29.8	404	0.2	36	1.0	0.6	< 1	< 4	1	< 200	88	32	118	108	390	89	19.0	6310.00	10.0	140.0	1760	9	750.0
22,404		11	7	23058	82.165	17.3	27,500	1.7	21	< 0.2	0.4	< 1	< 4	< 1	< 200	61	27	110	90	370	81	17.0	6240.00	8.5	100.0	1630	< 3	580.0
22,405		14	3	45	0.548	26.0	114	0.1	17	< 0.2	0.3	< 1	8	< 1	< 200	42	22	106	76	330	52	16.0	6390.00	5.5	88.0	1810	< 2	470.0
22,406		11	5	225	1.355	20.8	408	0.2	10	0.7	0.3	< 1	150	2	600	49	23	107	81	340	58	15.0	5780.00	8.8	75.0	1920	8	390.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,401		21	30	10	<.2	2	< 1	< 1	< 2	< 1	< 2	599	39	6	90	40	82	15	42,230	350	-1	15.06	9.09	4.06	2.70	0.61	2.67	1.49
22,403		13	30	5	<.2	3	< 1	< 1	< 2	< 1	< 2	650	63	14	100	55	150	22	58,228	300	-1	16.73	2.67	3.73	3.63	0.68	2.76	1.16
22,404		11	30	< 1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	678	37	6	90	58	130	20	52,236	310	-1	16.41	3.76	3.93	3.99	0.68	2.82	1.39
22,405		14	30	< 1	<.2	1	< 1	< 1	< 2	6	< 2	669	41	6	86	57	110	19	47,899	260	-1	16.08	3.73	3.58	3.96	0.64	2.61	1.32
22,406		11	30	3	<.2	1	< 1	< 1	< 2	12	< 2	681	40	8	81	58	110	21	46,085	340	-1	16.11	5.38	3.54	3.74	0.60	2.79	1.14

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,401		21	5.8	< 0.5	2	< 1	6	39	14	335	125	1,579	3,498	25,779	1,937	1,787	133	89.54	4.53	1.39	1.01	0.05	0.10	0.08	30	42	312	5
22,403		13	13.3	< 0.5	6	< 1	2	69	4	314	91	1,675	3,136	30,156	1,937	2,089	116	87.50	4.15	1.04	1.20	0.09	0.17	0.03	39	47	107	6
22,404		11	7.0	< 0.5	5	< 1	4	73	6	279	99	1,576	4,343	34,592	2,169	1,960	118	84.34	5.00	1.16	1.34	0.10	0.13	0.05	41	35	114	7
22,406		11	7.5	< 0.5	5	1	2	64	12	293	102	1,679	4,463	35,432	2,169	1,997	127	83.98	5.45	1.14	1.36	0.09	0.13	<0.02	32	32	107	7

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,407		81.0- 89.0	< 10	5	< 1	< 0.2	1	< 1.0	1	< 1	< 30	< 2	500	66	27	60	97	201	34	6.61	0.08	3.49	0.60	1.34	3.70	1.62	15.34	63.19	0.17

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,407	137	< 50	< 5	0.07	900	< 10	1	< 1	39	260	240	0.17	< 5	14	14	31	58	114	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,401		29.5- 39.5	21	6	0	1	14	0	8	1	0	-1	26	-1	27	15	2	0	100	-1	
22,403		49.0- 60.0	13	6	0	2	10	0	8	1	0	2	27	-1	20	20	4	0	100	3	
22,404		60.0- 66.0	11	4	0	2	11	0	5	1	-2	-2	26	-1	17	30	4	0	100	3	
22,406		73.5- 81.0	11	3	0	3	15	0	-1	-2	1	0	18	-1	19	28	13	0	100	4	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET)			WEIGHT (GRAMS DRY)		M. I. CONC			AU		DESCRIPTION CLAST					DESCRIPTION MATRIX						CLASS
	TABLE SPLIT	+10 CHIPS	TABLE FEED	TABLE CONC	M.I. LIGHTS	CONC. TOTAL	NON MAG	MAG	NO. V.G.	CALC PPB	SIZE	% V/S	% GR	% LS	% OT	S/U	SD	ST	CY	COLOR SD	COLOR CY	
22401	8.3	0.6	7.7	177.2	163.1	14.1	8.3	5.8	5	1506	P	20	60	20	NA	U	Y	Y	Y	GYB	GYB	TILL
22403	7.9	1.6	6.3	309.0	253.3	55.7	42.4	13.3	16	2745	P	45	50	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22404	8.2	2.3	5.9	306.7	275.2	31.5	24.5	7.0	7	23058	P	75	20	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22405	7.6	1.2	6.4	170.6	125.0	45.6	36.5	9.1	3	45	P	25	75	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22406	8.7	1.5	7.2	261.6	225.2	36.4	28.9	7.5	5	225	P	19	80	1	NA	U	Y	Y	Y	GYB	GYB	TILL
22585	8.1	0.8	7.3	122.1	110.9	11.2	9.4	1.8	0	NA	P	60	35	5	NA	S	C/M	Y	Y	B	B	GRAVEL

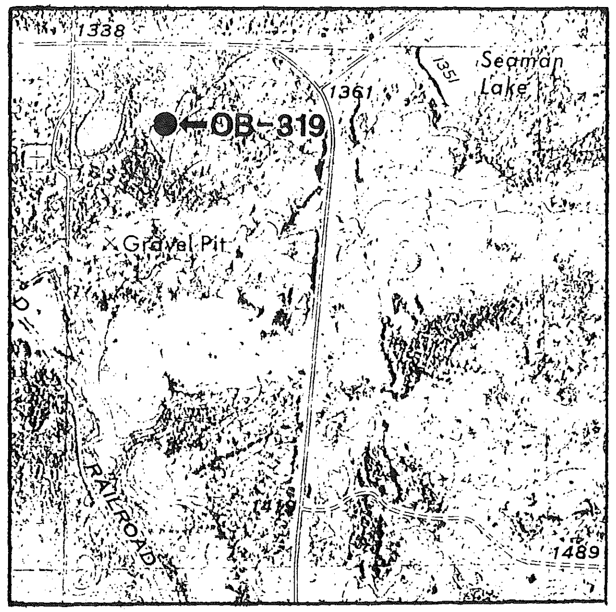
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22401	Y	50 X 50	10 C	1						1			EST. 2% MARCASITE
		50 X 75	13 C	2						2			1% PYRITE
		100 X 175	27 C	1						1			PHOTOMICROGRAPH AVAILABLE
		175 X 175	34 C	1						1			FILM REFERENCE #153
										5	8.3	1506	
22403	Y	25 X 25	5 C	1						1			EST. 2% PYRITE
		25 X 50	8 C	1						1			0.5% MARCASITE
		50 X 50	10 C	1					1	2			PHOTOMICROGRAPH AVAILABLE
		50 X 75	13 C	1						1			FILM REFERENCE #153
		50 X 100	15 C	2						2			
		50 X 125	18 C	1						1			
		75 X 100	15 C	3						3			
		100 X 125	22 C	1						1			
		100 X 175	27 C	1						1			
		125 X 125	25 C	1						1			
		125 X 175	29 C	1						1			
		400 X 450	71 C	1						1			
										16	42.4	2745	
22404	Y	25 X 50	8 C		1					1			EST. 1.5% PYRITE
		75 X 75	15 C	1						1			1.5% MARCASITE
		75 X 100	18 C	2						2			PHOTOMICROGRAPH AVAILABLE
		75 X 150	22 C	1						1			FILM REFERENCE #154
		100 X 125	22 C	1						1			
		625 X 1100	100 M	1						1			
										7	24.5	23058	
22405	Y	25 X 100	13 C	1						1			EST. 2% PYRITE
		75 X 75	15 C	2						2			1% MARCASITE
										3	36.5	45	
22406	Y	50 X 75	13 C	1			1			2			EST. 3% PYRITE
		75 X 125	20 C	1						1			0.5% MARCASITE
		100 X 125	22 C	2						2			
										5	28.9	225	
22585	N	NO VISIBLE GOLD											

Appendix 1-14A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-319
Drilling Completion Date: 6/18/88



LOCATION (see map at right)
S-T-R: NW¼-NW¼ - S14 - T149N - R26W
County: Itasca
Quadrangle: Wirt 7.5
Regional Survey Area: Effie
UTM Coordinates: 429,310mE; 5286370mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1350 ± 4 ft.
Total Depth: 132 ft.
Elevation, Top of Precambrian Bedrock: 1225 ft.
Elevation, Top of Saprolite: 1235 ft.
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-113	Kooch. lobe gl. drift	G	A,B,C	
113-125	Saprolite	G	J	A=Au B=Au,Ag,Cu,Ni,W,Co,Se C=Co,Cu,As
125-132	Sound bedrock	G,H		

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

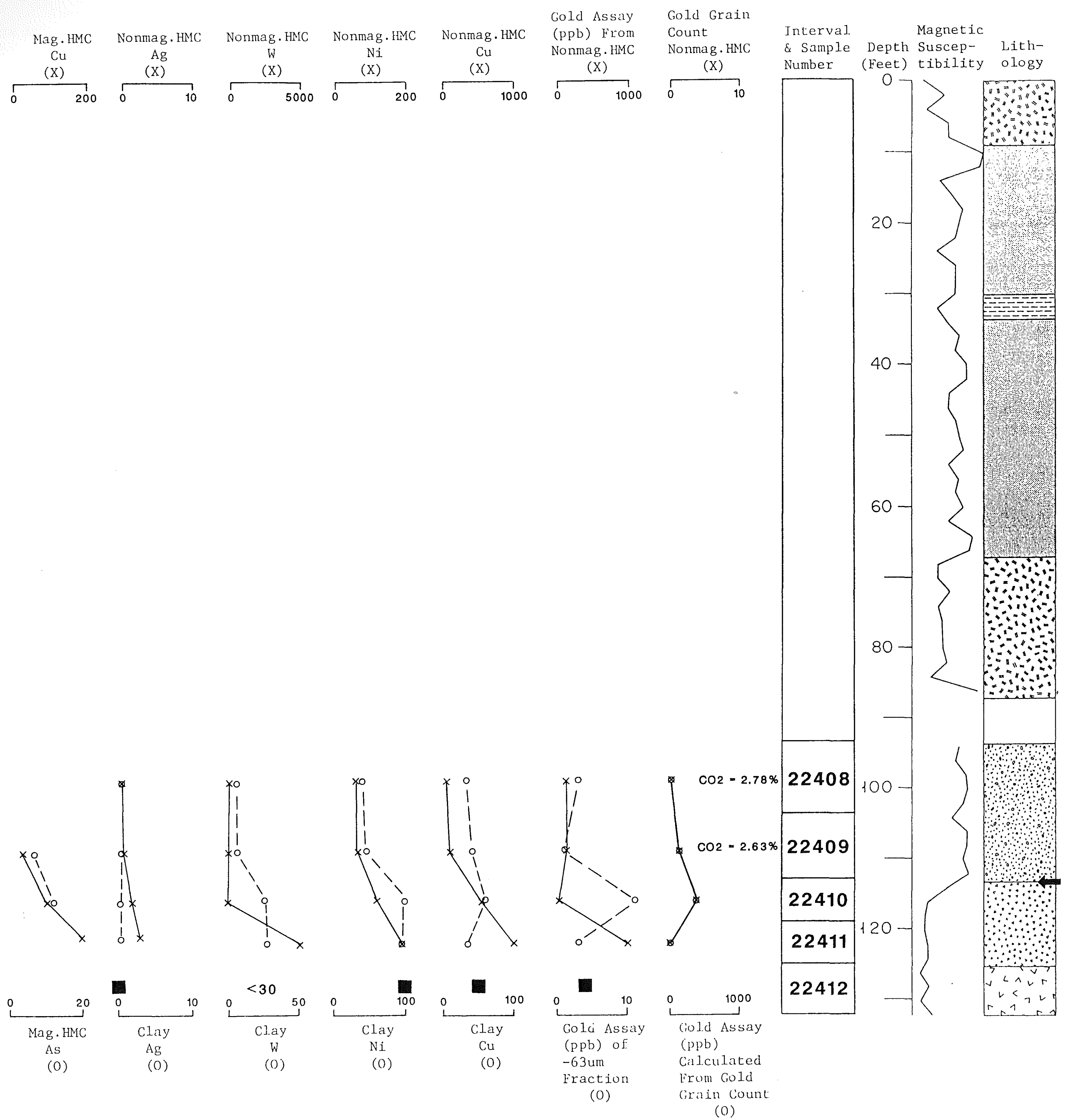
Core Description: Irregular-textured tonalitic intrusion consisting of coarser and finer grained fractions. Thin section contains both fractions. No consistent fabric or veining exists. Magnetic Susc. unknown.

Thin Section Description: OB-319, 128 ft. Coarse-grained tonalitic rock in contact with a fine-grained decussate mafic rock. A variable-textured rock consisting of coarse (3 mm) blocky, subhedral, saussuritized plagioclase in a fine-grained groundmass of epidote, chlorite, quartz, Fe-Ti oxides, and apatite. This is in diffuse contact with a fine-grained, decussate epidote- and chlorite-rich rock that is similar to the fine-grained groundmass. The massive, fine-grained portion of the rock consists of approximately 33% epidote, 12% Fe-Ti oxides (with a narrow rim of sphene), 10% quartz, 45% chlorite, and minor pyrite and apatite. The apatite, oxides, and deuteric chlorite-epidote mineral assemblage suggests that the rock may have originated from an evolved, volatile-rich melt in conjunction with a magma mixing process. Alternatively, and more simply, the mafic portion may represent a thoroughly altered mafic inclusion, but no relict texture is present. The similar mineralogies of the massive portion and the groundmass suggest a genetic link between the two textural variations, however.

Scintillometer Reading (cps): 80-90

OB-319

Geologic Descriptions



K (0 - 9) CLAY - SILTY CLAY TILL; OXIDIZED; calc by 5 1/2 ft; more silty w/depth; 8 - 9 silty, v fgr sand bed over sandy silt lake sed.

(9 - 30) FINE SAND; UNOXIDIZED by 17 1/2 ft; sh-rich layers; silty from 14 - 15, silty w/silt lam from 17 1/2; fairly clean below 21 1/2, still few silt lenses; clay lam at 28, over silty, v fgr sand to 29, over bedded silt & v fgr sand.

(30 - 33 1/2) SILT; UNOXIDIZED; calc; clay lam from 31 1/2 ft, thick clay bed at base.

(33 1/2 - 67) VERY FINE - FINE SAND; UNOXIDIZED; 33 1/2 - 35 ft v fgr sand; 35 - 36 silty, v fgr sand w/few silt & clay lam; 36 - 38 1/2 fgr sand, sm cob & pebs at base; 38 1/2 - 39 1/2 calc clayey till; 39 1/2 - 49 v fgr sand w/few pebs, till lens at 44; 49 - 50 bedded clayey till, w/sh, & v fgr sand; 50 - 67 fgr sand, v fgr to fgr from 55.

(67 - 87) CLAY TILL; UNOXIDIZED; calc; upper 1/2 foot clay loam till; fgr sand lam at 74 ft, sandy silt lam at 77, 78; few pebs; harder w/depth; sharp contact at 85; clay loam till w/sh 85 - 86; 86 - 87 loam till w/clay loam till bed in upper part.

(87 - 93 1/2) NO CORE

(93 1/2 - 113) SANDY LOAM TILL; UNOXIDIZED; calc; carb pebs common; upper foot loamy till w/clayey till lens at 94 ft; cob at 94 1/2, 95, 107, 108 1/2, carb cob at base; no sh noted.

S (113 - 115) REWORKED SAPROLITE; few erratics, but most rock fragments are of bedrock below.

(115 - 125) SAPROLITE; top 5 inches hard rock (moved slab?) over rocky loam, much punky rock; more rock, much hard, at 117 ft, clay mainly joint fillings; mostly clay & punky rock from 120.

(125 - 132) BEDROCK; TONALITE; cgr, massive, deuterically altered.

Appendix 1-14C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,408		319	93.5-103.5	10.0	AB	149-26-14	NW-NW	I	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22,409		319	103.5-113.0	9.5	ABCJ	149-26-14	NW-NW	I	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22,410		319	113.0-119.0	6.0	ABCJ	149-26-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	
22,410	R	319	113.0 119.0	6.0	0	149 26 14	NW-NW	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	REPLICATE B,C, NOT ASSAYED
22,411		319	119.0-125.0	6.0	ABCJ	149-26-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	
22,568	SS	319	122.0 123.0	1.0	IJ	149-26-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERAL&ASSAY
22,412		319	125.0-132.0	7.0	HI	149-26-14	NW-NW	I	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	WEIGHT (GRAMS) +250um FRACTION	WEIGHT (GRAMS) -250 +63um FRACTION	WEIGHT (GRAMS) -63um FRACTION	WEIGHT % >= VCGR SAND	WEIGHT % MGR SAND	WEIGHT % FGR SAND	WEIGHT % SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NORMALIZED TO 10KG SAMPLE NMAG HMC WEIGHT(g)	NORMALIZED TO 10KG SAMPLE MAG HMC WEIGHT(g)
22,408		21	0	17.7	7.3	2.4	100	36	29	35	35	1	29	35	0.0	22.4	9.2
22,409		21	1	19.0	6.8	2.8	100	35	31	35	13	22	31	35	1.3	25.0	8.9
22,410		44	4	15.4	2.8	5.5	100	50	17	33	34	16	17	33	3.9	15.0	2.7
22,411		44	0	5.2	0.6	8.7	100	58	13	30	33	25	13	30	0.0	6.4	0.7

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,408		21	0	0	0.363	12.3	162	0.3	22	0.5	0.5	< 1	< 4	3	< 200	61	42	123	60	280	33	12.0	5190.00	11.0	88.0	970	< 1	400.0
22,409		21	1	112	0.363	13.3	145	0.3	24	0.4	0.5	< 1	< 4	3	< 200	75	46	126	62	290	34	12.0	5010.00	8.2	88.0	867	< 1	400.0
22,410		44	4	398	0.052	11.7	35	1.3	36	0.9	3.1	< 1	< 4	2	< 200	516	21	85	112	200	100	12.0	3530.00	7.3	67.0	862	< 2	380.0
22,411		44	0	0	1.059	3.2	1,650	3.1	78	< 0.3	2.5	< 1	13000	9	< 230	1640	37	59	189	160	920	17.0	1780.00	16.0	120.0	1130	< 3	720.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,408		21	30	3	<.2	2	< 1	1	< 2	6	< 2	520	34	8	78	36	78	13	38,828	340	2.78	13.55	13.01	4.01	2.64	0.55	2.35	1.67
22,409		21	30	2	<.2	2	< 1	< 1	< 2	7	< 2	501	39	8	84	42	90	16	42,185	370	2.63	14.13	12.65	3.97	2.90	0.59	2.29	2.19
22,410		44	30	34	<.2	1	< 1	< 1	< 2	26	< 2	383	57	< 2	87	120	180	30	62,552	320	-1	19.78	2.15	6.02	2.96	0.52	2.01	1.28
22,411		44	30	3	<.2	< 1	< 1	< 1	< 2	27	< 2	418	40	< 2	73	97	110	28	54,564	220	-1	24.62	0.55	5.21	2.56	0.56	2.87	1.19

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,409		21	6.8	< 0.5	6	< 1	2	25	8	215	87	2,046	2,171	21,883	1,704	1,597	97	89.64	2.64	0.81	0.74	0.05	0.22	0.03	16	22	147	5
22,410		44	2.8	< 0.5	11	< 1	6	75	10	377	114	2,311	5,066	39,808	2,479	2,151	138	84.31	5.71	1.20	1.60	0.10	0.10	0.03	38	32	109	8
22,411		44	0.6	NS	NS	NS	NS	196	NS	148	202	1,104	3,739	19,065	2,479	939	5,850	74.97	6.61	1.22	1.42	0.16	0.25	0.04	45	42	71	13

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,568	SS	122.0 123.0	< 10	< 2	2	< 0.5	4	< 0.2	< 5	< 1	< 30	< 2	200	46	2	67	93	180	32	5.61	0.05	3.94	0.35	1.07	2.76	1.44	15.68	63.76	0.13
22,412		125.0-132.0	< 10	< 2	4	< 0.2	1	< 1.0	2	< 1	< 30	< 2	86	54	44	81	121	153	43	8.61	0.12	5.16	1.11	7.35	2.72	0.39	16.41	53.43	0.22

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,568	80	< 50	< 1	0.08	80	< 10	< 1	< 1	39	21	124	0.13	22	14	7	9	16	103	<100	< 2
22,412	146	< 50	< 5	0.05	580	< 10	< 1	< 1	15	220	317	0.22	< 5	19	14	9	21	71	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,409		103.5-113.0	21	6	0	5	15	0	6	1	0	2	20	0	24	16	5	0	100	-1	
22,410		113.0-119.0	44	6	0	12	15	0	1	-2	0	0	12	-1	27	26	1	0	100	3	
22,411		119.0-125.0	44	12	0	63	3	0	0	1	-1	2	3	0	6	10	0	0	100	1	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET)			WEIGHT (GRAMS DRY)					AU		DESCRIPTION											CLASS
						M. I. CONC					CLAST					MATRIX						
	TABLE SPLIT	+10 CHIPS	TABLE FEED	TABLE CONC	M.I. LIGHTS	CONC. TOTAL	NON MAG	MAG	NO. V.G.	CALC PPB	SIZE	% V/S	% GR	% LS	% OT	S/U	SD	ST	CY	COLOR SD	COLOR CY	
22408	7.9	2.8	5.1	183.2	158.2	25.0	17.7	7.3	0	NA	P	15	65	20	NA	U	Y	Y	Y	GYB	GYB	TILL
22409	7.6	1.0	6.6	179.1	153.3	25.8	19.0	6.8	1	112	P	20	70	10	NA	U	Y	Y	Y	GYB	GYB	TILL
22410	10.3	3.5	6.8	40.3	22.1	18.2	15.4	2.8	4	398	NA	NA	NA	NA	NA	U	Y	Y	Y	GGN	GGN	SAP
22411	8.1	2.7	5.4	139.1	133.3	5.8	5.2	0.6	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	GB	GB	SAP

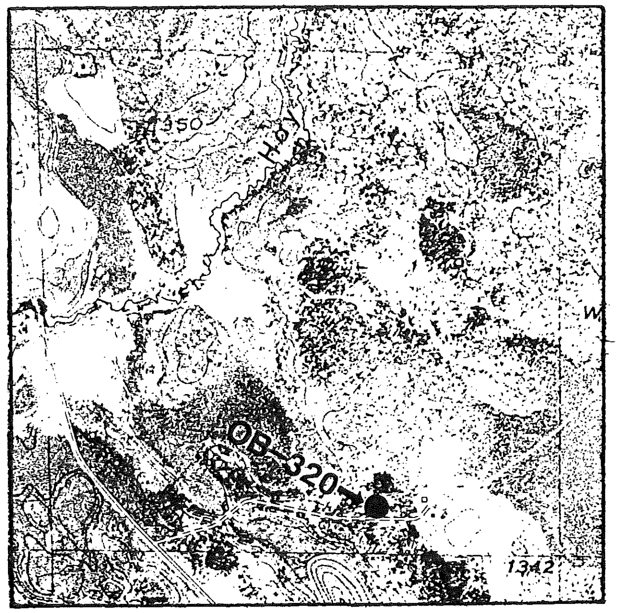
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS: ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22408	N	NO VISIBLE GOLD											
22409	N	100 X 125	22 C	1						1			
										1	19.0	112	
22410	Y	75 X 100	18 C			1				1			EST. 6% PYRITE
		75 X 125	20 C		2					2			2% MARCASITE
		100 X 125	22 C	1						1			GOLD SEPARATED INTO SMALL VIAL
										4	15.4	398	
22411	N	NO VISIBLE GOLD											

Appendix 1-15A.

DRILL HOLE SUMMARY SHEET



IDENTIFICATION
DNR Drill Hole Number: OB-320
Drilling Completion Date: 6/1/88

LOCATION (see map at right)
S-T-R: SW¼-SE¼ - S28 - T150N - R26W
County: Itasca
Quadrangle: Pomroy 7.5
Regional Survey Area: Effie
UTM Coordinates: 426,790mE; 5291640mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1352 ± 2 ft.
Total Depth: 224 ft.
Elevation, Top of Precambrian Bedrock: <1128 ft.
Elevation, Top of Saprolite: 1152 ft.
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

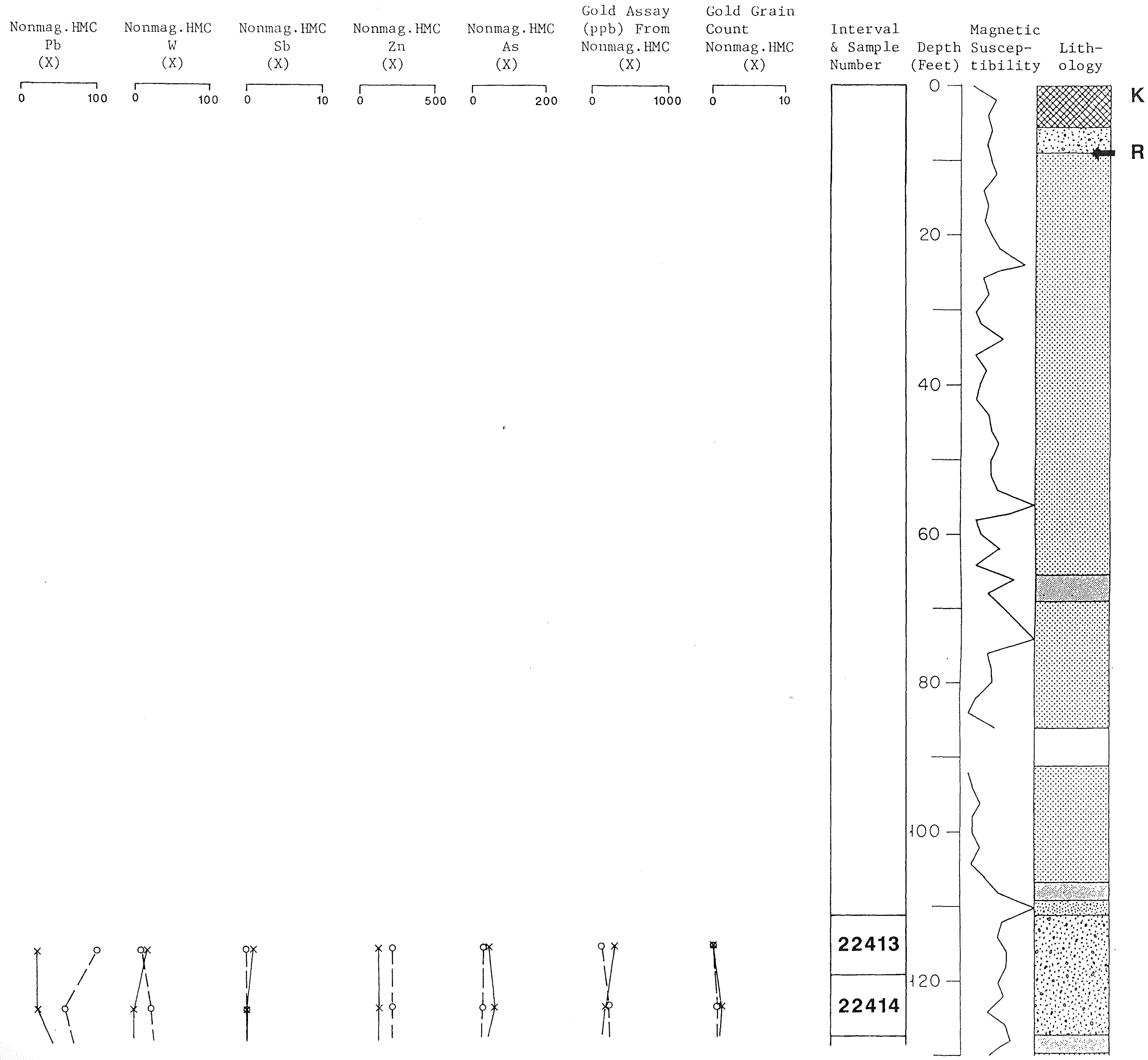
Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-9	Kooch. lobe gl. drift	G		
9-135	Rainy lobe gl. drift	G	A,B	
135-168.5	Old Rainy lobe gl. drift	B,C,G	A,B,C	A=Bi,W B=Au,Pb,Sb,W C=As
168.5-186.5	Winnipeg lobe gl. drift	G	A,B	B=As,Sb,Zn,Se
186.5-196	Old Rainy lobe gl. drift	G	A,B	B=Se,Sb
196-198.5	Winnipeg lobe gl. drift	G	A,B	
198.5-224	Saprolite	G	A,B,J	A=Zn B=As,Ag,Co,Pb, Ni,W,Zn,Sb,Se

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK
No bedrock reached in this hole.

BLANK PAGE

OB-320



Geologic Descriptions

(0 - 5 1/2) LOAM TILL; OXIDIZED; couple inches silty sand on top, interbeds of fgr sand to 3 ft; sandy clay loam till to 2; leached to 3 1/2, carb pebs dominate below.

(5 1/2 - 9) SANDY LOAM TILL; OXIDIZED; 5 1/2 - 6 1/2 ft silty sand; cob at 7, sand bed at 8.

(9 - 35) MEDIUM - COARSE SAND; OXIDIZED; little silt, cob at 13 ft, mgr to v cgr sand below; silt lam at 22; fgr to mgr sand beds below 26.
(32 - 52) COARSE SAND; cob at 40 ft; few sm pebs below; 42 - 43 mgr to cgr sand, v cgr sand w/occ pebs below; some large pebs 46 - 48 1/2; gnl size or smaller below 50; carb fairly common, but Precambrian dominate.

(52 - 65 1/2) MEDIUM SAND; UNOXIDIZED; fgr sand bed at 56 ft, fgr to mgr and mgr sand beds below; mgr to cgr in last few feet, w/few pebs towards base.

(65 1/2 - 69) FINE SAND; UNOXIDIZED; 65 1/2 - 66 ft silty v fgr sand.

(69 - 86) FINE - COARSE SAND; UNOXIDIZED; 69 - 80 ft fgr to mgr, some cgr by 76; 80 - 82 mgr to cgr, 82 - 83 cgr, 83 - 83 1/2 v cgr, 83 1/2 - 85 1/2 mgr to cgr, 85 1/2 - 86 v cgr bed then mgr.

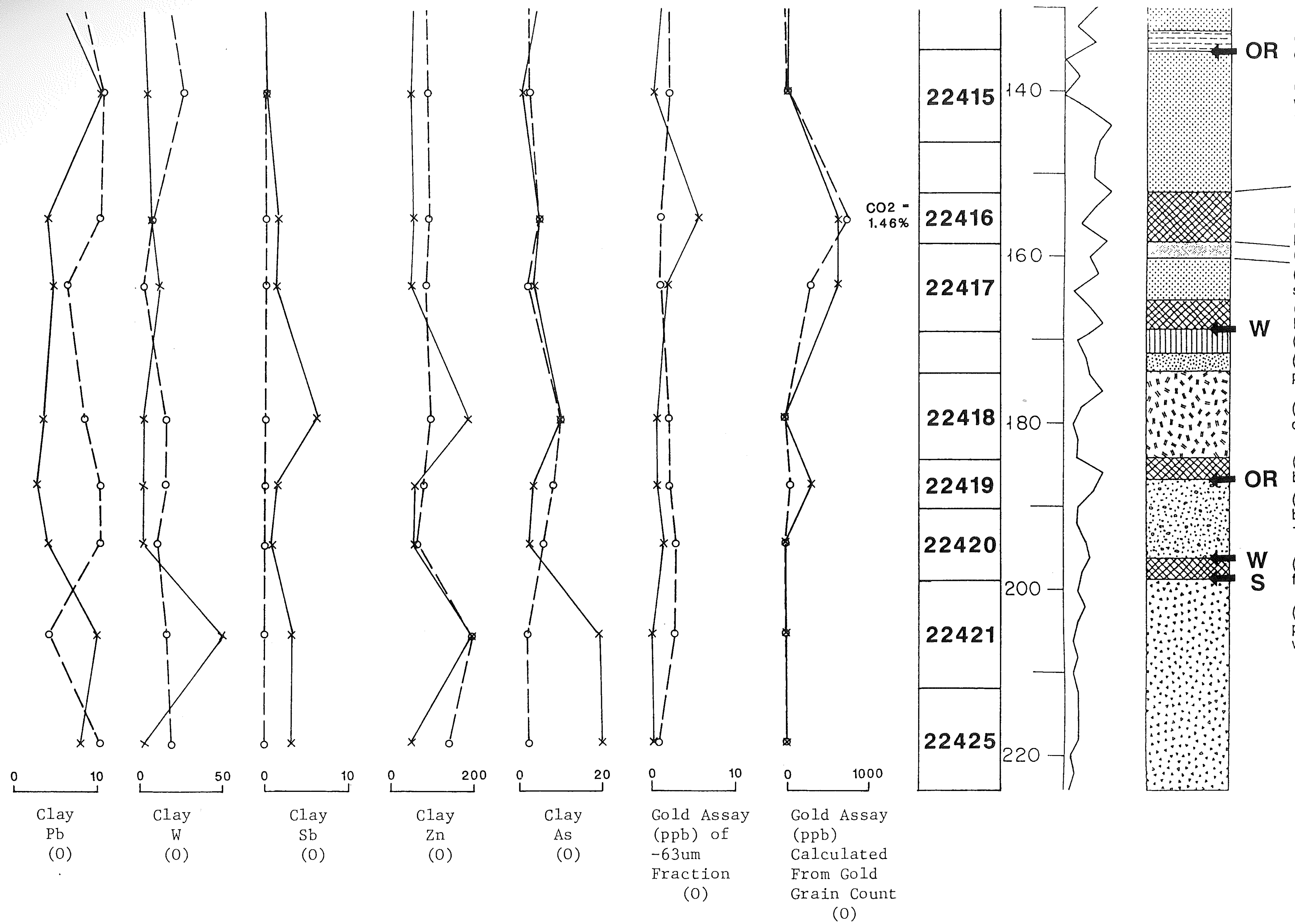
(86 - 91) NO CORE

(91 - 106 1/2) MEDIUM - COARSE SAND; 91 - 96 ft mgr w/increasing coarse grains to 94 1/2, then cgr w/few sm pebs; 96 - 99 cgr, v cgr in last foot; 99 - 106 1/2 mgr to cgr, mainly cgr from 103, mgr in last 1/2 foot.

(106 1/2 - 109) FINE SAND; UNOXIDIZED; v fgr bed at 107 1/2, v fgr to fgr below.
(109 - 111) GRAVELLY SAND; UNOXIDIZED; 109 - 110 fgr to mgr sand, pebbly w/depth, silt lam towards top; 110 - 111 cobbly gvl, poorly sorted, some silt, carb pebs.

(111 - 127) SANDY LOAM TILL; UNOXIDIZED; mod calc to calc; less than 10% carb pebs; cobs fairly common; grnish saprolite bleb at 116 ft; by 118 more sandy & only mod calc at most; pebbly fgr sand 126 - 126 1/2, till grades to sand below.

(127 - 129 1/2) SILTY FINE SAND; UNOXIDIZED; sm cob near top, gradational upper contact.



(129 1/2 - 132 1/2) MEDIUM SAND; silt bed at 132 ft.

(132 1/2 - 135) SILT; UNOXIDIZED; sl calc; fair amount of sand grains, few sm pebs; couple large pebs at 134 1/2 ft, few v thin grnish lam below, could be 'flow till.'

(135 - 152) COARSE & MEDIUM SAND; REDUCED; olive colored; 135 - 141 ft cgr, w/large peb at 138; 141 - 146 mgr, lens of grnish sandy till(?) at 144, grnish silt lens at 146; 146 - 152 cgr, cgr to v cgr from 149, not as grn as above, sm cob at base.

(152 - 155 1/2) LOAM TILL; UNOXIDIZED; may be redu; calc; fgr sand & sandy silt lam; more clayey from 153 1/2 ft & interbedded w/v fgr sand; last 1/2 foot silty, v fgr sand.

(155 1/2 - 158) LOAM TILL; OXIDIZED; unox by 158 ft; calc; silt lens & sm cob at 156, clay bed at 157 & at base.

(158 - 160) SILTY, VERY FINE SAND; UNOXIDIZED; grnish gray.

(160 - 165) MEDIUM - COARSE SAND; some silt; cgr by 162 ft w/some v coarse grains; silty towards base.

(165 - 168 1/2) LOAM TILL; UNOXIDIZED; silty clay bed at top; calc; sm cob at 167 ft; clay loam till from 167 1/2, mixed w/underlying lake clay.

(168 1/2 - 171 1/2) CLAY; UNOXIDIZED; mottled; hard; fgr sand lens near base.

(171 1/2 - 173 1/2) GRAVELLY SAND; UNOXIDIZED; gvlly loam (till?), mgr sand, & silty pebbly sand; large cob near top & at 172 1/2 ft.

(173 1/2 - 184) LOAM - CLAY LOAM TILL; UNOXIDIZED; mottled to 179 ft; calc; hard; carb & sh pebs common; sand lam at 177, cob at 175; clay loam till by 179; clast rich.

(184 - 186 1/2) LOAM TILL; UNOXIDIZED; calc; 184- 184 1/2 ft v silty cgr sand, sm cob at base; similar to above till.

(186 1/2 - 196) SANDY LOAM TILL; UNOXIDIZED; mod calc to calc; carb pebs sm; few ox bands, iron stains; occ cobs; 188 1/2 - 190 ft pebbly cgr sand, little silt; 91 1/2 - 192 & 195 1/2 - 196 silty cgr sand w/few pebs; sand lam; cgr sand beds at 194, 195.

(196 - 198 1/2) LOAM TILL; UNOXIDIZED; sm carb pebs common; saprolite mix from 198 ft, sm cob near base.

(198 1/2 - 224) FOLIATED GRANITE SAPROLITE; possibly sl reworked to about 200 ft; punky rock, more clayey below 201; punky rock w/clay bands from 203 1/2; v punky rock w/pockets of sandy clay from 209, clay increasing w/depth

Appendix 1-15C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,413		320	111.0-119.0	8.0	AB	150-26-28	SW-SE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,414		320	119.0-127.0	8.0	ABJ	150-26-28	SW-SE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,415		320	135.0-146.0	11.0	AB	150-26-28	SW-SE	I	OLD RAINY LOBE MGR TO VCGR SAND	54	GRANITE, GRANODIORITE	GR/GD	
22,416		320	152.0-158.0	6.0	ABCJ	150-26-28	SW-SE	I	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,417		320	158.0-168.5	10.5	AB	150-26-28	SW-SE	I	OLD RAINY LOBE SANDY SILT	50	GRANITE, GRANODIORITE	GR/GD	
22,418		320	173.5-184.0	10.5	ABJ	150-26-28	SW-SE	I	WINNIPEG LOBE TILL	61	GRANITE, GRANODIORITE	GR/GD	
22,419		320	184.0-190.0	6.0	AB	150-26-28	SW-SE	I	OLD RAINY LOBE COMPOSITE TILL SAMPLES	58	GRANITE, GRANODIORITE	GR/GD	
22,420		320	190.0-198.5	8.5	AB	150-26-28	SW-SE	I	OLD RAINY LOBE COMPOSITE TILL SAMPLES	58	GRANITE, GRANODIORITE	GR/GD	
22,421		320	198.5-212.0	13.5	ABJ	150-26-28	SW-SE	I	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	GRANITE, GRANODIORITE	GR/GD	
22,569	SS	320	207.0 208.0	1.0	J	150-26-28	SW-SE	I	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERALOGY
22,425		320	212.0-224.0	12.0	ABJ	150-26-28	SW-SE	I	SAPROLITE: CLAY WITH GRANULES	42	GRANITE, GRANODIORITE	GR/GD	
22,570	SS	320	219.0 220.0	1.0	IJ	150-26-28	SW-SE	I	SAPROLITE: CLAY WITH GRANULES	42	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERAL&ASSAY

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,413		11	0	34.2	11.0	3.1	100	44	32	24	17	27	32	24	0.0	28.5	9.2
22,414		11	1	28.8	8.3	3.5	100	41	35	24	22	19	35	24	1.2	34.7	10.0
22,415		54	0	28.0	10.5	2.7	100	86	8	7	6	80	8	7	0.0	32.6	12.2
22,416		51	6	25.2	5.3	4.8	100	34	39	27	10	24	39	27	5.0	20.8	4.4
22,417		50	6	34.1	6.3	5.4	100	41	33	26	14	27	33	26	5.7	32.5	6.0
22,418		61	0	43.0	4.1	10.5	100	42	23	35	18	24	23	35	0.0	43.0	4.1
22,419		58	3	63.3	4.7	13.5	100	55	19	26	19	36	19	26	3.8	81.2	6.0
22,420		58	0	58.6	5.2	11.3	100	50	30	20	15	35	30	20	0.0	72.3	6.4
22,421		43	0	3.8	0.3	12.7	100	46	17	37	18	28	17	37	0.0	4.6	0.4
22,425		42	0	18.3	0.8	22.9	100	51	18	31	16	35	18	31	0.0	16.3	0.7

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,413		11	0	0	0.815	23.9	286	< 0.1	37	0.8	0.6	< 1	19	< 1	< 200	51	25	116	83	370	59	17.0	6730.00	10.0	94.0	1780	8	470.0
22,414		11	1	74	0.611	20.4	176	< 0.1	48	< 0.2	0.4	< 1	< 4	2	< 200	53	26	114	79	420	66	17.0	5910.00	9.6	92.0	1820	8	500.0
22,415		54	0	0	0.055	19.4	17	< 0.1	< 3	< 0.3	<0.1	< 1	< 4	< 1	< 240	25	103	114	26	450	29	21.0	6090.00	< 1.7	420.0	1300	< 5	2,000.0
22,416		51	6	689	1.145	18.0	550	0.1	45	1.2	0.5	< 1	11	3	< 200	62	36	129	72	280	57	24.0	6200.00	9.9	120.0	1180	< 3	540.0
22,417		50	6	284	0.591	30.7	182	0.2	30	1.0	0.2	< 1	23	4	< 200	53	46	107	59	250	48	22.0	5880.00	5.0	94.0	1700	< 2	410.0
22,418		61	0	0	0.267	38.0	62	0.4	100	6.0	7.8	< 1	< 4	23	280	68	33	460	75	170	42	27.0	3600.00	5.8	62.0	773	< 2	280.0
22,419		58	3	48	0.576	47.1	71	0.2	39	1.2	1.8	< 1	< 4	9	< 200	67	25	146	68	90	41	24.0	5710.00	4.1	58.0	670	< 2	290.0
22,420		58	0	0	1.230	42.0	170	0.1	33	0.4	0.4	< 1	< 4	4	< 200	81	39	140	63	140	46	23.0	6040.00	6.8	83.0	595	5	390.0
22,421		43	0	0	0.010	3.5	21	1.6	230	3.3	0.5	< 1	2000	51	< 340	118	139	1340	394	270	390	14.0	5190.00	31.0	400.0	2640	< 6	5,100.0
22,425		42	0	0	0.044	13.7	27	0.7	100	3.1	1.0	< 1	< 9	14	< 360	41	78	130	79	< 17	71	19.0	4300.00	19.0	390.0	4420	36	4,700.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,413		11	30	< 1	<.2	1	< 1	< 1	< 2	8	< 2	638	33	10	85	40	92	15	39,957	370	-1	14.65	8.11	4.02	3.32	0.60	2.32	1.51
22,414		11	30	2	<.2	1	< 1	< 1	2	13	< 2	704	31	6	82	47	100	18	39,213	330	-1	14.46	7.74	4.05	3.60	0.61	2.46	1.42
22,415		54	30	2	<.2	1	< 1	< 1	4	24	< 2	535	69	12	82	63	120	27	78,152	140	-1	17.40	1.39	2.25	3.53	0.57	2.18	1.61
22,416		51	30	< 1	<.2	2	< 1	< 1	< 2	8	< 2	445	49	10	90	52	100	21	54,029	450	1.46	19.93	6.13	3.05	2.53	0.71	2.04	2.11
22,417		50	30	< 1	<.2	1	< 1	< 1	< 2	3	< 2	504	44	6	85	53	100	20	52,099	420	-1	18.89	5.96	3.02	2.34	0.62	1.98	1.23
22,418		61	30	2	<.2	5	< 1	< 1	< 2	14	4	393	38	8	90	49	66	17	41,967	250	-1	18.25	7.98	2.28	1.87	0.62	2.19	1.97
22,419		58	30	2	<.2	4	< 1	< 1	< 2	16	< 2	409	44	10	74	47	86	19	51,625	260	-1	21.73	4.31	2.14	1.99	0.73	1.95	1.31
22,420		58	30	3	<.2	3	< 1	< 1	2	11	< 2	377	42	10	67	34	80	19	55,597	250	-1	22.60	3.38	2.15	2.10	0.69	1.75	1.56
22,421		43	30	3	<.2	< 1	< 1	< 1	< 2	15	< 2	669	70	4	350	31	110	22	55,373	140	-1	23.76	0.52	2.39	2.50	0.24	3.74	0.96
22,425		42	30	< 1	<.2	< 1	< 1	< 1	< 2	19	< 2	724	20	12	140	10	50	12	27,131	130	-1	24.39	0.83	1.12	3.88	0.38	2.93	0.65

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,416		51	5.3	< 0.5	13	< 1	4	134	12	324	151	2,483	2,594	36,811	2,246	2,189	202	87.14	2.72	0.90	0.75	0.05	0.10	0.02	32	22	94	4

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL		Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,570	SS	219.0	220.0	< 10	< 2	< 1	< 0.5	2	< 0.2	< 5	< 1	< 30	< 2	350	9	< 1	59	26	165	13	1.67	0.03	0.58	0.14	1.56	4.04	1.23	14.04	73.35	0.07

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,570	18	< 50	< 1	< 0.01	96	< 10	1	< 1	6	30	244	0.07	6	3	2	8	15	54	<100	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,414		119.0-127.0	11	1	0	5	12	0	0	-1	1	-2	19	-1	22	33	7	0	100	3	
22,416		152.0-158.0	51	7	0	31	13	0	2	0	-2	1	15	0	17	8	6	0	100	3	
22,418		173.5-184.0	61	33	0	26	6	-2	1	0	0	0	12	0	7	13	2	0	100	1	
22,421		198.5-212.0	43	20	0	30	3	0	4	0	1	0	9	0	27	5	1	0	100	4	
22,425		212.0-224.0	42	5	0	6	1	-2	-2	0	-2	1	4	0	83	-1	-1	0	100	1	

HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22413	12.0	2.0	10.0	305.9	260.7	45.2	34.2	11.0	0	NA	P	30	65	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22414	8.3	1.8	6.5	221.7	184.6	37.1	28.8	8.3	1	74	P	20	80	NA	NA	U	Y	Y	Y	GYB	GYB	TILL
22415	8.6	0.5	8.1	154.8	116.3	38.5	28.0	10.5	0	NA	P	10	90	NA	NA	S	M	N	N	B	NA	SAND
22416	12.1	1.2	10.9	253.4	222.9	30.5	25.2	5.3	6	689	P	20	70	10	NA	U	Y	Y	Y	GYB	GYB	TILL
22417	10.5	1.5	9.0	267.5	227.1	40.4	34.1	6.3	6	284	P	30	65	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22418	10.0	1.8	8.2	129.5	82.4	47.1	43.0	4.1	0	NA	P	20	60	20	NA	U	Y	Y	Y	GYB	GYB	TILL
22419	7.8	1.5	6.3	229.0	161.0	68.0	63.3	4.7	3	48	P	25	70	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22420	8.1	1.2	6.9	222.3	158.5	63.8	58.6	5.2	0	NA	P	29	70	1	NA	U	Y	Y	Y	GYB	GYB	TILL
22421	8.2	1.5	6.7	138.7	134.6	4.1	3.8	0.3	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	GN	GN	SAP
22425	11.2	1.8	9.4	176.4	157.3	19.1	18.3	0.8	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	GGN	GGN	SAP

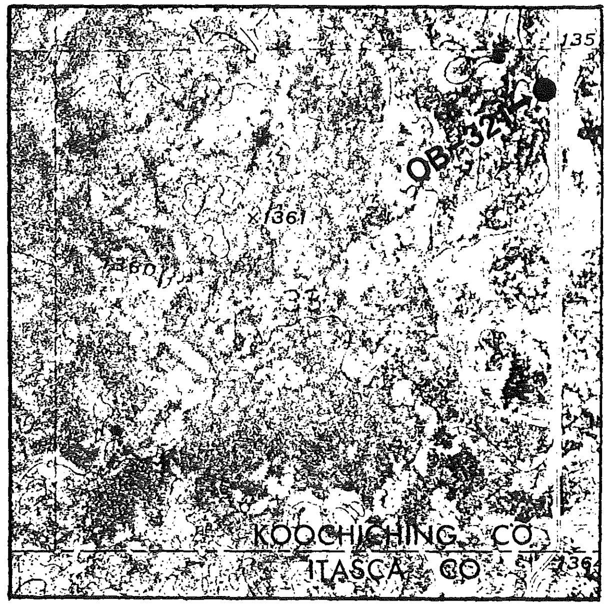
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22413	N	NO VISIBLE GOLD											
22414	N	100 X 125	22 C	1						1			
										1	28.8	74	
22415	N	NO VISIBLE GOLD											
22416	Y	25 X 50	8 C		1					1			EST. 2% MARCASITE
		75 X 100	18 C	1						1			0.5% PYRITE
		75 X 125	20 C	1						1			PHOTOMICROGRAPH AVAILABLE
		100 X 100	20 C	1						1			FILM REFERENCE #154
		125 X 150	27 C	1						1			
		150 X 225	36 C			1				1			
										6	25.2	689	
22417	Y	25 X 50	8 C	2						2			EST. 2% MARCASITE
		50 X 50	10 C	1						1			1% PYRITE
		100 X 100	20 C	1						1			PHOTOMICROGRAPH AVAILABLE
		100 X 150	25 C	1						1			FILM REFERENCE #154
		125 X 175	29 C	1						1			
										6	34.1	284	
22418	N	NO VISIBLE GOLD											
22419	Y	25 X 50	8 C	1	1					2			EST. 10% MARCASITE
		100 X 150	25 C	1						1			0.5% PYRITE
										3	63.3	48	
22420	N	NO VISIBLE GOLD											
22421	N	NO VISIBLE GOLD											
22425	N	NO VISIBLE GOLD											

IDENTIFICATION
DNR Drill Hole Number: OB-321
Drilling Completion Date: 5/25/88

LOCATION (see map at right)
S-T-R: NE¼-NE¼ - S33 - T151N - S26W
County: Koochiching
Quadrangle: Pomroy 7.5
Regional Survey Area: Effie
UTM Coordinates: 427,330mE; 5301080mN; 15,N.



HOLE PARAMETERS
Surface Elevation: 1352 ± 2 ft.
Total Depth: 255 ft.
Elevation, Top of Precambrian Bedrock: <1097 ft.
Elevation, Top of Saprolite: Unknown
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-131.5	Kooch. lobe gl. drift	G		
131.5-154.5	Winnipeg lobe gl. drift	G		
154.5-172	Interglacial	G		
172-176.5	Old Rainy lobe gl. drift	B,C,G	A,B,C	A=Au,Pb B=Au
176.5-179	Winnipeg lobe gl. drift	B,C,G	A,B,C	A=Au,Pb B=Au
179-243	Old Rainy lobe gl. drift	B,C,G	A,B,C	B=Au,Pb

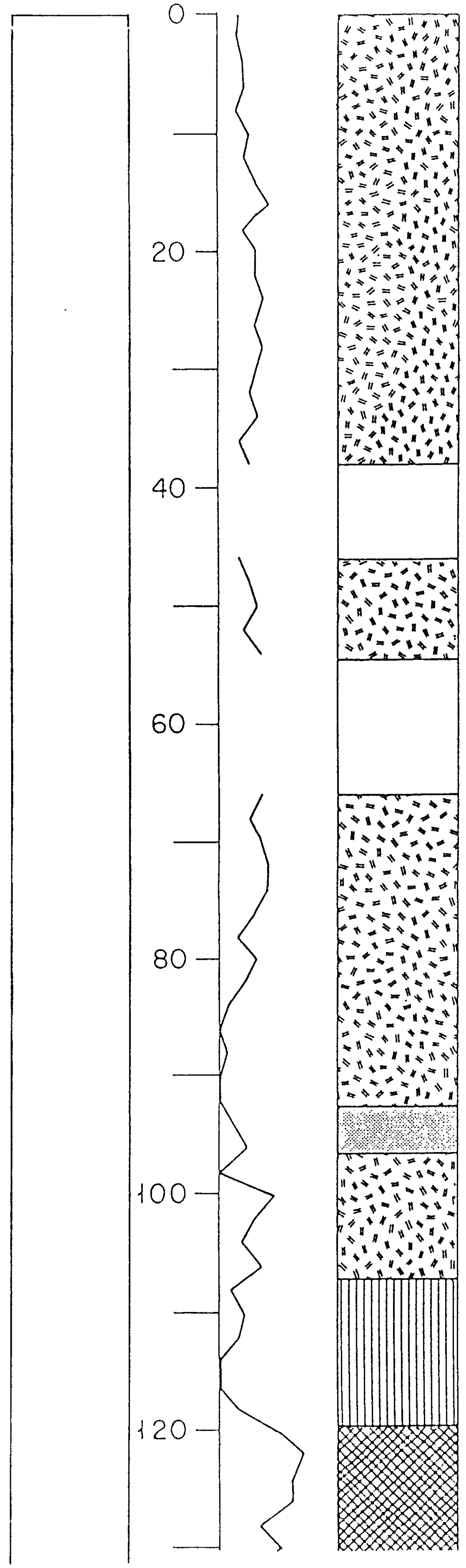
A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK
No bedrock reached in this hole.

BLANK PAGE

Nonmag.HMC Se (X)	Nonmag.HMC Cu (X)	Nonmag.HMC As (X)	Nonmag.HMC Fe% (X)	Nonmag.HMC Pb (X)	Gold Assay (ppb) From Nonmag.HMC (X)	Gold Grain Count Nonmag.HMC (X)
0 – 1	0 – 100	0 – 50	0 – 20	0 – 200	0 – 1000	0 – 20

Interval & Sample Number | Depth (Feet) | Magnetic Suscep-tibility | Lith-ology



Geologic Descriptions

K (0 - 38) CLAY TILL; UNOXIDIZED by 15 ft; 0 - 1/2 peat over silty, v fgr sand; pebbly fgr sand lens at 1; leached to 1 1/2; carb pebs dominate, sh present.

(38 - 46) NO CORE

(46 - 54 1/2) CLAY TILL; UNOXIDIZED; as above; 53 1/2 - 54 silty clay w/v fgr sand lenses at base.

(54 1/2 - 66) NO CORE

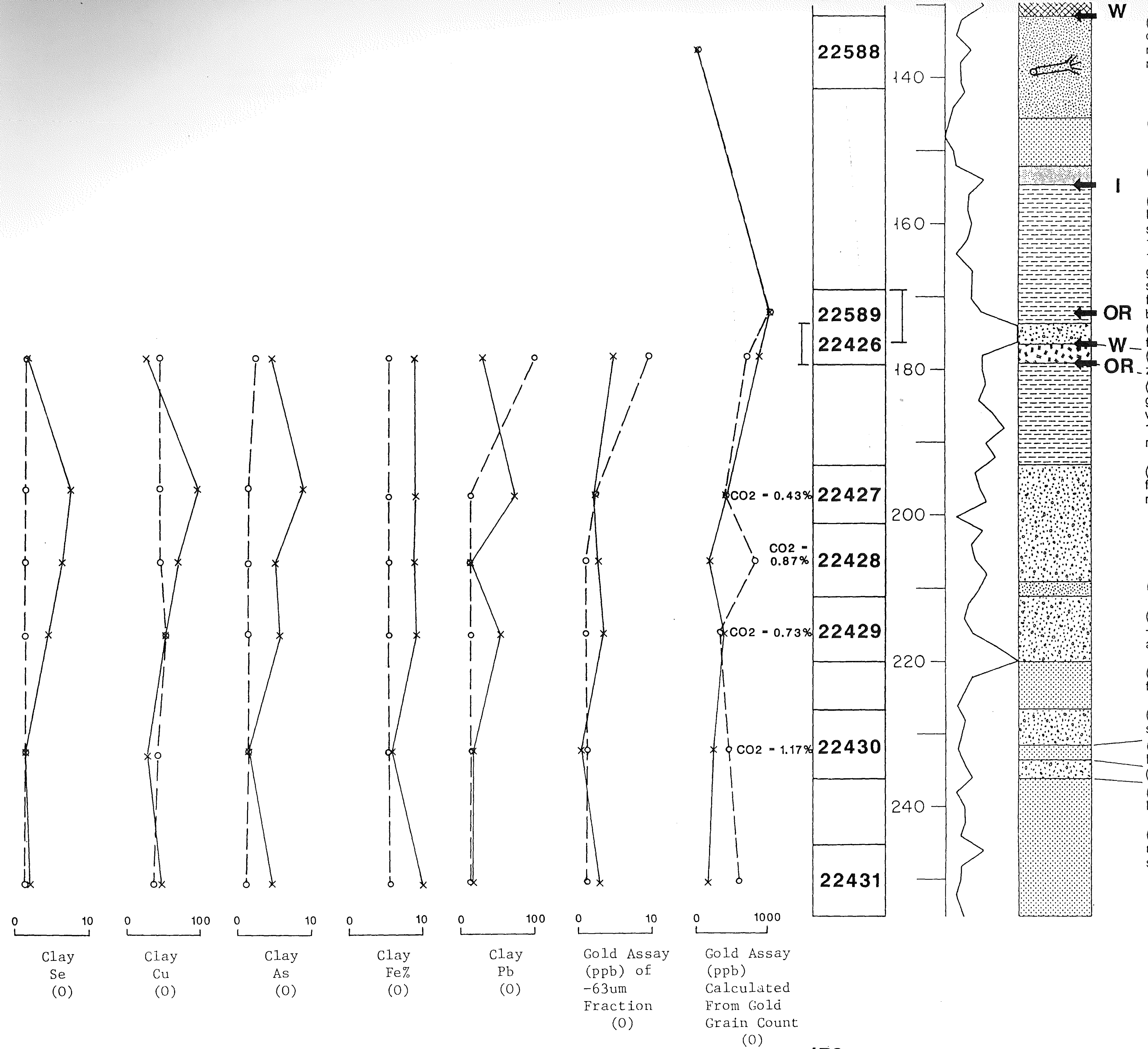
(66 - 92 1/2) CLAY - CLAY LOAM TILL; UNOXIDIZED; lith as above incl sh; 80 1/2 - 81 1/2 ft clay loam till, more pebbly; few v sm pockets of fgr sand below 90.

(92 1/2 - 96 1/2) SILTY, VERY FINE - FINE SAND; UNOXIDIZED; 94 - 94 1/2 ft clayey till w/sand bed towards top; silty, fgr sand in last 1/2 foot apar w/clayey till beds.

(96 1/2 - 107) CLAY TILL; UNOXIDIZED; small cob, sandy lam towards top; sh pebs; only few large pebs; last foot mixed w/lake clay & silt.

(107 - 119 1/2) SILTY CLAY; UNOXIDIZED; calc; few sand grains; more silty w/depth to 114 1/2 ft, w/clay lam; clay texture from 114 1/2, harder than above w/few dropstones; laminated from 116 w/silty clay, clayey silt, & loamy 'till.'

(119 1/2 - 131 1/2) LOAM - SANDY LOAM TILL; UNOXIDIZED; calc, carb & sh pebs present; cobs fairly common; grnish gray by 122 ft; sm balls of ox sandy silt at 126 1/2; clayey till inclusions w/ox rinds from 128; mostly silt loam till from 130 1/2.



(131 1/2 - 145 1/2) GRAVELLY SAND; UNOXIDIZED; sand & gvl to 132 ft, then pebbly cgr sand, some silt; carb pebs fairly common; pebbly, v cgr sand from 136; sev chunks of ragged wood at 139, mostly wood from 141 - 141 1/2, dated greater than 40,600 radiocarbon years; pebbly cgr sand from 141 1/2.

(145 1/2 - 152) MEDIUM SAND; UNOXIDIZED; well sorted.

(152 - 154 1/2) FINE SAND; UNOXIDIZED.

(154 1/2 - 173 1/2) SILT - VERY FINE SANDY SILT; UNOXIDIZED; mod calc; laminated; brownish organic lam from 155 1/2 - 157 ft; sev inches of fgr sand at 155 1/2; sand-size shell fragment at 156; grnish gray 155 1/2 - 157; 157 - 158 1/2 silty, v fgr sand; 158 1/2 - 161 silt, organic lam at top & bottom; 161 - 162 1/2 v fgr sandy silt w/organic lam; 162 1/2 - 165 silt, calc, finely disseminated organics; 165 - 167 v fgr sandy silt, minor organic lam, grnish gray (to 172), grades to silt below; 167 - 168 1/2 silt w/little organics; 168 1/2 - 169 silt & sandy silt w/large pod of organic silt w/peaty rind; 169 - 172 sandy silt w/lenses of fgr sand, mixed w/mgr sand & few pebs from 171; 172 - 173 1/2 silty pebbly sand, cob at base.

(173 1/2 - 176 1/2) GRAVELLY, SANDY LOAM TILL; UNOXIDIZED; sl calc; more clayey from 176 ft.

(176 1/2 - 179) SILTY CLAY TILL; UNOXIDIZED; calc; common sm carb pebs; sandy zone at 178 ft, apar reworked lake sed below; grnish gray.

(179 - 193) VERY FINE SANDY SILT; UNOXIDIZED; sl calc, prob mainly quartz; grnish gray; well sorted; silt bed & silty fgr to mgr sand lens in upper foot; 185 - 186 ft sandy silt w/small pebs, sl to mod calc; 188 1/2 - 190 sandy silt w/few coarse grains, large peb at 189 1/2, fgr sand at base; 190 - 191 1/2 coarse, loamy till, mod calc, most sand is v fgr, more compact & more pebs than above; grades to till below.

(193 - 209) SANDY LOAM TILL; UNOXIDIZED; grnish gray; sl calc; sand lens at 193 1/2 ft, from 195 - 196, & at 205, mostly pebbly sand from 203 1/2 - 204 1/2; cobs fairly common; mod calc by 201.

(209 - 211) COARSE SAND; UNOXIDIZED; large pebs in lower half.

(211 - 220) SANDY LOAM TILL; UNOXIDIZED; sl to mod calc, mod calc by 213 ft; 215 1/2 - 217 mostly sandy silt & sand, could be sluff; iron stains at 219; till finer grained w/depth; abrupt basal contact.

(220 - 226 1/2) MEDIUM-COARSE SAND; UNOXIDIZED; sandy till lenses at 221 1/2, 223 ft; little silt, few pebs.

(226 1/2 - 231 1/2) SANDY LOAM TILL; UNOXIDIZED; sl to mod calc; few large pebs; sand lens at 230 ft, then grades to sand below.

(231 1/2 - 233 1/2) MEDIUM - COARSE SAND; UNOXIDIZED; little silt, few pebs; sandy till lens at 232 ft; grades to till below

(233 1/2 - 236) SANDY LOAM TILL; OXIDIZED; mod calc; as till above.

(236 - 243) FINE - MEDIUM SAND; OXIDIZED; two cobs at about 236 1/2 ft, mgr sand below; pebble at 238; some coarse grains; fgr to mgr by 241.

(243 - 255) COARSE SAND; UNOXIDIZED; carb grains not very common; pebs at 246; mgr to cgr 246 - 247; fgr sand bed at about 253 over four-inch, cgr silt bed, cgr to v cgr sand w/few pebs below.

Appendix 1-16C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,588		321	131.5 141.5	10.0	0	151 26 33	NE-NE	K	WINNIPEG LOBE GRAVELLY SAND	63	GRANITE, GRANODIORITE	GR/GD	
22,589		321	169.0 176.5	7.5	0	151 26 33	NE-NE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,426		321	173.5-179.0	5.5	ABCJ	151-26-33	NE-NE	K	WINNIPEG LOBE COMPOSITE TILL SAMPLES	68	GRANITE, GRANODIORITE	GR/GD	
22,427		321	193.0-201.0	8.0	ABCJ	151-26-33	NE-NE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,428		321	201.0-211.0	10.0	AB	151-26-33	NE-NE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,429		321	211.0-220.0	9.0	ABCJ	151-26-33	NE-NE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,554	R	321	211.0-220.0	9.0	AB	151-26-33	NE-NE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22,430		321	226.5-236.0	9.5	AB	151-26-33	NE-NE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,431		321	245.0-255.0	10.0	AB	151-26-33	NE-NE	K	OLD RAINY LOBE MGR TO VCGR SAND	54	GRANITE, GRANODIORITE	GR/GD	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,588		63	0	13.2	2.7	4.9	100	-1	-1	-1	23	-1	-1	-1	0	0	0
22,589		51	30	45.6	20.3	2.2	100	-1	-1	-1	12	-1	-1	-1	0	0	0
22,426		68	17	46.8	20.1	2.3	100	34	21	45	19	15	21	45	20.0	55.1	23.6
22,427		51	8	27.5	6.7	4.1	100	39	33	28	16	23	33	28	7.8	26.7	6.5
22,428		51	3	32.9	8.1	4.1	100	51	27	22	12	39	27	22	2.8	30.5	7.5
22,429		51	7	29.3	7.0	4.2	100	43	31	26	14	29	31	26	9.2	38.6	9.2
22,554	R	51	0	29.3	7.8	3.8	100	46	29	26	16	30	29	26	0.0	34.1	9.1
22,430		51	4	19.7	5.5	3.6	100	28	32	40	7	21	32	40	4.8	23.7	6.6
22,431		54	3	28.6	4.2	6.8	100	84	10	6	3	81	10	6	3.2	30.1	4.4

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,426		68	17	687	2.516	33.8	457	< 0.1	20	< 0.2	<0.1	< 1	< 4	2	< 200	17	55	102	38	450	32	17.0	6090.00	10.0	200.0	1640	< 3	870.0
22,427		51	8	355	0.566	19.8	212	0.4	43	0.4	0.7	< 1	< 4	3	470	92	147	119	86	290	61	17.0	5630.00	6.3	59.0	1220	< 2	310.0
22,428		51	3	819	0.762	23.5	250	0.2	24	< 0.2	0.6	< 1	< 4	2	< 200	65	29	115	80	310	54	17.0	5790.00	8.6	79.0	1390	6	390.0
22,429		51	7	282	1.292	21.4	335	0.2	28	< 0.2	0.4	< 1	< 4	2	< 200	50	106	110	74	360	52	18.0	5080.00	7.0	88.0	2220	8	460.0
22,554	R	51	0	0	0.020	32.1	6	0.2	31	< 0.2	0.3	< 1	< 4	3	< 200	45	61	105	78	340	49	17.0	4930.00	7.1	76.0	1620	7	370.0
22,430		51	4	397	0.012	14.5	5	0.2	8	0.4	0.1	< 1	< 4	< 1	< 200	26	26	114	69	270	27	11.0	6440.00	5.9	65.0	1090	3	320.0
22,431		54	3	576	0.852	20.1	283	< 0.1	23	< 0.2	0.2	< 1	< 4	3	630	48	30	119	66	360	43	20.0	7100.00	6.2	79.0	1150	< 3	380.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,426		68	30	19	<.2	2	< 1	< 1	< 2	< 1	< 2	584	40	122	87	35	74	15	51,597	600	-1	15.19	9.04	3.84	2.32	0.58	2.50	1.27
22,427		51	30	2	<.2	1	< 1	< 1	< 2	< 1	< 2	616	42	8	91	41	100	19	48,668	350	0.43	16.63	4.47	3.37	3.39	0.62	2.37	0.94
22,428		51	30	< 1	<.2	1	< 1	< 1	< 2	< 1	< 2	797	42	8	95	53	110	20	50,296	430	0.87	16.80	6.36	3.55	3.18	0.64	2.53	1.04
22,429		51	30	< 1	<.2	1	< 1	< 1	< 2	< 1	< 2	613	51	10	110	49	100	20	53,243	380	0.73	17.56	4.85	3.97	3.09	0.67	2.74	1.20
22,554	R	51	30	< 1	<.2	4	< 1	1	< 2	< 1	< 2	571	58	12	120	86	96	16	49,077	83	-1	16.64	5.31	3.54	3.21	0.63	2.96	1.30
22,430		51	30	< 1	<.2	1	< 1	< 1	< 2	8	< 2	629	40	10	92	51	100	21	52,554	400	1.17	16.94	5.72	3.49	3.39	0.62	2.49	1.29
22,431		54	30	< 1	<.2	1	< 1	< 1	< 2	11	< 2	607	37	10	87	35	80	19	54,100	330	-1	17.09	5.06	3.35	3.27	0.65	2.58	1.51

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,426		68	20.1	< 0.5	6	1	2	37	6	274	80	1,719	1,629	31,175	1,937	1,944	118	90.07	2.13	0.71	0.56	0.02	0.23	<0.02	18	19	106	5
22,427		51	6.7	< 0.5	7	1	4	81	6	305	97	1,760	4,222	33,753	2,169	1,963	122	84.06	4.66	1.03	1.27	0.09	0.16	<0.02	54	39	129	11
22,429		51	7.0	< 0.5	5	< 1	6	49	8	317	104	1,917	3,257	36,571	2,169	2,112	118	85.99	3.84	0.98	0.96	0.05	0.18	<0.02	25	25	110	4

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %

No bedrock obtained in drilling

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm

No bedrock obtained in drilling

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,426		173.5-179.0	68	0	0	2	20	0	5	0	0	2	28	0	24	17	2	0	100	-1	
22,427		193.0-201.0	51	4	0	7	4	0	8	3	0	2	18	0	19	32	3	0	100	2	
22,429		211.0-220.0	51	2	0	6	4	0	1	1	1	1	27	0	19	30	7	0	100	2	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

AMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22426	8.5	1.6	6.9	274.5	207.6	66.9	46.8	20.1	17	687	P	40	55	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22427	10.3	1.6	8.7	317.7	283.5	34.2	27.5	6.7	8	355	P	20	75	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22428	10.8	1.3	9.5	259.9	218.9	41.0	32.9	8.1	3	819	P	40	55	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22429	7.6	1.1	6.5	197.1	160.8	36.3	29.3	7.0	7	282	P	40	55	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22430	8.3	0.6	7.7	237.2	212.0	25.2	19.7	5.5	4	397	P	20	70	10	NA	U	Y	Y	Y	GYB	GYB	TILL
22431	9.5	0.3	9.2	159.8	127.0	32.8	28.6	4.2	3	576	P	10	85	5	NA	U	Y	Y	Y	B	B	TILL
22554	8.6	1.4	7.2	242.7	205.6	37.1	29.3	7.8	0	NA	P	45	55	TR	NA	U	Y	Y	Y	GB	GB	TILL
22588	12.6	2.9	9.7	114.8	98.9	15.9	13.2	2.7	0	NA	P	30	45	25	C	S	C	N	N	B	NA	GRAVEL
22589	8.5	1.0	7.5	186.2	120.3	65.9	45.6	20.3	30	1243	P	30	60	10	NA	U	Y	Y	Y	B	B	TILL

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22426	Y	25 X 25	5 C		1					1			EST. 0.05% MARCASITE
		50 X 75	13 C	2						2			PHOTOMICROGRAPH AVAILABLE
		50 X 100	15 C	2						2			FILM REFERENCE #154
		75 X 100	18 C	3	1					4			
		75 X 125	20 C	1						1			
		100 X 100	20 C	1						1			
		100 X 125	22 C	2						2			
		100 X 175	27 C	1						1			
		125 X 150	27 C	1						1			
		125 X 175	29 C	1						1			
		125 X 200	31 C	1						1			
										17	46.8	687	
22427	Y	50 X 50	10 C	1						1			EST. 1% MARCASITE
		50 X 75	13 C	2						2			0.1% PYRITE
		50 X 125	18 C	1						1			PHOTOMICROGRAPH AVAILABLE
		75 X 100	18 C	2						2			FILM REFERENCE #155
		100 X 150	25 C	1						1			
		125 X 125	25 C	1						1			
										8	27.5	355	
22428	Y	75 X 100	18 C	1	1					2			EST. 8% MARCASITE
		250 X 275	48 C	1						1			1% PYRITE
		X	0 C							0			
										3	32.9	819	
22429	Y	50 X 50	10 C	1						1			EST. 7% MARCASITE
		75 X 75	15 C	1						1			1% PYRITE
		75 X 100	18 C	3						3			PHOTOMICROGRAPH AVAILABLE
		75 X 125	20 C	1						1			FILM REFERENCE #155
		75 X 175	25 C	1						1			
										7	29.3	282	

GOLD CLASSIFICATION

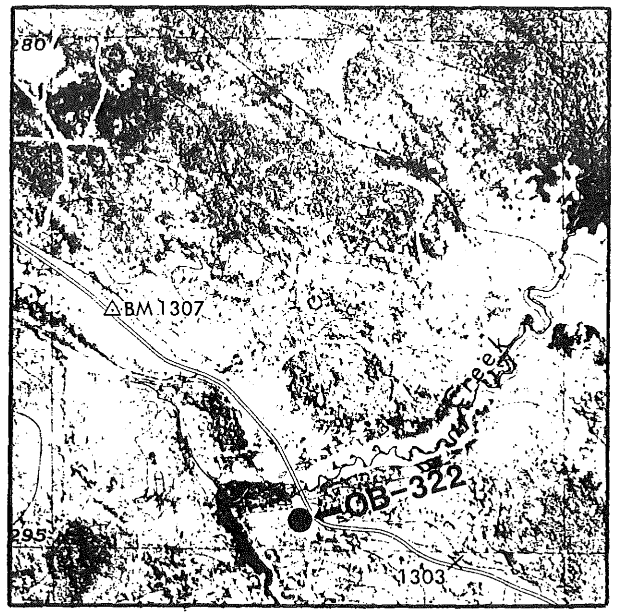
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22430	Y	50 X 50	10 C	1						1			EST. 0.4% MARCASITE
		50 X 75	13 C		1					1			0.1% PYRITE
		75 X 100	18 C	1						1			
		100 X 225	31 C	1						1			
										4	19.7	397	
22431	Y	75 X 100	18 C	1						1			EST. 3% MARCASITE
		125 X 225	34 C	2						2			0.5% PYRITE
										3	28.6	576	
22554	N	NO VISIBLE GOLD											
22588	N	NO VISIBLE GOLD											
22589	Y	25 X 50	8 C		1					1			EST. 0.1% PYRITE
		50 X 50	10 C		5					5			PHOTOMICROGRAPH AVAILBLE
		50 X 75	13 C		1					1			PICTURE REFERENCE #163
		50 X 100	15 C		1					1			
		75 X 75	15 C	2						2			
		75 X 100	18 C	1	1					2			
		75 X 125	20 C	1	1					2			
		100 X 100	20 C	3	2					5			
		100 X 125	22 C	5	2					7			
		100 X 200	29 C	1						1			
		125 X 150	27 C	1						1			
		125 X 225	34 C	1						1			
		175 X 200	36 C	1						1			
										30	45.6	1243	

DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-322
Drilling Completion Date: 6/10/88



LOCATION (see map at right)
S-T-R: SW¼-SE¼ - S16 - T152N - R26W
County: Koochiching
Quadrangle: Wildwood 7.5
Regional Survey Area: Effie
UTM Coordinates: 426,680mE; 5314180mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1290 ± 3 ft.
Total Depth: 202 ft.
Elevation, Top of Precambrian Bedrock: 1094 ft.
Elevation, Top of Saprolite:
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-69.5	Kooch. lobe gl. drift	G		
69.5-172	Rainy lobe gl. drift	B,C,G	A,B,C	A=W
172-196	Old Rainy lobe gl. drift	B,C,G	A,B,C	A=Mo,Fe C=As
196-202	Sound bedrock	G,H	I	

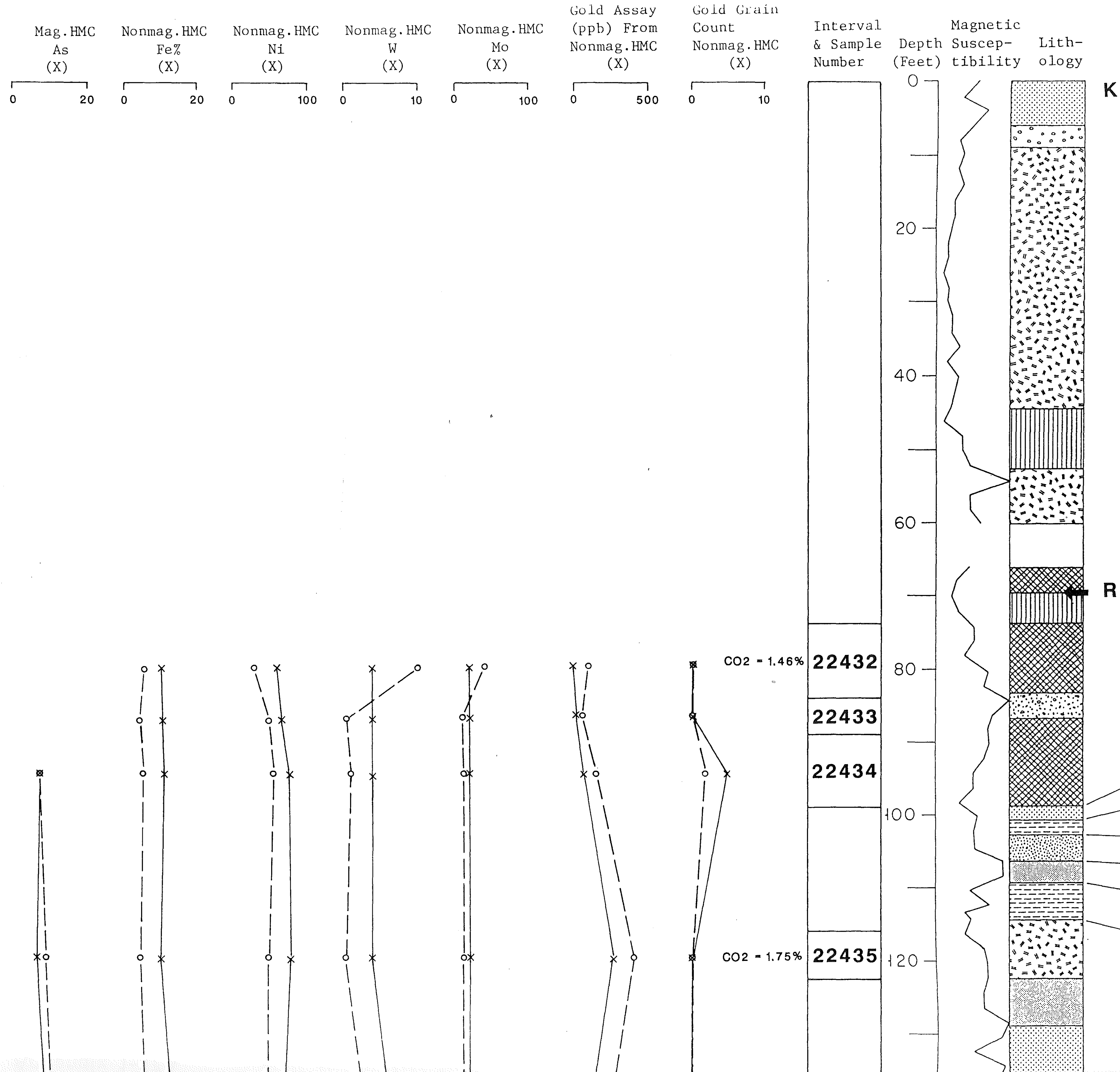
A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

Core Description: White to pinkish, foliated hornblende monzodiorite. Thin section is representative of bulk of the core. Hornblende is strongly lineated and dips about 85°, as does crude modal banding. Contains few pink veinlets. Magnetic Susc. 0.25 - 0.70 x 10-3 CGS, average about 0.50 (detectable with weak hand magnet).

Thin Section Description: OB-322, 200 ft. Coarse-grained, foliated quartz monzodiorite/diorite (Streckeisen classification). Estimated mode (volume %): Plagioclase 64%; Orthoclase 9%; Quartz 19%; Hornblende 4%; Epidote 1%; Chlorite 2%; Fe-Ti oxides Tr-1; Sphene (leucoxene) Tr; Apatite Tr-1; Zircon Tr. Vaguely foliated, moderately cataclasized igneous rock. Contains large (2-6 mm) sericitized plagioclase, sub- to anhedral hornblende, anhedral-interstitial quartz, and fresh anhedral-interstitial orthoclase. Foliation is defined by inequant hornblende and plagioclase. Relatively coarse-grained epidote and lesser chlorite are associated with hornblende as a deuteric alteration product; epidote near fractures is a deep golden yellow color. Rock is cut by web-like fractures of varying orientations, along which sericite is removed from plagioclase and hornblende is altered to chlorite and epidote. One of the fractures contains calcite along part of its length. Coarse-grained primary quartz is typically rutilated.

Scintillometer Reading (cps): 100-120



OB-322

Appendix 1-17B.

Geologic Descriptions

(0 - 6) SILTY MEDIUM - COARSE SAND; OXIDIZED; few pebs; v silty from 2 1/2 ft; 4 1/2 - 6 pebbly sandy loam.

(6 - 9) COARSE GRAVEL; sm cob at base; apar washed by drill action.

(9 - 44 1/2) CLAY TILL; UNOXIDIZED by 11 ft; calc; sandy lens at 17; few large pebs; occ sh pebs; clay to clay loam from 34 1/2 - 35 1/2, & 37 - 43; sandy pockets 41 - 43; grades to lake clay.

(44 1/2 - 52 1/2) CLAY; UNOXIDIZED; massive; little silt, v rare sand; till lens at 48 ft, some pebs below incl sh; silt lam from 51 1/2.

(52 1/2 - 60) CLAY LOAM TILL; UNOXIDIZED; calc; 52 1/2 - 54 ft mostly "flow" clay till, coarse silt bed at base; hard, much less clayey below 54, much more pebs.

(60 - 66) NO CORE

(66 - 69 1/2) LOAM TILL; UNOXIDIZED; calc; 68 - 69 1/2 boulder.

(69 1/2 - 73 1/2) CLAY & SILTY CLAY; UNOXIDIZED; mod calc to calc; laminated; some brnish lam at 71 ft; silt & v fine sandy lam from 72; laminated clay & sandy silt by 72 1/2.

(73 1/2 - 83) LOAM TILL; UNOXIDIZED; grnish gray; sl calc; bedded w/clay towards top; fgr sand 74 1/2 - 75 ft; fairly compact by 75 1/2, mod calc; fair amount of large pebs, sm carb pebs; fgr sand lenses at 81 1/2, 82 1/2.

(83 - 86 1/2) SANDY LOAM TILL; UNOXIDIZED; 83 - 84 1/2 boulder.

(86 1/2 - 98 1/2) LOAM TILL; UNOXIDIZED; mod calc; carb relatively uncommon; silty in upper foot; generally high silt content; fgr sand lenses at 96, 98 ft; mostly sandy silt from 98.

(98 1/2 - 100 1/2) MEDIUM - COARSE SAND; UNOXIDIZED; 99 1/2 - 100 silt w/clay lam; cgr to v cgr pebbly sand below.

(100 1/2 - 102 1/2) SILTY 'TILL,' SILT, CLAY; UNOXIDIZED; laminated; mod calc; top 1/2 foot v fgr to fgr sand.

(102 1/2 - 106) GRAVELLY SAND; 102 1/2 - 104 interbedded fine & pebbly, mgr sand w/silt lam; cgr sand to sand & fine gvl below.

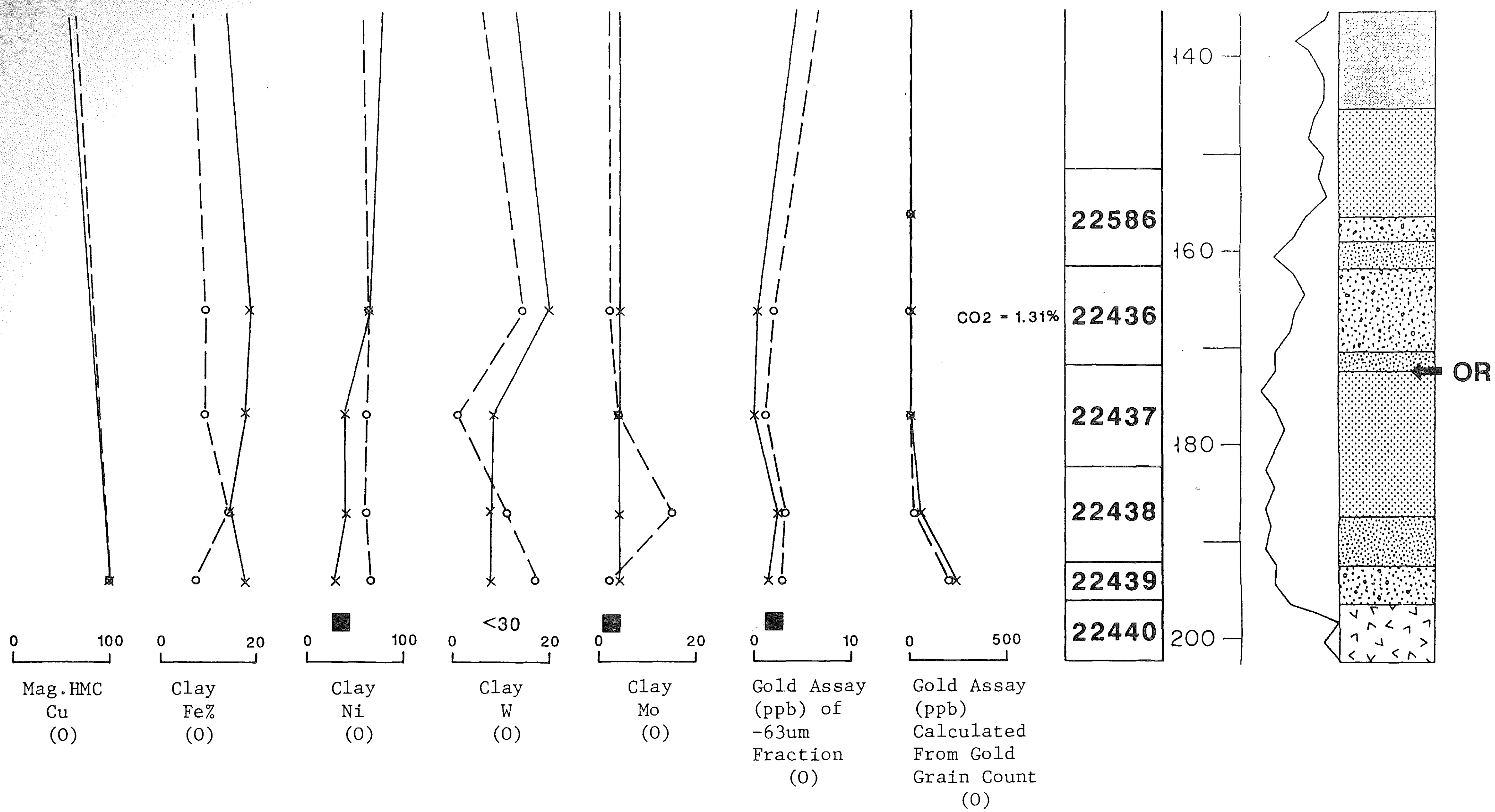
(106 - 109) VERY FINE, SANDY SILT - SILTY SAND; UNOXIDIZED; grnish "till" in upper 1/2 foot.

(109 - 114) SILT & CLAY; UNOXIDIZED; mod calc; laminated; mostly silt to 111 ft; 111 - 112 1/2 v fgr silty sand w/silt lam; v fgr sandy silt bed at 112 1/2; clay increasing w/depth.

(114 - 122) SILTY CLAY LOAM TILL; UNOXIDIZED; calc; laminated to 115 1/2 ft; less than 15% carb pebs; grades to silt below.

(122 - 128 1/2) FINE SAND; 122 - 123 1/2 ft laminated silt, sandy silt & clay, w/large peb; 123 1/2 - 125 1/2 fgr to mgr sand w/silt beds; 125 1/2 - 126 pebbly cgr sand; fgr grading to silty v fgr by 127.

(128 1/2 - 135) FINE - MEDIUM SAND



(135 - 145) FINE SAND

(145 - 156) FINE - MEDIUM SAND

(156 - 158 1/2) GRAVELLY, LOAMY SAND TILL; UNOXIDIZED; grnish gray; cobbly.

(158 1/2 - 161 1/2) GRAVELLY SAND; UNOXIDIZED; silty.

(161 1/2- 170) GRAVELLY, LOAMY SAND TILL; UNOXIDIZED; grnish gray; cobbly; v sl calc; no carb grains noted; 163 - 164 silty, pebbly sand; sandy loam till 164 1/2 - 166; silty, pebbly sand 166 - 167 1/2.

(170 - 172) SILTY SAND & FINE GRAVEL; UNOXIDIZED; few large pebs; noted carb grains; loamy calc till in last 1/2 foot.

(172 - 187) FINE - MEDIUM SAND; REDUCED; olive to grnish gray color; silt lenses at 179 ft; sandy till (?) lens at 179 1/2; silt bed at 180 1/2; mgr to cgr from 179, cgr from 180 1/2; 182 - 183 mod calc silt w/cgr sand bed; some silt below 183, also ox.

(187 - 192) GRAVELLY COARSE SAND; OXIDIZED; some silt, couple silt lam; most gvl actually gnl.

(192 - 196) COBBLY, GRAVELLY LOAM; UNOXIDIZED; grnish gray; mod calc; no carb grains noted; little saprolite in matrix, cobbles mostly same lith as bedrock below.

(196 - 202) BEDROCK; QUARTZ MONZODIORITE; cgr; strong igneous foliation.

Appendix 1-17C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,432		322	73.5- 84.5	11.0	AB	152-26-16	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,433		322	83.5- 88.5	5.0	AB	152-26-16	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,434		322	88.5- 98.5	10.0	ABCJ	152-26-16	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,555	R	322	88.5- 98.5	10.0	AB	152-26-16	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22,435		322	115.5-122.0	6.5	ABCJ	152-26-16	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,586		322	151.5 161.5	10.0	0	152 26 16	SW-SE	K	RAINY LOBE GRAVELLY SAND	13	GRANITE, GRANODIORITE	GR/GD	
22,436		322	161.5-171.5	10.0	AB	152-26-16	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,437		322	171.5-182.0	10.5	AB	152-26-16	SW-SE	K	OLD RAINY LOBE VFGR TO FGR SAND	55	GRANITE, GRANODIORITE	GR/GD	
22,556	R	322	171.5-182.0	10.5	AB	152-26-16	SW-SE	K	OLD RAINY LOBE VFGR TO FGR SAND	55	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22,438		322	182.0-192.0	10.0	AB	152-26-16	SW-SE	K	OLD RAINY LOBE MGR TO VCGR SAND	54	GRANITE, GRANODIORITE	GR/GD	
22,439		322	192.0-196.0	4.0	ABCJ	152-26-16	SW-SE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,440		322	196.0-202.0	6.0	HI	152-26-16	SW-SE	K	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,432		11	0	17.0	6.9	2.5	100	23	35	43	7	16	35	43	0.0	18.9	7.7
22,433		11	0	21.0	7.2	2.9	100	31	32	37	13	18	32	37	0.0	26.6	9.1
22,434		11	5	20.3	6.3	3.2	100	17	25	58	11	6	25	58	4.4	18.0	5.6
22,555	R	11	1	27.0	7.2	3.8	100	16	23	61	4	12	23	61	0.8	20.5	5.5
22,435		11	0	11.9	2.8	4.3	100	12	16	72	5	7	16	72	0.0	14.0	3.3
22,586		13	0	57.6	13.3	4.3	100	-1	-1	-1	17	-1	-1	-1	0	0	0
22,436		11	0	58.1	11.5	5.1	100	65	24	11	43	22	24	11	0.0	45.4	9.0
22,437		55	0	33.6	8.2	4.1	100	-1	-1	-1	8	-1	-1	-1	0.0	34.3	8.4
22,556	R	55	0	22.7	5.2	4.4	100	54	25	21	2	52	25	21	0.0	24.1	5.5
22,438		54	1	24.4	6.6	3.7	100	83	13	4	6	77	13	4	1.2	29.4	8.0
22,439		51	5	41.4	9.0	4.6	100	46	29	26	34	12	29	26	6.8	55.9	12.2

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,432		11	0	0	0.009	12.4	5	< 0.1	26	< 0.2	0.4	< 1	< 4	2	< 200	50	36	115	59	240	34	11.0	5160.00	8.6	90.0	1400	< 1	410.0
22,433		11	0	0	0.069	15.1	26	0.1	29	0.3	0.6	< 1	< 4	< 1	< 200	43	37	113	65	210	35	11.0	4860.00	9.9	73.0	1370	< 1	360.0
22,434		11	5	66	0.135	14.6	75	< 0.1	30	< 0.2	0.7	< 1	< 4	2	< 200	56	32	106	77	220	45	12.0	5230.00	6.9	62.0	1240	< 1	350.0
22,555	R	11	1	1	0.681	20.7	333	0.2	42	0.2	0.6	< 1	< 4	2	< 200	57	33	113	78	360	57	17.0	5050.00	12.0	93.0	1760	< 2	470.0
22,435		11	0	0	0.363	8.4	259	0.1	19	< 0.2	0.6	< 1	< 4	2	630	62	31	97	81	210	45	11.0	4260.00	7.4	62.0	1870	< 2	360.0
22,436		11	0	0	0.041	41.8	9	0.1	30	0.8	0.4	< 1	12	2	< 200	58	44	115	63	260	45	18.0	7000.00	11.0	150.0	1410	< 3	740.0
22,437		55	0	0	0.045	24.4	13	< 0.1	< 2	< 0.3	<0.1	< 1	< 4	< 1	600	22	50	117	38	380	21	17.0	5910.00	21.0	200.0	2220	< 4	1,000.0
22,556	R	55	0	0	0.027	17.4	11	< 0.1	12	< 0.2	<0.1	< 1	< 4	< 1	< 200	30	52	119	40	470	32	20.0	5840.00	20.0	260.0	1360	< 3	1,200.0
22,438		54	1	15	0.373	17.6	127	< 0.1	< 3	< 0.3	<0.1	< 1	< 4	< 1	< 240	20	52	113	39	380	28	17.0	6360.00	< 1.6	250.0	1400	< 5	1,200.0
22,439		51	5	190	0.498	29.9	89	< 0.1	18	< 0.2	0.1	< 1	< 4	2	< 200	41	34	66	30	280	23	18.0	7080.00	< 1.1	140.0	2140	< 3	710.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,432		11	30	2	<.2	2	< 1	< 1	< 2	28	8	694	42	16	70	31	160	20	64,938	300	1.46	17.55	2.09	2.34	4.17	0.50	2.70	2.08
22,433		11	30	< 1	<.2	2	< 1	< 1	< 2	1	2	557	50	8	120	50	94	20	51,702	390	-1	16.94	6.28	3.94	2.89	0.65	2.60	1.26
22,434		11	30	3	<.2	2	< 1	< 1	< 2	2	< 2	553	51	8	100	54	90	20	54,100	390	-1	17.67	5.68	3.92	2.70	0.70	2.45	1.28
22,555	R	11	30	< 1	<.2	3	< 1	< 1	< 2	12	< 2	548	86	12	120	96	140	20	88,678	133	-1	16.58	5.98	3.91	2.85	0.63	2.71	1.92
22,435		11	30	8	<.2	3	< 1	< 1	< 2	1	< 2	556	53	8	93	50	80	18	52,031	400	1.75	16.99	5.93	4.00	2.58	0.66	2.68	1.50
22,436		11	30	2	<.2	1	< 1	< 1	< 2	8	2	551	68	14	110	58	140	29	82,197	450	1.31	19.66	2.07	3.66	2.94	0.67	2.45	1.32
22,437		55	30	< 1	<.2	3	< 1	< 1	< 2	1	4	549	80	32	85	57	130	22	92,360	600	-1	16.79	2.65	2.96	2.96	0.62	2.27	1.58
22,556	R	55	30	< 1	<.2	2	< 1	2	< 2	2	< 2	591	48	42	110	75	100	20	49,480	80	-1	16.95	2.29	3.02	3.10	0.64	2.55	1.87
22,438		54	30	3	<.2	5	< 1	< 1	< 2	11	16	467	120	30	83	56	210	27	142,943	700	-1	14.31	1.85	2.41	4.01	0.58	1.75	3.80
22,439		51	30	3	<.2	2	< 1	< 1	< 2	17	2	599	79	22	140	65	110	32	67,956	400	-1	17.89	3.56	3.28	3.84	0.79	2.37	1.44

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,434		11	6.3	< 0.5	8	< 1	2	40	12	231	92	2,018	3,197	26,559	1,859	1,761	94	87.50	4.40	1.45	0.96	0.05	0.10	0.04	27	32	131	6
22,435		11	2.8	< 0.5	7	< 1	2	46	14	248	106	1,904	4,644	30,036	2,014	1,837	97	85.42	5.58	1.38	1.50	0.09	0.10	<0.02	52	49	127	7
22,439		51	9.0	< 0.5	23	1	4	99	12	247	134	1,562	1,689	30,875	1,859	1,990	142	88.06	2.54	0.93	0.65	0.04	0.10	<0.02	32	29	98	4

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,440		196.0-202.0	< 10	8	2	< 0.2	1	< 1.0	1	< 1	< 30	< 2	609	5	5	66	30	122	13	2.52	0.05	1.08	0.25	3.25	5.01	2.35	16.44	67.25	0.14

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,440	40	< 50	< 5	0.07	940	< 10	1	< 1	19	78	738	0.14	< 5	4	4	17	29	81	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,434		88.5- 98.5	11	3	0	6	17	0	2	-2	0	0	23	-2	25	19	5	0	100	5	
22,435		115.5-122.0	11	3	0	6	9	0	-1	1	0	1	19	-2	29	23	9	0	100	3	
22,439		192.0-196.0	51	0	0	0	13	0	2	1	0	1	39	-2	24	17	3	0	100	4	

HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

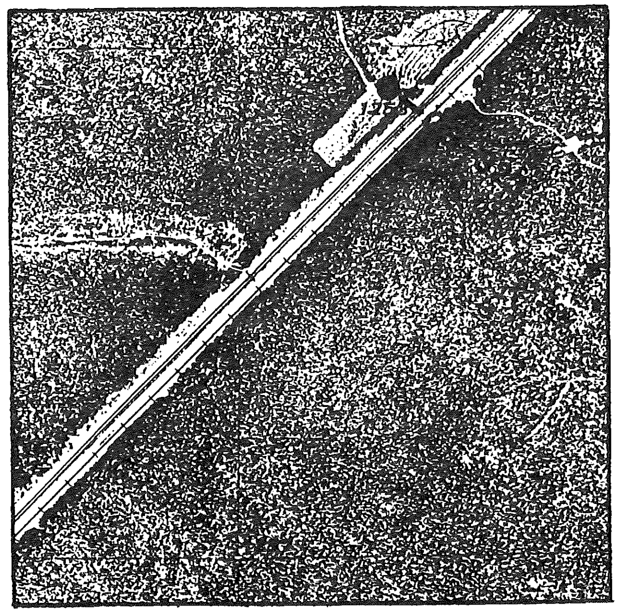
SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22432	9.0	0.6	8.4	173.2	149.3	23.9	17.0	6.9	0	NA	P	20	75	5	NA	U	Y	Y	Y	GYB	GYB	TILL
22433	7.9	1.0	6.9	167.9	139.7	28.2	21.0	7.2	0	NA	P	10	85	5	NA	U	Y	Y	Y	B	B	TILL
22434	11.3	1.2	10.1	183.0	156.4	26.6	20.3	6.3	5	66	P	10	85	5	NA	U	Y	Y	Y	B	GB	TILL
22435	8.5	0.4	8.1	88.0	73.3	14.7	11.9	2.8	0	NA	P	10	89	1	NA	U	Y	Y	Y	B	B	TILL
22436	12.8	5.5	7.3	302.2	232.6	69.6	58.1	11.5	0	NA	P	54	55	1	NA	U	Y	Y	Y	GYB	B	TILL
22437	9.8	0.8	9.0	306.4	264.6	41.8	33.6	8.2	0	NA	P	20	80	TR	NA	U	Y	Y	Y	B	B	TILL
22438	8.3	0.5	7.8	206.6	175.6	31.0	24.4	6.6	1	15	P	40	60	TR	NA	U	Y	Y	Y	B	OC	TILL
22439	7.4	2.5	4.9	184.8	134.4	50.4	41.4	9.0	5	190	P	25	75	40	NA	U	Y	Y	Y	GB	GB	TILL
22555	13.2	0.5	12.7	205.7	171.5	34.2	27.0	7.2	1	1	P	65	30	5	NA	U	Y	Y	Y	B	B	TILL
22556	9.4	0.2	9.2	257.7	229.8	27.9	22.7	5.2	0	NA	P	40	55	5	NA	U	Y	Y	Y	B	B	TILL
22586	10.9	1.9	9.0	340.5	269.6	70.9	57.6	13.3	0	NA	P	60*	35	5	NA	U	Y	Y	Y	B	GNB	TILL

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22432	N	NO VISIBLE GOLD											
22433	N	NO VISIBLE GOLD											
22434	Y	25 X 25	5 C		1					1			EST. 3% NARCASUTE
		25 X 75	10 C		1					1			0.5% PYRITE
		50 X 75	13 C	2	1					3			
										5	20.3	66	
22435	N	NO VISIBLE GOLD											
22436	N	NO VISIBLE GOLD											
22437	N	NO VISIBLE GOLD											
22438	N	50 X 75	13 C	1						1			
										1	24.4	15	
22439	Y	50 X 150	20 C		1					1			EST. 3% MARCASITE
		75 X 75	15 C		1					1			0.5% PYRITE
		75 X 125	20 C		1					1			
		75 X 150	22 C	1						1			
		100 X 125	22 C	1						1			
										5	41.4	190	
22555	N	25 X 25	5 C	1						1			
										1	27.0	1	
22556	N	NO VISIBLE GOLD											
22586	N	NO VISIBLE GOLD											

Appendix 1-18A. DRILL HOLE SUMMARY SHEET



IDENTIFICATION
DNR Drill Hole Number: OB-323
Drilling Completion Date: 6/14/88

LOCATION (see map at right)
S-T-R: NE¼-NW¼ - S29 - T153N - R26W
County: Koochiching
Quadrangle: Ridge 7.5
Regional Survey Area: Effie
UTM Coordinates: 424,760mE; 5321890mN, 15,N.

HOLE PARAMETERS
Surface Elevation: 1253 ± 2 ft.
Total Depth: 143 ft.
Elevation, Top of Precambrian Bedrock: 1118 ft.
Elevation, Top of Saprolite: 1119 ft.
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-103	Kooch. lobe gl. drift	B,G	A,B	B=Ba
103-134	Rainy lobe gl. drift	B,C,G	A,B,C	A=Cu,Ni B=Se
134-143	Sound bedrock	G,H	I	

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

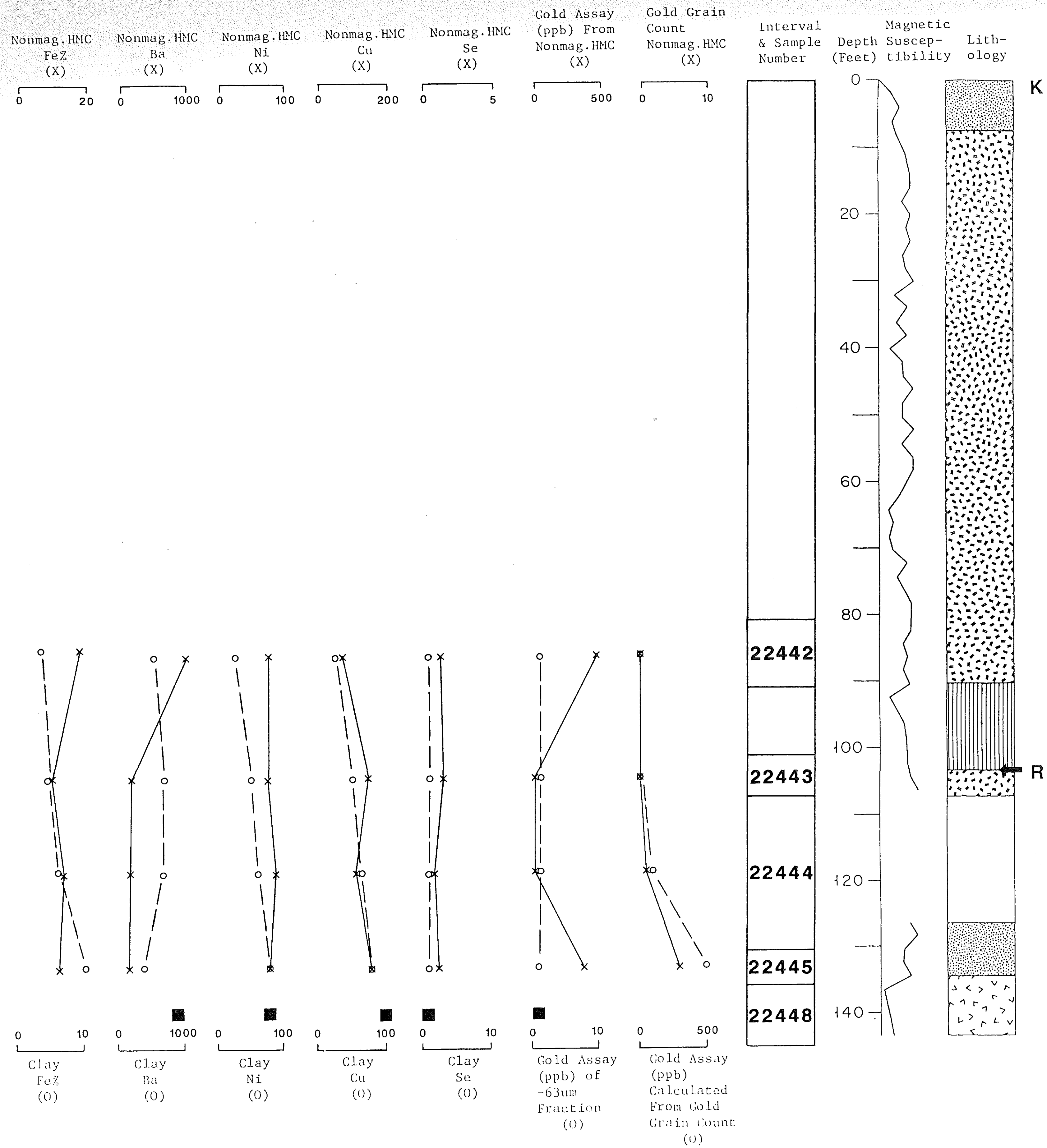
Core Description: Strongly flattened, amygdaloidal and pillowed basalt or basaltic andesite (now chloritic schist). Rock is light to medium green except pillow rinds which are dark green and a few mm to 1 cm thick. Apparent shape of pillows and strong elongation of quartzose amygdules indicates extreme flattening. The lineation dips about 70°. Amygdules tend to be more abundant and larger in the up-core sides of pillows, implying that the flow is upright. Quartz is present between pillow rinds (in interpillow). Thin calcite veins dip slightly less steeply than the foliation. Local, foliation-parallel "shear fractures" contain chlorite, pyrite and minor chalcopyrite. Pyrite also is disseminated throughout (<1%). Magnetic Susceptibility not measured but rock is non-magnetic with hand magnet.

Thin Section Description: OB-323, 138 ft. Fine-grained metabasalt/andesite (chlorite schist). Estimated mode (volume %): Chlorite 50%; Epidote/clinozoisite 14%; Actinolite 8%; Quartz 12%; Calcite 16%. Epidote may be sphene in part, as very fine-grained, granular, semi-opaque masses. Strongly foliated, fine-grained green schist contains abundant chlorite, actinolite, and elongate, disseminated calcite blebs. Rock is very homogeneous overall, with the exception of one darker green fine-grained, foliation-parallel chloritic zone (1.5 mm wide). The rock is cut by thin carbonate veins which are parallel to or + 15° to foliation (conjugate sets); also perpendicular to foliation. Quartz occurs as fine-grained granoblastic ellipses, some of the larger quartz masses may be amygdules.

Scintillometer Reading (cps): 80-90

OB-323

Appendix 1-18B.



Geologic Descriptions

K (0 - 7) GRAVELLY MEDIUM - COARSE SAND; OXIDIZED; silty to 3 ft; fgr sand from 4 1/2 - 5 1/2; common carb & sh; unox by 6 1/2.

(7 1/2 - 60) CLAY LOAM TILL; UNOXIDIZED; calc; less large pebs, more grit w/depth; clay loam to loam from 11 - 18 ft & 46 - 60; sh fairly common.

(60 - 90) CLAY TILL; UNOXIDIZED; much less sand & pebs than above; sm sandy lens at 63 ft; clay loam 71 1/2 - 75, clay to clay loam from 76, more compact, still few pebs.

(90 - 103) CLAY; UNOXIDIZED; grades upward into till; mod calc; few sand grains, sm pebs; silty clay towards base.

R (103 - 107) CLAY LOAM TILL; UNOXIDIZED; grnish gray; sl to mod calc; grades up into lake sed; loamy, cobbly gvl from 106 ft, large cob at base; carb pebs present.
(107 - 126) NO CORE

(126 - 134) GRAVELLY COARSE SAND; UNOXIDIZED; cobbly to 127 1/2 ft, large pebs from 129 1/2; some carb grains; mostly fgr sand 133 - 133 1/2; mod calc, grnish-gray sandy silt 133 1/2 - 134, could be reworked saprolite.

(134 - 143) BEDROCK; METABASALT; fgr; strongly foliated; saprolite, possibly reworked, in upper foot.

Appendix 1-18C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,442		323	80.0- 90.0	10.0	ABJ	153-26-29	NE-NW	K	KOOCHICHING LOBE TILL	21	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,443		323	100.0-106.0	6.0	AB	153-26-29	NE-NW	K	RAINY LOBE TILL	11	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,444		323	106.0-130.0	24.0	AB	153-26-29	NE-NW	K	RAINY LOBE GRAVELLY SAND	13	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,446		323	126.0-131.0	5.0	AB	153-26-29	NE-NW	K	RAINY LOBE GRAVELLY SAND	13	MIXED VOLC. AND CLASTIC ROCKS	V/S	REDRILLED
22,445		323	130.0-135.0	5.0	ABCJ	153-26-29	NE-NW	K	RAINY LOBE GRAVELLY SAND	13	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,447		323	131.0-135.5	4.5	AB	153-26-29	NE-NW	K	RAINY LOBE SANDY SILT	10	MIXED VOLC. AND CLASTIC ROCKS	V/S	REDRILLED
22,448		323	135.0-143.0	8.0	HI	153-26-29	NE-NW	K	BEDROCK	34	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,449	SS	323	137.0-137.5	1.0	IJ	153-26-29	NE-NW	K	BEDROCK	34	MIXED VOLC. AND CLASTIC ROCKS	V/S	SI=137 & 14

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,442		21	0	10.4	4.1	2.5	100	22	25	53	3	19	25	53	0.0	11.4	4.5
22,443		11	0	3.5	1.6	2.2	100	8	10	82	1	7	10	82	0.0	4.5	2.1
22,444		13	1	21.1	4.9	4.3	100	70	12	19	27	43	12	19	1.8	37.7	8.8
22,446		13	1	20.0	3.6	5.6	100	88	8	4	32	56	8	4	1.1	21.5	3.9
22,445		13	6	19.5	4.3	4.5	100	68	18	14	21	47	18	14	7.1	22.9	5.1
22,447		10	1	21.5	3.7	5.8	100	83	11	6	32	51	11	6	1.1	22.9	3.9

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,442		21	0	0	0.537	8.1	470	0.5	54	0.8	1.2	< 1	< 4	3	1100	73	48	118	75	360	38	19.0	5060.00	8.9	76.0	1060	< 2	350.0
22,443		11	0	0	0.004	3.4	8	< 0.1	23	< 0.2	1.5	< 1	19	5	< 200	152	27	130	74	170	54	11.0	4650.00	9.8	49.0	1900	7	300.0
22,444		13	1	71	0.019	15.2	5	0.1	35	0.6	0.9	< 1	14	3	< 200	113	38	110	88	160	52	14.0	7280.00	< 0.5	72.0	939	< 1	360.0
22,446		13	1	19	0.146	14.3	68	0.1	24	< 0.2	0.4	< 1	17	2	< 200	66	40	109	69	180	41	15.0	8170.00	4.4	91.0	658	< 2	450.0
22,445		13	6	673	0.849	14.0	370	0.1	38	0.4	1.3	< 1	18	4	< 200	159	43	112	80	230	55	13.0	7330.00	6.3	110.0	1090	6	550.0
22,447		10	1	9	0.172	14.8	75	< 0.1	16	< 0.2	0.5	< 1	< 4	3	< 200	70	38	113	68	180	42	14.0	8080.00	5.3	89.0	737	6	430.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,442		21	30	< 1	<.2	4	< 1	< 1	< 2	3	2	537	28	8	71	26	44	10	32,813	260	-1	12.26	11.04	4.29	1.73	0.49	2.33	0.17
22,443		11	30	< 1	<.2	3	< 1	< 1	< 2	< 1	2	688	51	6	100	51	94	18	45,434	370	-1	16.48	4.40	3.44	2.42	0.60	2.75	0.18
22,444		13	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	682	63	6	110	59	110	22	65,791	360	-1	18.81	3.47	4.00	2.65	0.67	3.09	0.76
22,446		13	30	< 1	<.2	2	< 1	< 1	< 2	8	2	499	70	6	76	73	110	24	85,312	520	-1	16.90	3.25	4.14	3.24	0.82	2.14	1.66
22,445		13	30	< 1	<.2	< 1	< 1	< 1	< 2	< 1	2	409	81	< 2	130	80	150	41	104,161	210	-1	14.81	8.62	5.15	2.69	0.94	1.15	1.08
22,447		10	30	< 1	<.2	< 1	< 1	< 1	< 2	11	4	395	53	6	110	62	140	34	97,744	660	-1	15.73	6.03	4.90	3.23	0.96	1.59	1.49

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,445		13	4.3	< 0.5	5	< 1	4	108	4	250	90	1,808	3,016	34,772	2,246	1,951	141	85.54	4.16	1.34	1.20	0.10	0.10	0.07	30	35	167	8

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,448		135.0-143.0	< 10	< 2	< 1	0.4	1	1.0	1	< 1	< 30	< 2	91	98	7	122	80	144	62	13.45	0.25	4.46	1.39	8.72	2.44	0.30	13.57	47.64	0.14
22,449	SS	137.0-137.5	< 10	< 2	< 1	< 0.2	1	< 1.0	2	< 1	< 30	< 2	84	175	6	126	90	147	66	14.27	0.26	5.09	1.41	8.31	2.48	0.26	13.65	47.69	0.16

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,448	362	< 50	< 5	0.03	900	< 10	< 1	< 1	12	400	100	0.14	< 5	37	30	6	16	81	< 50	< 2
22,449	367	< 50	< 5	0.02	740	< 10	< 1	< 1	13	400	89	0.16	< 5	37	27	6	16	81	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,442		80.0- 90.0	21	7	0	5	13	0	1	-1	-2	1	28	-1	19	20	6	0	100	3	
22,445		130.0-135.0	13	4	0	16	18	0	6	-1	0	2	15	0	24	13	2	0	100	3	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22442	9.1	0.3	8.8	138.5	124.0	14.5	10.4	4.1	0	NA	P	20	40	TR	NA	U	Y	Y	Y	B	GB	TILL
22443	7.8	0.1	7.7	127.9	122.8	5.1	3.5	1.6	0	NA	P	20	80	NA	NA	U	Y	Y	Y	B	GB	TILL
22444	5.6	1.5	4.1	161.3	135.3	26.0	21.1	4.9	1	71	P	40	40	20	NA	U	Y	Y	Y	B	GB	TILL
22445	8.5	1.8	6.7	164.1	140.3	23.8	19.5	4.3	6	673	P	65	30	5	NA	U	Y	Y	Y	GB	GB	TILL
22446	9.3	3.0	6.3	274.3	250.7	23.6	20.0	3.6	1	19	P	50	40	10	NA	S	C	Y	N	GB	NA	GRAVEL
22447	9.4	3.0	6.4	189.3	164.1	25.2	21.5	3.7	1	9	P	30	50	20	NA	S	C	Y	N	GB	GB	GRAVEL

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22442	N	NO VISIBLE GOLD											
22443	N	NO VISIBLE GOLD											
22000													
22444	Y	75 X 125	20 C					1		1			EST. 2% MARCASITE 0.5% PYRITE
										1	21.1	71	
22445	Y	50 X 75	13 C		2					2			EST. 2% MARCASITE 0.5% PYRITE TRACE ARSENOPYRITE
		100 X 100	20 C	1						1			
		100 X 125	22 C	1						1			
		100 X 175	27 C	1						1			
		100 X 200	29 C			1				1			
										6	19.5	673	
22446	N	50 X 75	13 C	1						1			
										1	20.0	19	
22447	N	50 X 50	10 C	1						1			
										1	21.5	9	

Appendix 1-19A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-325
Drilling Completion Date: 6/21/88

LOCATION (see map at right)
S-T-R: NE¼-NE¼ - S16 - T149N - R27W
County: Itasca
Quadrangle: Dora Lake 7.5
Regional Survey Area: Effie
UTM Coordinates: 417,430mE; 5286420mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1327 ± 3 ft.
Total Depth: 258 ft.
Elevation, Top of Precambrian Bedrock: <1069 ft.
Elevation, Top of Saprolite: Unknown
Drilling Method: Rotasonic
Sample Diameter: 3.5 meter
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-52	Kooch. lobe gl. drift	B,C,G	A,B,C	
52-73.5	Rainy lobe gl. drift	B,C,G	A,B,C	
73.5-258	Old Rainy lobe gl. drift	B,G	A,B	A=Cu,W

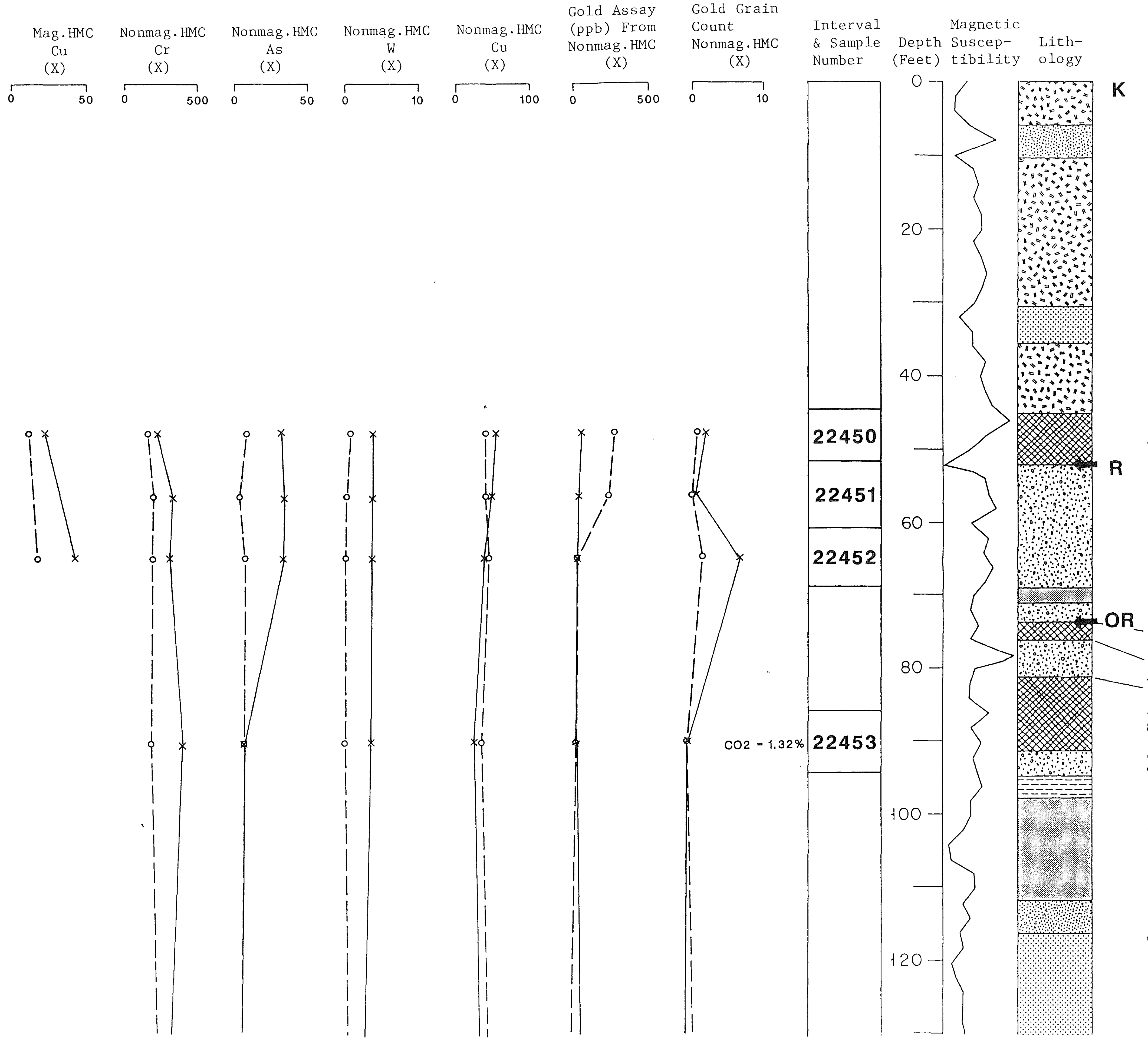
A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK
No bedrock reached in this hole.

BLANK PAGE

Appendix 1-19B.

OB-325



Geologic Descriptions

(0 - 6) CLAY TILL; OXIDIZED; 0 - 1 ft little fill over organic clay loam; leached to about 4; sh pebs.

(6 - 10 1/2) GRAVELLY COARSE SAND; OXIDIZED; silty; abrupt upper contact, gradational lower contact.

(10 1/2 - 30 1/2) CLAY - CLAY LOAM TILL; UNOXIDIZED; calc; thin pebbly lenses 16 1/2 - 17 ft; cobs at 17, 25, & at base; sand lens near base.

(30 1/2 - 35 1/2) FINE - MEDIUM SAND; 30 1/2 - 31 1/2 ft fgr & pebbly; mgr to 33 1/2; pebbly cgr sand in last 1/2 ft.

(35 1/2 - 45) CLAY LOAM TILL; UNOXIDIZED; more grit, more compact than above till; clay loam to loam by 40 ft.

(45 - 52) LOAM TILL; UNOXIDIZED; calc; compact; sandy bed at fairly abrupt upper contact; two large cobs at base.

(52 - 69) SANDY LOAM TILL; UNOXIDIZED; calc to mod calc; compact; sand lenses at 55 1/2 ft, 57 ft; cobs fairly common to 62; few big carb pebs noted below 63 1/2.

(69 - 71) SILTY FINE SAND; some coarser grains; sm cob at 71 ft.

(71 - 73 1/2) LOAMY SAND TILL; UNOXIDIZED; mostly fgr sand; some carb pebs; last 1/2 foot mostly loamy sand.

(73 1/2 - 76) LOAM TILL; UNOXIDIZED; calc; compact; grnish gray; organic blebs near top; appears mottled in upper part; sandy silt bed at 75 ft.

(76 - 81) SANDY LOAM - SANDY CLAY LOAM TILL; UNOXIDIZED; calc; cobs at 76 1/2, 77 1/2 ft; carb fairly common.

(81 - 91) LOAM TILL; UNOXIDIZED; 81 - 81 1/2 ft sandy silt; compact; clayey beds at 83, 84; lake clay 87 - 88; clay or v clayey beds at 90.

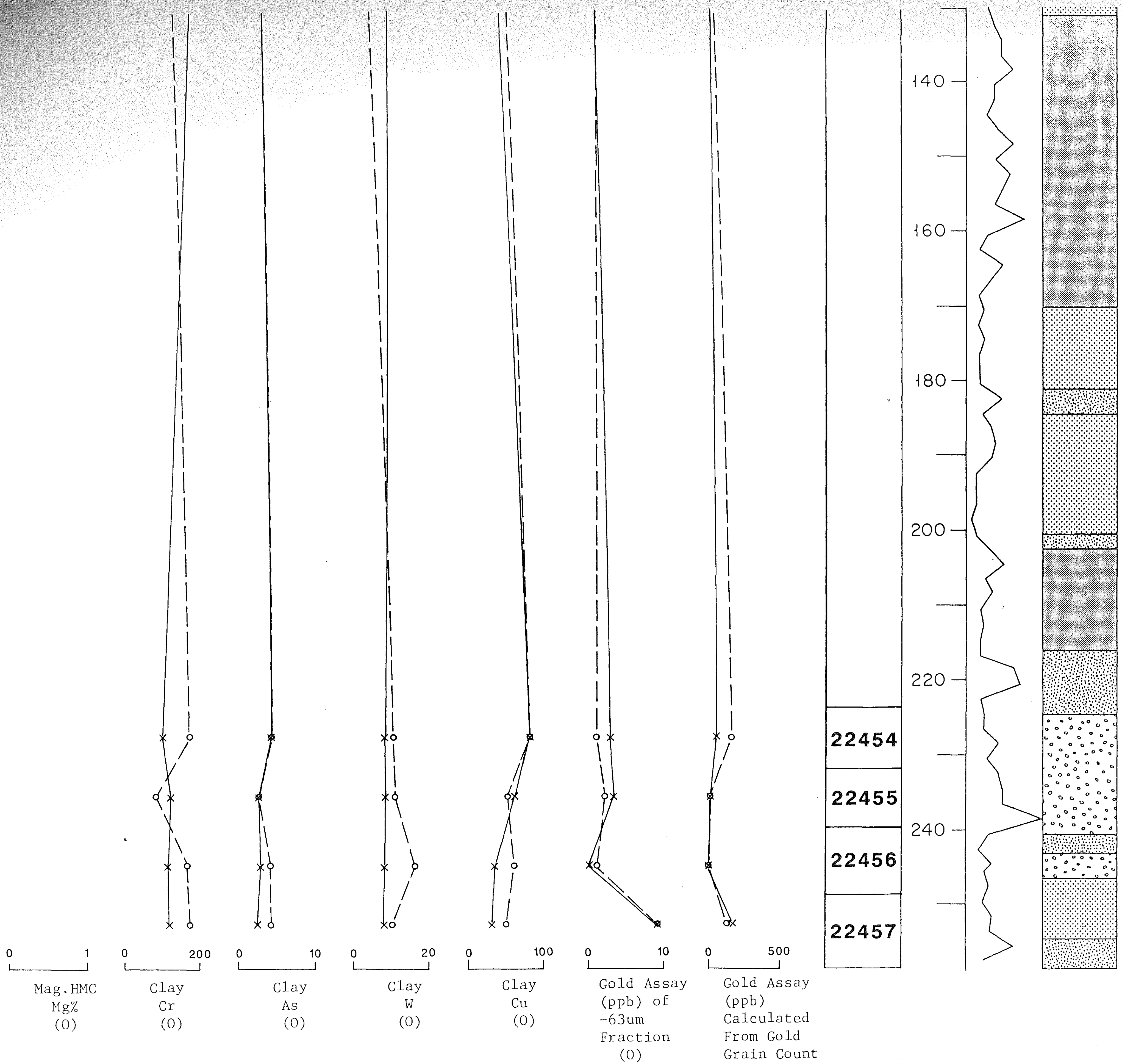
(91 - 94 1/2) SANDY LOAM TILL; UNOXIDIZED; compact; boulder 91 - 92 ft; interbedded w/sandy silt in lower foot or more.

(94 1/2 - 97 1/2) SANDY SILT; UNOXIDIZED; silt bed at base.

(97 1/2 - 111 1/2) FINE SAND; UNOXIDIZED; silt beds from 100 - 101 ft; v fgr 106 - 110, fgr at 110; 110 - 111 1/2 grnish-gray silt.

(111 1/2 - 116) GRAVELLY COARSE - VERY COARSE SAND; UNOXIDIZED; fgr to cgr sand to 113 ft; large peb at 114 1/2, most pebs sm.

(116 - 130 1/2) COARSE - VERY COARSE SAND; few gnl.



(130 1/2 - 169 1/2) FINE SAND; UNOXIDIZED; v fgr 136 - 139 ft; v fgr bed at 143; 148 - 158 1/2 v fgr w/cgr lam at base; fgr to mgr 162 - 164 1/2; grnish-gray v fgr to fgr sand 164 1/2 - 166.

(169 1/2 - 180 1/2) VERY COARSE SAND; some gnl; carb not real common; cgr to v cgr by 177 ft.

(180 1/2 - 184) VERY COARSE SAND, GRANULES, FINE GRAVEL; cob & large peb at 182 ft; large peb layers at 183, 184.

(184 - 191) VERY COARSE SAND; little more silt than above; few pebs.

(191 - 200) MEDIUM - COARSE SAND; v cgr bed at 192 ft; cgr w/gnl 195 1/2 - 196 1/2

(200 - 202) GRAVELLY COARSE SAND.

(202 - 215 1/2) VERY FINE - FINE SAND; v fgr 205 1/2 - 206 ft; mostly fgr in last foot.

(215 1/2 - 224) GRAVELLY MEDIUM - COARSE SAND; 216 1/2 - 218 ft cgr sand w/peb layers; 218 - 218 1/2 gvl, fair amount of carb pebs; 220 - 222 cgr sand & fine gvl, lot of dark pebs, uncommon carb; mgr sand 222 - 223; pebbly cgr sand to base.

(224 - 240) GRAVEL; cobbly in upper foot, rather poorly sorted; carb uncommon, lot of dark pebs; poorly sorted cobbly gvl w/fgr sand matrix from 233 ft; more silty from 237, approaching loamy sand matrix.

(240 - 242 1/2) GRAVELLY COARSE SAND; better sorted than above; cob at 241 ft.

(242 1/2 - 246) COBBLY COARSE SAND; ball of saprolite; sandy till (?) ball at base.

(246 - 254) COARSE SAND; UNOXIDIZED; few pebs.

(254 - 258) GRAVELLY COARSE SAND; large pebs & till balls 254 - 255 ft; cobbly 255 - 256.

Appendix 1-19C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,450		325	45.0- 52.0	7.0	ABCJ	149-27-16	NE-NE	I	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22,451		325	52.0- 60.5	8.5	AB	149-27-16	NE-NE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,452		325	60.5- 69.0	8.5	ABCJ	149-27-16	NE-NE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,453		325	86.0- 94.5	8.5	AB	149-27-16	NE-NE	I	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,557	R	325	86.0- 94.5	8.5	AB	149-27-16	NE-NE	I	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22,454		325	224.0-232.0	8.0	AB	149-27-16	NE-NE	I	OLD RAINY LOBE GRAVEL	52	GRANITE, GRANODIORITE	GR/GD	
22,455		325	232.0-240.0	8.0	AB	149-27-16	NE-NE	I	OLD RAINY LOBE GRAVEL	52	GRANITE, GRANODIORITE	GR/GD	
22,456		325	240.0-249.0	9.0	AB	149-27-16	NE-NE	I	OLD RAINY LOBE GRAVELLY SAND	53	GRANITE, GRANODIORITE	GR/GD	
22,558	R	325	240.0-249.0	9.0	AB	149-27-16	NE-NE	I	OLD RAINY LOBE GRAVELLY SAND	53	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22,457		325	249.0-258.0	9.0	AB	149-27-16	NE-NE	I	OLD RAINY LOBE MGR TO VCGR SAND	54	GRANITE, GRANODIORITE	GR/GD	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,450		21	2	21.7	7.6	2.9	100	40	30	30	10	30	30	30	2.4	26.5	9.3
22,451		11	1	29.6	8.4	3.5	100	44	31	26	10	34	31	26	1.0	28.7	8.2
22,452		11	7	32.5	9.8	3.3	100	45	32	23	8	37	32	23	5.9	27.5	8.3
22,453		51	0	26.2	6.4	4.1	100	31	28	40	4	27	28	40	0.0	25.7	6.3
22,557	R	51	0	16.8	4.3	3.9	100	21	18	61	2	19	18	61	0.0	14.2	3.6
22,454		52	1	12.7	3.6	3.5	100	95	4	1	68	27	4	1	1.4	17.2	4.9
22,455		52	0	17.4	5.5	3.2	100	80	14	7	65	15	14	7	0.0	22.6	7.1
22,456		53	0	16.6	5.1	3.3	100	-1	-1	-1	15	-1	-1	-1	0.0	20.5	6.3
22,558	R	53	1	19.2	4.6	4.2	100	90	1	9	15	75	1	9	1.0	19.8	4.7
22,457		54	3	20.4	6.3	3.2	100	97	2	1	13	84	2	1	3.1	21.0	6.5

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,450		21	2	47	0.196	15.6	74	0.1	33	0.6	0.4	< 1	< 4	3	< 200	57	33	126	65	250	38	13.0	4840.00	9.0	80.0	1060	7	370.0
22,451		11	1	34	0.184	21.1	64	< 0.1	34	< 0.2	0.3	< 1	< 4	< 1	< 200	51	26	104	71	360	54	16.0	5280.00	11.0	95.0	1430	< 2	510.0
22,452		11	7	97	0.143	23.2	52	0.1	36	< 0.2	0.5	< 1	< 4	1	< 200	43	24	100	93	330	54	15.0	5180.00	9.3	81.0	2460	< 2	460.0
22,453		51	0	0	0.139	18.8	54	0.1	9	< 0.2	<0.1	< 1	< 4	< 1	< 200	26	35	118	71	420	37	15.0	4770.00	9.8	110.0	1480	< 2	560.0
22,557	R	51	0	0	0.243	12.3	171	< 0.1	7	0.4	<0.1	< 1	< 4	< 1	< 200	27	41	122	69	350	31	13.0	5340.00	8.0	93.0	1180	< 2	450.0
22,454		52	1	167	0.240	9.0	140	< 0.1	20	0.6	0.3	< 1	< 4	2	< 200	82	33	97	62	230	37	14.0	6080.00	< 0.7	88.0	968	< 2	410.0
22,455		52	0	0	0.332	12.6	147	< 0.1	12	< 0.2	0.1	< 1	< 4	3	< 200	58	31	105	61	300	29	12.0	6000.00	5.0	88.0	867	< 2	420.0
22,456		53	0	0	0.010	11.7	5	< 0.1	14	0.5	0.1	< 1	< 4	2	< 200	35	37	96	54	280	29	13.0	6220.00	9.9	91.0	827	< 2	430.0
22,558	R	53	1	403	0.010	14.6	5	0.1	15	< 0.2	<0.1	< 1	< 4	2	< 200	28	36	90	56	310	28	12.0	6000.00	6.7	86.0	701	< 1	390.0
22,457		54	3	123	3.071	14.8	1,460	< 0.1	13	< 0.2	<0.1	< 1	< 4	2	< 200	30	39	109	51	300	29	13.0	6630.00	5.2	100.0	561	< 2	470.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm
22,450		21	30	6	<.2	2	< 1	< 1	< 2	2	4	509	42
22,451		11	30	5	<.2	1	< 1	< 1	< 2	< 1	2	616	44
22,452		11	30	< 1	<.2	2	< 1	< 1	< 2	< 1	2	580	45
22,453		51	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	581	40
22,557	R	51	30	2	<.2	3	< 1	< 1	< 2	18	< 2	594	35
22,454		52	30	< 1	<.2	4	< 1	< 1	< 2	10	10	540	82
22,455		52	30	2	<.2	2	< 1	< 1	< 2	11	4	550	49
22,456		53	30	< 1	<.2	4	< 1	< 1	< 2	16	6	579	57
22,558	R	53	30	< 1	<.2	2	< 1	< 1	< 2	5	< 2	655	51
22,457		54	30	9	<.2	4	< 1	< 1	< 2	10	14	613	53

SAMPLE NUMBER	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO_2 %	Clay Al_2O_3 %	Clay CaO %	Clay MgO %	Clay Na_2O %	Clay TiO_2 %	Clay K_2O %	Clay P_2O_5 %
22,450	10	98	49	70	15	45,813	470	-1	15.06	11.21	3.55	2.28	0.57	2.58	1.66
22,451	10	110	55	94	18	55,008	450	-1	16.84	7.17	3.87	2.69	0.67	2.78	1.36
22,452	12	110	56	92	18	55,876	460	-1	16.53	7.15	3.80	3.08	0.65	2.66	2.20
22,453	6	90	42	82	17	53,080	400	1.32	18.09	5.98	3.36	2.58	0.64	2.78	1.60
22,557 R	10	41	67	96	15	51,399	60	-1	17.06	6.27	3.41	2.64	0.63	2.84	1.44
22,454	12	61	47	160	19	67,650	310	-1	14.85	4.02	3.95	3.92	0.61	2.13	1.87
22,455	8	53	23	80	14	63,173	210	-1	16.65	4.16	3.75	3.82	0.68	2.47	2.06
22,456	12	45	37	160	15	58,273	220	-1	17.24	3.14	2.75	4.09	0.52	2.57	1.88
22,558 R	8	110	73	96	9	49,636	82	-1	16.59	2.96	2.62	4.21	0.51	2.65	1.94
22,457	10	49	34	170	13	52,491	210	-1	16.44	3.22	2.60	4.10	0.49	2.63	1.38

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm
22,450		21	7.6	< 0.5	6	1	2	22	2	205	78	1,988	2,413	20,384	1,627
22,452		11	9.8	< 0.5	5	1	2	45	4	250	86	1,959	3,739	30,216	2,014

SAMPLE NUMBER	V ppm	Co ppm	Fe_2O_3 %	SiO_2 %	Al_2O_3 %	CaO %	Na_2O %	K_2O %	P_2O_5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,450	1,579	92	90.06	2.79	0.75	0.78	0.04	0.10	0.02	18	24	151	2
22,452	1,888	107	86.28	4.69	1.07	1.14	0.11	0.10	0.07	27	34	151	7

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe_2O_3 %	MnO %	MgO %	TiO_2 %	CaO %	Na_2O %	K_2O %	Al_2O_3 %	SiO_2 %	P_2O_5 %

No bedrock obtained in drilling

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P_2O_5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm

No bedrock obtained in drilling

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,450		45.0- 52.0	21	2	0	8	12	0	4	-2	-2	1	24	1	22	18	8	0	100	-1	
22,452		60.5- 69.0	11	-1	0	3	6	0	3	1	0	3	23	-2	23	34	4	0	100	3	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22450	8.2	0.8	7.4	142.9	113.6	29.3	21.7	7.6	2	47	P	30	40	30	NA	U	Y	Y	Y	GB	GB	TILL
22451	10.3	1.0	9.3	189.6	151.6	38.0	29.6	8.4	1	34	P	45	45	10	NA	U	Y	Y	Y	GB	GB	TILL
22452	11.8	1.0	10.8	211.9	169.6	42.3	32.5	9.8	7	97	P	50	45	5	NA	U	Y	Y	Y	GB	GB	TILL
22453	10.2	0.4	9.8	186.5	153.9	32.6	26.2	6.4	0	NA	P	40	50	10	NA	U	Y	Y	Y	GB	GB	TILL
22454	7.4	5.0	2.4	181.5	165.2	16.3	12.7	3.6	1	167	P	35	50	15	NA	S	C	Y	N	B	NA	GRAVEL
22455	7.7	5.0	2.7	174.2	151.3	22.9	17.4	5.5	0	NA	P	40	50	10	NA	S	MC	Y	N	B	NA	GRAVEL
22456	8.1	1.2	6.9	87.5	65.8	21.7	16.6	5.1	0	NA	P	40	55	5	NA	S	MC	Y	N	B	NA	GRAVEL
22457	9.7	1.3	8.4	67.6	40.9	26.7	20.4	6.3	3	123	P	35	60	5	NA	S	MC	Y	N	B	NA	GRAVEL
22557	11.8	0.2	11.6	244.4	223.3	21.1	16.8	4.3	0	NA	P	25	50	25	NA	U	Y	Y	Y	B	B	TILL
22558	9.7	1.5	8.2	134.3	110.5	23.8	19.2	4.6	1	403	P	35	65	TR	NA	S	C	Y	N	B	B	TILL

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22450	Y	50 X 125	18 C	2						2			EST. 3% MARCASITE 0.5% PYRITE
										2	21.7	47	
22451	N	75 X 100	18 C	1						1			
										1	29.6	34	
22452	Y	25 X 25	5 C		1					1			EST. 2% MARCASITE 1% PYRITE
		25 X 50	8 C		1					1			
		25 X 75	10 C		1					1			
		50 X 50	10 C	1						1			
		50 X 100	15 C		1					1			
		75 X 100	18 C	2						2			
										7	32.5	97	
22453	N	NO VISIBLE GOLD											
22454	N	100 X 125	22 C	1						1			
										1	12.7	167	
22455	N	NO VISIBLE GOLD											
22456	N	NO VISIBLE GOLD											
22457	Y	50 X 100	15 C		1					1			EST. 0.5% MARCASITE 0.5% PYRITE
		50 X 75	13 C	1						1			
		50 X 150	20 C	1						1			
										3	20.4	123	
22557	N	NO VISIBLE GOLD											
22558	N	175 X 175	34 C	1						1			
										1	19.2	403	

DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-326
Drilling Completion Date: 6/2/88

LOCATION (see map at right)
S-T-R: NW¼-NW¼ - S14 - T150N - R27W
County: Itasca
Quadrangle: Coddington Lake 7.5
Regional Survey Area: Effie
UTM Coordinates: 419,440mE; 5296350mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1357 ± 3 ft.
Total Depth: 275 ft.
Elevation, Top of Precambrian Bedrock: 1110? ft.
Elevation, Top of Saprolite: 1122 ft.
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-30	Kooch. lobe gl. drift	G		
30-120.5	Rainy lobe gl. drift	B,C,G	A,B,C	
120.5-133	Interglacial	G		
133-235	Old Rainy lobe gl. drift	B,C,G	A,B,C	
235-251	Saprolite	B,C,G	A,B,C,J	C=Cr,Ni,Cu
251-275	Bedrock, sheared & weathered	G,H	I	I=MgO

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

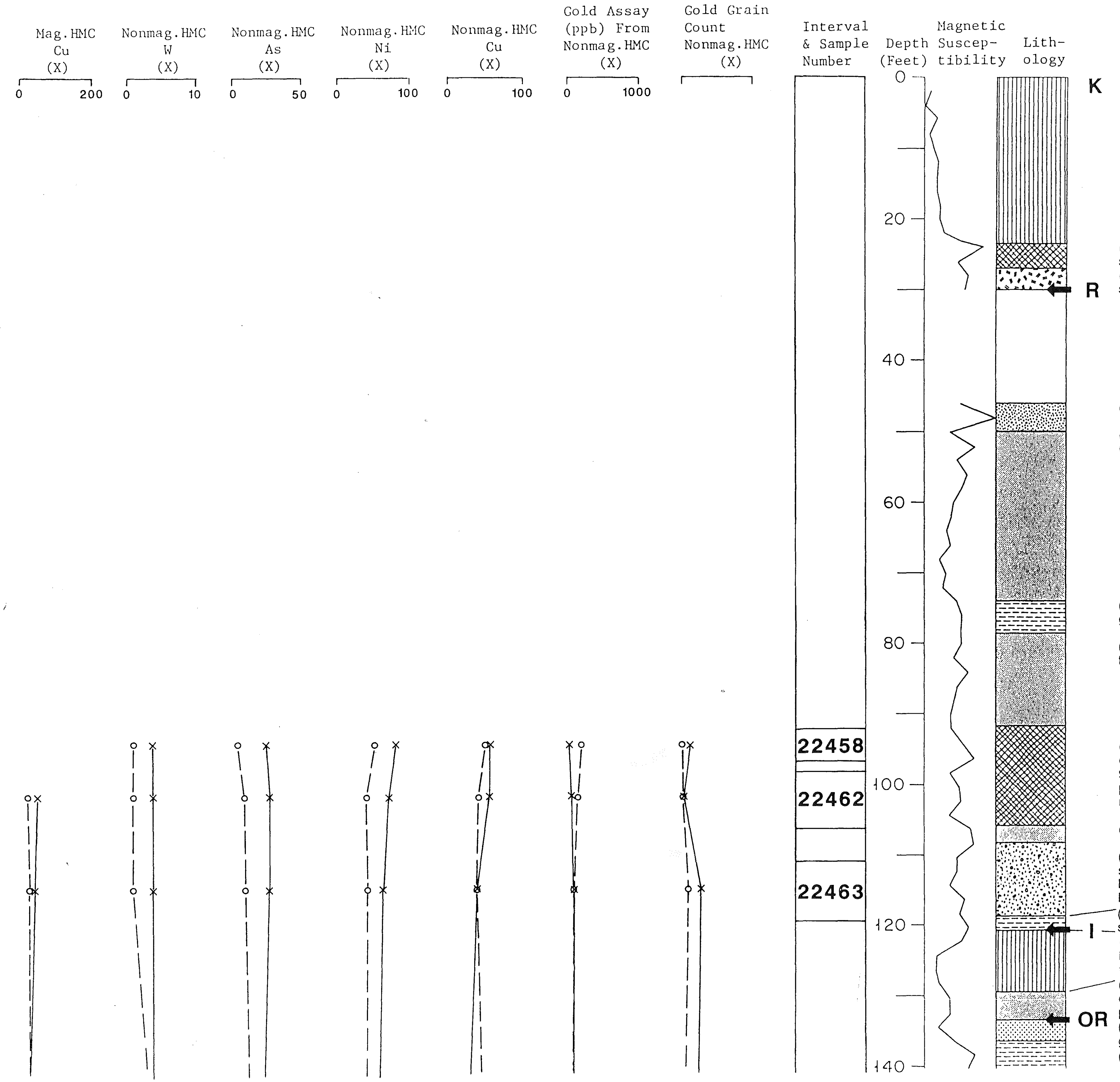
BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

Core Description: White to very light greenish and brownish gray, aphanitic schist. Strongly cleaved at about 75° (S1). A second cleavage crenulates S1 and dips about 50°. The acute angle between S1 and S2 is about 55°. This likely is a weathered "fault rock". Protolith may have been argillite or tuff, however the extent of deformation precludes positive interpretation.

Thin Section Description: OB-326, 254 ft. Strongly foliated, crenulated quartz-sericite-chlorite schist. Estimated mode (volume %): Quartz 49%; Chlorite (Mg) 39%; Sericite 10%; Rutile 1-2; Apatite Tr. Crenulation cleavage (S2), at 40° to foliation (S1), is defined by bending of S1-parallel sericite and chlorite, and neocrystallization of muscovite parallel to S2 crenulation. Abundant fine-grained subhedral, equant to slightly prismatic crystals of rutile follow the S1 fabric; also, clusters of anhedral broken apatite are common, and tend to be strung out along the S1 foliation direction. The protolith of this rock is probably a highly sheared and/or hydrothermally altered volcanic. X-ray diffraction indicated that chlorite is a magnesium variety, and that sericite and rutile are present.

Scintillometer Reading (cps): 35-50

OB-326



Geologic Descriptions

(0 - 23 1/2) CLAY - SILTY CLAY; OXIDIZED; leached to 1 foot; massive; v few sand grains; carb gnl at 13 1/2, 19 ft.

(23 1/2 - 27) LOAM TILL; OXIDIZED; calc; unox 23 1/2 - 25 ft; pebbly sand lens at 25, sand lens near 25 & at 27.

(27 - 30) CLAY LOAM TILL; UNOXIDIZED; calc; coarse silt in last few inches, prob lake sed.

(30 - 46) NO CORE

(46 - 50) GRAVELLY SAND; fgr to mgr sand 46 - 47 1/2 ft; cob at 49.

(50 - 74) VERY FINE SAND; UNOXIDIZED; interbedded w/silty,v fgr sand; v fgr to fgr from 62 1/2 ft; v fgr from 72.

(74 - 78 1/2) SANDY SILT; UNOXIDIZED; grnish-gray loam till in upper foot; 75 - 76 silt grading to fine sand; mostly v fgr sand towards base.

(78 1/2 - 91 1/2) VERY FINE SAND; silt lam in places; v fgr to fgr by 86 ft; 88 1/2 - 91 1/2 fgr to mgr sand.

(91 1/2 - 105 1/2) LOAM - SANDY LOAM TILL; UNOXIDIZED; grnish gray to 96 ft; mod calc to calc; mostly silt & fine sand but few pebs; grades to sand by 96, fgr to mgr sand to 97, v fgr sandy silt to 97 1/2; mod calc till as above from 97 1/2; v fgr sand bed at 98; large peb at 100; cob at 103; pebbly fine sand bed at 103 w/sev large pebs incl carb; if is till is reworked sandy silt lake sed; grades into silty, pebbly sand at base.

(105 1/2 - 108) SILTY FINE SAND; many coarser grains up to gnl.

(108 - 118 1/2) SANDY LOAM TILL; UNOXIDIZED; mod calc to calc; cobbly gvl w/silty fine sand matrix to 108 1/2 ft, v sandy till w/only sm pebs to 110; cob at 110, hard sandy till below; cobs at 111, 111 1/2; loamy spot at 113, increasing carb pebs w/depth; sand lenses 115 - 115 1/2.

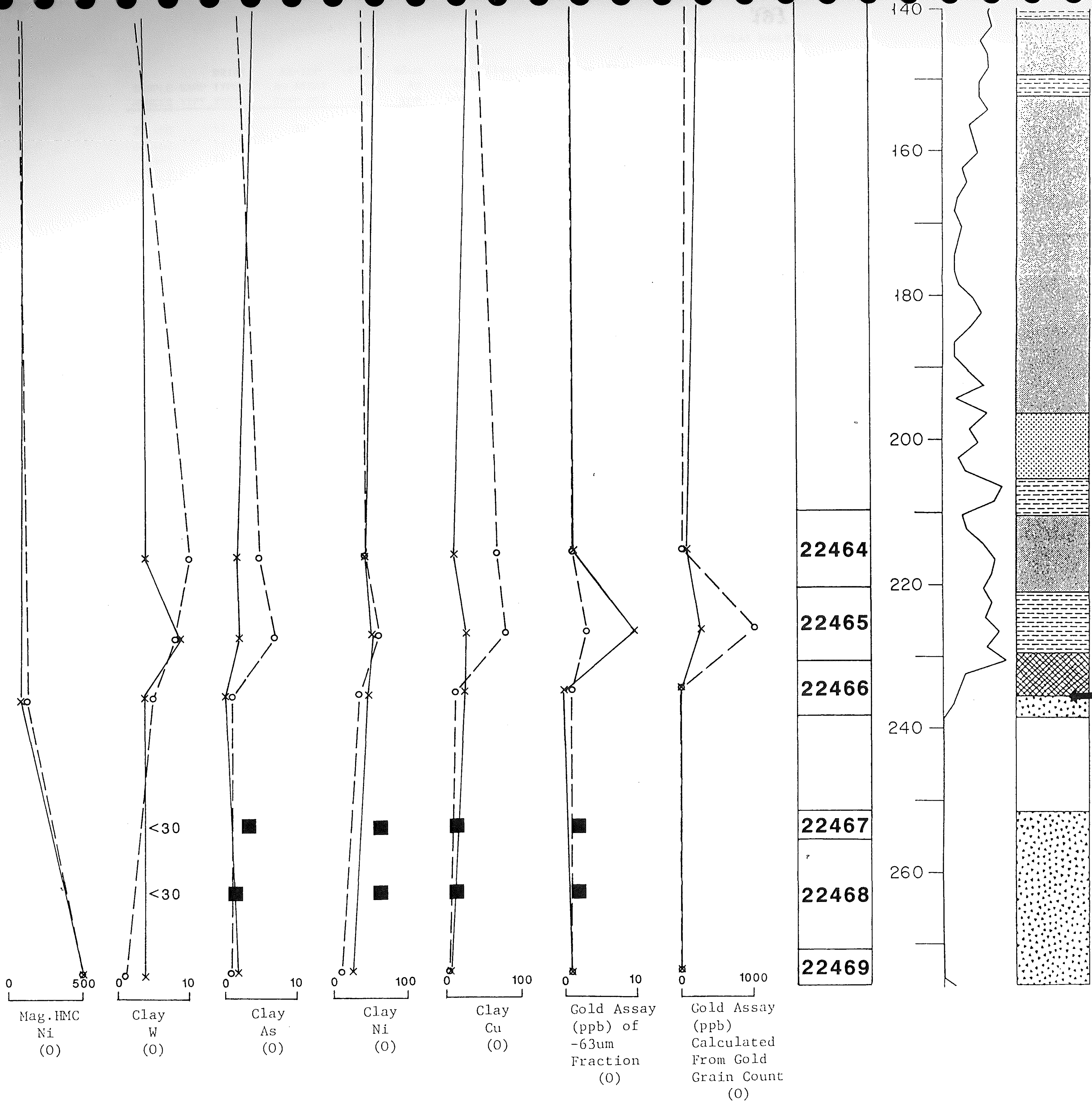
(118 1/2 - 120 1/2) SILT & SANDY SILT; UNOXIDIZED; sl to mod calc; organic rich w/few sm twig fragments; 118 1/2 - 119 mgr sand w/cob at base.

(120 1/2 - 129) CLAY; UNOXIDIZED; mottled; calc; large cob at top within sandy loam lens; hard; sandy lam at 124 1/2 ft, much sand grains in clay below to 125; clay loam texture in last foot, much fine sand.

(129 - 133) SILTY FINE SAND; UNOXIDIZED; dark brown sandy silt bed at 130 ft prob contains disseminated organics; silt bed at 131; some coarser sand grains by 132; ox in places.

(133 - 136) MEDIUM - COARSE SAND; UNOXIDIZED; cob at 135 ft, also few pebs & grnish-gray noncalc loamy till (?) ball; cob and sev large pebs at base.

(136 - 141) VERY FINE, SANDY SILT; UNOXIDIZED; non calc.



(141 - 149) SILTY, VERY FINE SAND; UNOXIDIZED.

(149 - 152) VERY FINE, SANDY SILT; UNOXIDIZED.

(152 - 196) FINE SAND; some medium grains to 155 ft; fgr to mgr 159 - 162; v fgr bed, 163 - 164, at 171 1/2, & from 173 - 176 1/2; v fgr to fgr 176 1/2 - 181; v fgr to 185; v fgr to fgr to base; silty, v fgr beds at 194, 196.

(196 - 205) MEDIUM SAND; some coarse grains; coarse beds by 201 ft, also fine sand in places; 204 - 205 fgr sand w/silty v fgr bed.

(205 - 210) VERY FINE, SANDY SILT; UNOXIDIZED; mod calc; silty v fgr sand bed at 206 1/2 ft; fgr sand lenses at 208, some silty v fgr sand lam below.

(210 - 220 1/2) VERY FINE SAND; silty by 218 1/2 ft; couple gnl at base.

(220 1/2 - 229) VERY FINE, SANDY SILT; UNOXIDIZED; grnish gray; mod calc; few coarser grains; silt by 226 ft.

(229 - 235) GRAVELLY LOAM - SILT LOAM TILL; UNOXIDIZED; sl calc; prob saprolite incorporated above 230 1/2 ft, below is mostly reworked sandy, rocky clay saprolite w/smears of sl calc loam w/erratic clasts; large carb peb at 230; sandy zone at 230 1/2.

(235 - 238) REWORKED SAPROLITE; sev large erratic pebs 235 - 237 ft.

(238 - 251) NO CORE

(251 - 275) SAPROLITE; QUARTZ-SERICITE SCHIST; fgr; strongly foliated, crenulated; apar in place rock & saprolite by 251 ft.

Appendix 1-20C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,458		326	91.5- 96.0	4.5	AB	150-27-14	NW-NW	I	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22,462		326	97.5-105.5	8.0	ABCJ	150-27-14	NW-NW	I	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22,463		326	110.0-118.5	8.5	ABCJ	150-27-14	NW-NW	I	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22,559	R	326	110.0-118.5	8.5	AB	150-27-14	NW-NW	I	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	REPLICATE
22,464		326	210.0-220.5	10.5	AB	150-27-14	NW-NW	I	OLD RAINY LOBE VFGR TO FGR SAND	55	VOLCANICLASTIC ROCKS	VC	
22,465		326	220.5-230.5	10.0	ABJ	150-27-14	NW-NW	I	OLD RAINY LOBE SANDY SILT	50	VOLCANICLASTIC ROCKS	VC	
22,465	R	326	220.5 230.5	10.0	0	150 27 14	NW-NW	I	OLD RAINY LOBE SANDY SILT	50	VOLCANICLASTIC ROCKS	VC	REPLICATE B,C, NO ASSAY
22,466		326	230.5-238.0	7.5	ABCJ	150-27-14	NW-NW	I	REWORKED SAPROLITE	49	VOLCANICLASTIC ROCKS	VC	
22,571	SS	326	237.0 238.0	1.0	J	150-27-14	NW-NW	I	REWORKED SAPROLITE	49	VOLCANICLASTIC ROCKS	VC	SPEC.MINERALOGY
22,467		326	251.0-255.0	4.0	HI	150-27-14	NW-NW	I	BEDROCK	34	VOLCANICLASTIC ROCKS	VC	
22,468		326	255.0-270.0	15.0	I	150-27-14	NW-NW	I	BEDROCK	34	VOLCANICLASTIC ROCKS	VC	
22,469		326	270.0-275.0	5.0	ABCJ	150-27-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	VOLCANICLASTIC ROCKS	VC	
22,572	SS	326	271.0 272.0	1.0	IJ	150-27-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	VOLCANICLASTIC ROCKS	VC	SPEC.MINERAL&ASSAY

HMC AND LAB DATA

							WEIGHT (GRAMS)				WEIGHT %				NORMALIZED TO 10KG SAMPLE		
SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	>= VCGR SAND	MGR SAND	FGR SAND	SILT	#GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,458		11	1	12.6	3.1	4.1	100	16	37	47	1	15	37	47	1.0	12.6	3.1
22,462		11	0	17.6	4.9	3.6	100	24	44	32	1	23	44	32	0.0	20.0	5.6
22,463		11	3	28.9	8.4	3.4	100	41	32	27	8	33	32	27	2.7	26.3	7.6
22,559	R	11	1	35.0	8.7	4.0	100	36	30	34	7	29	30	34	1.0	34.3	8.5
22,464		55	1	32.5	11.0	3.0	100	12	73	15	1	11	73	15	1.1	36.5	12.4
22,465		50	3	24.5	8.3	3.0	100	10	52	38	6	4	52	38	3.7	29.9	10.1
22,465	R	50	0	25.9	6.9	3.8	100	-1	-1	-1	6	-1	-1	-1	0	0	0
22,466		49	0	10.2	2.6	3.9	100	41	16	44	22	19	16	44	0.0	11.2	2.9
22,469		44	0	4.5	0.2	22.5	100	39	21	39	3	36	21	39	0.0	4.9	0.2

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,458		11	1	6	0.006	8.9	5	< 0.1	25	< 0.2	0.4	< 1	< 4	3	< 200	59	31	111	80	340	45	15.0	4620.00	10.0	84.0	1840	9	540.0
22,462		11	0	0	0.166	12.7	83	0.1	27	< 0.2	0.4	< 1	< 4	2	< 200	57	23	109	71	300	44	14.0	4930.00	14.0	84.0	1650	5	490.0
22,463		11	3	71	0.297	20.8	113	0.1	27	< 0.2	0.3	< 1	< 4	3	< 200	38	25	117	64	360	46	17.0	5510.00	12.0	99.0	1790	14	540.0
22,559	R	11	1	29	1.016	27.0	296	0.2	27	0.9	0.3	< 1	< 4	< 1	360	39	26	102	70	360	46	16.0	5310.00	8.0	84.0	1950	< 2	420.0
22,464		55	1	11	0.241	23.3	66	< 0.1	9	< 0.2	<0.1	< 1	< 4	2	< 200	14	29	116	47	370	31	15.0	5040.00	11.0	100.0	2190	8	550.0
22,465		50	3	1353	6.633	17.6	2,220	0.1	12	< 0.2	0.1	< 1	9	4	< 200	27	32	107	54	360	37	16.0	4920.00	13.0	110.0	1930	< 3	630.0
22,466		49	0	0	0.008	7.9	7	< 0.1	< 2	1.0	0.1	< 1	< 4	3	< 200	26	44	105	47	370	27	13.0	5070.00	< 0.9	100.0	1520	< 2	800.0
22,469		44	0	0	0.033	4.1	68	< 0.1	9	0.8	<0.1	2	< 4	2	< 200	10	65	14	26	420	6	2.0	70.00	5.3	22.0	< 500	< 1	72.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,458		11	30	2	<.2	1	< 1	< 1	< 2	< 1	< 2	630	48	6	93	48	84	15	49,399	480	-1	16.37	7.71	3.89	2.66	0.65	2.66	1.61
22,462		11	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	651	36	8	93	36	78	15	46,790	380	-1	16.19	6.89	3.90	2.85	0.62	2.85	1.24
22,463		11	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	666	36	10	95	42	78	16	43,104	370	-1	14.43	6.99	3.75	3.03	0.60	2.65	1.06
22,559	R	11	30	2	<.2	2	< 1	< 1	< 2	6	< 2	608	64	10	120	80	120	16	52,009	88	-1	15.64	6.57	3.98	2.92	0.64	2.62	1.29
22,464		55	30	< 1	<.2	5	< 1	< 1	< 2	10	< 2	612	68	22	77	43	130	17	59,699	210	-1	15.73	2.57	2.52	4.44	0.52	2.63	1.99
22,465		50	30	3	<.2	7	< 1	1	< 2	8	< 2	503	81	8	93	61	110	24	64,794	280	-1	19.88	2.37	6.04	2.75	0.57	2.24	1.15
22,466		49	30	< 1	<.2	< 1	< 1	< 1	< 2	5	< 2	79	12	< 2	54	36	22	4	19,480	67	-1	23.48	0.33	23.53	0.42	0.18	0.95	0.40
22,469		44	30	< 1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	45	< 1	< 2	3	11	4	< 1	12,312	29	-1	26.57	0.12	17.64	0.55	0.12	0.62	0.62

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,462		11	4.9	< 0.5	6	1	4	48	8	289	69	2,130	3,800	32,674	2,014	1,978	110	87.28	4.16	0.99	1.13	0.06	0.13	0.02	20	30	134	5
22,463		11	8.4	< 0.5	7	< 1	2	46	6	250	63	1,930	3,739	31,475	2,014	1,870	108	84.47	4.31	0.99	1.15	0.06	0.10	0.02	22	32	158	6
22,466		49	2.6	< 0.5	12	< 1	4	51	8	288	113	1,976	3,257	33,933	2,169	2,070	121	86.72	3.99	1.09	1.08	0.06	0.10	<0.02	25	29	110	4
22,469		44	0.2	NS	NS	NS	NS	202	NS	88	550	2,105	33,173	27,098	1,782	847	80	42.94	35.87	6.37	2.18	0.09	1.00	0.09	50	127	209	3

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,467		251.0-255.0	< 10	5	< 1	< 0.2	3	< 1.0	2	< 1	< 30	< 2	46	8	< 3	20	57	57	11	1.19	0.02	13.53	0.49	0.31	0.10	0.90	13.79	61.74	0.17
22,468		255.0-270.0	< 10	< 2	< 1	< 0.2	1	< 1.0	1	< 1	< 30	< 2	44	11	10	30	55	57	11	1.32	0.02	15.00	0.52	0.29	0.09	0.77	14.56	59.91	0.19
22,572	SS	271.0 272.0	< 10	< 2	< 1	< 0.5	1	< 0.2	< 5	< 1	< 30	< 2	22	7	12	23	35	61	12	1.09	0.03	13.59	0.56	0.05	0.14	0.22	14.80	62.35	0.05

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,467	102	< 50	< 5	0.01	580	< 10	< 1	< 1	7	110	14	0.17	< 5	16	22	17	39	110	< 50	< 2
22,468	111	< 50	< 5	0.02	460	< 10	< 1	< 1	8	150	18	0.19	< 5	14	18	23	49	118	< 50	< 2
22,572	84	< 50	< 1	0.02	260	< 10	1	< 1	21	12	12	0.05	14	12	6	4	9	127	<100	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,462		97.5-105.5	11	2	0	5	8	0	14	1	-1	0	23	0	25	20	2	0	100	5	
22,463		110.0-118.5	11	1	0	1	10	0	12	1	1	0	20	-1	33	17	4	0	100	7	
22,465	R	220.5-230.5	50	-1	0	0	12	-1	7	0	1	0	15	-1	29	27	9	0	100	8	
22,466		230.5-238.0	49	-1	0	0	11	-1	12	2	3	1	17	-1	32	17	5	0	100	7	
22,469		270.0-275.0	44	0	0	0	0	0	0	0	99	-1	-1	0	0	0	0	0	100	5	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22458	10.0	0.1	9.9	266.9	251.2	15.7	12.6	3.1	1	6	TR	0	0	NA	NA	U	Y	Y	Y	GB	GB	TILL
22462	8.8	0.1	8.7	257.6	235.1	22.5	17.6	4.9	0	NA	P	20	80	TR	NA	U	Y	Y	Y	B	B	TILL
22463	11.0	0.9	10.1	341.8	304.5	37.3	28.9	8.4	3	71	P	45	50	5	NA	U	Y	Y	Y	B	B	TILL
22464	8.9	0.1	8.8	179.5	136.0	43.5	32.5	11.0	1	11	TR	0	0	NA	NA	U	Y	Y	Y	B	B	TILL
22465	8.2	0.5	7.7	136.4	103.6	32.8	24.5	8.3	3	1353	P	70	30	TR	NA	U	Y	Y	Y	B	B	TILL
22466	9.1	2.0	7.1	157.9	145.1	12.8	10.2	2.6	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	GGN	GGN	SAP
22469	9.2	0.3	8.9	114.0	109.3	4.7	4.5	0.2	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	WHT	WHT	SAP
22559	10.2	0.7	9.5	231.5	187.8	43.7	35.0	8.7	1	29	P	60	30	10	NA	U	Y	Y	Y	B	NA	TILL
22465R	8.4	0.5	7.9	178.2	145.4	32.8	25.9	6.9	0	NA	P	80	20	NA	NA	S	F	Y	Y	B	B	SAND

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22458	N	25 X 50	8 C	1						1			
										1	12.6	6	
22462	N	NO VISIBLE GOLD											
22463	Y	50 X 50	10 C		1					1			EST. 2.5% MARCASITE
		50 X 75	13 C	1						1			0.5 PYRITE
		50 X 150	20 C	1						1			
										3	28.9	71	
22464	N	50 X 75	13 C	1						1			
										1	32.5	11	
22465	Y	50 X 50	10 C		1					1			EST. 0.25% PYRITE
		75 X 75	15 C	1						1			0.25% MARCASITE
		275 X 300	52 C	1						1			
										3	24.5	1353	
22466	N	NO VISIBLE GOLD											
22469	N	NO VISIBLE GOLD											
22465R	N	NO VISIBLE GOLD											

Appendix 1-21A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-327
Drilling Completion Date: 6/6/88

LOCATION (see map at right)
S-T-R: SE¼-NW¼, S36 - T152N - R27W
County: Koochiching
Quadrangle: Mizpah NE 7.5
Regional Survey Area: Effie
UTM Coordinates: 421,500mE; 5310460mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1340 ± 2 ft.
Total Depth: 271 ft.
Elevation, Top of Precambrian Bedrock: <1069 ft.
Elevation, Top of Saprolite: 1121 ft.
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-61.5	Kooch. lobe gl. drift	G		
61.5-153.5	Rainy lobe gl. drift	B,C,G	A,B,C	B=Au,Ag,W C=Mo
153.5-220	Old Rainy lobe gl. drift	B,C,G	A,B,C	B=W C=Mo
220-242.5	Saprolite	B,C,G	A,B,C,J	C=Ag,Cu,Co
242.5-259	Sound bedrock	G,H	I	

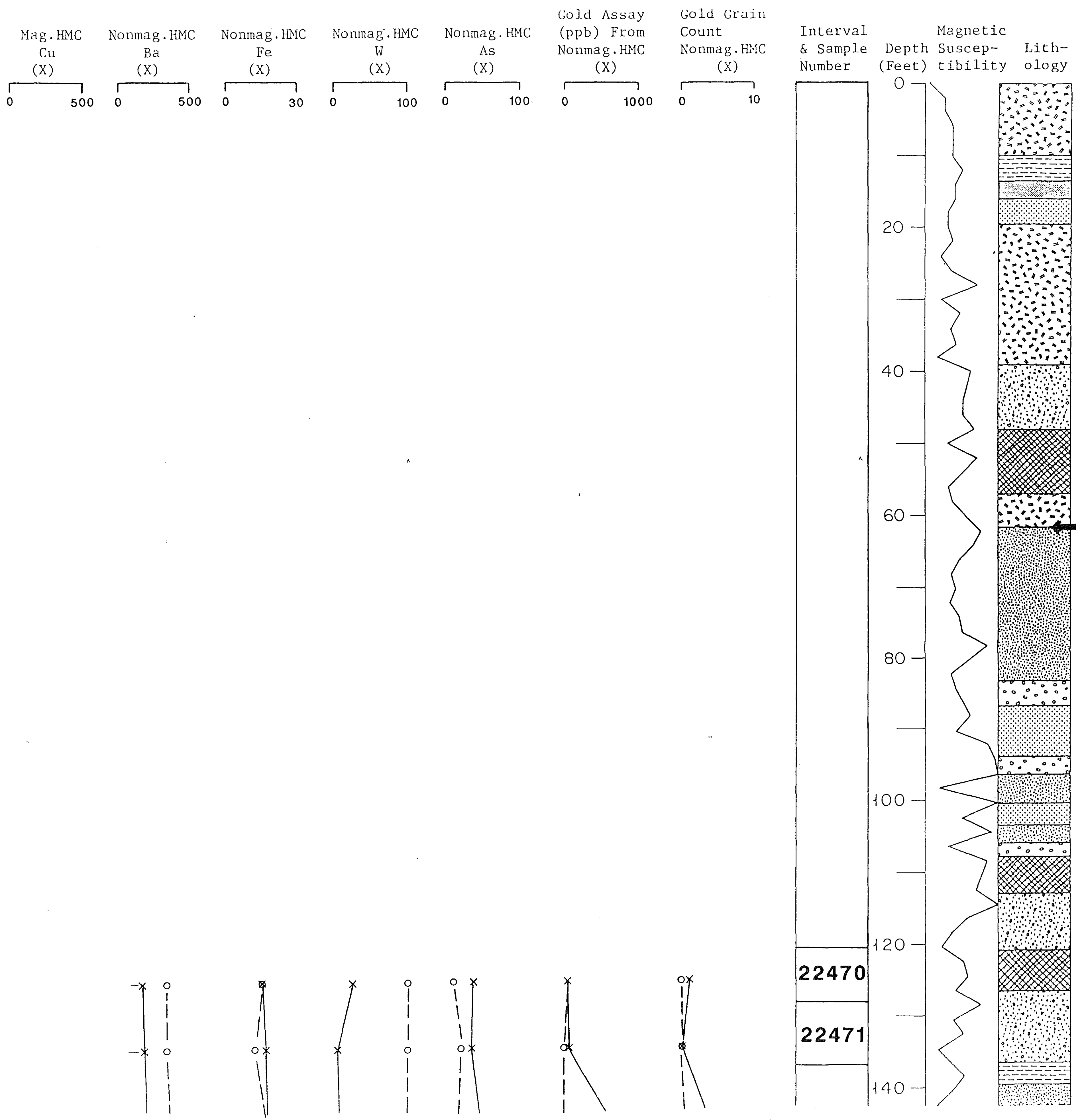
A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

Core Description: Weathered tonalitic rock; contains zones of pristine-igneous textured clay saprolite and sound rock apparently of same composition. The extent and distribution of weathering appears related to jointing rather than different compositions. Thin section was taken from least weathered rock (254'). A weak lineation defined by irregular clots of quartz dips about 85°. Overall fabric appears largely metamorphic. A few thin zones ofreddish oxidized feldspar trend parallel to this lineation. Rock contains 1% fine disseminated pyrite (not confirmed by petrography). Magnetic Susc. 0.02 - 0.06 x 10-3 CGS.

Thin Section Description: OB-327, 264.5 ft. Coarse-grained tonalite or trondhjemite (Streckiesen classification). Estimated mode (volume %): Plagioclase (albite/oligoclase?) 51%; Quartz 35%; Biotite 6%; Epidote 1%; Hornblende (?) alteration assemblage 6%; Sphene Tr; Calcite Tr; Apatite Tr; Chlorite 1%. Partially recrystallized and retrograded tonalite. Larger plagioclase crystals are 2-6 mm across, zoned, blocky, altered to epidote, sericite, and chlorite in cores. Myrmekitic quartz intergrowths are common near grain edges and in smaller plagioclase grains, and many of the plagioclase grains are cut by zones of recrystallization to granoblastic quartz/feldspar. Smaller blocky plagioclase crystals occur with granoblastic quartz in the matrix, these are probably the result of granulation/recrystallization. Most of the quartz occurs as large, strained, coarsely recrystallized grains. Biotite is green and partially altered to chlorite; and hornblende pseudomorphs are composed of brown, birefringent clay material, a colorless, fibrous mineral (antigorite?), calcite, and minor chlorite. The rock is cut by several tight anastamosing fractures which have little effect on the rock except to induce slight retrograde metamorphism. Relatively large enhedral epidote crystals are found along these fractures. The slide was stained for K-feldspar, with negative results.

Scintillometer Reading (cps): 70-80



Geologic Descriptions

K (0 - 10) CLAY TILL; OXIDIZED; leached to 2 ft; little peat on top; sandy lens at 2 1/2; carb common, noted sh; clay loam by 8 w/more pebs; sm carb cob at base.

(10 - 13 1/2) VERY FINE, SANDY SILT; OXIDIZED; till lens at 11 1/2 ft.

(13 1/2 - 16) SILTY, VERY FINE SAND; OXIDIZED; fgr by 15 ft.

(16 - 19 1/2) FINE - MEDIUM SAND; OXIDIZED; some coarse grains.

(19 1/2 - 39) CLAY TILL; UNOXIDIZED; calc; v fgr sand lense 20 1/2 - 23 1/2 ft & at 26; 28 - 29 1/2 v fgr sand; till more compact w/more silt, less pebbles from 29 1/2; few more pebs incl sh from 33; silty v fgr sand lens at 35, lam below to 35 1/2.

(39 - 48) SANDY LOAM TILL; UNOXIDIZED; calc; pebbly zone at top, large cob at 40 ft; carb pebs common, noted sh; sand lens at 44; less sandy w/depth.

(48 - 57) LOAM TILL; UNOXIDIZED; large peb at 51 1/2 ft, not many below; silty pebbly fgr sand bed at 56, sand lam to base.

(57 - 61 1/2) CLAY LOAM TILL; UNOXIDIZED; clast rich incl sh; sm carb cob near top; 60 - 61 ft silty pebbly sand w/two cobs.

R (61 1/2 - 83) GRAVELLY COARSE SAND; UNOXIDIZED; silty to 70 ft; large carb peb near top, many large pebs from 65, sm cob at 66; carb pebs not very common; cgr gvl bed at 78.

(83 - 86 1/2) COBBLES; silty cgr sand & gvl matrix; dark pebs common, carb fairly common.

(86 1/2 - 93 1/2) SAND; mgr to 88 1/2 ft w/peb layer at base; fgr to 91 1/2 w/peb layer at base; cgr to 93 1/2.

(93 1/2 - 96) COBBLY COARSE SAND & GRAVEL; large cob at 94 1/2 ft & at base.

(96 - 100) COARSE SAND & GRAVEL; sl to mod calc, grnish-gray sandy silt bed at top; sm cob at 97 1/2 ft.

(100 - 103) COARSE SAND; large cob at base.

(103 - 105 1/2) COARSE SAND & GRAVEL.

(105 1/2 - 107 1/2) COBBLES; v silty coarse gvl from 106 1/2 ft.

(107 1/2 - 112 1/2) LOAM TILL; UNOXIDIZED; calc; carb pebs appear mr, increase w/depth; many large pebs to 109 ft; sm cobs at 111 1/2 & 112 1/2.

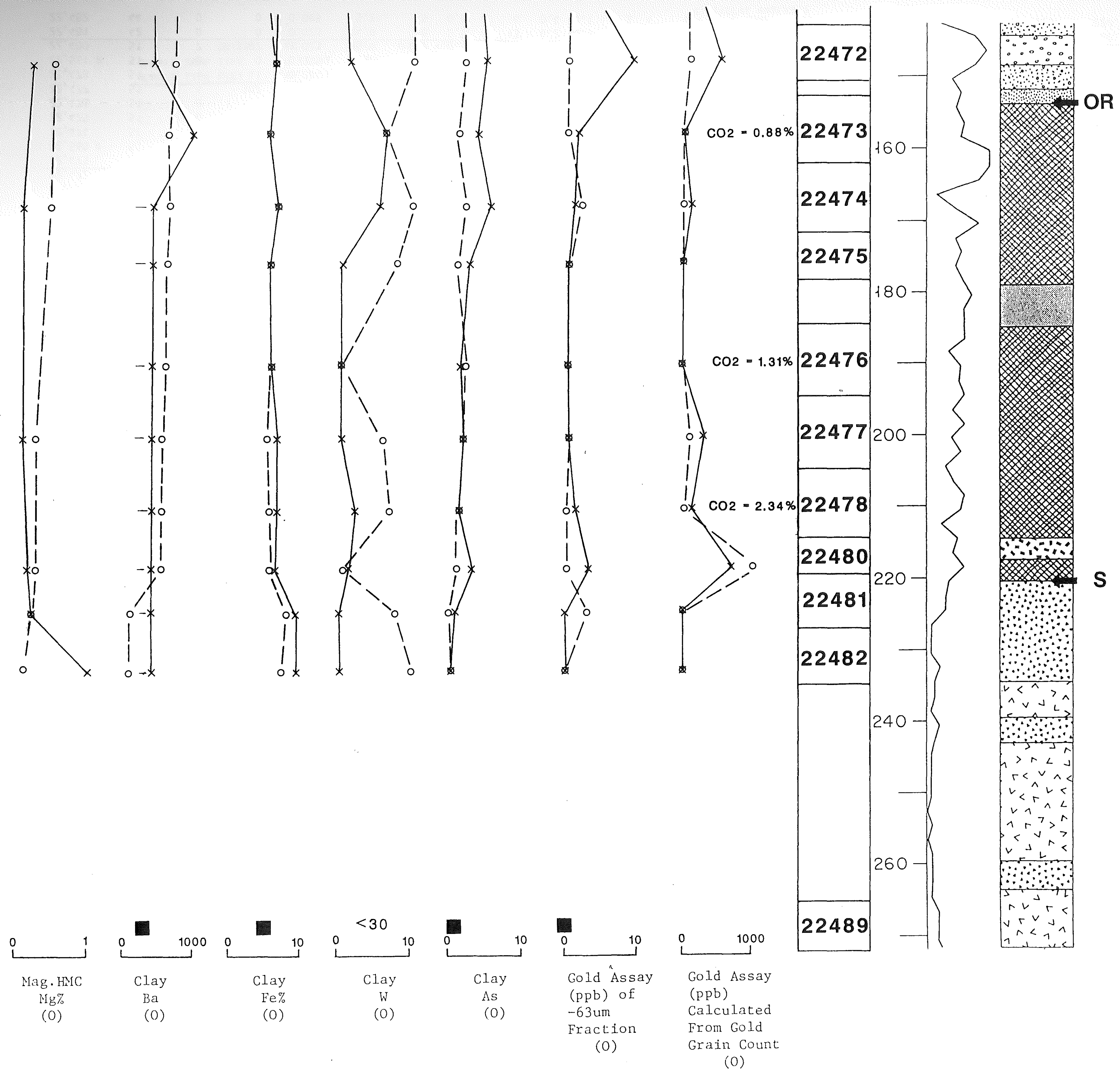
(112 1/2 - 120 1/2) SANDY LOAM TILL; UNOXIDIZED; sl calc; cobs at 113 1/2, 115, 117 ft; boulder 118 1/2 - 120 1/2.

(120 1/2 - 126) LOAM TILL; UNOXIDIZED; sl to mod calc; few carb grains; cobs at 121, 123, 126 ft.

(126 - 136) SANDY LOAM TILL; UNOXIDIZED; cobs at 128, 128 1/2, 133 1/2 ft; sandy zone at 127; 134 1/2 - 136 pebbly, cgr sand, carb pebs fairly common.

(136 - 139) SILT; UNOXIDIZED; calc; v fgr sandy silt from 137 ft; grades to sand.

(139 - 142) GRAVELLY MEDIUM SAND; silty; carb fairly common; large pebs toward bottom, cob at base.



(142 - 144) SANDY LOAM TILL; UNOXIDIZED; mod calc; sm carb cob near top.

(144 - 148) COBBLES; loamy, gravelly sand matrix; thin, pebbly sand beds; v fgr sand bed at 147 ft, over pebbly mgr to cgr sand to base.

(148 - 151 1/2) COBBLY, GRAVELLY LOAM TILL; carb pebs sm.

(151 1/2 - 153 1/2) GRAVELLY MEDIUM SAND; cob in middle.

(153 1/2 - 178 1/2) LOAM TILL; UNOXIDIZED; calc; compact; pebbly cgr sand lens at 159 ft; mod calc by 160; fairly cobbly to 168, calc & less rocky below; cob & large pebs at base.

(178 1/2 - 184 1/2) SILTY, VERY FINE SAND; UNOXIDIZED; v fgr sandy silt from 183 ft; till bed at 184.

(184 1/2 - 214) LOAM TILL; UNOXIDIZED; calc; compact; apar as above; carb pebs fairly common, not dominant; occ cobs, two near base; sand lens at 213 ft.

(214 - 217) CLAY LOAM TILL; UNOXIDIZED; grnish gray; compact; calc; more clay & pebs than above; cob at 215 ft over loamy sand & gvl to 215 1/2.

(217 - 220) LOAM TILL; calc; two cobs at 218 1/2 ft; mostly saprolite from 219.

(220 - 234) SAPROLITE; cgr sandy clay; punky rock from 225 ft.

(234 - 239) BEDROCK; TONALITE OR TRONDHJEMITE; cgr; weakly retrograde metamorphosed.

(239 - 242 1/2) SAPROLITE; cgr sandy clay to punky rock.

(242 1/2 - 259) BEDROCK; as above.

(259 - 263) SAPROLITE; v punky rock.

(263 - 271) BEDROCK; as above.

Appendix 1-21C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,470		327	120.5-127.5	7.0	ABJ	152-27-36	SE-NW	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,471		327	127.5-136.0	8.5	AB	152-27-36	SE-NW	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,472		327	142.0-151.5	9.5	ABCJ	152-27-36	SE-NW	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22,473		327	153.5-162.5	9.0	AB	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,560	R	327	153.5-162.5	9.0	AB	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22,474		327	162.5-172.0	9.5	ABCJ	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,475		327	172.0-178.5	6.5	AB	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,476		327	184.5-194.5	10.0	AB	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,477		327	194.5-204.5	10.0	ABCJ	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,478		327	204.5-214.0	9.5	AB	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,561	R	327	204.5-214.0	9.5	AB	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22,480		327	214.0-219.0	5.0	ABCJ	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22,481		327	219.0-226.5	7.5	ABCJ	152-27-36	SE-NW	K	SAPROLITE: CLAY WITH GRANULES	42	GRANITE, GRANODIORITE	GR/GD	
22,573	SS	327	223.0 224.0	1.0	J	152-27-36	SE-NW	K	SAPROLITE: CLAY WITH GRANULES	42	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERALOGY
22,482		327	226.5-234.0	7.5	ABCJ	152-27-36	SE-NW	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	
22,574	SS	327	229.0 230.0	1.0	IJ	152-27-36	SE-NW	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERAL&ASSAY
22,489		327	264.0-271.0	7.0	HI	152-27-36	SE-NW	K	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,470		11	1	44.8	10.9	4.1	100	39	27	34	12	27	27	34	0.9	40.0	9.7
22,471		11	0	31.8	7.7	4.1	100	50	24	26	10	40	24	26	0.0	31.8	7.7
22,472		11	5	22.3	7.1	3.1	100	67	17	16	34	33	17	16	5.3	23.7	7.6
22,473		51	0	32.4	7.0	4.6	100	38	25	37	11	27	25	37	0.0	42.6	9.2
22,560	R	51	0	19.7	4.4	4.5	100	32	21	47	10	22	21	47	0.0	24.6	5.5
22,474		51	1	38.9	11.5	3.4	100	40	31	30	11	29	31	30	0.7	27.4	8.1
22,475		51	0	30.9	7.4	4.2	100	38	33	29	8	30	33	29	0.0	36.4	8.7
22,476		51	0	30.0	7.3	4.1	100	37	29	34	5	32	29	34	0.0	28.6	7.0
22,477		51	3	29.1	6.3	4.6	100	31	27	42	6	25	27	42	2.4	23.7	5.1
22,478		51	1	24.4	5.4	4.5	100	33	24	43	6	27	24	43	0.9	22.2	4.9
22,561	R	51	0	16.0	3.1	5.2	100	29	22	49	5	24	22	49	0.0	19.8	3.8
22,480		51	7	38.5	10.3	3.7	100	56	18	26	13	43	18	26	5.8	32.1	8.6
22,481		42	0	33.2	1.6	20.8	100	47	19	35	14	33	19	35	0.0	37.7	1.8
22,482		44	0	7.0	0.2	35.0	100	44	21	34	11	33	21	34	0.0	10.0	0.3

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,470		11	1	33	0.272	31.6	68	0.1	35	< 0.2	0.6	< 1	24	3	< 200	62	29	103	93	260	61	15.0	4650.00	8.1	93.0	1720	9	450.0
22,471		11	0	0	0.245	22.7	77	< 0.1	32	< 0.2	0.5	< 1	< 4	4	< 200	49	26	114	84	310	62	17.0	5600.00	9.4	82.0	2120	< 2	420.0
22,472		11	5	1107	2.119	16.3	893	2.7	47	< 0.2	0.7	< 1	13	3	< 200	78	41	97	97	280	90	19.0	6510.00	< 0.9	140.0	1650	< 3	690.0
22,473		51	0	0	0.610	23.6	143	0.1	34	< 0.2	0.4	< 1	69	4	490	57	24	112	75	320	54	16.0	5130.00	7.0	79.0	2080	< 2	390.0
22,560	R	51	0	0	0.177	14.9	72	0.1	28	1.0	0.5	< 1	100	2	< 200	68	28	130	77	220	44	13.0	6140.00	7.5	64.0	969	< 1	300.0
22,474		51	1	39	0.266	28.4	97	0.2	54	< 0.2	0.7	< 1	55	5	< 200	78	27	115	78	280	68	19.0	5040.00	7.8	80.0	1580	6	340.0
22,475		51	0	0	0.022	22.2	6	0.2	25	< 0.2	0.2	< 1	< 4	3	< 200	41	25	114	77	350	47	16.0	4890.00	9.7	100.0	2230	< 2	470.0
22,476		51	0	0	0.020	21.3	7	0.1	13	< 0.2	0.2	< 1	< 4	2	< 200	39	24	115	79	390	45	18.0	4810.00	9.8	110.0	1870	9	550.0
22,477		51	3	102	0.085	21.0	36	0.2	22	< 0.2	0.2	< 1	< 4	2	< 200	52	36	117	67	380	44	19.0	5930.00	10.0	140.0	1400	< 3	650.0
22,478		51	1	41	0.284	17.7	128	0.2	16	< 0.2	0.2	< 1	22	3	< 200	49	39	120	67	390	49	20.0	5900.00	9.7	150.0	1470	< 3	720.0
22,561	R	51	0	0	0.055	12.2	28	< 0.1	13	0.5	0.2	< 1	34	2	< 200	51	37	125	65	310	35	13.0	5810.00	9.1	100.0	942	< 2	500.0
22,480		51	7	1197	1.023	26.1	319	< 0.1	37	< 0.2	0.3	< 1	19	4	< 200	50	42	103	70	360	50	19.0	6540.00	9.9	160.0	1440	12	850.0
22,481		42	0	0	0.023	24.9	6	2.5	13	< 0.2	<0.1	< 1	< 4	< 1	< 200	537	28	201	30	95	54	29.0	7480.00	5.8	40.0	< 500	< 3	200.0
22,482		44	0	0	0.005	5.2	5	0.6	6	0.4	<0.1	3	< 4	< 1	< 200	854	25	218	34	31	57	29.0	7220.00	5.3	11.0	< 500	< 2	290.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,470		11	30	< 1	<.2	1	< 1	< 1	< 2	11	< 2	647	46	8	110	52	110	20	49,813	350	-1	16.19	5.76	3.76	3.35	0.63	3.01	0.97
22,471		11	30	< 1	<.2	2	< 1	< 1	< 2	11	< 2	652	39	8	100	55	46	18	44,508	390	-1	15.48	7.65	3.92	3.40	0.60	2.91	1.23
22,472		11	30	< 1	<.2	2	< 1	< 1	< 2	11	< 2	687	49	16	120	54	52	23	56,948	350	-1	16.42	5.06	4.11	3.56	0.62	3.13	1.40
22,473		51	30	< 1	<.2	1	< 1	< 1	< 2	6	< 2	612	52	8	120	49	100	22	54,419	440	0.88	17.01	5.20	3.65	3.23	0.63	2.80	1.26
22,560	R	51	30	< 1	<.2	2	< 1	< 1	< 2	5	< 2	522	58	10	120	81	110	21	53,888	83	-1	16.99	5.08	3.62	3.01	0.63	2.72	1.20
22,474		51	30	2	<.2	2	< 1	< 1	< 2	10	< 2	608	55	6	110	64	100	24	58,161	430	-1	17.36	5.09	3.68	3.27	0.60	2.89	1.19
22,475		51	30	< 1	<.2	1	< 1	< 1	< 2	8	< 2	618	49	8	97	52	78	20	57,087	430	-1	17.51	5.36	3.54	3.19	0.65	2.87	1.47
22,476		51	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	637	42	6	97	30	4	17	57,322	380	1.31	18.25	4.93	3.46	2.92	0.67	2.83	1.52
22,477		51	30	< 1	<.2	2	< 1	< 1	< 2	6	< 2	521	51	10	110	45	80	19	54,764	400	-1	18.27	6.38	3.26	2.63	0.67	2.76	1.63
22,478		51	30	< 1	<.2	1	< 1	< 1	< 2	7	< 2	530	47	8	100	41	76	18	55,722	370	2.34	18.58	6.65	3.32	2.47	0.68	2.80	1.38
22,561	R	51	30	- 1	<.2	1	1	< 1	< 2	2	< 2	917	57	10	130	109	150	18	60,469	95	-1	18.14	6.54	3.33	2.51	0.66	2.63	1.67
22,480		51	30	< 1	<.2	1	< 1	< 1	< 2	1	< 2	544	47	8	120	53	84	20	59,780	390	-1	19.84	4.87	3.07	2.49	0.71	2.71	1.36
22,481		42	30	3	<.2	< 1	< 1	< 1	< 2	8	< 2	129	17	< 2	83	24	46	26	81,993	63	-1	30.40	0.62	0.69	0.84	0.62	0.70	0.82
22,482		44	30	< 1	<.2	< 1	< 1	< 1	< 2	12	< 2	86	14	< 2	85	26	46	25	71,963	37	-1	32.73	0.20	0.28	0.65	0.65	0.53	0.86

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,472		11	7.1	< 0.5	6	< 1	10	109	6	234	147	1,200	4,946	29,496	2,091	1,659	121	83.57	6.75	1.36	1.62	0.18	0.10	0.06	34	39	130	6
22,474		51	11.5	< 0.5	5	< 1	10	59	4	212	98	2,230	4,644	27,158	1,937	1,773	339	83.71	5.54	1.18	1.48	0.13	0.10	0.04	23	32	118	8
22,477		51	6.3	< 0.5	7	< 1	4	63	6	249	94	1,939	2,774	33,213	2,091	1,947	146	85.87	3.83	1.14	1.06	0.09	0.25	0.03	41	32	114	3
22,480		51	10.3	< 0.5	6	< 1	10	83	4	258	113	1,698	2,714	33,513	2,169	1,900	277	85.27	4.13	1.21	1.23	0.09	0.42	0.04	30	30	127	4
22,481		42	1.6	1.8	8	< 1	8	108	6	227	79	1,528	2,111	26,619	1,782	1,724	146	80.44	3.61	1.19	0.83	0.06	0.35	0.03	22	24	121	2
22,482		44	0.2	NS	NS	NS	NS	649	NS	113	83	979	1,629	10,432	1,627	1,433	806	85.74	7.45	0.99	1.29	0.04	1.48	0.06	47	45	836	2

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,574	SS	229.0 230.0	< 10	< 2	< 1	< 0.5	2	< 0.2	< 5	< 1	< 30	< 2	62	22	12	73	41	172	25	5.60	0.03	0.56	0.53	0.11	0.09	0.32	21.30	60.89	0.06
22,489		264.0-271.0	< 10	< 2	< 1	< 2.0	1	1.0	1	< 1	< 30	< 2	277	23	< 3	75	55	168	34	4.87	0.07	1.44	0.39	3.54	4.36	1.32	16.31	65.53	0.14

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li? ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,574	60	< 50	< 1	0.04	70	< 10	1	< 1	19	14	11	0.06	8	10	3	3	30	110	<100	< 2
22,489	69	< 50	< 5	0.04	620	< 10	< 1	< 1	34	170	320	0.14	< 5	6	8	12	24	73	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,470		120.5-127.5	11	2	0	3	5	-1	8	1	0	1	20	-1	31	20	9	0	100	5	
22,472		142.0-151.5	11	5	0	4	12	0	9	2	0	1	22	-1	20	24	1	0	100	2	
22,474		162.5-172.0	51	6	0	2	5	-1	5	2	3	1	25	0	26	22	3	0	100	7	
22,477		194.5-204.5	51	3	0	8	9	-1	12	1	1	0	15	-1	27	18	6	0	100	5	
22,480		214.0-219.0	51	2	0	15	9	0	7	1	0	0	27	0	18	18	3	0	100	4	
22,481		219.0-226.5	42	0	0	71	2	0	4	-1	0	0	12	0	3	4	4	0	100	6	
22,482		226.5-234.0	44	0	0	87	1	0	4	0	0	1	6	0	1	-1	-1	0	100	3	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22470	11.2	1.3	9.9	243.3	187.6	55.7	44.8	10.9	1	33	P	40	60	TR	NA	U	Y	Y	Y	GB	GB	TILL
22471	10.0	1.0	9.0	207.2	167.7	39.5	31.8	7.7	0	NA	P	20	70	10	NA	U	Y	Y	Y	GB	GB	TILL
22472	9.4	3.2	6.2	277.8	248.4	29.4	22.3	7.1	5	1107	P	40	55	5	NA	S	C	N	N	GB	GB	GRAVEL
22473	7.6	0.8	6.8	192.4	153.0	39.4	32.4	7.0	0	NA	P	40	55	5	NA	U	Y	Y	Y	GB	GB	TILL
22474	14.2	1.6	12.6	302.4	252.0	50.4	38.9	11.5	1	39	P	60	40	TR	NA	U	Y	Y	Y	GB	GB	TILL
22475	8.5	0.7	7.8	164.3	126.0	38.3	30.9	7.4	0	NA	P	20	75	5	NA	U	Y	Y	Y	B	GB	TILL
22476	10.5	0.5	10.0	167.6	130.3	37.3	30.0	7.3	0	NA	P	15	75	10	NA	U	Y	Y	Y	GB	GB	TILL
22477	12.3	0.7	11.6	289.7	254.3	35.4	29.1	6.3	3	102	P	25	55	20	NA	U	Y	Y	Y	GYB	GYB	TILL
22478	11.0	0.7	10.3	345.1	315.3	29.8	24.4	5.4	1	41	P	30	45	25	NA	U	Y	Y	Y	GYB	GYB	TILL
22480	12.0	1.6	10.4	333.1	284.3	48.8	38.5	10.3	7	1197	P	35	55	10	NA	U	Y	Y	Y	GYB	GYB	TILL
22481	8.8	1.2	7.6	220.9	186.1	34.8	33.2	1.6	0	NA	NA	NA	NA	TR	NA	NA	NA	NA	NA	GN	GN	SAP
22482	7.0	0.8	6.2	219.1	211.9	7.2	7.0	0.2	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	GN	GGN	SAP
22560	8.0	0.8	7.2	285.9	261.8	24.1	19.7	4.4	0	NA	P	50	45	5	NA	U	Y	Y	Y	B	B	TILL
22561	8.1	0.4	7.7	171.6	152.5	19.1	16.0	3.1	0	NA	P	15	80	5	NA	U	Y	Y	Y	GYB	GYB	TILL

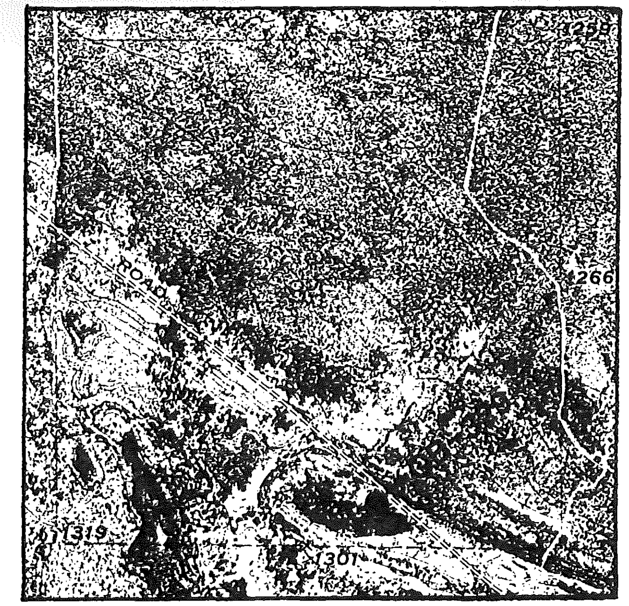
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22470	N	100 X 100	20 C	1						1			
										1	44.8	33	
22471	N	NO VISIBLE GOLD											
22472	Y	50 X 150	20 C		1					1			EST. 2% MARCASITE
		100 X 150	25 C	1						1			1% PYRITE
		125 X 125	25 C	1						1			
		125 X 150	27 C	1						1			
		175 X 250	40 C	1						1			
										5	22.3	1107	
22473	N	NO VISIBLE GOLD											
22474	N	50 X 150	20 C	1						1			
										1	38.9	39	
22475	N	NO VISIBLE GOLD											
22476	N	NO VISIBLE GOLD											
22477	Y	50 X 50	10 C	1						1			EST. 1.5% MARCASITE
		50 X 100	15 C		1					1			0.5% PYRITE
		100 X 125	22 C	1						1			
										3	29.1	102	
22478	N	75 X 100	18 C	1						1			
										1	24.4	41	
22480	Y	25 X 25	5 C		1					1			EST. 0.75 MARCASITE
		75 X 100	18 C	2						2			0.25 PYRITE
		75 X 275	34 C	1						1			
		125 X 125	25 C	1						1			
		150 X 150	29 C	1						1			
		225 X 325	50 C	1						1			
										7	38.5	1197	
22481	N	NO VISIBLE GOLD											
22482	N	NO VISIBLE GOLD											
22560	N	NO VISIBLE GOLD											
22561	N	NO VISIBLE GOLD											

Appendix 1-22A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-329
Drilling Completion Date: 6/9/88



LOCATION (see map at right)
S-T-R: SW¼-SE¼ - S34 - T153N - R27W
County: Koochiching
Quadrangle: Ridge 7.5
Regional Survey Area: Effie
UTM Coordinates: 418,870mE; 5319060mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1310 ± 3 ft.
Total Depth: 226 ft.
Elevation, Top of Precambrian Bedrock: 1096 ft.
Elevation, Top of Saprolite: 1154 ft.
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-36	Kooch. lobe gl. drift	G		
36-122	Rainy lobe gl. drift	G		
122-154	Old Rainy lobe gl. drift	B,C,G	A,B,C	A=W B=Cu,Sb C=As
154-214	Saprolite	B,C,G	A,B,C,J	A=Au,Pb,Fe B=Ag,Sb,As,Bi,Cu,Ni C=Ti,As,Cu,Ni,Co

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

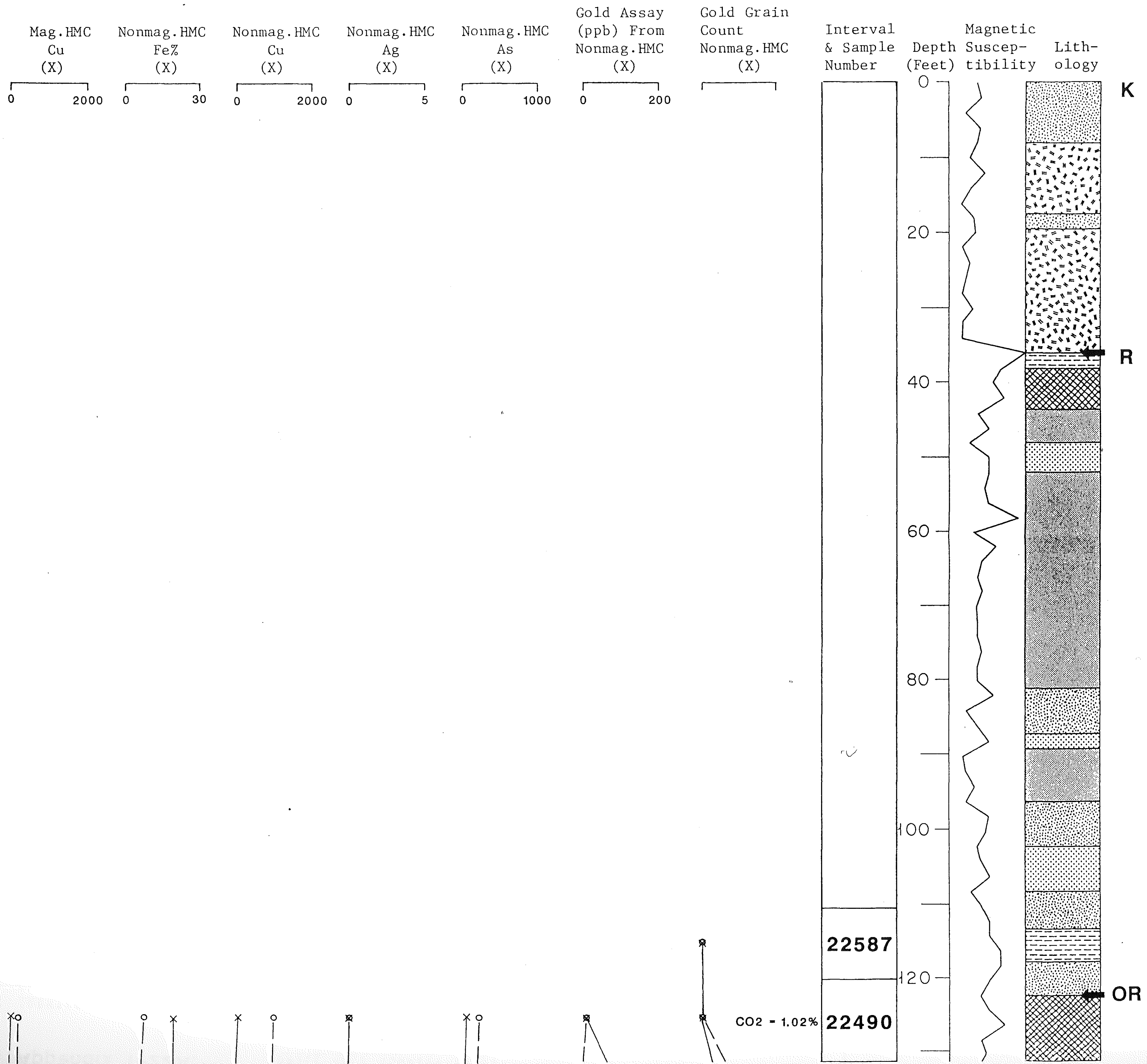
Core Description: Massive mafic intrusion. Thin section taken from zone in core which is identical to bulk of the rock except for containing a larger percentage and grain size of ilmenomagnetite crystals. Trace percent of disseminated pyrite exists, though not confirmed by petrography. Magnetic Susc: 0.03-0.06 x 10-3 CGS; one reading in ilmenomagnetite-rich zone = 0.15 x 10-3 CGS.

Thin Section Description: OB-329, 219 ft. Deuterically altered quartz gabbro/ diorite. Estimated mode (volume %): Plagioclase (and pseudomorphs) 35%; Actinolite (mostly hornblende pseudomorphs) 57%; Quartz 3%; Chlorite 3%; Ilmeno-magnetite (pseudomorphs) 2%; Apatite Tr; Hematite Tr. Massive, decussate-textured rock consisting of blocky, very clino-zoisite-altered plagioclase, fibrous actinolite after hornblende and/or pyroxene, subpoikilitic quartz, and masses of leucoxene which pseudomorph ilmenite or ilmenomagnetite. The feldspars (up to 3 mm) appear nearly opaque due to replacement by fine granular masses of a Ca-Al (+Fe) silicate such as clinozoisite. Fibrous to massive actinolite appears to have replaced (along with chlorite) earlier hornblende and/or pyroxene. A few of these pseudomorphs contain patches of green to brown pleochroic horn-blende, and many still contain relict twinning. Pale green chlorite is present throughout as an alteration product, and also in veins with quartz. Quartz occurs as poikilitic masses up to 5mm across which enclose plagio-clase and partially enclose pseudomorphic actinolite. Pseudomorphic masses (up to 3 mm across) of leucoxene, minor sphene and ilmenite are present; these are after primary subhedral, ilmenomagnetite which contain a small amount of (111) lamellar ilmenite. Scattered blebs of sphene-rimmed ilmenite are present, and blebs of ilmenite are associated with patches of clayey alteration. The rock is cut (perpendicular to length of slide) by open brittle fractures healed with quartz and chlorite (not zoned); and by tighter, brittle shear-type fractures which are more or less normal to the other fractures.

Scintillometer Reading (cps): 75-85

Appendix 1-22B.

OB-329



Geologic Descriptions

(0 - 8) GRAVELLY COARSE SAND; OXIDIZED; carb pebs at 2 ft; silty to 4; two unox clay till beds from 6 - 7.

(8 - 17 1/2) CLAY TILL; UNOXIDIZED; calc; carb & sh grains; sand lens at 8 ft; occ cobs; clay loam by 13.

(17 1/2 - 19 1/2) SILTY SAND & GRAVEL.

(19 1/2 - 36) CLAY LOAM TILL; UNOXIDIZED; as above; 27 1/2 - 28 silty sand & gvl; clay till by 30 ft.

(36 - 38) VERY FINE SANDY SILT; UNOXIDIZED; grnish gray; mod calc; cob near top; grades to till below; large carb peb near base.

(38 - 43 1/2) LOAM TILL; UNOXIDIZED; mod calc to calc; couple cobs; matrix low in clay.

(43 1/2 - 48) SILTY, VERY FINE SAND; 44 1/2 - 46 ft v fgr sandy silt w/silt bed; 46 - 48 fgr sand.

(48 - 52) MEDIUM SAND; some coarse grains.

(52 - 81) VERY FINE - MEDIUM SAND; 52 - 55 ft fgr w/few v fgr beds; 55 - 60 1/2 silty, v fgr; 60 1/2 - 62 sandy silt, some coarser grains, 62 - 63 1/2 silty, v fgr w/silty lam; 63 1/2 - 68 v fgr to fgr, coarser w/depth; 68 - 70 fgr to mgr; mgr to 72 1/2; fgr to 74; v fgr to 75 1/2; fgr to 76; v fgr to 81.

(81 - 87) GRAVELLY COARSE SAND; mgr to cgr sand in upper 1/2 ft; sm cob at 84 ft, then v cgr sand w/gnl; some carb, Precambrian dominates.

(87 - 89) MEDIUM - COARSE SAND.

(89 - 96) FINE - MEDIUM SAND; v fgr to fgr 92 - 92 1/2 ft; 93 - 95 1/2 silty, v fgr sand; fgr to 96.

(96 - 102) COARSE SAND & FINE GRAVEL; much dark pebs.

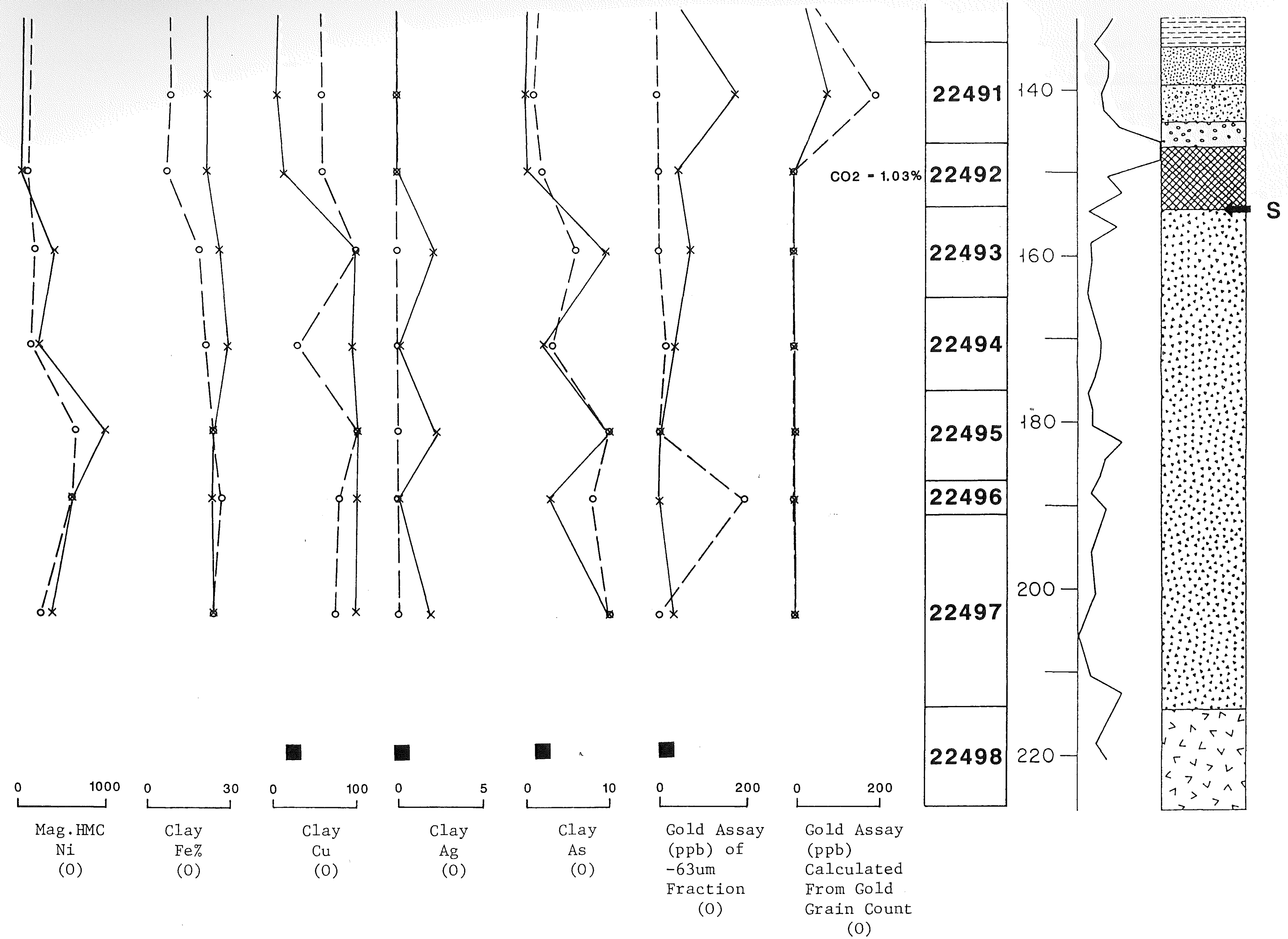
(102 - 108) COARSE SAND; few sm pebs; mgr to cgr from 105 ft.

(108 - 113) COARSE - VERY COARSE SAND & GRANULES; peb layers at 100 1/2, 111 ft; fgr sand last 1/2 foot.

(113 - 117 1/2) GRAVELLY, VERY FINE, SANDY SILT; UNOXIDIZED; grnish gray; sl to mod calc; 116 - 117 1/2 v fgr to mgr sand.

(117 1/2 - 122) COARSE SAND & GRANULES; 120 1/2 - 122 ft silty gvl w/silt & sandy silt beds; large carb peb at base.

(122 - 131) LOAM TILL; UNOXIDIZED; calc; cobbly; 125 1/2 - 126 ft silty cgr sand & gvl; grnish gray from 126; silt bed at 128, less pebbly below.



(131 - 134 1/2) SILT; UNOXIDIZED; calc; clayey silt lam; sand bed near base.

(134 1/2 - 139) LOAMY COARSE SAND & GRAVEL; OXIDIZED; large cob at top, few inches loamy till (?) below; cobs at 135, 135 1/2, 136 1/2, 137 1/2; many large pebs.

(139 - 143 1/2) VERY COBBLY LOAM TILL; UNOXIDIZED; grnish gray; mostly cobbles w/loam matrix; mod calc to calc.

(143 1/2 - 146 1/2) COBBLY, LOAMY SAND & GRAVEL.

(146 1/2 - 154) LOAM TILL; UNOXIDIZED; grnish gray; mod calc; large cob near top; 147 1/2 - 149 1/2 boulder; calc by 149 1/2 ft, more calc and fgr w/depth; cobs at 151, 153; clay loam till by 153 & quite calc, but carb pebs not abundant.

(154 - 214) SAPROLITE; reworked pebbly clay in top 1/2 foot; 154 1/2 - 155 1/2 grnish clay w/some grit; 155 1/2 - 156 1/2 red & clayey; 156 1/2 - 165 variegated gritty clay; 165 - 168 variegated punky rock w/hard rock layers; 168 - 175 mostly punky rock; 175 - 179 hard rock layers; 179 - 186 1/2 mostly punky rock & rocky clay; 186 1/2 - 191 reddish clay, not much grit; 191 - 214 hard, weathered rocky w/punky rock layers, much core loss so prob much punky,rock.

(214 - 226) BEDROCK; GABBRO OR DIORITE; mgr; deuterically altered.

Appendix 1-22C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,587		329	110.5 120.5	10.0	0	153 27 34	SW-SE	K	RAINY LOBE GRAVELLY SAND	13	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,490		329	120.5-131.0	10.5	ABCJ	153-27-34	SW-SE	K	OLD RAINY LOBE TILL	51	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,491		329	134.5-146.5	12.0	AB	153-27-34	SW-SE	K	OLD RAINY LOBE GRAVELLY SAND	53	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,492		329	146.5-154.0	7.5	ABCJ	153-27-34	SW-SE	K	OLD RAINY LOBE TILL	51	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,493		329	154.0-165.0	11.0	ABCJ	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	41	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,575	SS	329	155.0 156.0	1.0	IJ	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	41	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERAL&ASSAY
22,576	SS	329	158.0 159.0	1.0	J	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	41	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERALOGY
22,494		329	165.0-176.0	11.0	ABCJ	153-27-34	SW-SE	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,577	SS	329	174.0 175.0	1.0	IJ	153-27-34	SW-SE	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERAL&ASSAY
22,495		329	176.0-186.5	10.5	ABC	153-27-34	SW-SE	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,496		329	186.5-191.0	4.5	ABCJ	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	41	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,496	R	329	186.5 191.0	4.5	0	153 27 34	SW-SE	K	SAPROLITE: MASSIVE CLAY	41	MIXED VOLC. AND CLASTIC ROCKS	V/S	REPLICATE B,C, NO ASSAY
22,578	SS	329	188.0 189.0	1.0	J	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	41	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERALOGY
22,497		329	191.0-214.0	23.0	ABCJ	153-27-34	SW-SE	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,579	SS	329	191.0 193.0	1.0	J	153-27-34	SW-SE	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERALOGY
22,498		329	214.0-226.0	12.0	HI	153-27-34	SW-SE	K	BEDROCK	34	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22,502	SS	329	216.0-216.5	0.5	IJ	0- 2 0			BEDROCK	34	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPECIAL SAMPLE VEIN MATERIAL

HMC AND LAB DATA

						WEIGHT (GRAMS)				WEIGHT %				NORMALIZED TO 10KG SAMPLE		
SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	>= VCGR SAND	MGR SAND	FGR SAND	SILT	#GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,587		13	0	31.5	8.6	3.7	100	-1	-1	-1	12	-1	-1	-1	0	0	0
22,490		51	0	25.4	5.6	4.5	100	40	19	41	17	23	19	41	0.0	33.0	7.3
22,491		53	4	32.9	6.9	4.8	100	38	19	43	47	-1	19	43	3.1	25.5	5.3
22,492		51	0	45.7	11.4	4.0	100	75	13	12	17	58	13	12	0.0	39.4	9.8
22,493		41	0	6.3	0.3	21.0	100	46	28	26	13	33	28	26	0.0	8.1	0.4
22,494		43	0	7.6	2.0	3.8	100	38	18	44	23	15	18	44	0.0	8.7	2.3
22,495		44	0	5.0	1.1	4.5	100	48	14	38	32	16	14	38	0.0	5.0	1.1
22,496		41	0	10.3	1.3	7.9	100	51	11	37	5	46	11	37	0.0	13.4	1.7
22,497		43	0	5.2	0.8	6.5	100	24	13	63	69	-1	13	63	0.0	8.5	1.3

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,490		51	0	0	0.023	18.2	7	< 0.1	53	< 0.2	0.4	< 1	< 4	4	< 200	53	32	102	74	360	67	22.0	6160.00	5.1	110.0	1340	< 3	530.0
22,491		53	4	238	1.102	25.4	432	< 0.1	25	< 0.2	0.3	< 1	< 4	3	< 200	87	25	121	51	280	54	23.0	8510.00	6.0	78.0	1670	< 2	350.0
22,492		51	0	0	0.177	35.1	45	< 0.1	43	1.1	0.4	< 1	< 4	8	< 200	324	29	192	71	190	68	23.0	7180.00	6.5	70.0	911	< 2	320.0
22,493		41	0	0	0.071	4.6	88	2.2	2000	6.2	<0.1	< 1	< 4	< 1	< 200	25800	13	103	314	51	69	25.0	4803.00	7.2	63.0	< 500	< 2	230.0
22,494		43	0	0	0.038	5.6	44	0.1	250	9.9	<0.1	4	< 4	4	250	1930	8	134	95	18	410	34.0	4710.00	< 0.5	3.9	994	< 2	30.0
22,495		44	0	0	0.003	4.4	7	2.2	6000	1.2	<0.1	< 1	< 4	< 1	< 200	84000	29	136	415	< 10	250	24.0	9360.00	< 0.7	3.7	< 500	< 2	260.0
22,496		41	0	0	0.007	7.6	5	0.4	250	5.2	<0.1	< 1	< 4	2	320	24400	< 1	125	82	12	200	25.0	9040.00	< 0.5	2.3	< 500	< 2	130.0
22,497		43	0	0	0.030	3.6	35	1.9	1100	11.0	<0.1	< 1	17	< 1	< 200	36800	68	127	48	15	170	24.0	4590.00	< 0.5	0.5	1000	8	42.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,490		51	30	< 1	<.2	2	< 1	< 1	< 2	9	< 2	492	52	6	120	68	100	22	62,587	460	1.02	19.87	4.88	3.62	2.49	0.67	2.36	1.42
22,491		53	30	4	<.2	1	< 1	< 1	< 2	36	< 2	683	60	6	100	56	110	23	63,409	360	-1	16.24	4.83	3.82	3.65	0.67	2.71	1.57
22,492		51	30	< 1	<.2	2	< 1	< 1	< 2	23	< 2	528	61	2	97	53	78	26	56,020	340	1.03	18.02	5.91	3.21	3.30	0.66	2.43	2.02
22,493		41	30	< 1	<.2	6	< 1	< 1	< 2	< 1	< 2	82	120	< 2	92	30	2	37	131,300	130	-1	23.50	0.59	1.82	1.52	1.11	0.44	1.60
22,494		43	30	19	<.2	3	< 1	< 1	< 2	< 1	< 2	107	29	< 2	100	8	6	59	147,776	140	-1	15.26	1.44	3.56	2.72	1.21	1.10	3.28
22,495		44	30	< 1	<.2	11	< 1	< 1	< 2	< 1	< 2	51	130	< 2	130	3	4	32	168,581	250	-1	24.03	0.27	1.18	0.96	1.41	0.14	1.23
22,496		41	30	388	<.2	8	< 1	< 1	< 2	6	< 2	39	80	38	170	11	4	31	180,804	350	-1	23.36	0.14	1.23	0.92	1.60	0.16	0.99
22,497		43	30	3	<.2	10	< 1	< 1	< 2	< 1	< 2	110	74	< 2	77	3	16	34	163,908	280	-1	16.38	1.93	3.16	2.24	1.51	0.34	2.90

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,490		51	5.6	< 0.5	16	< 1	4	68	10	337	136	5,168	6,273	33,873	2,401	1,938	136	83.11	5.41	1.42	1.37	0.11	0.22	0.03	32	32	122	6
22,492		51	11.4	< 0.5	7	< 1	2	86	8	185	128	1,817	2,654	37,530	2,401	2,982	115	86.95	3.00	0.85	1.01	0.06	0.16	<0.02	27	34	81	4
22,493		41	0.3	NS	NS	NS	NS	840	NS	232	189	1,426	4,403	29,017	4,803	1,609	209	75.61	10.66	2.12	1.12	0.10	0.13	0.05	57	42	202	15
22,494		43	2.0	< 0.5	130	< 1	6	482	12	123	161	61	7,177	10,552	1,084	1,107	781	66.00	18.59	4.01	0.56	0.07	1.06	0.12	237	73	203	18
22,495		44	1.1	NS	NS	NS	NS	2,638	NS	88	669	33	2,594	28,237	1,007	1,247	2,422	73.94	9.45	2.73	0.51	0.06	0.10	0.24	106	42	78	36
22,496		41	1.3	NS	NS	NS	NS	1,316	NS	127	626	26	3,197	63,369	1,162	1,013	1,748	61.10	14.26	3.92	0.61	0.06	0.41	0.17	129	42	121	49
22,497		43	0.8	NS	NS	NS	NS	733	NS	115	249	180	11,037	90,048	1,549	3,810	920	43.34	20.04	4.45	9.03	0.09	0.19	0.06	155	57	104	31

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,575	SS	155.0 156.0	< 10	< 2	< 1	< 0.5	9	0.6	< 5	< 1	< 30	< 2	82	121	< 1	232	52	26	88	20.65	0.07	1.20	1.29	0.51	0.21	0.18	24.26	41.79	0.10
22,577	SS	174.0 175.0	< 10	< 2	7	< 0.5	2	< 0.2	< 5	< 1	< 30	< 2	78	50	8	222	19	26	110	19.92	0.07	2.92	0.88	2.99	1.02	1.13	15.50	49.74	0.10
22,498		214.0-226.0	< 10	< 2	< 1	< 0.2	2	< 1.0	2	< 1	< 30	< 2	31	25	26	68	23	32	78	14.32	0.20	5.53	1.11	9.23	2.61	< 0.01	14.58	48.87	0.08
22,502	SS	216.0-216.5	< 10	< 2	2	< 0.2	2	< 1.0	2	< 1	< 30	< 2	45	46	10	77	31	27	127	15.61	0.25	5.25	1.71	8.05	2.46	0.14	15.20	45.80	0.08

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,575	772	< 50	< 1	< 0.01	66	< 10	< 1	< 1	32	3	44	0.10	26	62	9	5	12	56	<100	< 2
22,577	502	< 50	< 1	< 0.01	52	< 10	< 1	< 1	13	41	226	0.10	30	38	47	7	12	44	<100	< 2
22,498	547	< 50	< 5	0.02	2400	< 10	< 1	< 1	15	250	232	0.08	< 5	41	15	4	10	35	< 50	< 2
22,502	872	< 50	< 5	0.02	540	< 10	< 1	< 1	15	340	225	0.08	< 5	41	14	4	8	33	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,490		120.5-131.0	51	4	0	10	12	2	5	-1	0	1	20	-1	24	16	6	0	100	7	
22,492		146.5-154.0	51	6	0	28	7	-1	10	1	0	0	14	0	19	13	2	0	100	6	
22,493		154.0-165.0	41	0	0	35	7	4	42	-1	0	0	3	0	1	-1	0	0	92	4	
22,494		165.0-176.0	43	0	0	6	3	81	6	0	0	0	0	0	2	1	0	0	99	7	
22,496		186.5-191.0	41	0	0	52	1	4	37	0	0	0	0	0	1	0	0	0	95	1	
22,497		191.0-214.0	43	0	0	5	4	12	38	15	0	0	0	0	10	12	0	0	96	6	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

…LE ….	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22490	7.7	1.3	6.4	286.5	255.5	31.0	25.4	5.6	0	NA	P	40	45	15	NA	U	Y	Y	Y	GYB	GYB	TILL
22491	12.9	6.0	6.9	192.4	152.6	39.8	32.9	6.9	4	238	P	65	25	10	NA	U	Y	Y	Y	GYB	GYB	TILL
22492	11.6	2.0	9.6	344.8	287.7	57.1	45.7	11.4	0	NA	P	35	55	10	NA	U	Y	Y	Y	GYB	GYB	TILL
22493	7.8	1.0	6.8	78.3	71.7	6.6	6.3	0.3	0	NA	NA	NA	NA	TR	NA	NA	NA	NA	NA	GN	BN	SAP
22494	8.7	2.0	6.7	125.3	115.7	9.6	7.6	2.0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	BN	BN	SAP
22495	10.1	3.2	6.9	113.6	107.5	6.1	5.0	1.1	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	BN	BN	SAP
22496	7.7	0.4	7.3	244.7	233.1	11.6	10.3	1.3	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	OC	OC	SAP
22497	6.1	4.2	1.9	338.0	332.0	6.0	5.2	0.8	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	WHT	OC	SAP
22587	10.9	1.3	9.6	252.8	212.7	40.1	31.5	8.6	0	NA	P	30	60	10	NA	U	Y	Y	Y	B	B	TILL

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22490	N	NO VISIBLE GOLD											
22491	Y	75 X 100	18 C	1						1			EST. 0.5% PYRITE
		75 X 125	20 C		2					2			0.5% MARCASITE
		125 X 150	27 C	1						1			10 GRAINS ARSENOPYRITE
										4	32.9	238	
22492	N	NO VISIBLE GOLD											
22493	N	NO VISIBLE GOLD											
22494	N	NO VISIBLE GOLD											
22495	Y	NO VISIBLE GOLD											EST. 3% NATIVE Cu. 25-1200 MICRONS 10 GRAINS BORNITE
22496	Y	NO VISIBLE GOLD											EST. 0.5% NATIVE COPPER CRYSTALS 5 GRAINS BORNITE
22497	Y	NO VISIBLE GOLD											EST. 0.25% NATIVE COPPER SIZE RANGE 50 TO 3000 MICRONS
22587	N	NO VISIBLE GOLD											

DRILL HOLE SUMMARY SHEET

IDENTIFICATION
DNR Drill Hole Number: OB-331
Drilling Completion Date: 6/4/88

LOCATION (see map at right)
S-T-R: SE¼-SE¼ - S16 - T151N - R27W
County: Koochiching
Quadrangle: Mizpah NE 7.5
Regional Survey Area: Effie
UTM Coordinates: 417,550mE; 5304680mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1355 ± 2 ft.
Total Depth: 215.5 ft.
Elevation, Top of Precambrian Bedrock: 1149 ft.
Elevation, Top of Saprolite:
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-85.5	Kooch. lobe gl. drift	B,C,G	A,B,C	B=Au C=As,Mo
85.5-205	Winnipeg lobe gl. drift	B,C,G	A,B,C	A=Pb B=Ba
205-206	Old Rainy lobe gl. drift	B,G	A,B	
206-215.5	Sound bedrock	G,H	I	

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

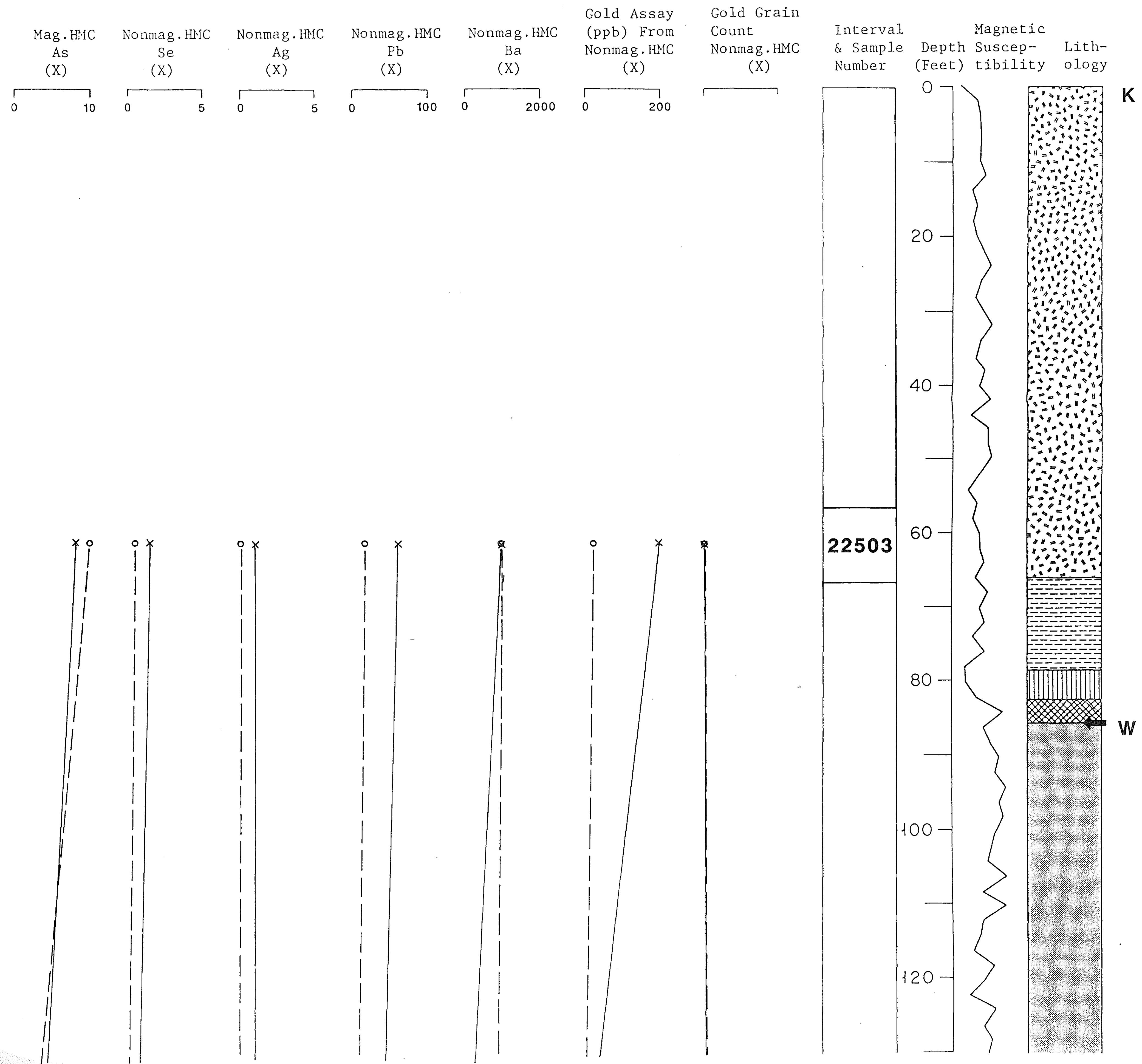
BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

Core Description: Medium-grained trondhjemite of consistent fabric but varied color and apparent composition. 209-209.5′ has unoxidized feldspar: magnetite and pyrite are visible. Magnetic susceptibility = 0.38 -0.96 x 10-3 CGS. 209.5-211.5′ is an apparently oxidized zone in which feldspar is pink and susceptibility is low (0.01-0.04 x 10-3 CGS). 211.5-215.5′ is unoxidized like 209-209.5, susc. = 0.09-0.38 x 10-3 CGS. Magnetite apparently oxidized from central zone by secondary processes. No obvious original modal banding, but moderate lineation of elongate minerals and mineral clots dips about 45°. The borders of the oxidized zone (209.5-211.5′) are gradational and vague. Lower part of core contains small, nearly vertical fractures with 1-3 mm wide border zones in which feldspar grains are oxidized.

Thin Section Description: OB-331, 214.5 ft. Trondhjemite (Streckeisen classification). Estimated mode (volume %): Quartz 45%; Plagioclase 54%; K-feldspar Tr; Muscovite 1; Chlorite Tr; Magnetite Tr; Epidote Tr. Nearly pristine coarse-grained igneous texture. Anhedral concentrations (mm to cm) of coarse granoblastic quartz show a slight strain-shadow extinction. The quartz in the rock heel is rose in color, in thin section quartz contains a very fine hematitic (?) dust which is concentrated in tiny strain fractures that parallel the shadowy extinction (approximately 45° to the main foliation). Plagioclase feldspar (albite to oligoclase) occurs as cm-scale aggregates of blocky, slightly zoned, subhedral grains 0.5 to 2 mm in size. The feldspar is fresh, and contains patches of very fine-grained hematitic(?) dust and fine-grained sericite, controlled by compositional zonation. Coarse, intergrown books of muscovite and dark green chlorite with minor intersheaved biotite, epidote, and blocky sub- to euhedral magnetite are concentrated along vague foliation-parallel zones. The foliation is defined by elongate concentrations of quartz and feldspar and by oriented mica sheaves. One grain of orthoclase was noted, with quartz.

Scintillometer Reading (cps): 85-100

OB-331



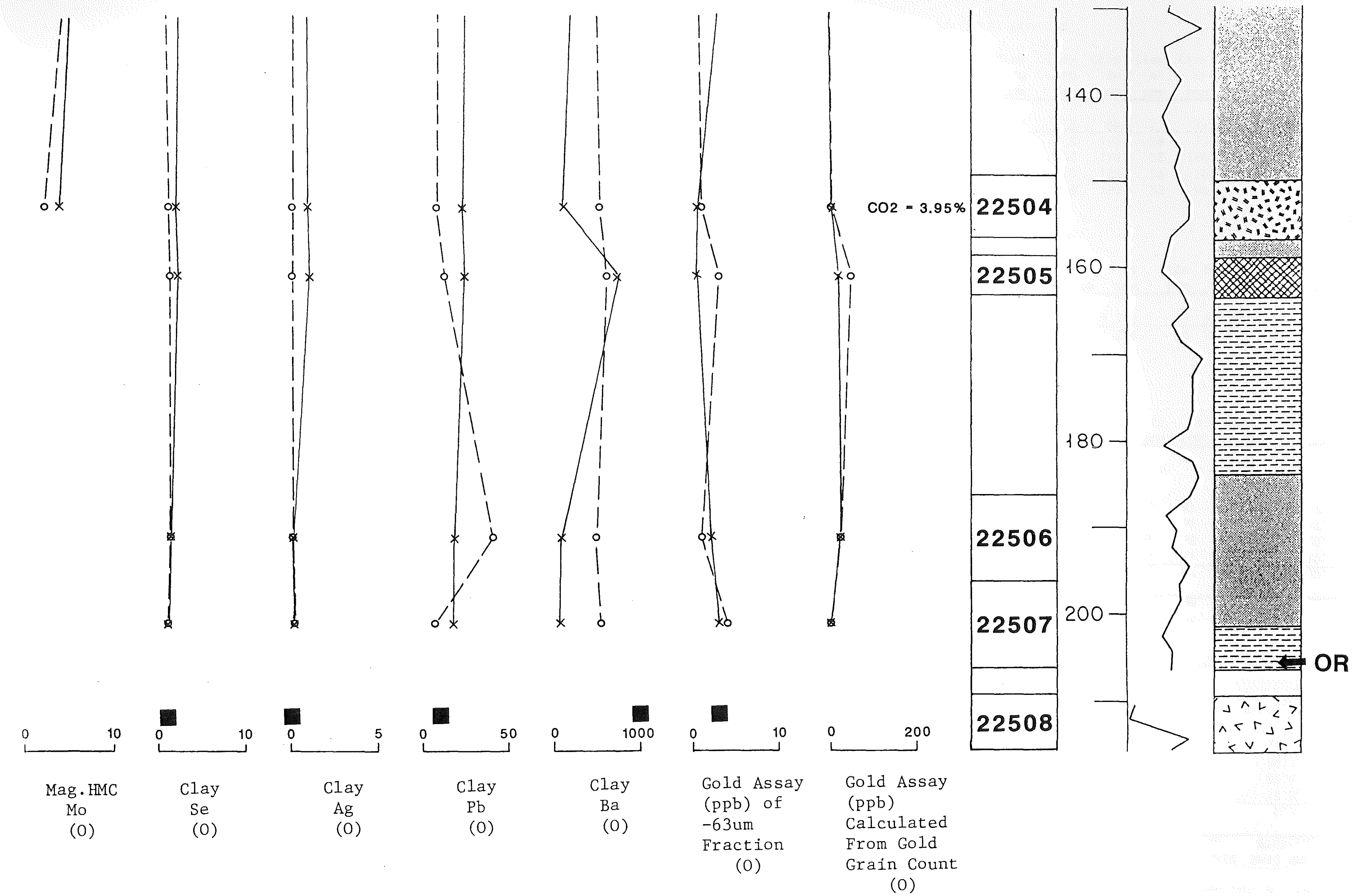
Geologic Descriptions

(0 - 66) CLAY - CLAY LOAM TILL; UNOXIDIZED by 16 ft; leached to about 1 foot; carb pebs dominant; no sh noted; clay till from 53, less pebs; few streaks of silty & sandy silt below 61.

(66 - 78 1/2) SILT; UNOXIDIZED; calc; abrupt upper contact; sandy bed at 67 1/2 ft; clay lens at 73; laminated silt & clay from 73 1/2 - 75 1/2.

(78 1/2 - 82 1/2) CLAY & SILTY CLAY; UNOXIDIZED; calc; laminated; few silt & sandy silt lam from 80 1/2 ft; few sand grains.
(82 1/2 - 85 1/2) LOAM TILL; UNOXIDIZED; calc; carb rich; sandy loam in upper foot.

(85 1/2 - 149 1/2) VERY FINE SAND; UNOXIDIZED; till lens near top; fgr to 88 ft; clayey silt bed at about 88; fgr bed at 90 1/2, then silty, v fgr sand, v well sorted to base; noted v fine organic particles in lam at 113 1/2, scattered above & below, another concentration at 126.



(149 1/2 - 156 1/2) LOAM - CLAY LOAM TILL; UNOXIDIZED; calc; carb common, not dominant; little sh; v fgr sand lenses at 150, 150 1/2 - 151 ft; sandy silt lens at 151 1/2; silty, v fgr sand lenses at 154 1/2.

(156 1/2 - 158 1/2) SILTY, VERY FINE SAND; some coarser grains.

(158 1/2 - 163) LOAM TILL; UNOXIDIZED; as above; carb-rich, pebbly sand lenses from 159 1/2 - 160 ft, then interbedded silty sand & loam till.

(163 - 183 1/2) VERY FINE, SANDY SILT; UNOXIDIZED; 163 - 164 1/2 ft v fgr silty sand; 164 1/2 - 166 1/2 mod calc to calc silt, clay lam, mostly silty clay in last 1/2 foot w/carb peb; little organics; silty v fgr sand bed at 179 1/2; silty clay lens at 180 1/2; coarse silt from 182 grading to silt at base.

(183 1/2 - 201) SILTY, VERY FINE SAND; UNOXIDIZED; v fgr sandy silt bed at 185 ft; fgr sand 191 - 192, mostly v fgr sand below; fgr bed at 196; silt lens at 196 1/2; silty, v fgr sand by 198; silt lens at 198.

(201 - 206) COARSE SILT; UNOXIDIZED; mod calc; silty, v fgr sand bed at 201 1/2 ft, 202 1/2 - 203 1/2, v fgr sandy silt to 205; v cgr sand & gnl to base, some carb but mostly Precambrian grains.
(206 - 209) NO CORE; apar is bedrock.

(209 - 215 1/2) BEDROCK; TRONDHJEMITE; cgr; weak igneous foliation.

Appendix 1-23C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,503	331		56.0- 66.0	10.0	ABCJ	151-27-16	SE-SE	K	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22,504	331		149.5-156.5	7.0	ABCJ	151-27-16	SE-SE	K	WINNIPEG LOBE TILL	61	GRANITE, GRANODIORITE	GR/GD	
22,505	331		158.5-163.0	4.5	AB	151-27-16	SE-SE	K	WINNIPEG LOBE TILL	61	GRANITE, GRANODIORITE	GR/GD	
22,506	331		186.0-196.0	10.0	AB	151-27-16	SE-SE	K	WINNIPEG LOBE SANDY SILT	60	GRANITE, GRANODIORITE	GR/GD	
22,507	331		196.0-206.0	10.0	AB	151-27-16	SE-SE	K	WINNIPEG LOBE SANDY SILT	60	GRANITE, GRANODIORITE	GR/GD	
22,508	331		209.0-215.5	6.5	HI	151-27-16	SE-SE	K	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,503		21	0	4.7	1.9	2.5	100	9	13	78	2	7	13	78	0.0	5.7	2.3
22,504		61	0	19.9	8.9	2.2	100	15	38	47	3	12	38	47	0.0	17.8	7.9
22,505		61	1	21.9	9.2	2.4	100	47	25	28	10	37	25	28	1.0	22.6	9.5
22,506		60	1	41.4	13.8	3.0	100	-1	-1	-1	1	-1	-1	-1	0.9	39.1	13.0
22,507		60	0	36.8	11.9	3.1	100	21	52	28	2	19	52	28	0.0	34.4	11.1

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,503		21	0	0	1.324	4.6	2,310	1.0	75	2.1	1.4	< 1	< 4	6	850	80	60	248	107	570	55	20.0	3680.00	22.0	130.0	1210	< 2	660.0
22,504		61	0	0	0.016	15.1	9	0.9	45	1.5	0.9	< 1	< 4	3	< 200	57	45	176	61	520	48	19.0	4600.00	23.0	150.0	2050	< 3	690.0
22,505		61	1	46	0.018	16.5	8	1.1	57	1.7	1.2	< 1	< 4	5	1500	56	47	125	68	440	58	20.0	4250.00	22.0	140.0	1550	< 3	570.0
22,506		60	1	24	0.176	31.5	45	0.2	37	0.7	0.6	< 1	< 4	2	< 200	31	37	110	64	360	51	17.0	5080.00	13.0	110.0	1680	< 2	590.0
22,507		60	0	0	0.237	28.2	69	0.2	43	< 0.2	0.5	< 1	< 4	2	< 200	32	34	108	67	370	54	17.0	4850.00	13.0	110.0	2480	9	560.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO_2 %	Clay Al_2O_3 %	Clay CaO %	Clay MgO %	Clay Na_2O %	Clay TiO_2 %	Clay K_2O %	Clay P_2O_5 %
22,503		21	30	< 1	<.2	4	< 1	< 1	< 2	< 1	4	427	27	8	84	21	24	8	29,794	260	-1	11.89	12.72	4.55	1.48	0.55	2.34	0.71
22,504		61	30	< 1	<.2	3	< 1	< 1	< 2	< 1	2	503	35	8	110	38	70	14	34,038	380	3.95	13.24	12.57	4.03	2.36	0.58	2.53	0.78
22,505		61	30	3	<.2	1	< 1	1	< 2	< 1	2	631	43	12	110	53	120	18	51,800	350	-1	17.19	4.04	3.43	4.08	0.66	3:15	1.90
22,506		60	30	< 1	<.2	4	< 1	1	< 2	1	2	487	39	40	120	56	70	14	35,586	76	-1	15.63	3.60	3.74	3.97	0.63	2.48	3.21
22,507		60	30	4	<.2	2	< 1	< 1	< 2	< 1	< 2	501	56	8	120	52	96	19	60,702	280	-1	18.52	2.86	3.67	3.40	0.69	2.76	2.07

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe_2O_3 %	SiO_2 %	Al_2O_3 %	CaO %	Na_2O %	K_2O %	P_2O_5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,503		21	1.9	< 0.5	8	< 1	14	47	12	172	114	1,853	2,774	17,326	1,472	1,340	96	91.39	3.49	1.18	0.76	0.03	0.10	0.05	18	19	217	2
22,504		61	8.9	< 0.5	4	< 1	2	40	8	193	80	2,073	1,749	16,247	1,472	1,501	86	93.77	1.99	0.62	0.55	0.03	0.10	0.02	14	19	266	4

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe_2O_3 %	MnO %	MgO %	TiO_2 %	CaO %	Na_2O %	K_2O %	Al_2O_3 %	SiO_2 %	P_2O_5 %
22,508		209.0-215.5	28	< 2	3	< 0.2	1	< 1.0	1	< 1	< 30	< 2	1093	54	10	25	31	162	6	1.20	0.01	0.16	0.03	1.03	3.83	2.97	12.69	74.97	0.06

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P_2O_5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,508	11	< 50	< 5	0.05	1150	< 10	1	< 1	3	27	499	0.06	< 5	2	1	3	7	47	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,503		56.0- 66.0	21	15	0	9	6	0	11	0	1	1	22	1	16	13	5	0	100	10	
22,504		149.5-156.5	61	9	0	6	11	-2	6	2	0	1	18	2	22	18	5	0	100	3	

HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

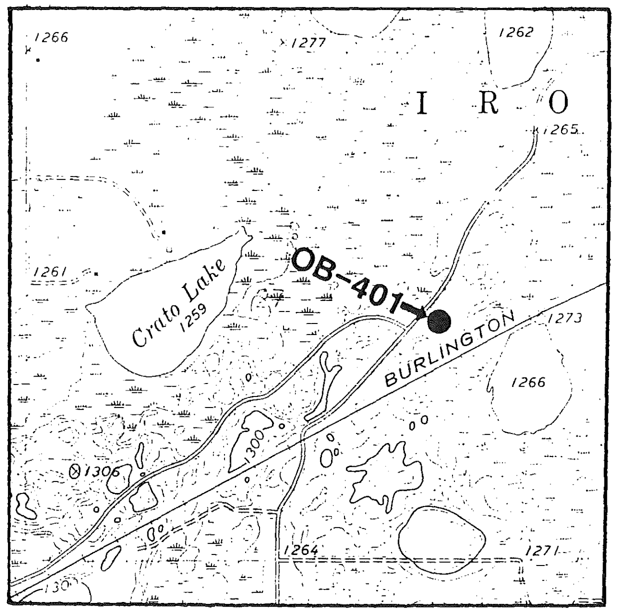
SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22503	8.2	0.2	8.0	136.0	129.4	6.6	4.7	1.9	0	NA	P	1	9	90	NA	U	Y	Y	Y	GYB	GYB	TILL
22504	11.2	0.3	10.9	370.4	341.6	28.8	19.9	8.9	0	NA	P	10	60	30	NA	U	Y	Y	Y	GYB	GYB	TILL
22505	9.7	1.0	8.7	231.1	200.0	31.1	21.9	9.2	1	46	P	20	50	30	NA	U	Y	Y	Y	B	GYB	TILL
22506	10.6	0.1	10.5	243.6	188.4	55.2	41.4	13.8	1	24	TR	0	0	NA	NA	U	Y	Y	Y	GYB	GYB	TILL
22507	10.7	0.2	10.5	255.4	206.7	48.7	36.8	11.9	0	NA	P	20	50	30	NA	U	Y	Y	Y	GYB	GYB	TILL

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22503	N	NO VISIBLE GOLD											
22504	N	NO VISIBLE GOLD											
22505	N	50 X 125	18 C	1						1			
										1	21.9	46	
22506	N	75 X 100	18 C			1				1			
										1	41.4	24	
22507	N	NO VISIBLE GOLD											

Appendix 1-24A. DRILL HOLE SUMMARY SHEET



IDENTIFICATION
DNR Drill Hole Number: OB-401
Drilling Completion Date: 6/27/88

LOCATION (see map at right)
S-T-R: NE¼-SE¼ - S27 - T46N- R29W
County: Crow Wing
Quadrangle: Crosby 7.5
Regional Survey Area: Ironton
UTM Coordinates: 424,500mE; 5142970mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1280 ± 3 ft.
Total Depth: 116 ft.
Elevation, Top of Precambrian Bedrock: 1171 ft.
Elevation, Top of Saprolite:
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-95.5	Rainy lobe gl. drift	B,C,G	A,B,C,J	A=W B=W,Sb
95.5-99	Winnipeg lobe gl. drift	B,C,G	A,B,C,J	B=Ag,Sb,W,Cu
99-109	Saprolite	B,C,G	A,B,C,J	A=Cu,Fe B=Ag,W,Cu C=Co
109-116	Sound bedrock	G,H	I	

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

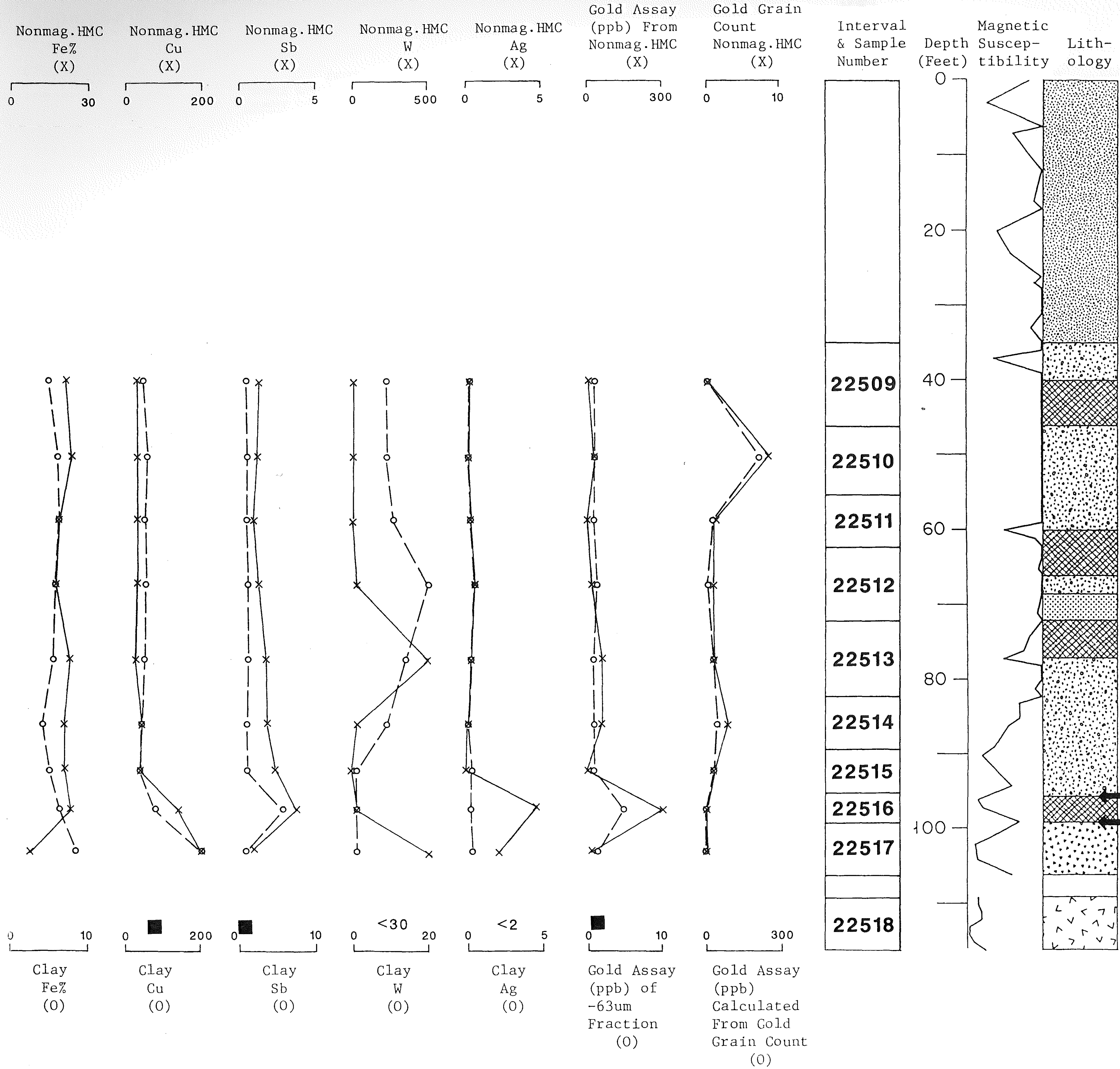
Core Description: Medium-grained, unfoliated metadiabase. Thin section (109.5') represents the bulk of this core.

Thin Section Description: OB-401, 109.5 ft. Metadiabase (flow or sill?). Estimated mode (volume %): Actinolite 45%; Epidote-clinozoisite 45%; Sphene 1-2; Quartz Tr; Muscovite Tr; Chlorite Tr; Plagioclase 7. Heavily altered gabbroic/basaltic rock consisting dominantly of actinolite and fine-grained epidote/clinozoisite. Plagioclase is very heavily altered to epidote, but locally shows relict decussate texture and original grain morphologies, which consisted of slender to blocky, strongly zoned, possibly skeletal grains 2-3 mm maximum length. Colorless to pale green actinolite occurs in blocky grains which pseudomorph primary pyroxene and/or hornblende. The shapes of these pseudomorphs suggest that the primary mafic silicates were blocky, subhedral, 0.5-2 mm across; some relict twinning still exists. Sphene occurs throughout as 1-2 mm angular clots which mimic a primary anhedral-interstitial mineral, probably ilmenite. Quartz appears to be an anhedral-interstitial magmatic mineral; muscovite and chlorite occur as small patches of secondary origin.

Scintillometer Reading (cps): 50-60

OB-401

Appendix 1-24B.



Geologic Descriptions

R (0 35) SILTY, GRAVELLY MEDIUM - COARSE SAND; OXIDIZED; non calc; 0 - 9 ft mgr, more pebbly below; v silty, couple sm cobs 15 - 20; cgr from 26; more pebs below 28, but are sm; some larger pebs by 30; no carb grains noted; last foot unox & sl calc w/few carb grains.

(35 - 40) COBBLY, SANDY LOAM TILL; UNOXIDIZED; sl calc; 38 - 40 ft more fgr, less cobbles, mottled.

(40 - 46) LOAM - SANDY LOAM TILL; UNOXIDIZED; sl calc; compact; silt rich; no cobs.

(46 - 60) SANDY LOAM TILL; UNOXIDIZED; sl calc; compact; occ cobs, carb pebs; few inches pebbly sand at top, pebbly sand bed 47 1/2 - 48 1/2 ft; 55 - 56 1/2 silty, fgr to mgr sand, few pebs.

(60 - 66) LOAM TILL; UNOXIDIZED; mod calc; no large pebs or cobs.

(66 - 68 1/2) SANDY LOAM TILL; UNOXIDIZED; large cob at base.

(68 1/2 - 72) SILTY MEDIUM - COARSE SAND; UNOXIDIZED; sandy till lenses from 70 - 71 ft; less silt in last foot.

(72 - 77) LOAM - SANDY LOAM TILL; UNOXIDIZED; mod calc; no large pebs noted; large cob at base.

(77 - 95 1/2) SANDY LOAM TILL; UNOXIDIZED; mod calc; few sm cobs; ox from 82 1/2 - 85 ft, could be top of older till; calc from 94; silt lam at base.

W (95 1/2 - 99) SILT LOAM TILL; UNOXIDIZED; calc; abundant carb; much less pebs than above, all sm; noted sm wood fragment; v thin olive grn lam could be incorporated

S saprolite; abrupt basal contact.

(99 - 106) SAPROLITE; core stones w/gritty clay matrix.

(106 - 109) NO CORE.

(109 - 116) BEDROCK; METADIABASE; mgr; massive.

Appendix 1-24C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,509		401	35.0- 46.0	11.0	AB	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22,563	R	401	35.0- 46.0	11.0	ABCJ	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	REPLICATE
22,510		401	46.0- 55.0	9.0	ABCJ	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22,511		401	55.0- 62.0	7.0	AB	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22,512		401	62.0- 72.0	10.0	AB	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22,513		401	72.0- 82.5	10.5	AB	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22,514		401	82.5- 89.0	6.5	ABCJ	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22,515		401	89.0- 95.5	6.5	AB	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22,516		401	95.5- 99.0	3.5	ABCJ	46-29-27	NE-SE	CW	WINNIPEG LOBE TILL	61	METASEDIMENTARY ROCKS	PSA	
22,517		401	99.0-106.0	7.0	ABCJ	46-29-27	NE-SE	CW	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	METASEDIMENTARY ROCKS	PSA	
22,518		401	109.0-116.0	7.0	HI	46-29-27	NE-SE	CW	BEDROCK	34	METASEDIMENTARY ROCKS	PSA	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,509		11	0	61.6	23.9	2.6	100	44	18	38	13	31	18	38	0.0	66.2	25.7
22,563	R	11	4	89.1	32.1	2.8	100	44	19	37	15	29	19	37	3.6	80.3	28.9
22,510		11	8	102.9	40.2	2.6	100	41	27	32	14	27	27	32	6.9	88.7	34.7
22,511		11	1	72.9	21.9	3.3	100	38	25	37	13	25	25	37	1.3	92.3	27.7
22,512		11	1	69.6	28.2	2.5	100	49	17	34	11	38	17	34	1.1	76.5	31.0
22,513		11	1	58.8	17.7	3.3	100	52	17	31	12	40	17	31	1.0	60.0	18.1
22,514		11	3	59.5	15.4	3.9	100	54	22	25	19	35	22	25	3.3	65.4	16.9
22,515		11	1	44.5	13.1	3.4	100	58	18	24	21	37	18	24	1.4	63.6	18.7
22,516		61	0	6.5	1.1	5.9	100	20	27	53	3	17	27	53	0.0	10.2	1.7
22,517		44	0	15.1	1.7	8.9	100	41	17	42	44	-1	17	42	0.0	14.2	1.6

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,509		11	0	0	0.033	48.3	5	< 0.1	21	1.3	0.2	< 1	< 4	3	< 200	36	12	112	91	300	47	22.0	3080.00	4.3	28.0	1830	4	140.0
22,563	R	11	4	122	1.654	70.7	206	< 0.1	17	1.2	0.2	< 1	< 4	< 1	< 200	26	10	107	91	230	40	18.0	3710.00	3.2	22.0	1470	3	110.0
22,510		11	8	228	0.390	80.6	44	0.1	21	1.2	0.3	< 1	16	3	< 200	27	14	105	88	340	50	23.0	3160.00	5.1	45.0	1620	4	310.0
22,511		11	1	29	0.046	57.0	5	0.2	15	0.9	0.1	< 1	< 4	4	< 200	28	13	119	95	250	38	17.0	3130.00	3.5	23.0	1640	4	110.0
22,512		11	1	15	0.161	54.6	21	0.4	25	1.3	0.2	< 1	13	3	< 200	31	15	102	87	280	42	21.0	3280.00	3.7	28.0	1370	4	140.0
22,513		11	1	36	0.390	45.2	65	0.1	19	1.7	0.2	< 1	1400	5	< 200	25	21	110	73	330	86	23.0	4110.00	5.2	37.0	1330	6	170.0
22,514		11	3	45	0.399	46.5	61	< 0.1	24	1.8	0.2	< 1	45	4	< 200	40	20	105	79	340	44	21.0	3390.00	4.3	36.0	1250	5	170.0
22,515		11	1	34	0.032	34.5	5	< 0.1	18	2.4	0.2	< 1	< 4	3	< 200	46	21	115	76	330	44	21.0	4410.00	5.2	37.0	1270	< 2	180.0
22,516		61	0	0	0.305	4.8	300	11.3	24	3.8	<0.1	< 1	52	3	< 200	141	40	110	45	530	36	23.0	4030.00	16.0	140.0	971	< 2	600.0
22,517		44	0	0	0.007	11.4	5	2.0	18	0.7	0.2	< 1	1400	2	< 200	531	11	51	65	95	120	6.0	1840.00	< 0.5	13.0	1980	11	80.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,509		11	30	< 1	<.2	3	< 1	< 1	< 2	9	< 2	637	45	6	110	47	68	16	57,874	460	-1	16.58	3.02	2.95	3.78	0.78	3.11	2.27
22,563	R	11	30	< 1	<.2	4	< 1	< 1	< 2	3	< 2	489	48	12	96	59	50	17	58,174	93	-1	17.39	2.36	3.01	3.06	0.69	3.40	1.54
22,510		11	30	< 1	<.2	3	< 1	< 1	< 2	9	< 2	597	55	6	100	69	80	19	59,161	410	-1	17.39	2.68	2.87	3.56	0.81	3.17	2.02
22,511		11	30	< 1	<.2	2	< 1	< 1	< 2	11	< 2	547	47	2	81	49	74	16	59,155	390	-1	16.79	3.34	2.77	3.48	0.79	3.01	2.20
22,512		11	30	< 1	<.2	3	< 1	< 1	< 2	26	< 2	524	50	6	87	48	90	20	60,021	430	-1	16.47	4.13	2.85	3.29	0.75	2.82	1.88
22,513		11	30	< 1	<.2	3	< 1	< 1	< 2	14	< 2	581	51	6	100	39	78	32	56,555	520	-1	15.97	4.85	2.98	2.93	0.74	2.81	1.48
22,514		11	30	< 1	<.2	3	< 1	< 1	< 2	9	< 2	659	41	6	82	33	58	17	43,902	450	-1	14.02	4.95	2.73	2.67	0.73	2.72	0.87
22,515		11	30	< 1	<.2	4	< 1	< 1	< 2	< 1	< 2	600	44	4	97	41	68	18	50,686	380	-1	15.37	4.69	2.83	2.90	0.76	2.77	1.42
22,516		61	30	5	<.2	2	< 1	< 1	< 2	< 1	< 2	367	81	12	78	40	40	15	63,559	330	-1	16.44	7.10	3.10	3.00	0.60	1.57	3.16
22,517		44	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	237	260	< 2	55	71	50	36	84,232	330	-1	15.14	6.63	7.18	2.92	0.62	0.45	1.65

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,563	R	11	32.1	< 0.5	11	< 1	4	20	24	393	127	1,684	5,428	48,621	2,789	2,253	137	79.04	9.00	1.43	1.06	0.14	0.24	0.04	47	30	118	8
22,510		11	40.2	< 0.5	11	< 1	2	102	10	377	130	1,712	6,514	50,779	2,866	2,178	135	78.22	8.86	1.41	1.36	0.13	0.23	0.03	41	30	143	11
22,514		11	15.4	< 0.5	9	< 1	6	119	16	525	195	2,257	6,031	69,724	3,486	2,992	222	76.47	7.48	1.75	1.59	0.15	0.12	0.05	52	35	193	15
22,516		61	1.1	NS	NS	NS	NS	129	NS	484	195	3,576	5,911	69,065	3,253	2,547	192	75.71	6.56	2.15	1.61	0.13	0.10	0.07	48	37	193	16
22,517		44	1.7	NS	NS	NS	NS	163	NS	334	223	2,301	7,720	52,038	3,176	1,558	10,759	55.40	9.17	4.72	2.71	0.27	0.28	0.03	63	78	101	23

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,518		109.0-116.0	< 10	< 2	< 1	< 2.0	1	1.0	1	< 1	< 30	< 2	240	83	16	88	94	157	58	10.17	0.16	6.65	0.96	12.45	2.13	0.41	16.56	47.73	0.17

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,518	246	< 50	< 5	0.04	390	< 10	< 1	< 1	23	150	519	0.17	< 5	31	14	11	24	47	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,563	R	35.0- 46.0	11	1	0	7	26	-1	17	-1	0	0	6	0	6	33	4	0	100	1	
22,510		46.0- 55.0	11	6	0	3	22	0	14	-1	0	0	7	1	6	38	3	0	100	4	
22,514		82.5- 89.0	11	-1	0	3	26	1	9	0	0	1	4	1	12	40	3	0	100	2	
22,516		95.5- 99.0	61	2	0	2	24	0	10	-2	0	0	20	-2	28	12	2	0	100	4	
22,517		99.0-106.0	44	-2	0	0	3	0	-1	23	0	0	2	0	71	1	0	0	100	1	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

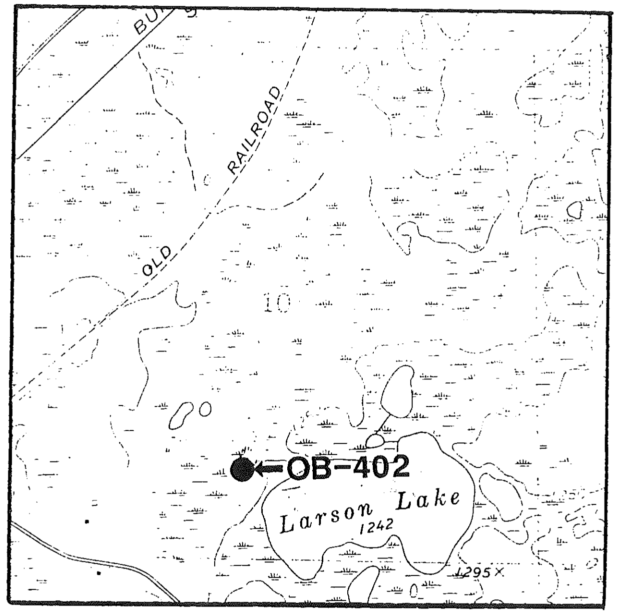
SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22509	9.3	1.2	8.1	247.0	161.5	85.5	61.6	23.9	0	NA	P	40	60	TR	NA	U	Y	Y	Y	BN	BN	TILL
22510	11.6	1.6	10.0	324.3	181.2	143.1	102.9	40.2	8	228	P	40	60	TR	NA	U	Y	Y	Y	BN	BN	TILL
22511	7.9	1.0	6.9	275.9	181.1	94.8	72.9	21.9	1	29	P	50	50	TR	NA	U	Y	Y	Y	BN	BN	TILL
22512	9.1	1.0	8.1	231.2	133.4	97.8	69.6	28.2	1	15	P	40	55	5	NA	U	Y	Y	Y	BN	BN	TILL
22513	9.8	1.2	8.6	160.2	83.7	76.5	58.8	17.7	1	36	P	50	40	10	NA	U	Y	Y	Y	BN	BN	TILL
22514	9.1	1.7	7.4	344.7	269.8	74.9	59.5	15.4	3	45	P	45	50	5	NA	U	Y	Y	Y	BN	BN	TILL
22515	7.0	1.5	5.5	271.6	214.0	57.6	44.5	13.1	1	34	P	40	55	5	NA	U	Y	Y	Y	BN	BN	TILL
22516	6.4	0.2	6.2	197.0	189.4	7.6	6.5	1.1	0	NA	P	30	20	50	NA	U	Y	Y	Y	BN	BN	TILL
22517	10.6	4.7	5.9	39.1	22.3	16.8	15.1	1.7	0	NA	NA	NA	TR	NA	NA	NA	NA	NA	NA	GN	GN	SAP
22563	11.1	1.7	9.4	366.6	245.4	121.2	89.1	32.1	4	122	P	40	60	TR	NA	U	Y	Y	Y	BN	BN	TILL
22564	9.6	0.5	9.1	154.8	131.0	23.8	17.7	6.1	1	120	P	60	15	25	NA	U	Y	Y	Y	BN	BN	TILL

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22509	N	NO VISIBLE GOLD											
22510	Y	25 X 50	8 C		2					2			EST. 1.75% MARCASITE 0.25% PYRITE
		25 X 75	10 C		2					2			
		50 X 50	10 C		1					1			
		50 X 75	13 C		1					1			
		75 X 75	15 C	1						1			
		225 X 275	46 C	1						1			
										8	102.9	228	
22511	N	100 X 125	22 C	1						1			
										1	72.9	29	
22512	N	75 X 100	18 C	1						1			
										1	69.6	15	
22513	N	100 X 125	22 C	1						1			
										1	58.8	36	
22000													
22514	Y	50 X 50	10 C	1						1			EST. 0.5% MARCASITE 0.1% PYRITE
		50 X 75	13 C		1					1			
		100 X 125	22 C	1						1			
										3	59.5	45	
22515	N	75 X 125	20 C	1						1			
										1	44.5	34	
22516	N	NO VISIBLE GOLD											
22517	N	NO VISIBLE GOLD											
22563	Y	50 X 50	10 C		1					1			EST. 3% MARCASITE 0.5% PYRITE
		75 X 75	15 C	1						1			
		125 X 150	27 C	1						1			
		150 X 175	31 C	1						1			
										4	89.1	122	
22564	N	100 X 125	22 C	1						1			
										1	17.7	120	

Appendix 1-25A. DRILL HOLE SUMMARY SHEET



IDENTIFICATION
DNR Drill Hole Number: OB-402
Drilling Completion Date: 6/29/88

LOCATION (see map at right)
S-T-R: SE¼-SW¼ - S10 - T46N - R28W
County: Crow Wing
Quadrangle: Bay Lake 7.5
Regional Survey Area: Ironton
UTM Coordinates: 433,580mE; 5147270mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1260 ± 3 ft.
Total Depth: 276 ft.
Elevation, Top of Precambrian Bedrock: 1051 ft.
Elevation, Top of Saprolite: 1051 ft.?
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-45	St. Louis sublobe gl. drift	B,C,G	A,B,C	B=Sb,Se,As C=Zn
45-124	Superior lobe gl. drift	B,C,G	A,B,C	B=Sb,Au,As C=Zn
124-137.5	Winnipeg lobe gl. drift	B,C,G	A,B,C	B=Sb,Se C=Ni
137.5-145.5	Old Rainy lobe gl. drift	B,C,G	A,B,C	
145.5-165	Winnipeg lobe gl. drift	B,C,G	A,B	B=Bi,Sb,Se
165-192	Old Rainy lobe gl. drift	B,C,G	A,B	B=Au,Sb,Se
207-270	Saprolite w/bedrock	G,H	A,B,C,I	B=Sb,As,W

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK (The following is contributed by Terrence J. Boerboom and Mark Jirsa, MGS).

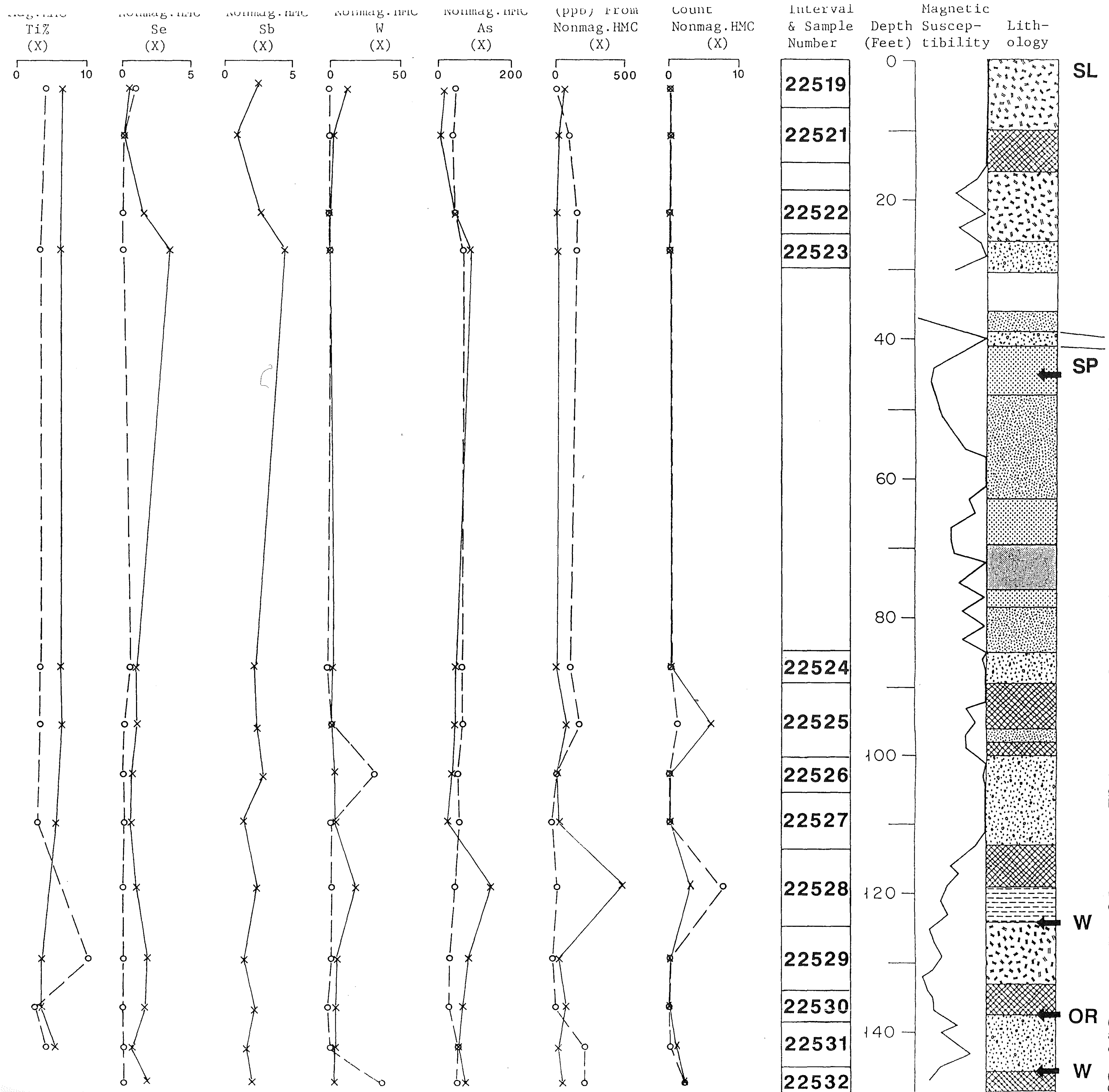
Core Description: Banded iron-formation. Laminae are 1-5 mm thick, moderately even; a few stand out and may be cherty. Locally grades into clayey graphitic argillite which also is more pyritic. Many of these argillaceous zones appear to have contained massive and semi-massive sulfides, now mostly removed by oxidation. Beds and laminae dip 50-60°. A few thin quartz and carbonate veins exist and are perpendicular to bedding. Malachite (?) or other blue-green Cu-oxide occurs in nearly vertical veins and is most abundant as a remnant vein coating in graphitic zones.

Thin Section Description: OB-402A, 200 ft. Thinly laminated oxide-facies iron-formation. Estimated mode (volume %): Magnetite 23%; Hematite 23%; Quartz (chert) 30%; Stilpnomelane 20%; Pyrite 4%; Chalcopyrite Tr. Thin laminae which consist dominantly of intergrown hematite and magnetite (1 mm or less in thickness) alternate with chert- or stilpnomelane-rich laminae of similar thickness. The chert and stilpnomelane (pale yellow to dark green in color) occur in tiny round granules; stilpnomelane is concentrated into laminae between the oxide-rich laminae. The oxide-rich laminae occur in 0.5 cm- thick mesobands, which alternate with beds of similar thickness that contain more pyrite (and minor chalcopyrite) than oxides. The sulfides also occur in very thin veinlets which are normal to bedding.
OB-402B, 226 ft. Thinly laminated silicate-oxide facies iron-formation. Thin, sub-mm laminae defined by variations in Fe-oxide and stilpnomelane content. Basic mineralogy consists of opaque Fe-oxides, yellowish-brown stilpnomelane, and minor quartz. Cross-cutting brittle veins consist of quartz, lesser calcite, chlorite, and deep red stilpnomelane or hematite(?). The chlorite is bright green and occurs in veins that parallel the laminated bedding and which cross- cut the quartz-calcite veins. The needle-like reddish-brown hematite/stilpnomelane occurs in the more narrow quartz veins and locally emanates from massive patches of felty reddish-brown material of the same composition.

Scintillometer Reading (cps): 65-80

Appendix 1-25B.

OB-402



Geologic Descriptions

(0 - 10) CLAY LOAM TILL: OXIDIZED; noncalc to v sl calc; reddish brn; clast rich, Superior lobe lith; no carb or sh noted; sand & gvl seem at 5 ft; mixed dark gray & reddish brn colors 6 - 8; 8 - 10 calc, reddish brn, mixed clayey till & clayey silt to silty clay lake sed.

(10 - 16) LOAM TILL; OXIDIZED; calc; no carb clasts noted; cobs common; various shades of red to gray.

(16 - 26) CLAY LOAM TILL; UNOXIDIZED by 19 1/2 ft; mod calc; 17 - 18 mixed w/clayey silt lake sed; 18 - 19 1/2 loamy sand; pod of sandy silt at 20 1/2; no cobs from about 17 - 21, fairly rocky below; few carb grains noted; large cob at 25.

(26 - 30 1/2) SANDY LOAM TILL; UNOXIDIZED; fairly abrupt upper contact; about as cobbly as above.

(30 1/2 - 36) NO CORE; prob sand.

(36 - 39) SILTY, GRAVELLY FINE - MEDIUM SAND; UNOXIDIZED; 36 - 37 ft sandy loam till; 38 - 39 mgr to cgr sand.

(39 - 41) LOAMY SAND TILL; UNOXIDIZED; mod calc; cobbly; carb grains; "flow" till.

(41 - 45) COARSE SAND; few sm pebs; lens of unox clayey till at 45 ft.

(45 - 48) MEDIUM - COARSE SAND; OXIDIZED; reddish brn; top of fining upward sequence.

(48 - 63) GRAVELLY COARSE - VERY COARSE SAND; OXIDIZED; pebbly cgr sand to 50 ft, pebbly v cgr sand to 52, sand & gvl to 54; few carb grains; 54 - 61 pebbly, v cgr sand, somewhat silty; few large pebs at 58; 61 - 62 fine gvl; 62 - 63 pebbly cgr sand, sm cobs.

(63 - 69 1/2) FINE - MEDIUM SAND; OXIDIZED; mod calc; few sm carb pebs; apar fining upward; pebbly cgr sand by 66 ft; 67 1/2 - 69 cgr sand; 69 - 69 1/2 fine gvl & v cgr sand.

(69 1/2 - 76) FINE SAND; OXIDIZED; 72 - 72 1/2 ft silty, v fgr to fgr sand; fgr to mgr from 73, w/unox silty fgr sand interbeds from 74 1/2.

(76 - 78 1/2) MEDIUM SAND; UNOXIDIZED.

(78 1/2 - 85) GRAVELLY COARSE SAND; UNOXIDIZED; some silt; sev large pebs; carb rare; some felsite, sandstone.

(85 - 89 1/2) SANDY LOAM TILL; UNOXIDIZED; mod calc; some sm carb pebs; cobs common; sand & gvl lens at 95 1/2 ft.

(89 1/2 - 96) LOAM TILL; UNOXIDIZED; calc; gradational upper contact; apar more carb grains; cobs common; ox sand lens at 95 ft.

(96 - 98) SILTY, GRAVELLY SAND; UNOXIDIZED; poorly sorted.

(98 - 100) LOAM TILL; UNOXIDIZED; as above.

(100 - 119) SANDY LOAM TILL; UNOXIDIZED; mod calc; interbeds of pebbly sand to 105 ft; lens of dark gray, v calc, compact clayey till at 104; sandy loam till by 105; mixed w/dark gray, compact clayey till from 113; carb-rich cgr sand bed at 118 1/2, loam till w/carb pebs below; large iron-formation cob at base.

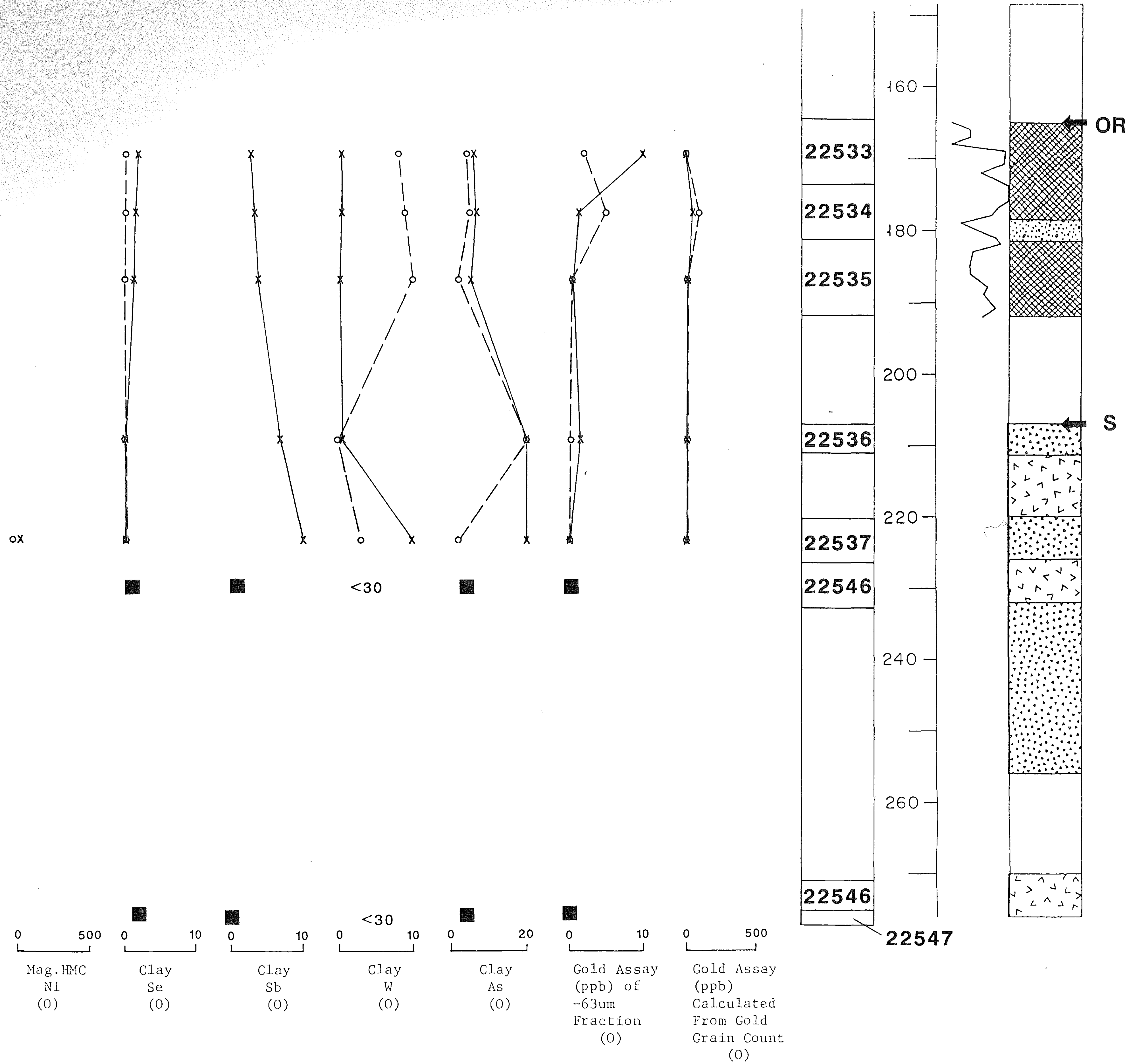
(119 - 124) VERY FINE SANDY SILT; UNOXIDIZED; little v fgr silty sand toward stop; dropstones from 121 ft; lens of till at 123.

(124 - 133) CLAY LOAM TILL; UNOXIDIZED; most pebs are carb; v hard, compact; silt lam at 128 ft, fewer & smaller pebs below; red streak at base.

(133 - 137 1/2) LOAM TILL; UNOXIDIZED; calc; less carb pebs than above; few inches of laminated silt & clay at top, also vertical rootlets at top, so is separate till.

(137 1/2 - 145 1/2) SANDY LOAM TILL; UNOXIDIZED; calc; brner that above, less carb; abrupt upper contact; few silty sand lam; mixed w/dark gray loamy till by 144 ft; couple sm cobs at base.

(145 1/2 - 148 1/2) LOAM TILL; UNOXIDIZED; compact; calc; carb common, few Cretaceous pebs.



(148 1/2 - 165) NO CORE

(165 - 178 1/2) LOAM TILL; UNOXIDIZED; calc; silt rich; compact; cob zone at 166 1/2 ft; reddish gray from 167 1/2 - 168; fair amount of sm cobs; couple silty, v cgr sand interbeds 174 - 174 1/2; uncommon carb; apar more sm cobs from 176.

(178 1/2 - 181 1/2) FINE SAND; UNOXIDIZED; interbedded w/sandy till to 180 ft; pebbly at base.

(181 1/2 - 192) LOAM TILL; UNOXIDIZED; calc; ox fgr to mgr sand 184 - 185 ft; compact; pebs about 10% carb; 188 1/2 - 189 mgr sand; brnish streaks 185 - 188 1/2.

(192 - 207) NO CORE

(207 - 211 1/2) SAPROLITE; top foot is cobbly gvl; 208 - 209 ft fractured rock; **illite** veins throughout core; blk to dark gray rocky clay from 209, graphitic argillite w/iron-formation lam.

(211 1/2 - 220) BEDROCK; MAGNETITE - CARBONATE IRON FORMATION; chert bands; fractured; 50 degree dip; few white veinlets perpendicular to bedding; pyrite veins bedding parallel, associated w/graphite beds.

(220 - 226) SAPROLITE; gritty clay; v dark gray w/hematitic lam; remnant pyrite disseminated throughout.

(226 - 232) BEDROCK; MAGNETITE - CARBONATE IRON-FORMATION; fractured; uncontorted bedding; more pyritic w/depth.

(232 - 256) SAPROLITE; 232 - 234 ft dark gray, graphitic, gritty clay w/ **illite**, **illite** vein at base; 234 - 244 decomposed massive sulfide (?)—dark olive grn, sl gritty **clay**, few sm cob size nodules (?) contain **illite** ; 244 - 256 more graphitic, yellowish brn & dark gray gritty clay, some rock fragments, **illite** vein at 248, more brnish below, abundant **illite veins** 250 - 252.

(256 - 270) NO CORE; prob saprolite.

(270-276) BEDROCK; MAGNETIC IRON FM; limonitic lam; fractured; contorted lamination; argillite (?) at base.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,519		402	0.0- 8.0	8.0	ABCJ	46-28-10	SE-SW	CW	KOOCHICHING LOBE TILL	21	IRON FORMATION	IF	
22,521		402	8.0- 16.0	8.0	AB	46-28-10	SE-SW	CW	KOOCHICHING LOBE TILL	21	IRON FORMATION	IF	
22,522		402	19.5- 26.0	6.5	AB	46-28-10	SE-SW	CW	KOOCHICHING LOBE TILL	21	IRON FORMATION	IF	
22,523		402	26.0- 30.5	4.5	ABCJ	46-28-10	SE-SW	CW	KOOCHICHING LOBE TILL	21	IRON FORMATION	IF	
22,524		402	85.0- 89.5	4.5	ABCJ	46-28-10	SE-SW	CW	SUPERIOR LOBE TILL	71	IRON FORMATION	IF	
22,525		402	89.5-100.0	10.5	ABCJ	46-28-10	SE-SW	CW	SUPERIOR LOBE TILL	71	IRON FORMATION	IF	
22,526		402	100.0-105.0	5.0	AB	46-28-10	SE-SW	CW	SUPERIOR LOBE TILL	71	IRON FORMATION	IF	
22,527		402	105.0-113.0	8.0	ABCJ	46-28-10	SE-SW	CW	SUPERIOR LOBE TILL	71	IRON FORMATION	IF	
22,528		402	113.0-124.0	11.0	AB	46-28-10	SE-SW	CW	SUPERIOR LOBE TILL	71	IRON FORMATION	IF	
22,564	R	402	113.0-124.0	11.0	ABCJ	46-28-10	SE-SW	CW	SUPERIOR LOBE TILL	71	IRON FORMATION	IF	REPLICATE
22,529		402	124.0-133.0	9.0	ABCJ	46-28-10	SE-SW	CW	WINNIPEG LOBE TILL	61	IRON FORMATION	IF	
22,530		402	133.0-137.5	4.5	ABCJ	46-28-10	SE-SW	CW	WINNIPEG LOBE TILL	61	IRON FORMATION	IF	
22,531		402	137.5-144.0	6.5	ABCJ	46-28-10	SE-SW	CW	OLD RAINY LOBE TILL	51	IRON FORMATION	IF	
22,532		402	144.0-148.5	4.5	AB	46-28-10	SE-SW	CW	WINNIPEG LOBE COMPOSITE TILL SAMPLES	68	IRON FORMATION	IF	
22,533		402	165.0-174.0	9.0	AB	46-28-10	SE-SW	CW	OLD RAINY LOBE TILL	51	IRON FORMATION	IF	
22,534		402	174.0-181.5	7.5	AB	46-28-10	SE-SW	CW	OLD RAINY LOBE TILL	51	IRON FORMATION	IF	
22,535		402	181.5-192.0	10.5	ABJ	46-28-10	SE-SW	CW	OLD RAINY LOBE TILL	51	IRON FORMATION	IF	
22,536		402	207.0-211.5	4.5	AB	46-28-10	SE-SW	CW	DRIFT AND SAPROLITE MIXTURE	48	IRON FORMATION	IF	
22,546		402	211.5-274.0	18.5	HI	46-28-10	SE-SW	CW	BEDROCK	34	IRON FORMATION	IF	COMPO211.5-220,226-232,270-274
22,537		402	220.0-226.0	6.0	ABCJ	46-28-10	SE-SW	CW	SAPROLITE: CLAY WITH GRANULES	42	IRON FORMATION	IF	SILT/CLAY-OILY SUBSTANCE
22,547		402	274.0-276.0	2.0	I	46-28-10	SE-SW	CW	BEDROCK	34	METASED. AND METAVOLC.	PGVI	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	WEIGHT (GRAMS) +250um FRACTION	WEIGHT (GRAMS) -250 +63um FRACTION	WEIGHT (GRAMS) -63um FRACTION	WEIGHT % >= VCGR SAND	WEIGHT % MGR SAND	WEIGHT % FGR SAND	WEIGHT % SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,519		21	0	32.8	14.6	2.2	100	29	17	55	11	18	17	55	0.0	41.0	18.3
22,521		21	0	118.1	56.2	2.1	100	49	21	30	18	31	21	30	0.0	123.0	58.5
22,522		21	0	63.4	23.5	2.7	100	42	12	46	21	21	12	46	0.0	74.6	27.6
22,523		21	0	111.1	27.9	4.0	100	62	17	21	21	41	17	21	0.0	118.2	29.7
22,524		71	0	74.9	23.4	3.2	100	51	22	28	21	30	22	28	0.0	63.5	19.8
22,525		71	6	92.1	23.2	4.0	100	49	21	30	15	34	21	30	5.0	77.4	19.5
22,526		71	0	86.1	25.0	3.4	100	49	21	30	15	34	21	30	0.0	83.6	24.3
22,527		71	0	95.2	28.1	3.4	100	48	20	32	16	32	20	32	0.0	83.5	24.6
22,528		71	3	18.9	5.8	3.3	100	33	19	49	5	28	19	49	3.6	22.5	6.9
22,564	R	71	1	17.7	6.1	2.9	100	25	19	57	5	20	19	57	1.0	18.4	6.4
22,529		61	0	20.4	1.0	20.4	100	21	14	65	6	15	14	65	0.0	16.7	0.8
22,530		61	0	31.8	1.2	26.5	100	29	20	51	8	21	20	51	0.0	49.7	1.9
22,531		51	1	83.9	5.6	15.0	100	47	23	30	10	37	23	30	1.0	85.6	5.7
22,532		68	2	35.7	2.9	12.3	100	29	19	52	11	18	19	52	2.4	42.5	3.5
22,533		51	0	109.9	25.0	4.4	100	35	22	43	18	17	22	43	0.0	87.9	20.0
22,534		51	1	153.3	17.3	8.9	100	30	35	35	14	16	35	35	0.7	105.0	11.8
22,535		51	0	99.5	13.3	7.5	100	39	26	35	16	23	26	35	0.0	77.1	10.3
22,536		48	0	43.5	31.7	1.4	100	55	17	28	42	13	17	28	0.0	48.3	35.2
22,537		42	0	7.0	31.5	0.2	100	60	18	22	26	34	18	22	0.0	8.1	36.6

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,519		21	0	0	0.316	24.9	77	0.2	22	2.4	0.6	< 1	13	4	< 200	27	15	113	88	330	49	25.0	2740.00	4.4	40.0	1800	4	180.0
22,521		21	0	0	0.062	98.4	5	0.1	8	1.0	0.2	< 1	< 4	3	< 200	115	5	135	81	110	54	17.0	2530.00	2.6	9.8	2660	4	71.0
22,522		21	0	0	0.037	50.9	5	0.1	37	2.6	1.3	< 1	< 4	9	320	60	17	132	87	280	46	25.0	4250.00	4.0	31.0	1900	< 2	150.0
22,523		21	0	0	0.189	91.9	16	< 0.1	92	4.3	3.3	< 1	< 4	13	< 200	79	19	143	95	220	45	26.0	6260.00	4.3	19.0	1660	< 2	120.0
22,524		71	0	0	0.038	61.4	6	0.2	36	2.1	0.9	< 1	< 4	5	< 200	40	18	147	71	270	44	23.0	3650.00	6.2	33.0	1450	< 2	150.0
22,525		71	6	59	0.472	75.6	61	< 0.1	39	2.2	1.1	< 1	< 4	5	< 200	33	20	140	68	250	41	23.0	3250.00	8.1	52.0	2150	< 2	250.0
22,526		71	0	0	0.042	71.0	5	< 0.1	33	2.6	0.7	< 1	< 4	4	< 200	27	22	121	76	340	43	26.0	3520.00	7.0	50.0	1530	4	250.0
22,527		71	0	0	0.251	78.1	30	0.1	23	1.4	0.6	< 1	< 4	4	210	31	15	133	78	260	33	16.0	3150.00	< 0.5	29.0	1380	< 1	150.0
22,528		71	3	388	1.136	14.4	505	0.1	140	2.3	0.9	< 1	18	16	< 200	33	18	100	76	270	38	19.0	2460.00	9.6	59.0	1210	< 2	260.0
22,564	R	71	1	120	0.159	13.5	86	0.1	96	1.4	0.9	< 1	17	12	< 200	31	22	113	79	250	37	16.0	2820.00	4.2	37.0	797	< 1	180.0
22,529		61	0	0	0.037	15.5	22	0.5	77	1.4	1.6	< 1	< 4	12	< 200	51	43	185	105	140	40	22.0	2440.00	8.4	47.0	< 500	< 2	190.0
22,530		61	0	0	0.358	24.5	72	0.6	64	2.0	1.6	< 1	< 4	6	< 200	68	32	159	79	200	54	32.0	3720.00	9.8	82.0	539	< 3	340.0
22,531		51	1	4	0.325	68.3	38	0.5	48	1.6	0.6	< 1	< 4	5	< 200	57	22	137	63	110	38	28.0	3550.00	4.2	37.0	< 500	< 2	160.0
22,532		68	2	113	0.213	27.8	50	0.4	72	1.9	1.7	8	< 4	12	< 200	51	25	178	59	180	42	32.0	3410.00	6.1	69.0	575	8	300.0
22,533		51	0	0	7.711	87.2	877	0.3	57	1.4	1.1	< 1	< 4	8	< 200	60	23	146	81	230	45	26.0	3670.00	5.3	37.0	531	< 2	180.0
22,534		51	1	19	0.630	123.9	60	0.1	68	1.6	0.7	< 1	< 4	6	< 200	65	24	126	80	210	40	23.0	4050.00	5.4	34.0	1000	3	170.0
22,535		51	0	0	0.255	81.9	33	< 0.1	55	1.9	0.6	< 1	< 4	9	< 200	70	37	118	72	230	38	27.0	4740.00	5.7	36.0	619	< 2	170.0
22,536		48	0	0	0.377	35.9	78	< 0.1	19000	3.4	0.2	< 1	< 4	3	< 200	130	5	62	56	42	210	27.0	10940.00	< 1.5	5.2	1610	< 3	74.0
22,537		42	0	0	0.007	2.3	9	0.1	4000	16.0	0.1	< 1	410	5	340	114	8	68	54	48	73	43.0	7850.00	4.6	20.0	920	< 4	170.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,519		21	30	< 1	<.2	5	< 1	2	< 2	< 1	< 2	557	63	4	100	52	84	18	61,565	420	-1	18.38	1.08	2.86	2.47	0.88	2.69	1.07
22,521		21	30	2	<.2	4	< 1	< 1	< 2	< 1	2	552	80	6	100	66	70	18	63,220	510	-1	17.08	3.78	3.81	2.52	0.80	2.56	0.74
22,522		21	30	3	<.2	4	< 1	< 1	< 2	< 1	< 2	549	76	12	120	54	76	22	68,590	520	-1	18.02	2.59	3.64	2.53	0.80	2.86	1.19
22,523		21	30	3	<.2	7	< 1	< 1	< 2	< 1	2	539	84	8	110	63	80	20	82,062	470	-1	18.40	1.47	3.00	2.82	0.72	2.86	1.40
22,524		71	30	2	<.2	5	< 1	1	< 2	< 1	2	440	46	10	92	55	48	13	49,534	430	-1	16.57	6.79	3.04	2.11	0.69	2.59	1.40
22,525		71	30	3	<.2	6	< 1	< 1	< 2	< 1	2	403	44	10	89	47	50	15	55,029	400	-1	18.59	5.30	2.41	2.30	0.71	2.51	1.96
22,526		71	30	< 1	<.2	5	< 1	< 1	< 2	6	< 2	469	49	12	93	43	52	16	58,974	510	-1	18.02	4.48	2.58	2.75	0.70	2.37	2.73
22,527		71	30	< 1	<.2	5	< 1	< 1	< 2	< 1	2	453	49	10	98	52	52	17	61,815	470	-1	18.56	4.01	2.65	2.61	0.74	2.52	1.95
22,528		71	30	< 1	<.2	4	< 1	< 1	< 2	< 1	< 2	450	36	14	91	40	46	14	57,504	440	-1	16.72	7.17	2.97	2.36	0.69	2.12	1.92
22,564	R	71	30	< 1	<.2	4	< 1	< 1	< 2	3	< 2	489	48	16	96	59	50	17	58,174	93	-1	17.02	6.30	2.93	1.94	0.64	2.39	1.85
22,529		61	30	< 1	<.2	3	< 1	< 1	< 2	< 1	4	362	35	12	100	46	56	13	42,729	290	-1	18.05	9.45	3.30	1.55	0.64	2.29	1.55
22,530		61	30	< 1	<.2	5	< 1	< 1	< 2	< 1	< 2	284	32	8	63	35	34	13	39,657	150	-1	23.21	4.12	2.43	1.65	0.80	2.71	1.73
22,531		51	30	4	<.2	5	< 1	< 1	< 2	< 1	2	326	36	10	73	36	38	13	59,920	180	-1	22.17	3.17	1.99	2.12	0.75	2.46	2.65
22,532		68	30	4	<.2	5	< 1	< 1	< 2	7	4	320	33	22	100	43	40	15	41,078	200	-1	20.19	7.53	1.95	1.77	0.65	2.35	1.87
22,533		51	30	2	<.2	5	< 1	< 1	< 2	8	4	356	49	28	130	50	60	19	69,790	350	-1	20.34	3.33	2.32	2.57	0.71	1.98	2.96
22,534		51	30	5	<.2	5	< 1	< 1	< 2	9	2	372	57	8	110	58	86	22	78,803	260	-1	20.55	1.13	2.56	2.38	0.69	2.35	1.92
22,535		51	30	< 1	<.2	2	< 1	< 1	< 2	10	4	386	56	6	100	65	86	19	83,248	280	-1	20.24	1.30	2.67	2.36	0.73	2.34	1.94
22,536		48	30	< 1	<.2	21	< 1	< 1	< 2	< 1	2	295	22	< 2	64	17	24	12	135,383	220	-1	8.72	4.68	3.99	2.76	0.33	2.65	4.39
22,537		42	30	< 1	<.2	2	< 1	< 1	< 2	3	< 2	42	11	< 2	40	0	8	12	255,118	794	-1	2.65	1.68	3.61	1.78	0.03	0.61	3.01

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm
22,519		21	14.6	< 0.5	9	< 1	4	136	10	474	197	2,318	7,358	67,626	3,176	2,741	276	74.74	8.97	1.97	1.43	0.17	0.52	0.05	63	37	193	16
22,523		21	27.9	0.5	12	< 1	2	30	14	479	141	1,987	5,549	61,151	3,176	2,584	159	76.87	8.22	1.61	1.27	0.16	0.41	0.04	58	38	160	9
22,524		71	23.4	0.5	11	< 1	2	14	20	468	164	1,871	5,489	63,070	3,176	2,637	156	77.79	8.02	1.56	1.22	0.14	0.10	0.03	52	32	139	11
22,525		71	23.2	0.5	12	< 1	4	17	18	469	155	2,021	5,489	63,189	3,098	2,607	161	77.19	7.53	1.52	1.26	0.14	0.11	0.05	50	32	158	11
22,527		71	28.1	0.5	12	< 1	2	14	20	427	137	1,755	6,092	56,775	2,944	2,383	149	78.17	8.44	1.51	1.30	0.14	0.18	0.03	50	32	144	12
22,564	R	71	6.1	< 0.5	50	< 1	8	19	20	327	188	1,641	3,559	38,669	2,014	1,841	171	81.32	8.55	1.34	0.79	0.12	0.19	0.02	53	24	104	7
22,529		61	1.0	NS	NS	NS	NS	11	NS	360	493	2,984	3,016	34,173	2,014	1,827	200	86.70	4.01	1.58	0.67	0.05	0.10	<0.02	33	19	98	4
22,530		61	1.2	NS	NS	NS	NS	138	NS	340	128	4,371	3,257	35,731	2,401	1,744	134	86.36	3.56	1.32	0.87	0.04	0.10	0.04	39	23	155	5
22,531		51	5.6	< 0.5	8	< 1	2	30	16	388	180	2,772	3,920	54,496	2,634	2,253	171	81.18	4.36	1.39	0.90	0.08	0.21	0.03	39	25	136	7
22,537		42	31.5	< 0.5	12	< 1	< 2	5	18	5	10	5	965	1,139	2,014	38	29	93.62	5.17	0.15	0.11	<0.01	0.11	0.14	24	14	< 10	< 1

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22,546		211.5-274.0	< 10	14	< 1	< 0.2	4	1.0	1	< 1	< 30	< 2	14	6	23	20	10	65	25	54.67	0.97	0.92	0.02	1.31	0.08	0.15	0.49	34.15	0.88
22,547		274.0-276.0	18	6	< 1	< 0.2	3	< 1.0	2	< 1	< 30	< 2	23	13	43	77	39	71	59	25.29	2.92	7.64	1.06	1.06	0.11	0.21	10.53	40.59	0.20

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22,546	36	< 50	< 5	0.03	1100	< 10	1	< 1	15	830	49	0.88	< 5	2	20	10	18	6	< 50	< 2
22,547	250	< 50	< 5	0.02	380	< 10	< 1	< 1	10	810	35	0.20	< 5	23	19	18	34	58	< 50	< 2

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,519		0.0- 8.0	21	1	0	16	28	4	7	0	0	0	7	0	3	30	3	0	99	1	
22,523		26.0- 30.5	21	3	0	18	28	3	5	0	-2	-2	8	0	8	25	2	0	100	1	
22,524		85.0- 89.5	71	5	0	15	30	-1	6	0	0	0	10	0	8	25	1	0	100	5	
22,525		89.5-100.0	71	4	0	23	28	0	17	0	0	-2	3	0	5	18	2	0	100	4	
22,527		105.0-113.0	71	8	0	11	13	-2	11	0	0	1	9	0	10	33	4	0	100	1	
22,564	R	113.0-124.0	71	26	0	7	22	-2	12	0	0	0	5	0	8	19	1	0	100	4	
22,529		124.0-133.0	61	30	0	37	11	0	6	0	0	1	4	0	5	5	1	0	100	3	
22,530		133.0-137.5	61	22	0	61	3	0	2	0	0	0	6	0	6	2	0	0	102	2	
22,531		137.5-144.0	51	12	0	50	19	4	2	0	0	0	6	0	4	1	2	0	100	6	
22,535		181.5-192.0	51	8	0	24	25	11	9	0	0	0	7	0	7	8	1	0	100	5	
22,537		220.0-226.0	42	27	0	10	23	25	-1	0	0	0	2	0	6	7	0	0	100	14	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

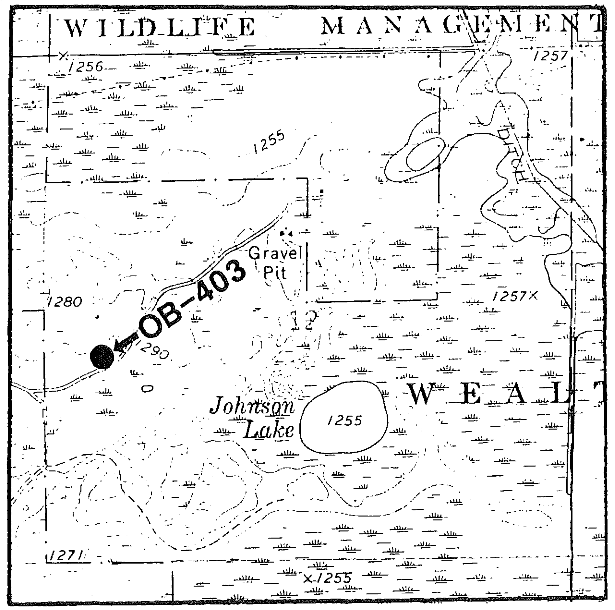
LE).	WEIGHT (KG.WET)			WEIGHT (GRAMS DRY)					AU		DESCRIPTION											CLASS
						M. I. CONC					CLAST					MATRIX						
	TABLE SPLIT	+10 CHIPS	TABLE FEED	TABLE CONC	M.I. LIGHTS	CONC. TOTAL	NON MAG	MAG	NO. V.G.	CALC PPB	SIZE	% V/S	GR	LS	OT	S/U	SD	ST	CY	COLOR SD	CY	
22519	8.0	0.9	7.1	362.1	314.7	47.4	32.8	14.6	0	NA	P	50	50	TR	C	U	Y	Y	Y	BN	BN	TILL
22521	9.6	1.7	7.9	250.2	75.9	174.3	118.1	56.2	0	NA	P	40	60	TR	NA	U	Y	Y	Y	BN	BN	TILL
22522	8.5	1.8	6.7	193.7	106.8	86.9	63.4	23.5	0	NA	P	55	40	5	NA	U	Y	Y	Y	BN	BN	TILL
22523	9.4	2.0	7.4	246.0	107.0	139.0	111.1	27.9	0	NA	P	40	60	TR	NA	U	Y	Y	Y	BN	BN	TILL
22524	11.8	2.5	9.3	205.1	106.8	98.3	74.9	23.4	0	NA	P	60	40	TR	NA	U	Y	Y	Y	BN	BN	TILL
22525	11.9	1.8	10.1	238.7	123.4	115.3	92.1	23.2	6	59	P	50	40	10	NA	U	Y	Y	Y	BN	BN	TILL
22526	10.3	1.5	8.8	289.0	177.9	111.1	86.1	25.0	0	NA	P	50	40	10	NA	U	Y	Y	Y	BN	BN	TILL
22527	11.4	1.8	9.6	275.5	152.2	123.3	95.2	28.1	0	NA	P	50	50	TR	NA	U	Y	Y	Y	B	B	TILL
22528	8.4	0.4	8.0	165.1	140.4	24.7	18.9	5.8	3	388	P	60	10	30	NA	U	Y	Y	Y	B	B	TILL
22529	12.2	0.7	11.5	145.0	123.6	21.4	20.4	1.0	0	NA	P	30	10	60	NA	U	Y	Y	Y	B	B	TILL
22530	6.4	0.5	5.9	95.0	62.0	33.0	31.8	1.2	0	NA	P	60	35	5	NA	U	Y	Y	Y	B	B	SAND
22531	9.8	1.0	8.8	391.2	301.7	89.5	83.9	5.6	1	4	P	40	50	10	NA	U	Y	Y	Y	BN	BN	TILL
22532	8.4	0.9	7.5	123.9	85.3	38.6	35.7	2.9	2	113	P	40	35	5	NA	U	Y	Y	Y	B	B	TILL
22533	12.5	2.3	10.2	278.0	143.1	134.9	109.9	25.0	0	NA	P	60	40	TR	NA	U	Y	Y	Y	BN	BN	TILL
22534	14.6	2.0	12.6	363.3	192.7	170.6	153.3	17.3	1	19	P	60	40	TR	NA	U	Y	Y	Y	BN	B	TILL
22535	12.9	2.1	10.8	227.8	115.0	112.8	99.5	13.3	0	NA	P	55	45	TR	NA	U	Y	Y	Y	BN	B	TILL
22536	9.0	3.8	5.2	75.2	0.0	75.2	43.5	31.7	0	NA	NA	NA	5	TR	NA	NA	NA	NA	NA	BK	BK	SAP
22537	8.6	2.2	6.4	38.5	0.0	38.5	7.0	31.5	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	BK	BK	SAP

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS: ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22519	N	NO VISIBLE GOLD											
22521	N	NO VISIBLE GOLD											
22522	N	NO VISIBLE GOLD											
22523	N	NO VISIBLE GOLD											
22524	N	NO VISIBLE GOLD											
22525	Y	25 X 75	10 C		1					1			EST. 12% MARCASITE
		50 X 50	10 C		2					2			1% PYRITE
		50 X 100	15 C	1						1			
		100 X 125	22 C	1	1					2			
										6	92.1	59	
22526	N	NO VISIBLE GOLD											
22527	N	NO VISIBLE GOLD											
22528	Y	25 X 50	8 C		1					1			EST. 6% MARCASITE
		75 X 100	18 C	1						1			1% PYRITE
		150 X 175	31 C	1						1			
										3	18.9	388	
22529	N	NO VISIBLE GOLD											
22530	N	NO VISIBLE GOLD											
22531	N	50 X 75	13 C	1						1			
										1	83.9	4	
22532	Y	50 X 50	10 C	1						1			EST. 20% MARCASITE
		125 X 150	27 C	1						1			1% PYRITE
										2	35.7	113	
22533	N	NO VISIBLE GOLD											
22534	N	125 X 125	25 C	1						1			
										1	153.3	19	
22535	N	NO VISIBLE GOLD											
22536	N	NO VISIBLE GOLD											
22537	N	NO VISIBLE GOLD											

DRILL HOLE SUMMARY SHEET



IDENTIFICATION
DNR Drill Hole Number: OB-403
Drilling Completion Date: 6/30/88

LOCATION (see map at right)
S-T-R: NW¼-SW¼ - S12 - T45N - R27W
County: Aitkin
Quadrangle: Spirit Lake 7.5
Regional Survey Area: Ironton
UTM Coordinates: 445,780mE; 5137880mN; 15,N.

HOLE PARAMETERS
Surface Elevation: 1290 ± 3 ft.
Total Depth: 186 ft.
Elevation, Top of Precambrian Bedrock: <1104 ft.
Elevation, Top of Saprolite: Unknown
Drilling Method: Rotasonic
Sample Diameter: 3.5 inch
Sample Collection Method: Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

Interval (ft.)	Interpretation	Library Samples Available	Subsamples Tested	Geochem Assays Worthy of Further Review
0-8	St. Louis sublobe	B,C,G	A,B	B=Sb
8-162	Rainy lobe	B,C,G	A,B	A=Fe B=Cu,Ni,Se,Sb
162-186	Old Rainy lobe	B,C,G	A,B	A=Fe B=Cu,Ni,Se,Sb

A = Silt/Clay Fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
G = Core

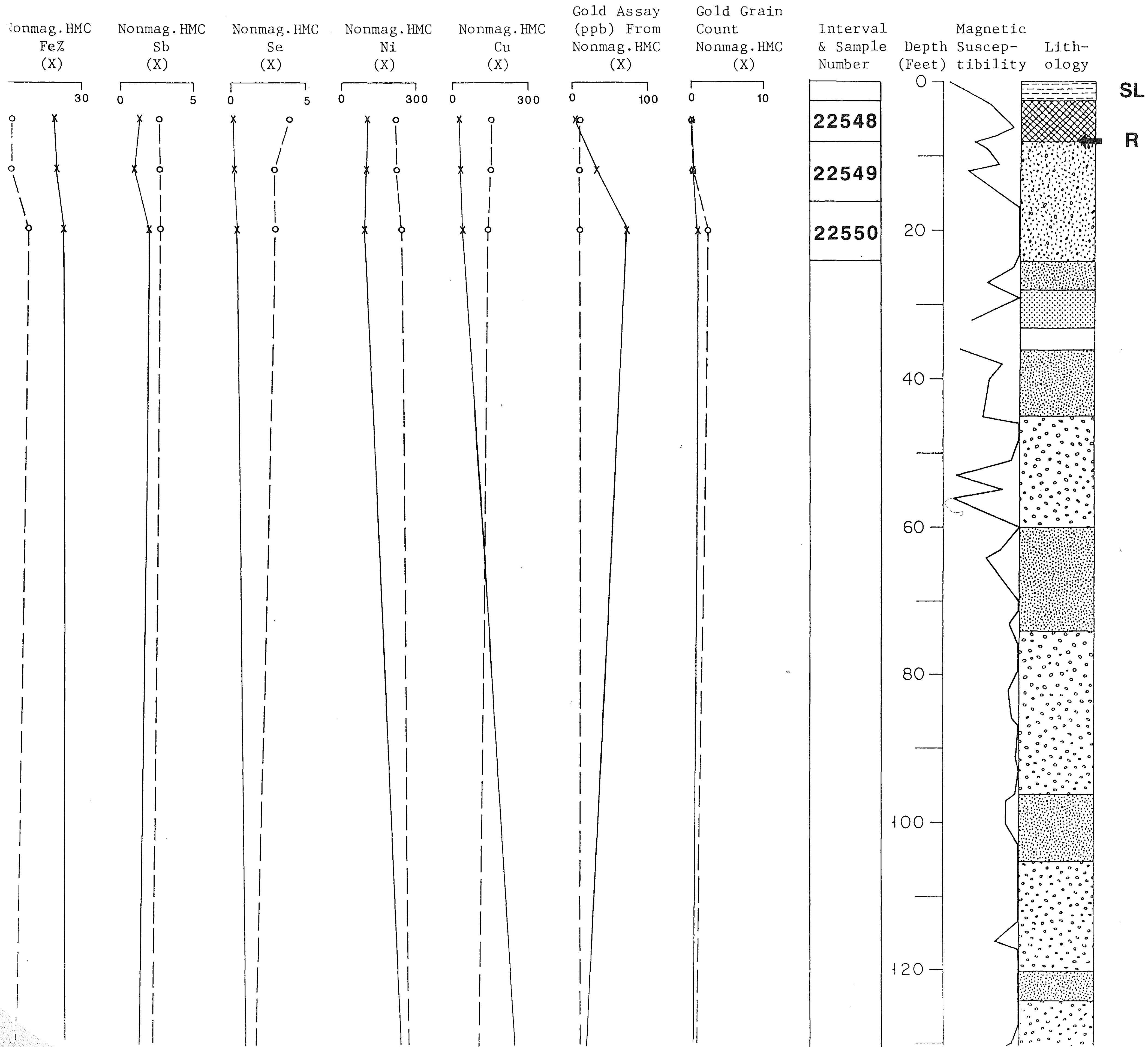
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample
J = Special Mineralogy

BEDROCK
No bedrock reached in this hole.

BLANK PAGE

OB-403

Appendix 1-26B.



Geologic Descriptions

(0 - 2 1/2) FINE SANDY SILT; OXIDIZED; yellowish brn; lake sed; pebbly in lower foot.

(2 1/2 - 8) LOAM - SANDY CLAY LOAM TILL; OXIDIZED; reddish brn; noncalc; pebs fairly common; gradational lower contact.

(8 - 24) SANDY LOAM TILL; OXIDIZED; brn; sl calc; cobs at 12 & 16 ft, other sm cobs below; carb grain at 16, sm peb at 19.

(24 - 28) GRAVELLY MEDIUM - COARSE SAND; OXIDIZED; little silt; mod calc; no carb grains noted; silty at base.

(28 - 33) MEDIUM - COARSE SAND; OXIDIZED.

(33 - 36) NO CORE

(36 - 45) GRAVELLY, VERY COARSE & GRAVELLY, SILTY MEDIUM SAND; OXIDIZED; mostly v cgr sand to gnl w/some silt from 39 ft; no carb noted.

(45 - 60) SILTY, COBBLY GRAVEL; UNOXIDIZED by 48 ft; cobs fairly ang; carb pebs less than 5%; 48 - 51 fine gvl, quite silty by 49; some cobs large below 51; gvl is dark, some red pebs also present.

(60 - 74) VERY COARSE SAND & GRANULES; sandy till ball at 68 ft; occ large pebs to sm cobs below; primarily dark grains w/few carb.

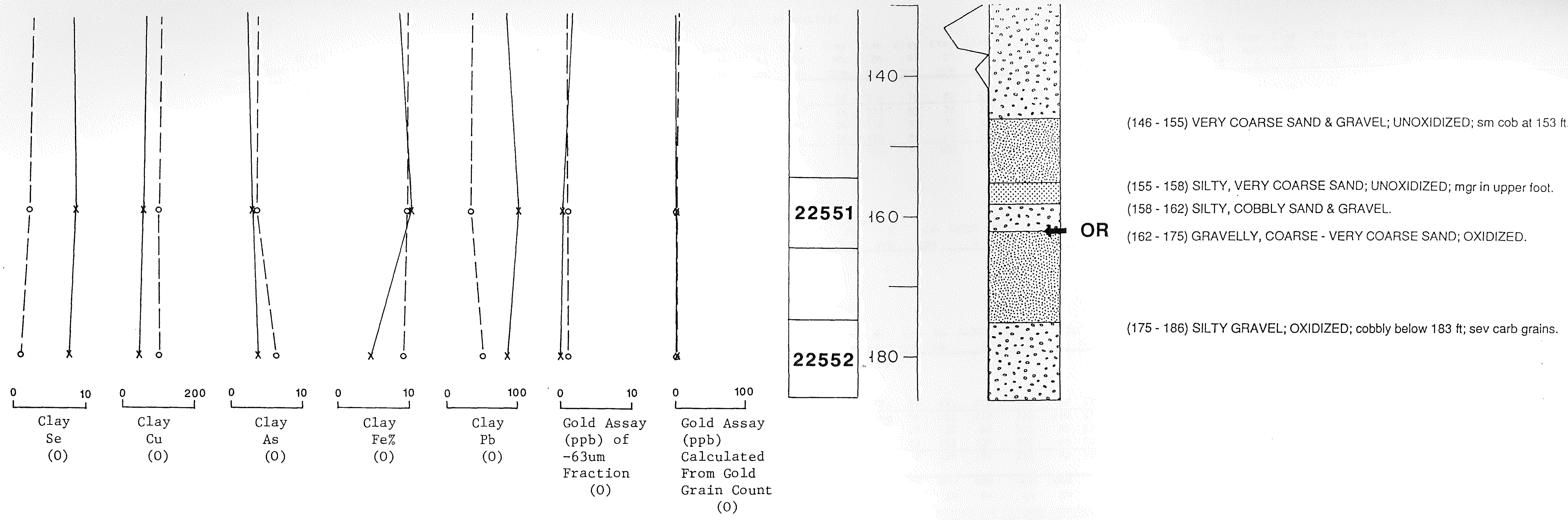
(74 - 96) COBBLY, SILTY COARSE SAND & GRAVEL; large hunk of graphitic silty clay saprolite at 91 ft.

(96 - 105) SILTY, GRAVELLY VERY COARSE SAND; cob & sm till ball.

(105 - 120) SILTY, COBBLY GRAVEL; noted sev red sandstone pebs; no cobs below 116 ft.

(120 - 124) SILTY, GRAVELLY, VERY COARSE SAND; UNOXIDIZED.

(124 - 146) SILTY, COBBLY GRAVEL; UNOXIDIZED; some large cobs; few sm carb pebs.



22551
22552
140
160
180
OR
(146 - 155) VERY COARSE SAND & GRAVEL; UNOXIDIZED; sm cob at 153 ft.
(155 - 158) SILTY, VERY COARSE SAND; UNOXIDIZED; mgr in upper foot.
(158 - 162) SILTY, COBBLY SAND & GRAVEL.
(162 - 175) GRAVELLY, COARSE - VERY COARSE SAND; OXIDIZED.
(175 - 186) SILTY GRAVEL; OXIDIZED; cobbly below 183 ft; sev carb grains.
0 10 Clay Se (0)
0 200 Clay Cu (0)
0 10 Clay As (0)
0 10 Clay Fe% (0)
0 100 Clay Pb (0)
0 10 Gold Assay (ppb) of -63um Fraction (0)
0 100 Gold Assay (ppb) Calculated From Gold Grain Count (0)

Appendix 1-26C.

MASTER SAMPLE LIST

SAMPLE NUMBER	SAMP TYPE	DRILL HOLE	SAMPLE INTERVAL	FEET SAMPLED	SUBSAMPLES ANALYZED	TWP SEC RNG	FORTY	COUNTY	DRIFT TYPE	DRIFT TYPE KEY	UNDERLYING BEDROCK TYPE	BEDROCK TYPE KEY	REMARKS
22,548		403	2.5- 8.0	5.5	ABJ	45-27-12	NW-SW	A	KOOCHICHING LOBE TILL	21	QUARTZITE	PQ	
22,549		403	8.0- 16.0	8.0	AB	45-27-12	NW-SW	A	RAINY LOBE TILL	11	QUARTZITE	PQ	
22,550		403	16.0- 24.0	8.0	ABJ	45-27-12	NW-SW	A	RAINY LOBE TILL	11	QUARTZITE	PQ	
22,551		403	155.0-165.0	10.0	AB	45-27-12	NW-SW	A	RAINY LOBE MGR TO VCGR SAND	14	QUARTZITE	PQ	
22,552		403	175.0-186.0	11.0	AB	45-27-12	NW-SW	A	OLD RAINY LOBE GRAVEL	52	QUARTZITE	PQ	

HMC AND LAB DATA

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	GOLD GRAIN COUNT (HMC)	TOTAL WEIGHT NONMAG HMC(G)	TOTAL WEIGHT MAGNET. HMC(G)	RATIO NMAG HMC / MAG HMC	WEIGHT (GRAMS) FEED SLT/CLY	+250um FRACTION	-250 +63um FRACTION	-63um FRACTION	WEIGHT % >= VCGR SAND	MGR SAND	FGR SAND	SILT	NORMALIZED TO 10KG SAMPLE #GOLD GRAIN COUNTED	NMAG HMC WEIGHT(g)	MAG HMC WEIGHT(g)
22,548		21	0	66.6	19.3	3.5	100	42	34	24	10	32	34	24	0.0	66.6	19.3
22,549		11	0	81.3	24.5	3.3	100	30	25	45	15	15	25	45	0.0	81.3	24.5
22,550		11	1	58.3	18.6	3.1	100	38	22	40	13	25	22	40	1.3	74.7	23.8
22,551		14	0	95.5	15.7	6.1	100	82	5	13	44	38	5	13	0.0	83.8	13.8
22,552		52	0	76.3	14.3	5.3	100	88	7	6	65	23	7	6	0.0	89.8	16.8

NONMAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE KEY	#GOLD GRAIN COUNT	AU ASSAY EST.FROM GOLD GRAINS	CALC BULK AU ASSAY	INAA SAMPLE WEIGHT	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm	Ce ppm
22,548		21	0	0	0.033	54.1	5	< 0.1	14	1.5	0.2	< 1	< 4	2	< 200	26	15	130	103	320	45	20.0	2770.00	7.0	24.0	1400	3	140.0
22,549		11	0	0	0.260	66.1	32	0.1	15	1.2	0.3	< 1	20	3	< 200	30	13	123	104	300	49	21.0	2650.00	3.2	20.0	1300	6	120.0
22,550		11	1	26	0.553	46.9	74	0.1	19	1.9	0.4	< 1	< 4	3	< 200	35	14	130	95	350	50	23.0	2680.00	5.7	24.0	1820	5	150.0
22,551		14	0	0	0.042	78.3	5	0.7	44	1.3	1.3	< 1	< 4	3	460	307	45	177	313	110	110	25.0	5210.00	< 0.5	15.0	801	2	100.0
22,552		52	0	0	0.045	62.5	5	0.3	35	1.2	1.7	< 1	14	3	< 200	252	23	157	143	110	76	23.0	4780.00	2.4	10.0	816	2	77.0

SILT/CLAY ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE #KEY	FA-ICP Au ASSAY SAMP WGT	-63um Au ppb	-63um Ag ppm	Clay As ppm	Clay Sb ppm	Clay Se ppm	Clay Bi ppm	Clay W ppm	Clay Mo ppm	Clay Ba ppm	Clay Cu ppm	Clay Pb ppm	Clay Zn ppm	Clay Ni ppm	Clay Cr ppm	Clay Co ppm	Clay Fe ppm	Clay Mn ppm	-63um CO2 %	Clay Al2O3 %	Clay CaO %	Clay MgO %	Clay Na2O %	Clay TiO2 %	Clay K2O %	Clay P2O5 %
22,548		21	30	- 1	<.2	8	< 1	< 1	< 2	4	< 2	579	110	22	170	78	82	21	77,513	111	-1	18.06	1.07	3.20	2.25	0.83	2.82	1.34
22,549		11	30	< 1	<.2	6	< 1	< 1	< 2	2	< 2	620	110	16	170	85	72	24	78,411	127	-1	17.79	1.80	3.29	2.54	0.87	3.00	1.69
22,550		11	30	< 1	<.2	6	< 1	3	< 2	1	2	579	110	14	150	92	70	23	80,483	115	-1	17.88	1.74	3.07	2.71	0.80	3.01	2.25
22,551		14	30	< 1	<.2	3	< 1	2	< 2	9	4	468	90	34	130	82	96	22	98,097	101	-1	17.49	1.73	3.79	2.59	0.72	2.63	1.83
22,552		52	30	< 1	<.2	6	< 1	1	< 2	4	4	516	100	12	190	90	100	25	90,490	115	-1	16.59	1.63	3.18	2.67	0.76	2.53	2.02

MAGNETIC HMC ANALYSIS

SAMPLE NUMBER	SAMP TYPE	DRIFT TYPE	TOT. WT. MAGNETIC HMC(G)	Ag ppm	As ppm	Se ppm	Mo ppm	Cu pp	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Sc ppm

No Samples Analyzed

BEDROCK AND SAPROLITE ANALYSIS

SAMPLE NUMBER	SAMP TYPE	SAMPLING INTERVAL	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %

No bedrock obtained in drilling

SAMPLE NUMBER	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P2O5 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm

No bedrock obtained in drilling

MINERALOGY OF NONMAGNETIC HMC

SAMPLE NUMBER	SAMP TYPE	SAMPLE INTERVAL	DRIFT TYPE	PYRITE	MARCASITE	SIDERITE	HEMATITE	GOETHITE	ILMENITE	SPHENE	RUTILE	ZIRCON	GARNET	STAUROLITE	EPIDOTE	PYROXENE	HORNBLENDE	KYANITE	TOTAL	QUARTZ & FELDSPAR	REMARKS
22,548		2.5- 8.0	21	0	0	5	26	10	15	1	0	-1	3	0	5	34	1	0	100	-1	
22,550		16.0- 24.0	11	1	0	5	21	12	15	0	0	1	2	0	5	34	4	0	100	1	

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
22548	10.0	1.0	9.0	262.8	176.9	85.9	66.6	19.3	0	NA	P	80	20	NA	NA	U	Y	Y	Y	OC	OC	TILL
22549	10.0	1.5	8.5	253.8	148.0	105.8	81.3	24.5	0	NA	P	75	25	TR	NA	U	Y	Y	Y	OC	OC	TILL
22550	7.8	1.0	6.8	226.5	149.6	76.9	58.3	18.6	1	26	P	80	20	TR	NA	U	Y	Y	Y	OC	OC	TILL
22551	11.4	5.0	6.4	203.6	92.4	111.2	95.5	15.7	0	NA	P	60	39	1	NA	S	C	Y	N	GBN	NA	GRAVEL
22552	8.5	5.5	3.0	286.1	195.5	90.6	76.3	14.3	0	NA	P	70	30	TR	NA	U	Y	Y	Y	OC	OC	TILL

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
22548	N	NO VISIBLE GOLD											
22549	N	NO VISIBLE GOLD											
22550	N	75 X 125	20 C	1						1			
										1	58.3	26	
22551	N	NO VISIBLE GOLD											
22552	N	NO VISIBLE GOLD											

Appendix 2-0. Master sample list, in order by sample number.

Sample Number	Sample Type	Drill Hole	Sampled Interval	Feet Sampled	Subsamples Analyzed	TWP SEC RNG	FORTY	County	Drift Type	Drift Type Key	Underlying Bedrock Type	Bedrock Type Key	Remarks
22301		301	14.0- 20.0	6	ABJ	61-26-25	SE-SW	I	RAINY LOBE TILL	11	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22302		301	27.0- 37.0	10	ABCJ	61-26-25	SE-SW	I	RAINY LOBE TILL	11	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22303		301	37.0- 47.0	10	ABJ	61-26-25	SE-SW	I	RAINY LOBE TILL	11	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22304		301	47.0- 57.0	10	ABCJ	61-26-25	SE-SW	I	WINNIPEG LOBE COMPOSITE TILL SAMPLES	68	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22305		301	57.0- 67.0	10	ABCJ	61-26-25	SE-SW	I	WINNIPEG LOBE TILL	61	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22306		301	67.0- 78.0	11	ABJ	61-26-25	SE-SW	I	WINNIPEG LOBE TILL	61	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22307		301	78.0- 87.0	9	ABCJ	61-26-25	SE-SW	I	OLD RAINY LOBE TILL	51	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22308		301	87.0- 91.0	4	A	61-26-25	SE-SW	I	REWORKED SAPROLITE	49	ULTRAMAFIC-INTERMED. VOLC	VU/I	SILT/CLAY SAMPLE ONLY
22309		301	91.0- 95.0	4	HI	61-26-25	SE-SW	I	BEDROCK	34	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22310		302	19.0- 27.5	8.5	ABCJ	62-25-35	NE-NE	I	KOOCHICHING LOBE TILL	21	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22311		302	31.0- 36.0	5	ABCJ	62-25-35	NE-NE	I	KOOCHICHING LOBE TILL	21	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22312		302	36.0- 42.5	6.5	ABJ	62-25-35	NE-NE	I	RAINY LOBE GRAVELLY SAND	13	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22313		302	42.5- 49.5	7	AB	62-25-35	NE-NE	I	RAINY LOBE TILL	11	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22314		302	49.5- 56.0	6.5	ABCJ	62-25-35	NE-NE	I	RAINY LOBE TILL	11	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22315		302	56.0- 63.0	7	AB	62-25-35	NE-NE	I	RAINY LOBE TILL	11	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22316		302	71.0- 76.0	5	ABCJ	62-25-35	NE-NE	I	OLD RAINY LOBE GRAVELLY SAND	53	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22318		302	79.0- 86.0	7	HI	62-25-35	NE-NE	I	BEDROCK	34	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22319		303	66.0- 73.5	7.5	ABCJ	63-25-19	NW-NW	K	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22320	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22321		303	110.0-118.0	8	ABCJ	63-25-19	NW-NW	K	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22322		303	118.0-126.0	8	AB	63-25-19	NW-NW	K	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22323		303	128.0-136.5	8.5	AB	63-25-19	NW-NW	K	RAINY LOBE GRAVEL	12	GRANITE, GRANODIORITE	GR/GD	
22324		303	136.5-143.0	6.5	AB	63-25-19	NW-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22325		303	144.0-156.0	12	ABCJ	63-25-19	NW-NW	K	DRIFT AND SAPROLITE MIXTURE	48	GRANITE, GRANODIORITE	GR/GD	
22326		303	156.0-165.0	9	ABCJ	63-25-19	NW-NW	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	GRANITE, GRANODIORITE	GR/GD	
22328		304	26.0- 36.0	10	ABCJ	63-25- 4	SE-SW	K	KOOCHICHING LOBE TILL	21	VOLCANICLASTIC ROCKS	VC	
22329		304	46.0- 55.0	9	AB	63-25- 4	SE-SW	K	KOOCHICHING LOBE TILL	21	VOLCANICLASTIC ROCKS	VC	
22330		304	55.0- 60.0	5	HI	63-25- 4	SE-SW	K	BEDROCK	34	VOLCANICLASTIC ROCKS	VC	
22331		306	69.0- 76.0	7	AB	61-26-16	NE-NW	I	KOOCHICHING LOBE TILL	21	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22332		306	76.0- 83.0	7	ABCJ	61-26-16	NE-NW	I	KOOCHICHING LOBE TILL	21	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22333		306	100.5-105.0	4.5	ABCJ	61-26-16	NE-NW	I	WINNIPEG LOBE TILL	61	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22334		306	105.0-111.0	6	AB	61-26-16	NE-NW	I	WINNIPEG LOBE TILL	61	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22335		306	111.0-120.0	9	AB	61-26-16	NE-NW	I	WINNIPEG LOBE TILL	61	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22336		306	120.0-129.0	9	ABCJ	61-26-16	NE-NW	I	WINNIPEG LOBE TILL	61	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22337		306	131.0-136.5	5.5	I	61-26-16	NE-NW	I	BEDROCK	34	ULTRAMAFIC-INTERMED. VOLC	VU/I	
22338	SS	306	133.5-134.5	1	HIJ	61-26-16	NE-NW	I	BEDROCK	34	ULTRAMAFIC-INTERMED. VOLC	VU/I	SPECIAL SAMPLE VEIN MATERIAL
22339		307	100.5-110.5	10	ABCJ	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22340	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22341		307	113.0-123.0	10	AB	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22342		307	123.0-133.0	10	AB	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22343		307	133.0-142.0	9	AB	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	

Appendix 2-0. Master sample list, in order by sample number.

Sample Number	Sample Type	Drill Hole	Sampled Interval	Feet Sampled	Subsamples Analyzed	TWP SEC RNG	FORTY	County	Drift Type	Drift Type Key	Underlying Bedrock Type	Bedrock Type Key	Remarks
22344		307	142.0-151.0	9	ABJ	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22345		307	151.0-160.0	9	ABJ	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22345	R	307	151.0 160.0	9	0	62 26 16	SW-SW	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	REPLICATE B,C, NO ASSAY
22346		307	206.0-212.5	6.5	ABCJ	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22346	R	307	206.0 212.5	6.5	0	62 26 16	SW-SW	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	REPLICATE B,C, NO ASSAY
22347		307	214.0-220.0	6	AB	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22348		307	220.0-226.0	6	ABCJ	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22349		310	177.0-183.5	6.5	AB	65-26-33	NE-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22350		310	183.5-193.5	10	ABCJ	65-26-33	NE-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22351		310	193.5-203.0	9.5	AB	65-26-33	NE-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22352		310	221.0-224.5	3.5	ABCJ	65-26-33	NE-NW	K	RAINY LOBE TILL	11	METASEDIMENTS	MS	
22353		310	226.0-236.0	10	HI	65-26-33	NE-NW	K	BEDROCK	34	METASEDIMENTS	MS	
22354	SS	310	227.0-228.0	1	HIJ	65-26-33	NE-NW	K	BEDROCK	34	METASEDIMENTS	MS	SPECIAL SAMPLE VEIN MATERIAL
22355		311	42.0- 52.0	10	ABCJ	63-27- 2	SW-SE	K	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22356		311	110.0-120.0	10	ABCJ	63-27- 2	SW-SE	K	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22357		311	123.0-131.0	8	ABCJ	63-27- 2	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22358		311	131.0-140.0	9	ABCJ	63-27- 2	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22359		311	141.0-146.0	5	I	63-27- 2	SW-SE	K	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	
22360	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22361		311	143.0-144.0	1	I	63-27- 2	SW-SE	K	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	
22362		312	136.0-146.0	10	ABCJ	64-26- 7	NW-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22363		312	173.0-183.0	10	AB	64-26- 7	NW-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22364		312	188.0-198.0	10	AB	64-26- 7	NW-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22365		312	198.0-208.0	10	ABCJ	64-26- 7	NW-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22366		312	208.0-218.5	10.5	AB	64-26- 7	NW-NW	K	KOOCHICHING LOBE TILL	21	METASEDIMENTS	MS	
22367		312	253.0-263.0	10	AB	64-26- 7	NW-NW	K	RAINY LOBE VFGR TO FGR SAND	15	METASEDIMENTS	MS	
22368		312	281.5-291.5	10	ABCJ	64-26- 7	NW-NW	K	RAINY LOBE MGR TO VCGR SAND	14	METASEDIMENTS	MS	
22369		313	118.5-128.0	9.5	AB	149-25-22	SW-NW	I	KOOCHICHING LOBE TILL	21	GRANITE AND VOLCANICLASTIC	GR-VC	
22370		313	139.0-149.0	10	ABCJ	149-25-22	SW-NW	I	KOOCHICHING LOBE TILL	21	GRANITE AND VOLCANICLASTIC	GR-VC	
22371		313	149.0-156.0	7	AB	149-25-22	SW-NW	I	KOOCHICHING LOBE TILL	21	GRANITE AND VOLCANICLASTIC	GR-VC	
22372		313	156.0-162.0	6	AB	149-25-22	SW-NW	I	RAINY LOBE TILL	11	GRANITE AND VOLCANICLASTIC	GR-VC	
22373		313	166.0-173.0	7	ABCJ	149-25-22	SW-NW	I	RAINY LOBE TILL	11	GRANITE AND VOLCANICLASTIC	GR-VC	
22374		313	173.0-180.0	7	ABCJ	149-25-22	SW-NW	I	RAINY LOBE TILL	11	GRANITE AND VOLCANICLASTIC	GR-VC	
22377		313	193.5-195.0	8.5	HI	149-25-22	SW-NW	I	BEDROCK	34	VOLCANICLASTIC ROCKS	VC	PLUS SAMPLE INTERVAL 196-203
22378		313	188.0-189.0	2	HI	149-25-22	SW-NW	I	BEDROCK	34	GRANITE	GR	PLUS SAMPLE INTERVAL 195-196
22379		314	52.5- 62.5	10	AB	150-25-12	SE-NE	I	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22380	ST		0.0- 0.0	0	A	0 ON 0				32			FOR CROSS-SAMPLE CONTAMINATION
22381	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22382	ST		0.0- 0.0	0	A	0- 1 0				31			FOR GOLD ASSAY CHECK
22383		314	65.0- 76.0	11	AB	150-25-12	SE-NE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22384		314	76.0- 86.0	10	AB	150-25-12	SE-NE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	

Appendix 2-0. Master sample list, in order by sample number.

Sample Number	Sample Type	Drill Hole	Sampled Interval	Feet Sampled	Subsamples Analyzed	TWP SEC RNG	FORTY	County	Drift Type	Drift Type Key	Underlying Bedrock Type	Bedrock Type Key	Remarks
22385		314	90.5- 99.0	8.5	ABCJ	150-25-12	SE-NE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22386		314	99.0-106.0	8	ABCJ	150-25-12	SE-NE	I	WINNIPEG LOBE TILL	61	GRANITE, GRANODIORITE	GR/GD	
22387		314	106.0-109.0	3	ABCJ	150-25-12	SE-NE	I	OLD RAINY LOBE COMPOSITE TILL SAMPLES	58	GRANITE, GRANODIORITE	GR/GD	
22388		314	109.0-115.0	6	HI	150-25-12	SE-NE	I	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	
22389	SS	314	109.0-112.5	3.5	IJ	150-25-12	SE-NE	I	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	SPECIAL SAMPLE VEIN MATERIAL
22390		315	81.0- 86.0	5	AB	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22391		315	86.0- 96.0	10	AB	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22392		315	96.0-106.0	10	AB	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22393		315	106.0-115.0	9	AB	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22394		315	115.0-125.0	10	ABCJ	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22395		315	125.0-133.5	8.5	AB	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22396		315	133.5-143.5	10	ABCJ	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22397		315	143.5-152.5	9	ABCJ	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22398		315	152.5-156.5	4	ABCJ	151-25-22	SE-SW	K	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22399		315	156.5-162.0	5.5	ABCJ	151-25-22	SE-SW	K	OLD RAINY LOBE TILL	51	VOLCANICLASTIC ROCKS	VC	
22400		315	162.0-171.0	0	HI	151-25-22	SE-SW	K	BEDROCK	34	VOLCANICLASTIC ROCKS	VC	
22401		318	29.5- 39.5	10	ABCJ	154-25-29	NE-NW	K	KOOCHICHING LOBE TILL	21	SCHIST-RICH MIGMATITE	SM	
22402	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22403		318	49.0- 60.0	11	ABCJ	154-25-29	NE-NW	K	RAINY LOBE GRAVELLY SAND	13	SCHIST-RICH MIGMATITE	SM	
22404		318	60.0- 66.0	6	ABCJ	154-25-29	NE-NW	K	RAINY LOBE TILL	11	SCHIST-RICH MIGMATITE	SM	
22405		318	66.0- 73.5	7.5	AB	154-25-29	NE-NW	K	RAINY LOBE MGR TO VCGR SAND	14	SCHIST-RICH MIGMATITE	SM	
22406		318	73.5- 81.0	7.5	ABCJ	154-25-29	NE-NW	K	RAINY LOBE TILL	11	SCHIST-RICH MIGMATITE	SM	
22407		318	81.0- 89.0	8	HI	154-25-29	NE-NW	K	BEDROCK	34	SCHIST-RICH MIGMATITE	SM	
22408		319	93.5-103.5	10	AB	149-26-14	NW-NW	I	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22409		319	103.5-113.0	9.5	ABCJ	149-26-14	NW-NW	I	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22410		319	113.0-119.0	6	ABCJ	149-26-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	
22410	R	319	113.0 119.0	6	0	149 26 14	NW-NW	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	REPLICATE B,C, NOT ASSAYED
22411		319	119.0-125.0	6	ABCJ	149-26-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	
22412		319	125.0-132.0	7	HI	149-26-14	NW-NW	I	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	
22413		320	111.0-119.0	8	AB	150-26-28	SW-SE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22414		320	119.0-127.0	8	ABJ	150-26-28	SW-SE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22415		320	135.0-146.0	11	AB	150-26-28	SW-SE	I	OLD RAINY LOBE MGR TO VCGR SAND	54	GRANITE, GRANODIORITE	GR/GD	
22416		320	152.0-158.0	6	ABCJ	150-26-28	SW-SE	I	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22417		320	158.0-168.5	10.5	AB	150-26-28	SW-SE	I	OLD RAINY LOBE SANDY SILT	50	GRANITE, GRANODIORITE	GR/GD	
22418		320	173.5-184.0	10.5	ABJ	150-26-28	SW-SE	I	WINNIPEG LOBE TILL	61	GRANITE, GRANODIORITE	GR/GD	
22419		320	184.0-190.0	6	AB	150-26-28	SW-SE	I	OLD RAINY LOBE COMPOSITE TILL SAMPLES	58	GRANITE, GRANODIORITE	GR/GD	
22420		320	190.0-198.5	8.5	AB	150-26-28	SW-SE	I	OLD RAINY LOBE COMPOSITE TILL SAMPLES	58	GRANITE, GRANODIORITE	GR/GD	
22421		320	198.5-212.0	13.5	ABJ	150-26-28	SW-SE	I	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	GRANITE, GRANODIORITE	GR/GD	
22422	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22423	ST		0.0- 0.0	0	A	0- 1 0				31			FOR GOLD ASSAY CHECK
22424	ST		0.0- 0.0	0	A	0 ON 0				32			FOR CROSS-SAMPLE CONTAMINATION

Appendix 2-0. Master sample list, in order by sample number.

Sample Number	Sample Type	Drill Hole	Sampled Interval	Feet Sampled	Subsamples Analyzed	TWP SEC RNG	FORTY	County	Drift Type	Drift Type Key	Underlying Bedrock Type	Bedrock Type Key	Remarks
22425		320	212.0-224.0	12	ABJ	150-26-28	SW-SE	I	SAPROLITE: CLAY WITH GRANULES	42	GRANITE, GRANODIORITE	GR/GD	
22426		321	173.5-179.0	5.5	ABCJ	151-26-33	NE-NE	K	WINNIPEG LOBE COMPOSITE TILL SAMPLES	68	GRANITE, GRANODIORITE	GR/GD	
22427		321	193.0-201.0	8	ABCJ	151-26-33	NE-NE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22428		321	201.0-211.0	10	AB	151-26-33	NE-NE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22429		321	211.0-220.0	9	ABCJ	151-26-33	NE-NE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22430		321	226.5-236.0	9.5	AB	151-26-33	NE-NE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22431		321	245.0-255.0	10	AB	151-26-33	NE-NE	K	OLD RAINY LOBE MGR TO VCGR SAND	54	GRANITE, GRANODIORITE	GR/GD	
22432		322	73.5- 84.5	11	AB	152-26-16	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22433		322	83.5- 88.5	5	AB	152-26-16	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22434		322	88.5- 98.5	10	ABCJ	152-26-16	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22435		322	115.5-122.0	6.5	ABCJ	152-26-16	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22436		322	161.5-171.5	10	AB	152-26-16	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22437		322	171.5-182.0	10.5	AB	152-26-16	SW-SE	K	OLD RAINY LOBE VFGR TO FGR SAND	55	GRANITE, GRANODIORITE	GR/GD	
22438		322	182.0-192.0	10	AB	152-26-16	SW-SE	K	OLD RAINY LOBE MGR TO VCGR SAND	54	GRANITE, GRANODIORITE	GR/GD	
22439		322	192.0-196.0	4	ABCJ	152-26-16	SW-SE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22440		322	196.0-202.0	6	HI	152-26-16	SW-SE	K	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	
22441	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22442		323	80.0- 90.0	10	ABJ	153-26-29	NE-NW	K	KOOCHICHING LOBE TILL	21	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22443		323	100.0-106.0	6	AB	153-26-29	NE-NW	K	RAINY LOBE TILL	11	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22444		323	106.0-130.0	24	AB	153-26-29	NE-NW	K	RAINY LOBE GRAVELLY SAND	13	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22445		323	130.0-135.0	5	ABCJ	153-26-29	NE-NW	K	RAINY LOBE GRAVELLY SAND	13	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22446		323	126.0-131.0	5	AB	153-26-29	NE-NW	K	RAINY LOBE GRAVELLY SAND	13	MIXED VOLC. AND CLASTIC ROCKS	V/S	REDRILLED
22447		323	131.0-135.5	4.5	AB	153-26-29	NE-NW	K	RAINY LOBE SANDY SILT	10	MIXED VOLC. AND CLASTIC ROCKS	V/S	REDRILLED
22448		323	135.0-143.0	8	HI	153-26-29	NE-NW	K	BEDROCK	34	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22449	SS	323	137.0-137.5	1	IJ	153-26-29	NE-NW	K	BEDROCK	34	MIXED VOLC. AND CLASTIC ROCKS	V/S	SI=137 & 14
22450		325	45.0- 52.0	7	ABCJ	149-27-16	NE-NE	I	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22451		325	52.0- 60.5	8.5	AB	149-27-16	NE-NE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22452		325	60.5- 69.0	8.5	ABCJ	149-27-16	NE-NE	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22453		325	86.0- 94.5	8.5	AB	149-27-16	NE-NE	I	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22454		325	224.0-232.0	8	AB	149-27-16	NE-NE	I	OLD RAINY LOBE GRAVEL	52	GRANITE, GRANODIORITE	GR/GD	
22455		325	232.0-240.0	8	AB	149-27-16	NE-NE	I	OLD RAINY LOBE GRAVEL	52	GRANITE, GRANODIORITE	GR/GD	
22456		325	240.0-249.0	9	AB	149-27-16	NE-NE	I	OLD RAINY LOBE GRAVELLY SAND	53	GRANITE, GRANODIORITE	GR/GD	
22457		325	249.0-258.0	9	AB	149-27-16	NE-NE	I	OLD RAINY LOBE MGR TO VCGR SAND	54	GRANITE, GRANODIORITE	GR/GD	
22458		326	91.5- 96.0	4.5	AB	150-27-14	NW-NW	I	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22459	ST		0.0- 0.0	0	A	0 ON 0				32			FOR CROSS-SAMPLE CONTAMINATION
22460	ST		0.0- 0.0	0	A	0- 1 0				31			FOR GOLD ASSAY CHECK
22461	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22462		326	97.5-105.5	8	ABCJ	150-27-14	NW-NW	I	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22463		326	110.0-118.5	8.5	ABCJ	150-27-14	NW-NW	I	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	
22464		326	210.0-220.5	10.5	AB	150-27-14	NW-NW	I	OLD RAINY LOBE VFGR TO FGR SAND	55	VOLCANICLASTIC ROCKS	VC	
22465		326	220.5-230.5	10	ABJ	150-27-14	NW-NW	I	OLD RAINY LOBE SANDY SILT	50	VOLCANICLASTIC ROCKS	VC	

Appendix 2-0. Master sample list, in order by sample number.

Sample Number	Sample Type	Drill Hole	Sampled Interval	Feet Sampled	Subsamples Analyzed	TWP SEC RNG	FORTY	County	Drift Type	Drift Type Key	Underlying Bedrock Type	Bedrock Type Key	Remarks
22465	R	326	220.5 230.5	10	0	150 27 14	NW-NW	I	OLD RAINY LOBE SANDY SILT	50	VOLCANICLASTIC ROCKS	VC	REPLICATE B,C, NO ASSAY
22466		326	230.5-238.0	7.5	ABCJ	150-27-14	NW-NW	I	REWORKED SAPROLITE	49	VOLCANICLASTIC ROCKS	VC	
22467		326	251.0-255.0	4	HI	150-27-14	NW-NW	I	BEDROCK	34	VOLCANICLASTIC ROCKS	VC	
22468		326	255.0-270.0	15	I	150-27-14	NW-NW	I	BEDROCK	34	VOLCANICLASTIC ROCKS	VC	
22469		326	270.0-275.0	5	ABCJ	150-27-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	VOLCANICLASTIC ROCKS	VC	
22470		327	120.5-127.5	7	ABJ	152-27-36	SE-NW	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22471		327	127.5-136.0	8.5	AB	152-27-36	SE-NW	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22472		327	142.0-151.5	9.5	ABCJ	152-27-36	SE-NW	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	
22473		327	153.5-162.5	9	AB	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22474		327	162.5-172.0	9.5	ABCJ	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22475		327	172.0-178.5	6.5	AB	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22476		327	184.5-194.5	10	AB	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22477		327	194.5-204.5	10	ABCJ	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22478		327	204.5-214.0	9.5	AB	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22479	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22480		327	214.0-219.0	5	ABCJ	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22481		327	219.0-226.5	7.5	ABCJ	152-27-36	SE-NW	K	SAPROLITE: CLAY WITH GRANULES	42	GRANITE, GRANODIORITE	GR/GD	
22482		327	226.5-234.0	7.5	ABCJ	152-27-36	SE-NW	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	
22489		327	264.0-271.0	7	HI	152-27-36	SE-NW	K	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	
22490		329	120.5-131.0	10.5	ABCJ	153-27-34	SW-SE	K	OLD RAINY LOBE TILL	51	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22491		329	134.5-146.5	12	AB	153-27-34	SW-SE	K	OLD RAINY LOBE GRAVELLY SAND	53	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22492		329	146.5-154.0	7.5	ABCJ	153-27-34	SW-SE	K	OLD RAINY LOBE TILL	51	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22493		329	154.0-165.0	11	ABCJ	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	41	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22494		329	165.0-176.0	11	ABCJ	153-27-34	SW-SE	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22495		329	176.0-186.5	10.5	ABC	153-27-34	SW-SE	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22496		329	186.5-191.0	4.5	ABCJ	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	41	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22496	R	329	186.5 191.0	4.5	0	153 27 34	SW-SE	K	SAPROLITE: MASSIVE CLAY	41	MIXED VOLC. AND CLASTIC ROCKS	V/S	REPLICATE B,C, NO ASSAY
22497		329	191.0-214.0	23	ABCJ	153-27-34	SW-SE	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22498		329	214.0-226.0	12	HI	153-27-34	SW-SE	K	BEDROCK	34	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22499	ST		0.0- 0.0	0	A	0 ON 0				32			FOR CROSS-SAMPLE CONTAMINATION
22500	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22501	ST		0.0- 0.0	0	A	0- 2 0				31			FOR ASSAY CHECK
22502	SS	329	216.0-216.5	.5	IJ	0- 2 0			BEDROCK	34	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPECIAL SAMPLE VEIN MATERIAL
22503		331	56.0- 66.0	10	ABCJ	151-27-16	SE-SE	K	KOOCHICHING LOBE TILL	21	GRANITE, GRANODIORITE	GR/GD	
22504		331	149.5-156.5	7	ABCJ	151-27-16	SE-SE	K	WINNIPEG LOBE TILL	61	GRANITE, GRANODIORITE	GR/GD	
22505		331	158.5-163.0	4.5	AB	151-27-16	SE-SE	K	WINNIPEG LOBE TILL	61	GRANITE, GRANODIORITE	GR/GD	
22506		331	186.0-196.0	10	AB	151-27-16	SE-SE	K	WINNIPEG LOBE SANDY SILT	60	GRANITE, GRANODIORITE	GR/GD	
22507		331	196.0-206.0	10	AB	151-27-16	SE-SE	K	WINNIPEG LOBE SANDY SILT	60	GRANITE, GRANODIORITE	GR/GD	
22508		331	209.0-215.5	6.5	HI	151-27-16	SE-SE	K	BEDROCK	34	GRANITE, GRANODIORITE	GR/GD	
22509		401	35.0- 46.0	11	AB	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22510		401	46.0- 55.0	9	ABCJ	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	

Appendix 2-0. Master sample list, in order by sample number.

Sample Number	Sample Type	Drill Hole	Sampled Interval	Feet Sampled	Subsamples Analyzed	TWP SEC RNG	FORTY	County	Drift Type	Drift Type Key	Underlying Bedrock Type	Bedrock Type Key	Remarks
22511		401	55.0- 62.0	7	AB	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22512		401	62.0- 72.0	10	AB	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22513		401	72.0- 82.5	10.5	AB	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22514		401	82.5- 89.0	6.5	ABCJ	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22515		401	89.0- 95.5	6.5	AB	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	
22516		401	95.5- 99.0	3.5	ABCJ	46-29-27	NE-SE	CW	WINNIPEG LOBE TILL	61	METASEDIMENTARY ROCKS	PSA	
22517		401	99.0-106.0	7	ABCJ	46-29-27	NE-SE	CW	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	METASEDIMENTARY ROCKS	PSA	
22518		401	109.0-116.0	7	HI	46-29-27	NE-SE	CW	BEDROCK	34	METASEDIMENTARY ROCKS	PSA	
22519		402	0.0- 8.0	8	ABCJ	46-28-10	SE-SW	CW	KOOCHICHING LOBE TILL	21	IRON FORMATION	IF	
22520	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22521		402	8.0- 16.0	8	AB	46-28-10	SE-SW	CW	KOOCHICHING LOBE TILL	21	IRON FORMATION	IF	
22522		402	19.5- 26.0	6.5	AB	46-28-10	SE-SW	CW	KOOCHICHING LOBE TILL	21	IRON FORMATION	IF	
22523		402	26.0- 30.5	4.5	ABCJ	46-28-10	SE-SW	CW	KOOCHICHING LOBE TILL	21	IRON FORMATION	IF	
22524		402	85.0- 89.5	4.5	ABCJ	46-28-10	SE-SW	CW	SUPERIOR LOBE TILL	71	IRON FORMATION	IF	
22525		402	89.5-100.0	10.5	ABCJ	46-28-10	SE-SW	CW	SUPERIOR LOBE TILL	71	IRON FORMATION	IF	
22526		402	100.0-105.0	5	AB	46-28-10	SE-SW	CW	SUPERIOR LOBE TILL	71	IRON FORMATION	IF	
22527		402	105.0-113.0	8	ABCJ	46-28-10	SE-SW	CW	SUPERIOR LOBE TILL	71	IRON FORMATION	IF	
22528		402	113.0-124.0	11	AB	46-28-10	SE-SW	CW	SUPERIOR LOBE TILL	71	IRON FORMATION	IF	
22529		402	124.0-133.0	9	ABCJ	46-28-10	SE-SW	CW	WINNIPEG LOBE TILL	61	IRON FORMATION	IF	
22530		402	133.0-137.5	4.5	ABCJ	46-28-10	SE-SW	CW	WINNIPEG LOBE TILL	61	IRON FORMATION	IF	
22531		402	137.5-144.0	6.5	ABCJ	46-28-10	SE-SW	CW	OLD RAINY LOBE TILL	51	IRON FORMATION	IF	
22532		402	144.0-148.5	4.5	AB	46-28-10	SE-SW	CW	WINNIPEG LOBE COMPOSITE TILL SAMPLES	68	IRON FORMATION	IF	
22533		402	165.0-174.0	9	AB	46-28-10	SE-SW	CW	OLD RAINY LOBE TILL	51	IRON FORMATION	IF	
22534		402	174.0-181.5	7.5	AB	46-28-10	SE-SW	CW	OLD RAINY LOBE TILL	51	IRON FORMATION	IF	
22535		402	181.5-192.0	10.5	ABJ	46-28-10	SE-SW	CW	OLD RAINY LOBE TILL	51	IRON FORMATION	IF	
22536		402	207.0-211.5	4.5	AB	46-28-10	SE-SW	CW	DRIFT AND SAPROLITE MIXTURE	48	IRON FORMATION	IF	
22537		402	220.0-226.0	6	ABCJ	46-28-10	SE-SW	CW	SAPROLITE: CLAY WITH GRANULES	42	IRON FORMATION	IF	SILT/CLAY-OILY SUBSTANCE
22539	ST		0.0- 0.0	0	A	0 ON 0				32			FOR CROSS-SAMPLE CONTAMINATION
22540	ST		0.0- 0.0	0	A	0- 2 0				31			FOR ASSAY CHECK
22541	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22546		402	211.5-274.0	18.5	HI	46-28-10	SE-SW	CW	BEDROCK	34	IRON FORMATION	IF	COMPO211.5-220,226-232,270-274
22547		402	274.0-276.0	2	I	46-28-10	SE-SW	CW	BEDROCK	34	METASED. AND METAVOLC.	PGVI	
22548		403	2.5- 8.0	5.5	ABJ	45-27-12	NW-SW	A	KOOCHICHING LOBE TILL	21	QUARTZITE	PQ	
22549		403	8.0- 16.0	8	AB	45-27-12	NW-SW	A	RAINY LOBE TILL	11	QUARTZITE	PQ	
22550		403	16.0- 24.0	8	ABJ	45-27-12	NW-SW	A	RAINY LOBE TILL	11	QUARTZITE	PQ	
22551		403	155.0-165.0	10	AB	45-27-12	NW-SW	A	RAINY LOBE MGR TO VCGR SAND	14	QUARTZITE	PQ	
22552		403	175.0-186.0	11	AB	45-27-12	NW-SW	A	OLD RAINY LOBE GRAVEL	52	QUARTZITE	PQ	
22553	R	307	142.0-151.0	9	AB	62-26-16	SW-SW	I	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22554	R	321	211.0-220.0	9	AB	151-26-33	NE-NE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22555	R	322	88.5- 98.5	10	AB	152-26-16	SW-SE	K	RAINY LOBE TILL	11	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22556	R	322	171.5-182.0	10.5	AB	152-26-16	SW-SE	K	OLD RAINY LOBE VFGR TO FGR SAND	55	GRANITE, GRANODIORITE	GR/GD	REPLICATE

Appendix 2-0. Master sample list, in order by sample number.

Sample Number	Sample Type	Drill Hole	Sampled Interval	Feet Sampled	Subsamples Analyzed	TWP SEC RNG	FORTY	County	Drift Type	Drift Type Key	Underlying Bedrock Type	Bedrock Type Key	Remarks
22557	R	325	86.0- 94.5	8.5	AB	149-27-16	NE-NE	I	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22558	R	325	240.0-249.0	9	AB	149-27-16	NE-NE	I	OLD RAINY LOBE GRAVELLY SAND	53	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22559	R	326	110.0-118.5	8.5	AB	150-27-14	NW-NW	I	RAINY LOBE TILL	11	VOLCANICLASTIC ROCKS	VC	REPLICATE
22560	R	327	153.5-162.5	9	AB	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22561	R	327	204.5-214.0	9.5	AB	152-27-36	SE-NW	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	REPLICATE
22562	ST		0.0- 0.0	0	A	01 0 0				31			FOR ASSAY REPRODUCIBILITY
22563	R	401	35.0- 46.0	11	ABCJ	46-29-27	NE-SE	CW	RAINY LOBE TILL	11	METASEDIMENTARY ROCKS	PSA	REPLICATE
22564	R	402	113.0-124.0	11	ABCJ	46-28-10	SE-SW	CW	SUPERIOR LOBE TILL	71	IRON FORMATION	IF	REPLICATE
22565	SS	313	190.0 191.0	1	IJ	149-25-22	SW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE AND VOLCANICLASTIC	GR-VC	SPEC.MINERAL&ASSAY
22566	SS	303	156.0 157.0	1	J	63-25-19	NW-NW	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERALOGY
22567	SS	303	167.0 168.0	1	IJ	63-25-19	NW-NW	K	SAPROLITE: CLAY WITH GRANULES	42	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERAL&ASSAY
22568	SS	319	122.0 123.0	1	IJ	149-26-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERAL&ASSAY
22569	SS	320	207.0 208.0	1	J	150-26-28	SW-SE	I	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERALOGY
22570	SS	320	219.0 220.0	1	IJ	150-26-28	SW-SE	I	SAPROLITE: CLAY WITH GRANULES	42	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERAL&ASSAY
22571	SS	326	237.0 238.0	1	J	150-27-14	NW-NW	I	REWORKED SAPROLITE	49	VOLCANICLASTIC ROCKS	VC	SPEC.MINERALOGY
22572	SS	326	271.0 272.0	1	IJ	150-27-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	VOLCANICLASTIC ROCKS	VC	SPEC.MINERAL&ASSAY
22573	SS	327	223.0 224.0	1	J	152-27-36	SE-NW	K	SAPROLITE: CLAY WITH GRANULES	42	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERALOGY
22574	SS	327	229.0 230.0	1	IJ	152-27-36	SE-NW	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	44	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERAL&ASSAY
22575	SS	329	155.0 156.0	1	IJ	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	41	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERAL&ASSAY
22576	SS	329	158.0 159.0	1	J	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	41	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERALOGY
22577	SS	329	174.0 175.0	1	IJ	153-27-34	SW-SE	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERAL&ASSAY
22578	SS	329	188.0 189.0	1	J	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	41	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERALOGY
22579	SS	329	191.0 193.0	1	J	153-27-34	SW-SE	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	43	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERALOGY
22585		318	39.5 49.5	10	0	154 25 29	NE-NW	K	RAINY LOBE SANDY SILT	10	SCHIST-RICH MIGMATITE	SM	
22586		322	151.5 161.5	10	0	152 26 16	SW-SE	K	RAINY LOBE GRAVELLY SAND	13	GRANITE, GRANODIORITE	GR/GD	
22587		329	110.5 120.5	10	0	153 27 34	SW-SE	K	RAINY LOBE GRAVELLY SAND	13	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22588		321	131.5 141.5	10	0	151 26 33	NE-NE	K	WINNIPEG LOBE GRAVELLY SAND	63	GRANITE, GRANODIORITE	GR/GD	
22589		321	169.0 176.5	7.5	0	151 26 33	NE-NE	K	OLD RAINY LOBE TILL	51	GRANITE, GRANODIORITE	GR/GD	
22590	ST		0.0 0.0	0	B	0- 2 0				31			FOR ASSAY CHECK
22591	ST		0.0 0.0	0	B	0- 1 0				31			FOR GOLD ASSAY CHECK
22592	ST		0.0 0.0	0	B	0- 2 0				31			FOR ASSAY CHECK
22593	ST		0.0 0.0	0	B	0- 1 0				31			FOR GOLD ASSAY CHECK
22594	ST		0.0 0.0	0	B	0- 2 0				31			FOR ASSAY CHECK
22595	ST		0.0 0.0	0	B	0- 1 0				31			FOR GOLD ASSAY CHECK

Appendix 2-1. Assay results for magnetic HMC sample splits.

Sample	Drill Hole	Drift Type	Ag ppm	As ppm	Co ppm	Cr ppm	Cu ppm	Pb ppm	Mo ppm	Ni ppm	Mn ppm	Se ppm	Zn ppm	V ppm	Ti ppm	Mg ppm	SiO2 wt%	Al2O3 wt%	Fe2O3 wt%	CaO wt%	MgO wt%	Na2O wt%	K2O wt%
22373	313	11	< .5	< 1	191	474	219	4	6	147	5035	< 1	293	3300	83333	14174	16.34	4.09	58.11	4.81	2.35	.46	.64
22374	313	11	< .5	< 1	302	333	359	< 2	10	218	4957	< 1	343	2741	78717	15682	17.51	3.73	56.1	4.96	2.6	.35	< .1
22339	307	11	< .5	2	144	1434	45	10	2	91	2091	< 1	380	1967	35492	2955	3.99	.96	88.5	.76	.49	.05	.25
22346	307	11	< .5	< 1	203	1440	54	6	2	154	2556	< 1	398	2214	47182	3498	4.5	1.33	84.8	1.04	.58	.08	.42
22348	307	11	< .5	1	177	2252	40	< 2	6	147	2246	< 1	441	2319	40588	2654	3.37	1.09	88.16	.97	.44	.04	.14
22357	311	11	< .5	3	130	1372	31	12	4	108	1859	< 1	327	2002	30216	2955	3.71	1	88.81	.83	.49	.07	.36
22358	311	11	< .5	2	134	1647	32	14	< 2	86	2014	< 1	361	1971	32374	2533	3.02	.82	90.43	.68	.42	.03	.24
22385	314	11	< .5	2	130	1574	57	4	6	131	1937	< 1	346	2233	30935	3076	3.78	.85	90.51	.75	.51	.07	.13
22434	322	11	< .5	8	94	2018	40	12	2	92	1859	< 1	231	1761	26559	3197	4.4	1.45	87.5	.96	.53	.05	< .1
22435	322	11	< .5	7	97	1904	46	14	2	106	2014	< 1	248	1837	30036	4644	5.58	1.38	85.42	1.5	.77	.09	< .1
22452	325	11	< .5	5	107	1959	45	4	2	86	2014	1	250	1888	30216	3739	4.69	1.07	86.28	1.14	.62	.11	< .1
22472	327	11	< .5	6	121	1200	109	6	10	147	2091	< 1	234	1659	29496	4946	6.75	1.36	83.57	1.62	.82	.18	.1
22352	310	11	< .5	1	144	1100	113	12	4	181	3021	< 1	344	1847	49341	7479	10.05	1.7	74.1	3.3	1.24	.13	< .1
22510	401	11	< .5	11	135	1712	102	10	2	130	2866	< 1	377	2178	50779	6514	8.86	1.41	78.22	1.36	1.08	.13	.23
22514	401	11	< .5	9	222	2257	119	16	6	195	3486	< 1	525	2992	69724	6031	7.48	1.75	76.47	1.59	1	.15	.12
22563	401	11	< .5	11	137	1684	20	24	4	127	2789	< 1	393	2253	48621	5428	9	1.43	79.04	1.06	.9	.14	.24
22404	318	11	< .5	5	118	1576	73	6	4	99	2169	< 1	279	1960	34592	4343	5	1.16	84.34	1.34	.72	.1	.13
22406	318	11	< .5	5	127	1679	64	12	2	102	2169	1	293	1997	35432	4463	5.45	1.14	83.98	1.36	.74	.09	.13
22394	315	11	< .5	< 1	149	1674	32	8	6	110	1937	< 1	393	2101	32554	3197	4.13	1.07	89.42	.74	.53	.05	.14
22396	315	11	< .5	1	142	1626	32	10	4	112	2014	< 1	393	2125	33513	3136	4.19	1.07	89.6	.76	.52	.05	< .1
22397	315	11	< .5	1	137	1670	34	10	8	105	1937	< 1	389	2102	33333	2835	4	1.05	89.51	.68	.47	.06	.38
22398	315	11	< .5	1	143	2017	44	8	8	122	1937	< 1	360	2101	29916	2473	3.51	1.04	89.95	.79	.41	.06	< .1
22462	326	11	< .5	6	110	2130	48	8	4	69	2014	1	289	1978	32674	3800	4.16	.99	87.28	1.13	.63	.06	.13
22463	326	11	< .5	7	108	1930	46	6	2	63	2014	< 1	250	1870	31475	3739	4.31	.99	84.47	1.15	.62	.06	< .1
22302	301	11	< .5	3	305	11764	93	12	72	235	2246	< 1	592	1907	31715	4584	6.26	1.72	84.61	.89	.76	.05	< .1
22314	302	11	< .5	3	142	2722	24	12	2	149	2634	< 1	525	2548	48561	4222	4.16	1.27	85.97	.72	.7	.04	< .1
22403	318	13	< .5	6	116	1675	69	4	2	91	1937	< 1	314	2089	30156	3136	4.15	1.04	87.5	1.2	.52	.09	.17
22445	323	13	< .5	5	141	1808	108	4	4	90	2246	< 1	250	1951	34772	3016	4.16	1.34	85.54	1.2	.5	.1	< .1
22368	312	14	< .5	2	141	1747	41	12	2	138	2246	< 1	417	2229	39868	2654	3.42	.86	88.69	.76	.44	.05	.53
22370	313	21	< .5	4	118	1949	37	12	2	157	1627	< 1	311	1511	19484	2594	2.88	.7	93.19	.64	.43	.04	.6
22319	303	21	N 0	N 0	92	2350	23	N 0	N 0	101	1549	N 0	288	1362	16667	3197	4.46	1.69	89.44	.77	.53	.1	< .1
22321	303	21	< .5	1	118	1696	19	16	2	103	1859	< 1	304	1741	25779	2594	3.26	.92	91.46	.67	.43	.04	.1
22355	311	21	< .5	4	98	1708	48	8	2	90	1549	< 1	258	1396	17626	2533	3.09	.72	92.41	.64	.42	.03	< .1
22356	311	21	< .5	1	127	1342	55	10	4	128	1937	< 1	372	1926	33213	6574	6.95	1.4	85.26	1.45	1.09	.17	< .1
22409	319	21	< .5	6	97	2046	25	8	2	87	1704	< 1	215	1597	21883	2171	2.64	.81	89.64	.74	.36	.05	.22
22450	325	21	< .5	6	92	1988	22	2	2	78	1627	1	205	1579	20384	2413	2.79	.75	90.06	.78	.4	.04	< .1
22503	331	21	< .5	8	96	1853	47	12	14	114	1472	< 1	172	1340	17326	2774	3.49	1.18	91.39	.76	.46	.03	< .1
22519	402	21	< .5	9	276	2318	136	10	4	197	3176	< 1	474	2741	67626	7358	8.97	1.97	74.74	1.43	1.22	.17	.52
22523	402	21	.5	12	159	1987	30	14	2	141	3176	< 1	479	2584	61151	5549	8.22	1.61	76.87	1.27	.92	.16	.41
22350	310	21	< .5	< 1	103	1816	27	4	6	104	1472	< 1	277	1511	17866	1990	2.28	.75	93.92	.5	.33	.01	.26

Appendix 2-1. Assay results for magnetic HMC sample splits.

Sample	Drill Hole	Drift Type	Ag ppm	As ppm	Co ppm	Cr ppm	Cu ppm	Pb ppm	Mo ppm	Ni ppm	Mn ppm	Se ppm	Zn ppm	V ppm	Ti ppm	Mg ppm	SiO2 wt%	Al2O3 wt%	Fe2O3 wt%	CaO wt%	MgO wt%	Na2O wt%	K2O wt%
22362	312	21	< .5	1	100	1843	29	8	2	79	1549	< 1	280	1530	17626	2413	3	.76	93.53	.64	.4	.04	.13
22365	312	21	< .5	2	112	1794	70	8	2	93	1472	< 1	285	1531	16787	2232	2.63	.58	93.97	1.12	.37	.03	.5
22401	318	21	< .5	2	133	1579	39	14	6	125	1937	< 1	335	1787	25779	3498	4.53	1.39	89.54	1.01	.58	.05	< .1
22328	304	21	< .5	5	101	1831	143	86	18	260	1859	< 1	301	1749	25360	4946	4.89	1.2	88.31	.72	.82	.07	.26
22310	302	21	< .5	5	109	2022	27	14	8	159	1782	< 1	358	1847	26919	1990	2.95	.96	92.55	.53	.33	.05	< .1
22311	302	21	< .5	4	121	1601	24	22	4	105	2169	< 1	404	2042	36990	2413	3.61	1.17	89.21	.63	.4	.07	.17
22332	306	21	< .5	3	120	2024	39	10	6	111	1704	< 1	471	1663	21103	2654	3.39	1.03	91.89	.72	.44	.06	.4
22493	329	41	N 0	N 0	209	1426	840	N 0	N 0	189	4803	N 0	232	1609	29017	4403	10.66	2.12	75.61	1.12	.73	.1	.13
22496	329	41	N 0	N 0	1748	26	1316	N 0	N 0	626	1162	N 0	127	1013	63369	3197	14.26	3.92	61.1	.61	.53	.06	.41
22481	327	42	2.	8	146	1528	108	6	8	79	1782	< 1	227	1724	26619	2111	3.61	1.19	80.44	.83	.35	.06	.35
22537	402	42	< .5	12	29	5	5	18	< 2	10	2014	< 1	5	38	1139	965	5.17	.15	93.62	.11	.16	.01	.11
22326	303	43	N 0	N 0	3679	21209	96	N 0	N 0	495	3486	N 0	3655	1416	28657	11761	17.77	5.96	55.6	5.44	1.95	.54	1.05
22494	329	43	< .5	130	781	61	482	12	6	161	1084	< 1	123	1107	10552	7177	18.59	4.01	66	.56	1.19	.07	1.06
22497	329	43	N 0	N 0	920	180	733	N 0	N 0	249	1549	N 0	115	3810	90048	11037	20.04	4.45	43.34	9.03	1.83	.09	.19
22410	319	44	< .5	11	138	2311	75	10	6	114	2479	< 1	377	2151	39808	5066	5.71	1.2	84.31	1.6	.84	.1	< .1
22411	319	44	N 0	N 0	5850	1104	196	N 0	N 0	202	2479	N 0	148	939	19065	3739	6.61	1.22	74.97	1.42	.62	.16	.25
22482	327	44	N 0	N 0	806	979	649	N 0	N 0	83	1627	N 0	113	1433	10432	1629	7.45	.99	85.74	1.29	.27	.04	1.48
22517	401	44	N 0	N 0	10759	2301	163	N 0	N 0	223	3176	N 0	334	1558	52038	7720	9.17	4.72	55.4	2.71	1.28	.27	.28
22495	329	44	N 0	N 0	2422	33	2638	N 0	N 0	669	1007	N 0	88	1247	28237	2594	9.45	2.73	73.94	.51	.43	.06	< .1
22469	326	44	N 0	N 0	80	2105	202	N 0	N 0	550	1782	N 0	88	847	27098	33173	35.87	6.37	42.94	2.18	5.5	.09	1
22325	303	48	< .5	2	441	1301	98	10	18	125	3253	< 1	365	2596	61871	5428	8.53	2.28	73.73	2.91	.9	.15	< .1
22466	326	49	< .5	12	121	1976	51	8	4	113	2169	< 1	288	2070	33933	3257	3.99	1.09	86.72	1.08	.54	.06	< .1
22416	320	51	< .5	13	202	2483	134	12	4	151	2246	< 1	324	2189	36811	2594	2.72	.9	87.14	.75	.43	.05	< .1
22427	321	51	< .5	7	122	1760	81	6	4	97	2169	1	305	1963	33753	4222	4.66	1.03	84.06	1.27	.7	.09	.16
22429	321	51	< .5	5	118	1917	49	8	6	104	2169	< 1	317	2112	36571	3257	3.84	.98	85.99	.96	.54	.05	.18
22439	322	51	< .5	23	142	1562	99	12	4	134	1859	1	247	1990	30875	1689	2.54	.93	88.06	.65	.28	.04	< .1
22474	327	51	< .5	5	339	2230	59	4	10	98	1937	< 1	212	1773	27158	4644	5.54	1.18	83.71	1.48	.77	.13	< .1
22477	327	51	< .5	7	146	1939	63	6	4	94	2091	< 1	249	1947	33213	2774	3.83	1.14	85.87	1.06	.46	.09	.25
22480	327	51	< .5	6	277	1698	83	4	10	113	2169	< 1	258	1900	33513	2714	4.13	1.21	85.27	1.23	.45	.09	.42
22531	402	51	< .5	8	171	2772	30	16	2	180	2634	< 1	388	2253	54496	3920	4.36	1.39	81.18	.9	.65	.08	.21
22490	329	51	< .5	16	136	5168	68	10	4	136	2401	< 1	337	1938	33873	6273	5.41	1.42	83.11	1.37	1.04	.11	.22
22492	329	51	< .5	7	115	1817	86	8	2	128	2401	< 1	185	2982	37530	2654	3	.85	86.95	1.01	.44	.06	.16
22399	315	51	< .5	< 1	877	2351	53	10	14	128	2169	< 1	376	2142	30636	2654	3.81	1.44	89.22	.93	.44	.11	.32
22307	301	51	< .5	3	233	11036	126	20	8	228	3408	< 1	788	3027	62530	4343	3.4	1.74	83.06	.71	.72	.05	< .1
22316	302	53	< .5	10	233	46051	87	88	18	284	5500	< 1	2516	2527	55036	8022	5.16	3.38	73.14	1.41	1.33	.08	< .1
22387	314	58	< .5	3	1884	1023	81	4	40	117	2246	1	313	1532	31175	7117	11.06	2.65	75.41	2.39	1.18	.41	.12
22386	314	61	< .5	17	436	1262	26	6	8	114	1472	< 1	284	1395	22182	2955	6.01	1.41	85.97	1	.49	.16	.22
22504	331	61	< .5	4	86	2073	40	8	2	80	1472	< 1	193	1501	16247	1749	1.99	.62	93.77	.55	.29	.03	< .1
22529	402	61	N 0	N 0	200	2984	11	N 0	N 0	493	2014	N 0	360	1827	34173	3016	4.01	1.58	86.7	.67	.5	.05	< .1
22530	402	61	N 0	N 0	134	4371	138	N 0	N 0	128	2401	N 0	340	1744	35731	3257	3.56	1.32	86.36	.87	.54	.04	< .1
22516	401	61	N 0	N 0	192	3576	129	N 0	N 0	195	3253	N 0	484	2547	69065	5911	6.56	2.15	75.71	1.61	.98	.13	< .1

Appendix 2-1. Assay results for magnetic HMC sample splits.

Sample	Drill Hole	Drift Type	Ag ppm	As ppm	Co ppm	Cr ppm	Cu ppm	Pb ppm	Mo ppm	Ni ppm	Mn ppm	Se ppm	Zn ppm	V ppm	Ti ppm	Mg ppm	SiO2 wt%	Al2O3 wt%	Fe2O3 wt%	CaO wt%	MgO wt%	Na2O wt%	K2O wt%
22305	301	61	< .5	2	285	45125	46	14	10	400	2556	< 1	1197	2348	34892	4644	2.65	2.18	83.03	.18	.77	.04	< .1
22333	306	61	< .5	3	126	2461	55	6	6	96	1937	< 1	360	1944	29916	1990	2.62	.89	91.35	.57	.33	.04	.35
22336	306	61	< .5	2	114	2237	33	24	4	94	1627	< 1	297	1585	20144	2292	3.64	1.03	92.41	.73	.38	.04	.21
22426	321	68	< .5	6	118	1719	37	6	2	80	1937	1	274	1944	31175	1629	2.13	.71	90.07	.56	.27	.02	.23
22304	301	68	< .5	1	182	8401	38	10	12	235	2556	< 1	594	2355	0	3136	3.02	1.28	88.29	.48	.52	.05	.19
22524	402	71	.5	11	156	1871	14	20	2	164	3176	< 1	468	2637	63070	5489	8.02	1.56	77.79	1.22	.91	.14	< .1
22525	402	71	.5	12	161	2021	17	18	4	155	3098	< 1	469	2607	63189	5489	7.53	1.52	77.19	1.26	.91	.14	.11
22527	402	71	.5	12	149	1755	14	20	2	137	2944	< 1	427	2383	56775	6092	8.44	1.51	78.17	1.3	1.01	.14	.18
22564	401	71	< .5	50	171	1641	19	N 20	8	188	2014	< 1	327	1841	38669	3559	8.55	1.34	81.32	.79	.59	.12	.19

Appendix 2-2. Nonmagnetic HMC assay results,
in order by sample number.

Sample Number	Sample Type	Drill Hole	Drift Type	Underlying Bedrock Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm
22301		301	11	VU/I	1	21	.171	12.5	78	< 5.0	17	< 0.2	0.9	< 1	< 4	3	< 200	49	34	111	192	1600	55	11.8	12880	10.0	120
22302		301	11	VU/I	7	529	1.187	22.2	584	< 5.0	21	1.1	0.9	< 1	290	2	< 200	83	27	110	111	770	120	18.0	9200	12.0	160
22303		301	11	VU/I	1	7	.377	20.5	170	< 6.0	25	0.8	0.8	< 1	< 4	4	< 200	67	41	137	106	620	49	16.6	10440	13.0	120
22304		301	68	VU/I	7	156	.743	30	223	< 5.0	54	1.9	3.1	< 1	< 4	16	< 200	92	32	348	147	270	42	21.4	7440	10.0	92
22305		301	61	VU/I	1	3	.099	18	45	< 6.0	64	2.8	2.8	< 1	< 4	18	< 200	109	43	342	163	650	54	25.7	7750	16.0	130
22306		301	61	VU/I	7	61	.479	21.5	136	< 6.0	35	1.3	0.7	< 1	< 4	4	< 200	131	61	147	132	280	67	24.2	8450	10.0	110
22307		301	51	VU/I	1	2	.152	23.7	44	< 5.0	32	0.8	0.9	1	< 4	4	< 200	183	43	160	146	280	66	23.9	9190	8.5	90
22310		302	21	VU/I	0	0	.066	10.7	44	< 5.0	21	< 0.2	0.7	< 1	< 4	3	< 200	78	32	135	113	280	41	11.9	22311	8.1	85
22311		302	21	VU/I	2	552	1.047	13.1	600	< 5.0	16	< 0.2	0.7	< 1	< 4	3	< 200	59	34	120	112	270	43	11.5	15660	8.9	120
22312		302	13	VU/I	5	1218	.412	15.1	224	< 8.0	20	< 0.2	0.7	0	< 4	2	< 200	65	31	136	118	390	50	17.7	15950	9.6	140
22313		302	11	VU/I	4	124	.388	10.8	222	< 5.0	20	< 0.2	0.7	< 1	< 4	2	< 200	62	28	138	103	310	36	12.1	13510		0
22314		302	11	VU/I	2	249	1.162	15.6	660	< 7.0	20	< 0.2	0.5	< 1	< 4	< 1	1200	42	22	129	91	530	49	16.3	14420	8.0	110
22315		302	11	VU/I	2	198	.603	17.8	215	< 7.0	15	< 0.2	0.3	< 1	100	2	760	21	35	147	87	470	50	16.0	11990	6.9	130
22316		302	53	VU/I	3	58	3.2	13.1	1780	< 7.0	7	< 0.2	0.1	1	< 4	3	< 200	46	93	126	51	910	21	10.5	13890	8.5	130
22319		303	21	GR/GD	0	0	.002	1.6	8	< 5.0	80	5.4	2.3	1	< 4	7	2000	108	152	235	120	470	46	20.5	7250	12.0	120
22321		303	21	GR/GD	1	23	.118	19.9	70	< 6.0	100	2.5	2.9	< 1	< 4	5	< 200	100	36	144	118	360	66	20.6	9180	12.0	110
22322		303	21	GR/GD	0	0	2.317	17.5	900	< 6.0	45	0.8	1.3	< 1	15	3	< 200	87	32	121	135	450	66	22.8	9680	8.0	110
22323		303	12	GR/GD	0	0	.097	4.9	121	< 6.0	< 2	< 0.2	0.2	1	< 4	2	< 200	46	19	92	50	350	29	16.7	15330	11.0	130
22324		303	51	GR/GD	1	48	.118	9.8	76	< 5.0	< 2	< 0.2	0.3	< 1	< 4	2	< 200	75	30	136	95	250	33	12.0	9790	6.4	95
22325		303	48	GR/GD	0	0	.412	11.2	257	< 5.0	20	0.5	0.4	< 1	43	6	< 200	96	39	106	96	160	35	14.4	10070	6.8	64
22326		303	43	GR/GD	0	0	.007	1.1	58	< 6.0	26	< 0.2	0.1	< 1	270	20	< 200	3900	74	158	349	820	77	16.6	5150	10.0	120
22328		304	21	VC	1	140	.66	7.2	500	< 5.0	73	3.0	2.8	1	16	12	2900	159	854	365	1	340	36	17.6	6730	8.1	60
22329		304	21	VC	0	0	.078	18.3	45	< 7.0	60	1.2	1.1	< 1	10	3	800	130	291	185	102	440	68	20.9	8300	16.0	140
22331		306	21	VU/I	2	54	.347	16.1	160	< 7.0	46	1.4	0.7	< 1	< 4	4	< 200	68	44	145	99	380	71	25.5	7880	15.0	110
22332		306	21	VU/I	3	249	.454	11.6	230	< 5.0	27	< 0.2	0.4	< 1	< 4	4	< 200	82	45	121	76	290	32	12.6	7910	11.0	89
22333		306	61	VU/I	1	21	.249	21.7	92	< 9.0	45	< 0.2	0.4	< 1	< 4	3	720	64	178	175	80	530	51	19.7	8910	11.0	140
22334		306	61	VU/I	0	0	.007	6.7	6	< 5.0	38	< 0.2	0.2	< 1	< 4	5	3200	68	662	210	76	350	28	13.1	6080	10.0	91
22335		306	61	VU/I	1	18	.1	7.1	72	< 5.0	40	< 0.2	0.6	< 1	< 4	7	1100	92	346	145	75	390	27	13.0	9200	14.0	120
22336		306	61	VU/I	1	16	.04	8.1	26	< 5.0	16	1.0	0.3	< 1	< 4	8	< 200	51	695	137	72	410	26	12.1	9030	15.0	110
22339		307	11	GR/GD	9	151	.737	24.6	250	< 8.0	24	< 0.2	0.4	< 1	22	2	< 200	61	27	109	133	340	71	18.3	11290	14.0	110
22341		307	11	GR/GD	4	244	1.627	16.3	531	< 7.0	27	< 0.2	0.4	< 1	39	2	< 200	70	25	122	123	380	69	18.4	11850	8.2	130
22342		307	11	GR/GD	2	28	.196	21.2	58	< 6.0	18	< 0.2	0.4	< 1	< 4	2	< 200	58	19	132	130	320	66	16.5	8200	7.0	90
22343		307	11	GR/GD	0	0	.019	21.4	6	< 6.0	30	< 0.2	0.4	< 1	9	2	< 200	44	17	104	110	350	61	16.9	11440	10.0	95
22344		307	11	GR/GD	7	174	.688	22	212	< 5.0	30	0.8	0.5	< 1	15	2	< 200	61	21	124	112	300	49	14.6	10070	7.9	86
22345		307	11	GR/GD	0	13	2.093	19.7	627	< 6.0	18	0.7	0.2	< 1	< 4	< 1	< 200	49	23	126	107	410	53	17.7	10340	8.1	110
22346		307	11	GR/GD	7	412	3.557	22.4	895	< 5.0	36	1.0	0.4	< 1	23	3	< 200	74	22	104	115	350	78	22.7	9160	5.5	85
22347		307	11	GR/GD	1	3	.235	17.4	77	< 7.0	31	< 0.2	0.4	< 1	< 4	3	590	65	26	128	105	390	59	21.5	9400	11.0	130
22348		307	11	GR/GD	3	148	.819	18.8	260	< 6.0	26	< 0.2	0.4	< 1	100	5	890	77	25	125	100	390	56	20.0	7420	9.2	110
22349		310	21	MS	0	0	.107	6.1	102	< 5.0	43	1.3	1.2	< 1	< 4	4	< 200	94	45	174	106	290	44	14.3	10180	8.8	100
22350		310	21	MS	2	575	1.567	8	1090	< 5.0	39	< 0.2	0.8	< 1	< 4	5	< 200	94	38	208	99	280	39	13.3	9980	11.0	93

Appendix 2-2. Nonmagnetic HMC assay results, in order by sample number.

Sample Number	Sample Type	Drill Hole	Drift Type	Underlying Bedrock Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm
22351		310	21	MS	0	0	.03	5.8	27	< 5.0	61	< 0.2	0.6	< 1	< 4	4	< 200	92	37	157	118	260	45	12.2	7460	8.3	75
22352		310	11	MS	0	0	.11	8.5	82	< 5.0	130	10.0	0.5	5	< 4	4	< 200	1787	99	216	322	160	120	16.3	10540	4.2	60
22355		311	21	GR/GD	0	0	.179	3.9	353	< 5.0	110	3.2	1.8	< 1	< 4	6	3500	125	31	279	126	570	57	21.9	6050	23.0	120
22356		311	21	GR/GD	0	0	.042	12.9	19	< 5.0	29	< 0.2	0.6	< 1	< 4	5	830	142	26	171	210	220	48	12.5	6350	6.2	66
22357		311	11	GR/GD	1	70	.351	28.7	100	< 7.0	29	< 0.2	0.5	< 1	< 4	2	< 200	47	26	90	93	290	61	18.4	7160	6.7	790
22358		311	11	GR/GD	5	37	.274	23.4	74	< 8.0	34	< 0.2	0.4	< 1	< 4	< 1	< 200	52	30	121	103	400	60	18.6	9760	7.2	120
22362		312	21	MS	0	0	.052	11.2	27	< 5.0	28	< 0.2	0.6	< 1	< 4	2	790	67	52	168	94	320	34	11.8	6860	15.0	86
22363		312	21	MS	1	60	.58	7.9	575	< 5.0	47	1.3	0.5	< 1	< 4	2	< 200	65	44	160	81	330	38	12.8	8540	15.0	120
22364		312	21	MS	1	26	.183	10.4	115	< 5.0	41	0.6	0.5	< 1	< 4	3	450	93	43	157	85	290	37	12.1	7540	14.0	96
22365		312	21	MS	1	28	.008	9.7	5	< 5.0	120	0.8	0.5	< 1	< 4	2	360	84	39	155	94	300	37	12.1	7960	15.0	95
22366		312	21	MS	0	0	.071	8.6	47	< 5.0	32	< 0.2	0.5	< 1	< 4	< 1	710	89	43	146	120	290	45	13.4	10170	9.9	90
22367		312	15	MS	0	0	.094	16.1	34	24.0	30	0.9	0.6	2	< 4	< 1	< 200	232	43	123	173	320	91	20.3	12240	13.0	160
22368		312	14	MS	0	0	.168	22.3	50	< 9.0	21	0.9	0.5	< 1	< 4	< 1	< 200	160	36	134	164	360	75	19.2	9850	14.0	140
22369		313	21	GR-VC	1	47	.239	9.8	140	< 5.0	54	2.2	1.7	< 1	< 4	7	1700	74	26	251	123	260	41	15.0	9810	8.2	62
22370		313	21	GR-VC	2	240	.123	9.9	73	< 5.0	53	2.0	2.3	< 1	< 4	4	1900	98	31	253	110	310	34	14.3	5590	11.0	90
22371		313	21	GR-VC	0	0	.169	15.3	89	< 7.0	61	1.2	0.6	< 1	< 4	4	590	107	39	149	94	460	65	21.9	8080	17.0	140
22372		313	11	GR-VC	0	0	.103	10.3	55	< 5.0	23	< 0.2	1.0	< 1	39	2	< 200	358	16	167	138	220	90	12.5	5100	5.8	40
22373		313	11	GR-VC	2	821	.075	9.7	50	< 5.0	18	0.4	1.3	< 1	28	< 1	260	351	9	160	129	150	110	11.6	6490<	0.5	26
22374		313	11	GR-VC	0	0	.052	6.4	71	< 5.0	29	0.6	1.4	< 1	56	2	< 200	246	8	162	138	180	170	16.5	5390	6.3	34
22379		314	21	GR/GD	0	0	.046	3.7	87	8.0	120	2.6	1.4	< 1	< 4	5	1200	105	35	285	130	530	60	21.5	6460	16.0	110
22383		314	11	GR/GD	2	120	.335	29.7	103	< 7.0	22	0.6	0.5	< 1	< 4	3	< 200	58	23	141	127	390	56	16.5	7800	8.6	80
22384		314	11	GR/GD	4	145	.729	29.1	279	28.0	25	0.8	0.4	< 1	16	2	< 200	88	24	139	125	430	59	17.9	6600	10.0	90
22385		314	11	GR/GD	0	0	.226	20.5	67	< 6.0	22	< 0.2	0.3	< 1	12	< 1	< 200	69	20	149	106	470	57	17.8	9280	7.3	100
22386		314	61	GR/GD	0	0	.007	9.3	5	< 5.0	8	< 0.2	0.2	< 1	330	3	< 200	49	17	128	81	370	41	11.0	8070	8.4	80
22387		314	58	GR/GD	0	0	.016	12	8	< 5.0	15	0.7	0.4	< 1	400	5	< 200	52	16	121	82	160	100	12.6	5100<	0.8	39
22390		315	11	VC	2	120	.178	15.2	86	< 5.0	26	< 0.2	0.7	< 1	44	3	< 200	97	18	113	140	230	50	11.1	8250	6.7	73
22391		315	11	VC	1	13	.179	20.6	59	2.0	33	1.0	0.6	< 1	17	14	< 200	64	57	184	97	390	71	18.0	5150	10.0	120
22392		315	11	VC	2	99	.555	25.8	134	2.0	26	0.6	0.4	< 1	< 4	2	< 200	43	41	119	88	400	64	18.0	5120.00	6.9	93
22393		315	11	VC	3	8	.134	25.9	42	2.0	31	< 0.2	0.5	< 1	< 4	2	< 200	41	39	110	87	340	59	16.0	5260.00	9.4	100
22394		315	11	VC	4	275	1.893	23.5	479	1.0	39	< 0.2	0.4	< 1	< 4	< 1	< 200	37	30	118	84	360	71	17.0	5210.00	10.0	86
22395		315	11	VC	2	37	.206	19.1	60	1.0	25	1.2	0.5	< 1	< 4	< 1	< 200	58	28	103	83	420	70	19.0	5490.00	10.0	93
22396		315	11	VC	11	373	.947	26	249	1.0	18	< 0.2	0.4	< 1	9	< 1	< 200	50	30	117	627	360	57	16.0	5040.00	9.0	87
22397		315	11	VC	8	693	2.103	25	497	< 0.1	21	0.6	0.4	< 1	< 4	2	< 200	54	59	108	80	340	54	16.0	5110.00	9.5	84
22398		315	11	VC	1	9	.441	28.3	87	0.2	14	< 0.2	0.2	< 1	< 4	3	< 200	34	34	103	63	390	47	19.0	4920.00	9.7	100
22399		315	51	VC	11	346	1.126	26.9	314	< 0.1<	2	< 0.2	0.4	< 1	1400	2	< 200	40	39	120	54	460	230	21.0	4700.00	12.0	110
22401		318	21	SM	5	1506	1.08	12.7	1080	0.3	19	< 0.2	0.7	< 1	11	2	< 200	92	34	121	91	280	50	12.0	5280.00	7.0	79
22403		318	13	SM	16	2745	2.168	29.8	404	0.2	36	1.0	0.6	< 1	< 4	1	< 200	88	32	118	108	390	89	19.0	6310.00	10.0	140
22404		318	11	SM	7	23058	82.165	17.3	27500	1.7	21	< 0.2	0.4	< 1	< 4	< 1	< 200	61	27	110	90	370	81	17.0	6240.00	8.5	100
22405		318	14	SM	3	45	.548	26	114	0.1	17	< 0.2	0.3	< 1	8	< 1	< 200	42	22	106	76	330	52	16.0	6390.00	5.5	88
22406		318	11	SM	5	225	1.355	20.8	408	0.2	10	0.7	0.3	< 1	150	2	600	49	23	107	81	340	58	15.0	5780.00	8.8	75

Appendix 2-2. Nonmagnetic HMC assay results, in order by sample number.

Sample Number	Sample Type	Drill Hole	Drift Type	Underlying Bedrock Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm
22408		319	21	GR/GD	0	0	.363	12.3	162	0.3	22	0.5	0.5	< 1	< 4	3	< 200	61	42	123	60	280	33	12.0	5190.00	11.0	88
22409		319	21	GR/GD	1	112	.363	13.3	145	0.3	24	0.4	0.5	< 1	< 4	3	< 200	75	46	126	62	290	34	12.0	5010.00	8.2	88
22410		319	44	GR/GD	4	398	.052	11.7	35	1.3	36	0.9	3.1	< 1	< 4	2	< 200	516	21	85	112	200	100	12.0	3530.00	7.3	67
22411		319	44	GR/GD	0	0	1.059	3.2	1650	3.1	78	< 0.3	2.5	< 1	13000	9	< 230	1640	37	59	189	160	920	17.0	1780.00	16.0	120
22413		320	11	GR/GD	0	0	.815	23.9	286	< 0.1	37	0.8	0.6	< 1	19	< 1	< 200	51	25	116	83	370	59	17.0	6730.00	10.0	94
22414		320	11	GR/GD	1	74	.611	20.4	176	< 0.1	48	< 0.2	0.4	< 1	< 4	2	< 200	53	26	114	79	420	66	17.0	5910.00	9.6	92
22415		320	54	GR/GD	0	0	.055	19.4	17	< 0.1	< 3	< 0.3	<0.1	< 1	< 4	< 1	< 240	25	103	114	26	450	29	21.0	6090.00	< 1.7	420
22416		320	51	GR/GD	6	689	1.145	18	550	0.1	45	1.2	0.5	< 1	11	3	< 200	62	36	129	72	280	57	24.0	6200.00	9.9	120
22417		320	50	GR/GD	6	284	.591	30.7	182	0.2	30	1.0	0.2	< 1	23	4	< 200	53	46	107	59	250	48	22.0	5880.00	5.0	94
22418		320	61	GR/GD	0	0	.267	38	62	0.4	100	6.0	7.8	< 1	< 4	23	280	68	33	460	75	170	42	27.0	3600.00	5.8	62
22419		320	58	GR/GD	3	48	.576	47.1	71	0.2	39	1.2	1.8	< 1	< 4	9	< 200	67	25	146	68	90	41	24.0	5710.00	4.1	58
22420		320	58	GR/GD	0	0	1.23	42	170	0.1	33	0.4	0.4	< 1	< 4	4	< 200	81	39	140	63	140	46	23.0	6040.00	6.8	83
22421		320	43	GR/GD	0	0	.01	3.5	21	1.6	230	3.3	0.5	< 1	2000	51	< 340	118	139	1340	394	270	390	14.0	5190.00	31.0	400
22425		320	42	GR/GD	0	0	.044	13.7	27	0.7	100	3.1	1.0	< 1	< 9	14	< 360	41	78	130	79	< 17	71	19.0	4300.00	19.0	390
22426		321	68	GR/GD	17	687	2.516	33.8	457	< 0.1	20	< 0.2	<0.1	< 1	< 4	2	< 200	17	55	102	38	450	32	17.0	6090.00	10.0	200
22427		321	51	GR/GD	8	355	.566	19.8	212	0.4	43	0.4	0.7	< 1	< 4	3	470	92	147	119	86	290	61	17.0	5630.00	6.3	59
22428		321	51	GR/GD	3	819	.762	23.5	250	0.2	24	< 0.2	0.6	< 1	< 4	2	< 200	65	29	115	80	310	54	17.0	5790.00	8.6	79
22429		321	51	GR/GD	7	282	1.292	21.4	335	0.2	28	< 0.2	0.4	< 1	< 4	2	< 200	50	106	110	74	360	52	18.0	5080.00	7.0	88
22430		321	51	GR/GD	4	397	.012	14.5	5	0.2	8	0.4	0.1	< 1	< 4	< 1	< 200	26	26	114	69	270	27	11.0	6440.00	5.9	65
22431		321	54	GR/GD	3	576	.852	20.1	283	< 0.1	23	< 0.2	0.2	< 1	< 4	3	630	48	30	119	66	360	43	20.0	7100.00	6.2	79
22432		322	11	GR/GD	0	0	.009	12.4	5	< 0.1	26	< 0.2	0.4	< 1	< 4	2	< 200	50	36	115	59	240	34	11.0	5160.00	8.6	90
22433		322	11	GR/GD	0	0	.069	15.1	26	0.1	29	0.3	0.6	< 1	< 4	< 1	< 200	43	37	113	65	210	35	11.0	4860.00	9.9	73
22434		322	11	GR/GD	5	66	.135	14.6	75	< 0.1	30	< 0.2	0.7	< 1	< 4	2	< 200	56	32	106	77	220	45	12.0	5230.00	6.9	62
22435		322	11	GR/GD	0	0	.363	8.4	259	0.1	19	< 0.2	0.6	< 1	< 4	2	630	62	31	97	81	210	45	11.0	4260.00	7.4	62
22436		322	11	GR/GD	0	0	.041	41.8	9	0.1	30	0.8	0.4	< 1	12	2	< 200	58	44	115	63	260	45	18.0	7000.00	11.0	150
22437		322	55	GR/GD	0	0	.045	24.4	13	< 0.1	< 2	< 0.3	<0.1	< 1	< 4	< 1	600	22	50	117	38	380	21	17.0	5910.00	21.0	200
22438		322	54	GR/GD	1	15	.373	17.6	127	< 0.1	< 3	< 0.3	<0.1	< 1	< 4	< 1	< 240	20	52	113	39	380	28	17.0	6360.00	< 1.6	250
22439		322	51	GR/GD	5	190	.498	29.9	89	< 0.1	18	< 0.2	0.1	< 1	< 4	2	< 200	41	34	66	30	280	23	18.0	7080.00	< 1.1	140
22442		323	21	V/S	0	0	.537	8.1	470	0.5	54	0.8	1.2	< 1	< 4	3	1100	73	48	118	75	360	38	19.0	5060.00	8.9	76
22443		323	11	V/S	0	0	.004	3.4	8	< 0.1	23	< 0.2	1.5	< 1	19	5	< 200	152	27	130	74	170	54	11.0	4650.00	9.8	49
22444		323	13	V/S	1	71	.019	15.2	5	0.1	35	0.6	0.9	< 1	14	3	< 200	113	38	110	88	160	52	14.0	7280.00	< 0.5	72
22445		323	13	V/S	6	673	.849	14	370	0.1	38	0.4	1.3	< 1	18	4	< 200	159	43	112	80	230	55	13.0	7330.00	6.3	110
22446		323	13	V/S	1	19	.146	14.3	68	0.1	24	< 0.2	0.4	< 1	17	2	< 200	66	40	109	69	180	41	15.0	8170.00	4.4	91
22447		323	10	V/S	1	9	.172	14.8	75	< 0.1	16	< 0.2	0.5	< 1	< 4	3	< 200	70	38	113	68	180	42	14.0	8080.00	5.3	89
22450		325	21	GR/GD	2	47	.196	15.6	74	0.1	33	0.6	0.4	< 1	< 4	3	< 200	57	33	126	65	250	38	13.0	4840.00	9.0	80
22451		325	11	GR/GD	1	34	.184	21.1	64	< 0.1	34	< 0.2	0.3	< 1	< 4	< 1	< 200	51	26	104	71	360	54	16.0	5280.00	11.0	95
22452		325	11	GR/GD	7	97	.143	23.2	52	0.1	36	< 0.2	0.5	< 1	< 4	1	< 200	43	24	100	93	330	54	15.0	5180.00	9.3	81
22453		325	51	GR/GD	0	0	.139	18.8	54	0.1	9	< 0.2	<0.1	< 1	< 4	< 1	< 200	26	35	118	71	420	37	15.0	4770.00	9.8	110
22454		325	52	GR/GD	1	167	.24	9	140	< 0.1	20	0.6	0.3	< 1	< 4	2	< 200	82	33	97	62	230	37	14.0	6080.00	< 0.7	88
22455		325	52	GR/GD	0	0	.332	12.6	147	< 0.1	12	< 0.2	0.1	< 1	< 4	3	< 200	58	31	105	61	300	29	12.0	6000.00	5.0	88

Appendix 2-2. Nonmagnetic HMC assay results,
in order by sample number.

Sample Number	Sample Type	Drill Hole	Drift Type	Underlying Bedrock Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm
22456		325	53	GR/GD	0	0	.01	11.7	5	< 0.1	14	0.5	0.1	< 1	< 4	2	< 200	35	37	96	54	280	29	13.0	6220.00	9.9	91
22457		325	54	GR/GD	3	123	3.071	14.8	1460	< 0.1	13	< 0.2	<0.1	< 1	< 4	2	< 200	30	39	109	51	300	29	13.0	6630.00	5.2	100
22458		326	11	VC	1	6	.006	8.9	5	< 0.1	25	< 0.2	0.4	< 1	< 4	3	< 200	59	31	111	80	340	45	15.0	4620.00	10.0	84
22462		326	11	VC	0	0	.166	12.7	83	0.1	27	< 0.2	0.4	< 1	< 4	2	< 200	57	23	109	71	300	44	14.0	4930.00	14.0	84
22463		326	11	VC	3	71	.297	20.8	113	0.1	27	< 0.2	0.3	< 1	< 4	3	< 200	38	25	117	64	360	46	17.0	5510.00	12.0	99
22464		326	55	VC	1	11	.241	23.3	66	< 0.1	9	< 0.2	<0.1	< 1	< 4	2	< 200	14	29	116	47	370	31	15.0	5040.00	11.0	100
22465		326	50	VC	0	1353	6.633	17.6	2220	0.1	12	< 0.2	0.1	< 1	9	4	< 200	27	32	107	54	360	37	16.0	4920.00	13.0	110
22466		326	49	VC	0	0	.008	7.9	7	< 0.1	< 2	1.0	0.1	< 1	< 4	3	< 200	26	44	105	47	370	27	13.0	5070.00	< 0.9	100
22469		326	44	VC	0	0	.033	4.1	68	< 0.1	9	0.8	<0.1	-2	< 4	2	< 200	10	65	14	26	420	6	2.0	70.00	5.3	22
22470		327	11	GR/GD	1	33	.272	31.6	68	0.1	35	< 0.2	0.6	< 1	24	3	< 200	62	29	103	93	260	61	15.0	4650.00	8.1	93
22471		327	11	GR/GD	0	0	.245	22.7	77	< 0.1	32	< 0.2	0.5	< 1	< 4	4	< 200	49	26	114	84	310	62	17.0	5600.00	9.4	82
22472		327	11	GR/GD	5	1107	2.119	16.3	893	2.7	47	< 0.2	0.7	< 1	13	3	< 200	78	41	97	97	280	90	19.0	6510.00	< 0.9	140
22473		327	51	GR/GD	0	0	.61	23.6	143	0.1	34	< 0.2	0.4	< 1	69	4	490	57	24	112	75	320	54	16.0	5130.00	7.0	79
22474		327	51	GR/GD	1	39	.266	28.4	97	0.2	54	< 0.2	0.7	< 1	55	5	< 200	78	27	115	78	280	68	19.0	5040.00	7.8	80
22475		327	51	GR/GD	0	0	.022	22.2	6	0.2	25	< 0.2	0.2	< 1	< 4	3	< 200	41	25	114	77	350	47	16.0	4890.00	9.7	100
22476		327	51	GR/GD	0	0	.02	21.3	7	0.1	13	< 0.2	0.2	< 1	< 4	2	< 200	39	24	115	79	390	45	18.0	4810.00	9.8	110
22477		327	51	GR/GD	3	102	.085	21	36	0.2	22	< 0.2	0.2	< 1	< 4	2	< 200	52	36	117	67	380	44	19.0	5930.00	10.0	140
22478		327	51	GR/GD	1	41	.284	17.7	128	0.2	16	< 0.2	0.2	< 1	22	3	< 200	49	39	120	67	390	49	20.0	5900.00	9.7	150
22480		327	51	GR/GD	7	1197	1.023	26.1	319	< 0.1	37	< 0.2	0.3	< 1	19	4	< 200	50	42	103	70	360	50	19.0	6540.00	9.9	160
22481		327	42	GR/GD	0	0	.023	24.9	6	2.5	13	< 0.2	<0.1	< 1	< 4	< 1	< 200	537	28	201	30	95	54	29.0	7480.00	5.8	40
22482		327	44	GR/GD	0	0	.005	5.2	5	0.6	6	0.4	<0.1	3	< 4	< 1	< 200	854	25	218	34	31	57	29.0	7220.00	5.3	11
22490		329	51	V/S	0	0	.023	18.2	7	< 0.1	53	< 0.2	0.4	< 1	< 4	4	< 200	53	32	102	74	360	67	22.0	6160.00	5.1	110
22491		329	53	V/S	4	238	1.102	25.4	432	< 0.1	25	< 0.2	0.3	< 1	< 4	3	< 200	87	25	121	51	280	54	23.0	8510.00	6.0	78
22492		329	51	V/S	0	0	.177	35.1	45	< 0.1	43	1.1	0.4	< 1	< 4	8	< 200	324	29	192	71	190	68	23.0	7180.00	6.5	70
22493		329	41	V/S	0	0	.071	4.6	88	2.2	2000	6.2	<0.1	< 1	< 4	< 1	< 200	25800	13	103	314	51	69	25.0	4803	7.2	63
22494		329	43	V/S	0	0	.038	5.6	44	0.1	250	9.9	<0.1	4	< 4	4	250	1930	8	134	95	18	410	34.0	4710.00	< 0.5	3.9
22495		329	44	V/S	0	0	.003	4.4	7	2.2	6000	1.2	<0.1	< 1	< 4	< 1	< 200	84000	29	136	415	< 10	250	24.0	9360.00	< 0.7	3.7
22496		329	41	V/S	0	0	.007	7.6	5	0.4	250	5.2	<0.1	< 1	< 4	2	320	24400	< 1	125	82	12	200	25.0	9040.00	< 0.5	2.3
22497		329	43	V/S	0	0	.03	3.6	35	1.9	1100	11.0	<0.1	< 1	17	< 1	< 200	36800	68	127	48	15	170	24.0	4590.00	< 0.5	.5
22503		331	21	GR/GD	0	0	1.324	4.6	2310	1.0	75	2.1	1.4	< 1	< 4	6	850	80	60	248	107	570	55	20.0	3680.00	22.0	130
22504		331	61	GR/GD	0	0	.016	15.1	9	0.9	45	1.5	0.9	< 1	< 4	3	< 200	57	45	176	61	520	48	19.0	4600.00	23.0	150
22505		331	61	GR/GD	1	46	.018	16.5	8	1.1	57	1.7	1.2	< 1	< 4	5	1500	56	47	125	68	440	58	20.0	4250.00	22.0	140
22506		331	60	GR/GD	1	24	.176	31.5	45	0.2	37	0.7	0.6	< 1	< 4	2	< 200	31	37	110	64	360	51	17.0	5080.00	13.0	110
22507		331	60	GR/GD	0	0	.237	28.2	69	0.2	43	< 0.2	0.5	< 1	< 4	2	< 200	32	34	108	67	370	54	17.0	4850.00	13.0	110
22509		401	11	PSA	0	0	.033	48.3	5	< 0.1	21	1.3	0.2	< 1	< 4	3	< 200	36	12	112	91	300	47	22.0	3080.00	4.3	28
22510		401	11	PSA	8	228	.39	80.6	44	0.1	21	1.2	0.3	< 1	16	3	< 200	27	14	105	88	340	50	23.0	3160.00	5.1	45
22511		401	11	PSA	1	29	.046	57	5	0.2	15	0.9	0.1	< 1	< 4	4	< 200	28	13	119	95	250	38	17.0	3130.00	3.5	23
22512		401	11	PSA	1	15	.161	54.6	21	0.4	25	1.3	0.2	< 1	13	3	< 200	31	15	102	87	280	42	21.0	3280.00	3.7	28
22513		401	11	PSA	1	36	.39	45.2	65	0.1	19	1.7	0.2	< 1	1400	5	< 200	25	21	110	73	330	86	23.0	4110.00	5.2	37
22514		401	11	PSA	3	45	.399	46.5	61	< 0.1	24	1.8	0.2	< 1	45	4	< 200	40	20	105	79	340	44	21.0	3390.00	4.3	36

Appendix 2-2. Nonmagnetic HMC assay results,
in order by sample number.

Sample Number	Sample Type	Drill Hole	Drift Type	Underlying Bedrock Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm
22515		401	11	PSA	1	34	.032	34.5	5	< 0.1	18	2.4	0.2	< 1	< 4	3	< 200	46	21	115	76	330	44	21.0	4410.00	5.2	37
22516		401	61	PSA	0	0	.305	4.8	300	11.3	24	3.8	<0.1	< 1	52	3	< 200	141	40	110	45	530	36	23.0	4030.00	16.0	140
22517		401	44	PSA	0	0	.007	11.4	5	2.0	18	0.7	0.2	< 1	1400	2	< 200	531	11	51	65	95	120	6.0	1840.00	< 0.5	13
22519		402	21	IF	0	0	.316	24.9	77	0.2	22	2.4	0.6	< 1	13	4	< 200	27	15	113	88	330	49	25.0	2740.00	4.4	40
22521		402	21	IF	0	0	.062	98.4	5	0.1	8	1.0	0.2	< 1	< 4	3	< 200	115	5	135	81	110	54	17.0	2530.00	2.6	9.8
22522		402	21	IF	0	0	.037	50.9	5	0.1	37	2.6	1.3	< 1	< 4	9	320	60	17	132	87	280	46	25.0	4250.00	4.0	31
22523		402	21	IF	0	0	.189	91.9	16	< 0.1	92	4.3	3.3	< 1	< 4	13	< 200	79	19	143	95	220	45	26.0	6260.00	4.3	19
22524		402	71	IF	0	0	.038	61.4	6	0.2	36	2.1	0.9	< 1	< 4	5	< 200	40	18	147	71	270	44	23.0	3650.00	6.2	33
22525		402	71	IF	6	59	.472	75.6	61	< 0.1	39	2.2	1.1	< 1	< 4	5	< 200	33	20	140	68	250	41	23.0	3250.00	8.1	52
22526		402	71	IF	0	0	.042	71	5	< 0.1	33	2.6	0.7	< 1	< 4	4	< 200	27	22	121	76	340	43	26.0	3520.00	7.0	50
22527		402	71	IF	0	0	.251	78.1	30	0.1	23	1.4	0.6	< 1	< 4	4	210	31	15	133	78	260	33	16.0	3150.00	< 0.5	29
22528		402	71	IF	3	388	1.136	14.4	505	0.1	140	2.3	0.9	< 1	18	16	< 200	33	18	100	76	270	38	19.0	2460.00	9.6	59
22529		402	61	IF	0	0	.037	15.5	22	0.5	77	1.4	1.6	< 1	< 4	12	< 200	51	43	185	105	140	40	22.0	2440.00	8.4	47
22530		402	61	IF	0	0	.358	24.5	72	0.6	64	2.0	1.6	< 1	< 4	6	< 200	68	32	159	79	200	54	32.0	3720.00	9.8	82
22531		402	51	IF	1	4	.325	68.3	38	0.5	48	1.6	0.6	< 1	< 4	5	< 200	57	22	137	63	110	38	28.0	3550.00	4.2	37
22532		402	68	IF	2	113	.213	27.8	50	0.4	72	1.9	1.7	8	< 4	12	< 200	51	25	178	59	180	42	32.0	3410.00	6.1	69
22533		402	51	IF	0	0	7.711	87.2	877	0.3	57	1.4	1.1	< 1	< 4	8	< 200	60	23	146	81	230	45	26.0	3670.00	5.3	37
22534		402	51	IF	1	19	.63	123.9	60	0.1	68	1.6	0.7	< 1	< 4	6	< 200	65	24	126	80	210	40	23.0	4050.00	5.4	34
22535		402	51	IF	0	0	.255	81.9	33	< 0.1	55	1.9	0.6	< 1	< 4	9	< 200	70	37	118	72	230	38	27.0	4740.00	5.7	36
22536		402	48	IF	0	0	.377	35.9	78	< 0.1	19000	3.4	0.2	< 1	< 4	3	< 200	130	5	62	56	42	210	27.0	10940	< 1.5	5.2
22537		402	42	IF	0	0	.007	2.3	9	0.1	4000	16.0	0.1	< 1	410	5	340	114	8	68	54	48	73	43.0	7850.00	4.6	20
22548		403	21	PQ	0	0	.033	54.1	5	< 0.1	14	1.5	0.2	< 1	< 4	2	< 200	26	15	130	103	320	45	20.0	2770.00	7.0	24
22549		403	11	PQ	0	0	.26	66.1	32	0.1	15	1.2	0.3	< 1	20	3	< 200	30	13	123	104	300	49	21.0	2650.00	3.2	20
22550		403	11	PQ	1	26	.553	46.9	74	0.1	19	1.9	0.4	< 1	< 4	3	< 200	35	14	130	95	350	50	23.0	2680.00	5.7	24
22551		403	14	PQ	0	0	.042	78.3	5	0.7	44	1.3	1.3	< 1	< 4	3	460	307	45	177	313	110	110	25.0	5210.00	< 0.5	15
22552		403	52	PQ	0	0	.045	62.5	5	0.3	35	1.2	1.7	< 1	14	3	< 200	252	23	157	143	110	76	23.0	4780.00	2.4	10
22553	R	307	11	GR/GD	0	0	9.734	31.1	1400	0.2	26	< 0.2	0.4	< 1	< 4	2	< 200	50	26	109	86	320	58	16.0	5960.00	6.5	91
22554	R	321	51	GR/GD	0	0	.02	32.1	6	0.2	31	< 0.2	0.3	< 1	< 4	3	< 200	45	61	105	78	340	49	17.0	4930.00	7.1	76
22555	R	322	11	GR/GD	1	1	.681	20.7	333	0.2	42	0.2	0.6	< 1	< 4	2	< 200	57	33	113	78	360	57	17.0	5050.00	12.0	93
22556	R	322	55	GR/GD	0	0	.027	17.4	11	< 0.1	12	< 0.2	<0.1	< 1	< 4	< 1	< 200	30	52	119	40	470	32	20.0	5840.00	20.0	260
22557	R	325	51	GR/GD	0	0	.243	12.3	171	< 0.1	7	0.4	<0.1	< 1	< 4	< 1	< 200	27	41	122	69	350	31	13.0	5340.00	8.0	93
22558	R	325	53	GR/GD	1	403	.01	14.6	5	0.1	15	< 0.2	<0.1	< 1	< 4	2	< 200	28	36	90	56	310	28	12.0	6000.00	6.7	86
22559	R	326	11	VC	1	29	1.016	27	296	0.2	27	0.9	0.3	< 1	< 4	< 1	360	39	26	102	70	360	46	16.0	5310.00	8.0	84
22560	R	327	51	GR/GD	0	0	.177	14.9	72	0.1	28	1.0	0.5	< 1	100	2	< 200	68	28	130	77	220	44	13.0	6140.00	7.5	64
22561	R	327	51	GR/GD	0	0	.055	12.2	28	< 0.1	13	0.5	0.2	< 1	34	2	< 200	51	37	125	65	310	35	13.0	5810.00	9.1	100
22563	R	401	11	PSA	4	122	1.654	70.7	206	< 0.1	17	1.2	0.2	< 1	< 4	< 1	< 200	26	10	107	91	230	40	18.0	3710.00	3.2	22
22564	R	402	71	IF	1	120	.159	13.5	86	0.1	96	1.4	0.9	< 1	17	12	< 200	31	22	113	79	250	37	16.0	2820.00	4.2	37
22590	ST		31		-2	0	0	14.9	5	< 5.0	< 2	0.8	<0.1	4	< 4	8	430	37	< 1	48	19	56	6	31.7	842.00		0
22591	ST		31		-2	0	0	24.9	380	< 5.0	62	2.3	0.1	4	11	37	910	91	29	174	94	200	25	6.3	1247.00		0

Appendix 2-2. Nonmagnetic HMC assay results,
in order by sample number.

Sample Number	Sample Type	Drill Hole	Drift Type	Underlying Bedrock Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm
22592	ST		31		-2	0	0	15	5	< 5.0	4	0.8	<0.1	3	< 4	6	320	36	< 1	46	18	61	8	34.2	803.00		0
22593	ST		31		-2	0	0	25.1	360	< 5.0	64	2.2	0.1	3	7	38	920	92	32	177	97	200	24	6.1	1241.00		0
22594	ST		31		-2	0	0	15	5	< 5.0	4	1.0	<0.1	4	< 4	9	320	41	< 1	50	17	58	8	32.8	852.00		0
22595	ST		31		-2	0	0	25	377	< 5.0	62	2.2	<0.1	3	10	35	880	99	33	178	94	200	24	6.1	1300.00		0

Appendix 2-3. Silt/clay assay results,
in order by sample number.

Number Sample	Type Sample	Hole Drill	Type Drift	Type Bedrock	FA-ICP Sample Wt Au Assay	-63um ppb Au	-63um ppm Ag	Clay ppm As	Clay ppm Sb	Clay ppm Se	Clay ppm Bi	Clay ppm W	Clay ppm Mo	Clay ppm Ba	Clay ppm Cu	Clay ppm Pb	Clay ppm Zn	Clay ppm Ni	Clay ppm Cr	Clay ppm Co	Clay ppm Fe	Clay ppm Mn	Clay % CO2	Clay % Al2O3	Clay % CaO	Clay % MgO	Clay % Na2O	Clay % TiO2	Clay % K2O	Clay % P2O5
22301		301	11	VU/I	30	8	<.2	2	< 1	< 1	< 2	10	< 2	559	60	10	95	160	120	23	53854	240	-1	16.79	2.24	5.73	3.19	.6	2.87	1.12
22302		301	11	VU/I	30	1	<.2	2	< 1	< 1	< 2	9	< 2	666	65	6	100	90	160	25	64102	330	-1	17.58	2.43	3.76	4.14	.67	3.15	2.29
22303		301	11	VU/I	30	1	<.2	3	< 1	< 1	< 2	8	< 2	594	63	6	92	110	130	20	60771	300	-1	16.75	2.6	4.14	4.4	.64	2.79	3.16
22304		301	68	VU/I	30	5	<.2	4	< 1	1	< 2	7	< 2	375	38	6	72	60	54	15	49952	210	-1	20	4.74	2.73	2.06	.61	2.21	2.08
22305		301	61	VU/I	30	3	<.2	3	< 1	1	4	1	< 2	292	34	6	71	95	80	15	47331	210	2.78	20.88	4.88	2.57	1.57	.62	2.09	1.92
22306		301	61	VU/I	30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	277	40	6	77	45	76	16	50273	170	-1	25.41	1.45	2.24	1.99	.63	1.85	2.69
22307		301	51	VU/I	30	3	<.2	2	< 1	< 1	< 2	1	< 2	271	43	6	74	47	80	16	57810	150	1.02	24.32	1.32	2.58	1.8	.64	1.67	1.94
22308		301	49	VU/I	30	3	<.2	1	< 1	< 1	< 2	4	< 2	137	68	< 2	56	33	110	17	69458	130	-1	15.45	4.65	7.15	3.92	.4	.78	3.14
22310		302	21	VU/I	30	2	<.2	2	< 1	< 1	< 2	< 1	< 2	541	56	8	120	57	98	21	48478	400	-1	16.34	6.78	3.88	3.01	.63	2.48	1.84
22311		302	21	VU/I	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	605	55	8	110	49	98	19	55904	290	-1	18.5	3.15	3.76	3.32	.67	2.97	1.78
22312		302	13	VU/I	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	602	57	10	120	44	100	20	54518	260	-1	17.66	2.56	3.55	4.51	.7	3.06	1.75
22313		302	11	VU/I	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	614	53	8	95	60	120	20	56897	270	-1	18.05	2.35	3.26	4.19	.71	2.95	2.82
22314		302	11	VU/I	30	2	<.2	2	< 1	< 1	< 2	25	< 2	653	70	8	86	64	140	24	56915	360	-1	17.25	2.36	3.35	3.88	.61	2.97	1.09
22315		302	11	VU/I	30	2	<.2	1	< 1	< 1	< 2	20	< 2	638	100	12	97	60	150	24	59422	350	-1	17.13	2.28	2.98	4.08	.6	3	1.89
22316		302	53	VU/I	30	2	<.2	1	< 1	< 1	< 2	2	< 2	389	31	14	96	130	430	31	81650	230	-1	17.09	1.85	6.51	2.73	.75	1.99	1.41
22319		303	21	GR/GD	30	1	<.2	4	< 1	< 1	< 2	3	< 2	472	55	10	84	30	28	10	32932	230	-1	14.52	10.99	4.11	1.55	.65	2.54	1.11
22320	ST		31		30	1	<.2	1	< 1	< 1	< 2	1	< 2	892	44	8	120	53	140	22	60276	360	-1	18.03	2.53	3.99	2.8	.84	3.22	.2
22321		303	21	GR/GD	30	5	<.2	3	< 1	< 1	< 2	< 1	< 2	570	49	10	120	45	60	17	45815	280	-1	16.81	5.04	3.48	2.89	.66	2.46	2.34
22322		303	21	GR/GD	30	1	<.2	3	< 1	< 1	< 2	< 1	< 2	539	110	8	110	47	64	19	53376	250	-1	18.3	3.43	3.57	3.1	.76	2.48	1.97
22323		303	12	GR/GD	30	2	<.2	14	< 1	< 1	< 2	13	< 2	580	70	24	120	73	130	29	85008	290	-1	18.12	1.48	3.1	4.69	.77	2.79	4.29
22324		303	51	GR/GD	30	2	<.2	7	< 1	< 1	< 2	15	< 2	947	110	20	95	41	100	25	75168	210	-1	17.81	2.17	2.9	5.13	.7	3.34	2.04
22325		303	48	GR/GD	30	1	<.2	1	< 1	< 1	< 2	8	< 2	701	34	6	200	27	46	21	39329	170	-1	20.13	2.56	1.81	5.02	.94	2.31	1.41
22326		303	43	GR/GD	30	1	<.2	< 1	< 1	< 1	< 2	1	< 2	409	25	4	150	30	72	14	35246	200	-1	20.25	2.95	1.56	5.03	.84	2.19	1.43
22328		304	21	VC	30	2	<.2	4	< 1	< 1	< 2	< 1	< 2	613	45	20	120	36	46	14	34164	320	-1	14.2	9.39	3.52	2.08	.64	2.5	1.61
22329		304	21	VC	30	5	<.2	2	< 1	< 1	< 2	1	< 2	611	35	10	93	33	72	15	38562	310	-1	14.52	10.41	4.01	2.83	.64	2.73	1.83
22331		306	21	VU/I	30	3	<.2	4	< 1	< 1	< 2	< 1	< 2	530	35	16	94	29	68	14	36483	350	-1	14.11	12.48	3.79	2.67	.63	2.44	1.95
22332		306	21	VU/I	30	1	<.2	2	< 1	< 1	< 2	2	< 2	517	37	6	92	31	78	16	39411	350	-1	14.73	10.73	4.02	2.92	.63	2.69	1.67
22333		306	61	VU/I	30	5	<.2	3	< 1	< 1	< 2	3	< 2	408	33	8	78	32	64	15	42745	270	-1	14.97	12.5	4	2.25	.61	2.49	1.76
22334		306	61	VU/I	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	466	40	12	84	31	74	17	42658	320	-1	15.73	10.59	3.73	2.53	.64	2.58	1.89
22335		306	61	VU/I	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	461	34	10	78	20	62	14	39528	290	3.66	14.2	13.36	3.82	2.33	.62	2.34	1.71
22336		306	61	VU/I	30	15	<.2	2	< 1	< 1	< 2	3	< 2	546	42	12	95	41	68	15	42834	360	-1	15.52	9.46	3.67	2.35	.62	2.63	1.06
22339		307	11	GR/GD	30	2	<.2	1	< 1	< 1	< 2	12	< 2	706	41	8	83	45	88	18	44636	230	-1	17.31	2.94	3.11	4.03	.64	3.37	1.62
22340	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	927	53	8	130	64	140	22	62101	360	-1	18.6	2.6	4.05	2.85	.87	3.32	.23
22341		307	11	GR/GD	30	2	<.2	1	< 1	< 1	< 2	1	< 2	680	30	6	76	39	94	21	38943	260	-1	15.77	3.65	2.92	4.03	.63	2.96	1.44
22342		307	11	GR/GD	30	2	<.2	1	< 1	< 1	< 2	1	< 2	687	30	6	82	25	88	17	36851	240	-1	15.89	3.69	2.78	4.29	.59	3.03	1.47
22343		307	11	GR/GD	30	1	<.2	1	< 1	< 1	< 2	15	< 2	719	27	6	80	32	86	19	35983	240	-1	16.16	3.46	2.73	4.17	.56	2.99	1.18
22344		307	11	GR/GD	30	1	<.2	1	< 1	< 1	< 2	5	< 2	687	33	8	77	37	94	17	42613	270	-1	15.84	4.42	3.1	3.77	.61	2.79	1.39
22345		307	11	GR/GD	30	1	<.2	1	< 1	< 1	< 2	1	< 2	706	43	8	90	38	94	19	43255	330	-1	15.38	5.4	3.11	3.8	.6	2.62	2.02
22346		307	11	GR/GD	30	3	<.2	2	< 1	< 1	< 2	1	< 2	606	43	6	79	42	86	18	51802	380	-1	17.19	4.98	2.98	2.99	.63	2.68	1.65
22347		307	11	GR/GD	30	2	<.2	1	< 1	< 1	< 2	< 1	< 2	648	43	8	80	20	82	19	50856	320	.88	18.03	4.22	2.97	3.27	.65	2.85	1.85

Appendix 2-3. Silt/clay assay results,
in order by sample number.

Number Sample	Type Sample	Hole Drill	Type Drift	Type Bedrock	FA-ICP Sample Wt Au Assay	-63um ppb Au	-63um ppm Ag	Clay ppm As	Clay ppm Sb	Clay ppm Se	Clay ppm Bi	Clay ppm W	Clay ppm Mo	Clay ppm Ba	Clay ppm Cu	Clay ppm Pb	Clay ppm Zn	Clay ppm Ni	Clay ppm Cr	Clay ppm Co	Clay ppm Fe	Clay ppm Mn	Clay % CO2	Clay % Al2O3	Clay % CaO	Clay % MgO	Clay % Na2O	Clay % TiO2	Clay % K2O	Clay % P2O5
22348		307	11	GR/GD	30	3	<.2	1	< 1	< 1	< 2	10	< 2	722	38	8	75	52	84	18	48855	300	-1	15.81	5	3.49	3.51	.6	2.59	1.22
22349		310	21	MS	30	2	<.2	3	< 1	< 1	< 2	< 1	< 2	536	42	10	120	48	54	14	41672	350	-1	15.43	9.49	3.78	2.67	.64	2.5	2.63
22350		310	21	MS	30	2	<.2	3	< 1	< 1	< 2	< 1	< 2	572	36	10	96	39	62	13	41350	330	-1	15.07	10.65	4.09	2.47	.62	2.65	1.64
22351		310	21	MS	30	1	<.2	3	< 1	< 1	< 2	1	< 2	620	37	8	93	51	82	14	35569	360	-1	14.18	10.22	4.08	2.47	.59	2.65	.95
22352		310	11	MS	30	3	<.2	3	< 1	< 1	< 2	< 1	< 2	916	55	6	120	110	150	28	77779	350	-1	19.98	1.91	6.23	2.27	.85	3.83	1.33
22355		311	21	GR/GD	30	2	<.2	4	< 1	< 1	< 2	< 1	< 2	496	31	8	74	17	24	8	30995	250	-1	13.43	12.26	4.08	1.56	.59	2.39	1.63
22356		311	21	GR/GD	30	1	<.2	2	< 1	< 1	< 2	1	< 2	605	44	10	100	54	74	17	43873	370	-1	15.89	8.32	4.09	2.72	.64	2.7	1.56
22357		311	11	GR/GD	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	690	45	6	130	58	96	23	52351	320	-1	17.65	3.96	3.78	3.61	.78	2.69	1.74
22358		311	11	GR/GD	30	2	<.2	1	< 1	< 1	< 2	19	< 2	660	24	4	73	42	60	17	43509	240	-1	15.57	4.49	3.5	3.92	.66	2.61	1.08
22360	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	907	54	4	120	58	120	20	61332	350	-1	18.57	2.54	4.05	2.83	.84	3.27	.2
22362		312	21	MS	30	1	<.2	3	< 1	< 1	< 2	2	< 2	572	35	14	99	26	56	14	38281	390	-1	14.13	11.2	3.94	2.72	.58	2.48	2.39
22363		312	21	MS	30	1	<.2	3	< 1	< 1	< 2	< 1	< 2	560	39	10	93	32	60	12	37896	360	-1	14.3	11.95	4.13	2.52	.58	2.55	1.81
22364		312	21	MS	30	1	<.2	3	< 1	< 1	< 2	1	< 2	577	35	10	88	29	58	12	35943	320	-1	13.84	12.24	4.22	2.29	.58	2.57	1.24
22365		312	21	MS	30	25	<.2	3	< 1	< 1	< 2	< 1	< 2	579	14	14	85	38	54	11	36094	290	-1	13.81	11.6	4.16	2.41	.58	2.61	1.37
22366		312	21	MS	30	1	<.2	3	< 1	< 1	< 2	< 1	< 2	591	24	8	91	38	56	12	39336	320	-1	14.61	9.54	4.09	2.56	.58	2.7	1.29
22367		312	15	MS	30	14	<.2	3	< 1	< 1	< 2	< 1	< 2	668	66	18	140	94	120	24	70303	250	-1	19.08	1.79	3.59	3.39	1.05	3.24	1.84
22368		312	14	MS	30	5	<.2	3	< 1	1	< 2	8	< 2	642	70	10	120	82	140	24	67699	240	-1	18.88	1.69	3.84	3.85	.92	3.44	2.21
22369		313	21	GR-VC	30	2	<.2	4	< 1	< 1	< 2	< 1	< 2	504	32	10	90	35	38	11	38410	360	-1	13.8	6.37	3.01	2.38	.52	2.24	2.31
22370		313	21	GR-VC	30	4	<.2	4	< 1	< 1	< 2	1	< 2	513	29	12	85	28	32	10	38141	360	-1	14.21	7.66	3.13	2.25	.53	2.48	2.26
22371		313	21	GR-VC	30	1	<.2	3	< 1	< 1	< 2	< 1	< 2	505	29	8	73	29	44	11	42625	330	2.93	14.55	11.04	3.94	2.45	.58	2.6	1.51
22372		313	11	GR-VC	30	3	<.2	2	< 1	< 1	< 2	1	< 2	487	60	10	94	58	92	19	58480	330	-1	16.07	5.73	4.61	3.35	.65	2.34	1.75
22373		313	11	GR-VC	30	3	<.2	1	< 1	< 1	< 2	< 1	< 2	418	53	6	94	63	98	21	61780	320	-1	16.35	4.52	4.5	3.59	.64	2.04	1.57
22374		313	11	GR-VC	30	2	<.2	< 1	< 1	< 1	< 2	17	< 2	293	64	< 2	71	47	68	24	71683	280	-1	15.49	3.92	4.3	3.89	.68	1.53	.64
22379		314	21	GR/GD	30	3	<.2	5	< 1	< 1	< 2	3	< 2	452	38	10	84	35	26	9	28143	260	-1	12.01	12.73	4.53	1.56	.54	2.35	1.23
22380	ST		32		30	1	<.2	< 1	< 1	< 1	< 2	1	< 2	17	< 1	< 2	< 1	10	< 2	< 1	317	2	-1	.51	.05	.02	.01	.02	.03	.04
22381	ST		31		30	1	<.2	< 1	< 1	< 1	< 2	1	< 2	881	49	8	110	53	110	19	59245	340	-1	17.97	2.48	3.92	2.75	.81	3.13	.19
22382	ST		31		30	1	<.2	30	< 1	< 1	< 2	17	< 2	963	87	32	160	71	82	24	60172	600	-1	12.4	5.16	4.38	1.86	.69	4.03	.32
22383		314	11	GR/GD	30	8	<.2	2	< 1	< 1	< 2	14	< 2	677	47	8	90	34	74	17	43506	320	-1	15.51	5.94	3.42	3.47	.59	2.88	1.28
22384		314	11	GR/GD	30	21	<.2	2	< 1	< 1	< 2	11	< 2	683	45	8	94	46	88	20	47204	370	-1	16.02	6	3.48	3.5	.6	2.91	1.17
22385		314	11	GR/GD	30	9	<.2	1	< 1	< 1	< 2	10	< 2	694	39	14	94	47	82	18	47861	310	-1	16.46	5	3.44	3.43	.61	3.09	1.05
22386		314	61	GR/GD	30	1	<.2	2	< 1	< 1	< 2	5	< 2	567	44	12	89	22	46	12	45362	430	3.07	15.15	7.44	3.42	2.6	.61	2.52	2.2
22387		314	58	GR/GD	30	6	<.2	2	< 1	< 1	< 2	35	< 2	686	22	8	79	11	36	26	31601	480	-1	15.86	6.33	2.3	6.16	.32	2.61	1.23
22390		315	11	VC	30	4	<.2	2	< 1	< 1	< 2	2	< 2	601	45	8	100	50	78	18	48017	400	-1	16.19	7.23	3.89	3.09	.63	2.9	1.69
22391		315	11	VC	30	1	<.2	2	< 1	< 1	< 2	7	< 2	647	39	6	78	40	64	14	41410	280	-1	15.18	5.64	3.42	3.49	.62	2.74	1.16
22392		315	11	VC	30	1	<.2	1	< 1	< 1	< 2	10	< 2	617	48	6	80	37	72	15	42247	260	-1	15.37	5	3.54	3.77	.61	2.85	1.38
22393		315	11	VC	30	1	<.2	1	< 1	< 1	< 2	14	< 2	631	60	6	82	38	76	16	38006	260	-1	14.8	4.84	3.27	3.84	.58	2.67	1.03
22394		315	11	VC	30	1	<.2	2	< 1	< 1	4	< 1	< 2	621	39	6	82	44	80	18	42554	270	-1	15.4	4.77	3.55	3.78	.59	2.85	1.18
22395		315	11	VC	30	2	<.2	2	< 1	< 1	6	< 1	< 2	615	35	4	76	48	68	17	46202	230	-1	15.91	4.26	3.57	3.67	.6	2.81	1.08
22396		315	11	VC	30	1	<.2	1	< 1	< 1	4	< 1	< 2	616	40	8	87	46	88	19	50140	380	-1	16.19	6.28	3.86	3.45	.6	2.87	1.34
22397		315	11	VC	30	1	<.2	1	< 1	< 1	2	10	< 2	583	40	8	87	45	90	19	45766	360	-1	15.48	6.06	3.56	3.33	.58	2.71	1.5

Appendix 2-3. Silt/clay assay results,
in order by sample number.

Number Sample	Type Sample	Hole Drill	Type Drift	Type Bedrock	FA-ICP Sample Wt Au Assay	-63um ppb Au	-63um ppm Ag	Clay ppm As	Clay ppm Sb	Clay ppm Se	Clay ppm Bi	Clay ppm W	Clay ppm Mo	Clay ppm Ba	Clay ppm Cu	Clay ppm Pb	Clay ppm Zn	Clay ppm Ni	Clay ppm Cr	Clay ppm Co	Clay ppm Fe	Clay ppm Mn	Clay % CO2	Clay % Al2O3	Clay % CaO	Clay % MgO	Clay % Na2O	Clay % TiO2	Clay % K2O	Clay % P2O5
22398		315	11	VC	30	1	<.2	3	< 1	< 1	< 2	8	< 2	573	49	6	87	55	110	20	54106	400	1.02	16.26	5.07	3.1	3.21	.66	2.35	1.27
22399		315	51	VC	30	2	<.2	2	< 1	< 1	< 2	15	< 2	761	55	6	100	56	130	31	56129	390	-1	15.79	3.09	3.02	4.1	.69	2.46	.97
22401		318	21	SM	30	10	<.2	2	< 1	< 1	< 2	< 1	< 2	599	39	6	90	40	82	15	42230	350	-1	15.06	9.09	4.06	2.7	.61	2.67	1.49
22402	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	909	57	6	130	64	160	24	61227	390	-1	18.64	2.57	4.03	2.83	.87	3.21	.2
22403		318	13	SM	30	5	<.2	3	< 1	< 1	< 2	< 1	< 2	650	63	14	100	55	150	22	58228	300	-1	16.73	2.67	3.73	3.63	.68	2.76	1.16
22404		318	11	SM	30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	678	37	6	90	58	130	20	52236	310	-1	16.41	3.76	3.93	3.99	.68	2.82	1.39
22405		318	14	SM	30	1	<.2	1	< 1	< 1	< 2	6	< 2	669	41	6	86	57	110	19	47899	260	-1	16.08	3.73	3.58	3.96	.64	2.61	1.32
22406		318	11	SM	30	3	<.2	1	< 1	< 1	< 2	12	< 2	681	40	8	81	58	110	21	46085	340	-1	16.11	5.38	3.54	3.74	.6	2.79	1.14
22408		319	21	GR/GD	30	3	<.2	2	< 1	1	< 2	6	< 2	520	34	8	78	36	78	13	38828	340	2.78	13.55	13.01	4.01	2.64	.55	2.35	1.67
22409		319	21	GR/GD	30	2	<.2	2	< 1	< 1	< 2	7	< 2	501	39	8	84	42	90	16	42185	370	2.63	14.13	12.65	3.97	2.9	.59	2.29	2.19
22410		319	44	GR/GD	30	34	<.2	1	< 1	< 1	< 2	26	< 2	383	57	< 2	87	120	180	30	62552	320	-1	19.78	2.15	6.02	2.96	.52	2.01	1.28
22411		319	44	GR/GD	30	3	<.2	< 1	< 1	< 1	< 2	27	< 2	418	40	< 2	73	97	110	28	54564	220	-1	24.62	.55	5.21	2.56	.56	2.87	1.19
22413		320	11	GR/GD	30	1	<.2	1	< 1	< 1	< 2	8	< 2	638	33	10	85	40	92	15	39957	370	-1	14.65	8.11	4.02	3.32	.6	2.32	1.51
22414		320	11	GR/GD	30	2	<.2	1	< 1	< 1	2	13	< 2	704	31	6	82	47	100	18	39213	330	-1	14.46	7.74	4.05	3.6	.61	2.46	1.42
22415		320	54	GR/GD	30	2	<.2	1	< 1	< 1	4	24	< 2	535	69	12	82	63	120	27	78152	140	-1	17.4	1.39	2.25	3.53	.57	2.18	1.61
22416		320	51	GR/GD	30	1	<.2	2	< 1	< 1	< 2	8	< 2	445	49	10	90	52	100	21	54029	450	1.46	19.93	6.13	3.05	2.53	.71	2.04	2.11
22417		320	50	GR/GD	30	1	<.2	1	< 1	< 1	< 2	3	< 2	504	44	6	85	53	100	20	52099	420	-1	18.89	5.96	3.02	2.34	.62	1.98	1.23
22418		320	61	GR/GD	30	2	<.2	5	< 1	< 1	< 2	14	4	393	38	8	90	49	66	17	41967	250	-1	18.25	7.98	2.28	1.87	.62	2.19	1.97
22419		320	58	GR/GD	30	2	<.2	4	< 1	< 1	< 2	16	< 2	409	44	10	74	47	86	19	51625	260	-1	21.73	4.31	2.14	1.99	.73	1.95	1.31
22420		320	58	GR/GD	30	3	<.2	3	< 1	< 1	2	11	< 2	377	42	10	67	34	80	19	55597	250	-1	22.6	3.38	2.15	2.1	.69	1.75	1.56
22421		320	43	GR/GD	30	3	<.2	< 1	< 1	< 1	< 2	15	< 2	669	70	4	350	31	110	22	55373	140	-1	23.76	.52	2.39	2.5	.24	3.74	.96
22422	ST		31		30	1	<.2	< 1	< 1	< 1	< 2	3	< 2	908	52	8	180	58	130	19	61022	380	-1	18.57	2.48	4	2.81	.84	3.35	.2
22423	ST		31		30	1	<.2	31	< 1	< 1	< 2	17	38	966	90	32	160	75	100	25	59255	640	-1	12.39	5.07	4.33	1.88	.69	4.05	.3
22424	ST		32		30	1	<.2	< 1	< 1	< 1	< 2	2	< 2	11	< 1	< 2	< 1	< 1	< 2	< 1	527	2	-1	.53	.06	.02	.02	.02	.01	.03
22425		320	42	GR/GD	30	1	<.2	< 1	< 1	< 1	< 2	19	< 2	724	20	12	140	10	50	12	27131	130	-1	24.39	.83	1.12	3.88	.38	2.93	.65
22426		321	68	GR/GD	30	19	<.2	2	< 1	< 1	< 2	< 1	< 2	584	40	122	87	35	74	15	51597	600	-1	15.19	9.04	3.84	2.32	.58	2.5	1.27
22427		321	51	GR/GD	30	2	<.2	1	< 1	< 1	< 2	< 1	< 2	616	42	8	91	41	100	19	48668	350	.43	16.63	4.47	3.37	3.39	.62	2.37	.94
22428		321	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	797	42	8	95	53	110	20	50296	430	.87	16.8	6.36	3.55	3.18	.64	2.53	1.04
22429		321	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	613	51	10	110	49	100	20	53243	380	.73	17.56	4.85	3.97	3.09	.67	2.74	1.2
22430		321	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	8	< 2	629	40	10	92	51	100	21	52554	400	1.17	16.94	5.72	3.49	3.39	.62	2.49	1.29
22431		321	54	GR/GD	30	1	<.2	1	< 1	< 1	< 2	11	< 2	607	37	10	87	35	80	19	54100	330	-1	17.09	5.06	3.35	3.27	.65	2.58	1.51
22432		322	11	GR/GD	30	2	<.2	2	< 1	< 1	< 2	28	8	694	42	16	70	31	160	20	64938	300	1.46	17.55	2.09	2.34	4.17	.5	2.7	2.08
22433		322	11	GR/GD	30	1	<.2	2	< 1	< 1	< 2	1	2	557	50	8	120	50	94	20	51702	390	-1	16.94	6.28	3.94	2.89	.65	2.6	1.26
22434		322	11	GR/GD	30	3	<.2	2	< 1	< 1	< 2	2	< 2	553	51	8	100	54	90	20	54100	390	-1	17.67	5.68	3.92	2.7	.7	2.45	1.28
22435		322	11	GR/GD	30	8	<.2	3	< 1	< 1	< 2	1	< 2	556	53	8	93	50	80	18	52031	400	1.75	16.99	5.93	4	2.58	.66	2.68	1.5
22436		322	11	GR/GD	30	2	<.2	1	< 1	< 1	< 2	8	2	551	68	14	110	58	140	29	82197	450	1.31	19.66	2.07	3.66	2.94	.67	2.45	1.32
22437		322	55	GR/GD	30	1	<.2	3	< 1	< 1	< 2	1	4	549	80	32	85	57	130	22	92360	600	-1	16.79	2.65	2.96	2.96	.62	2.27	1.58
22438		322	54	GR/GD	30	3	<.2	5	< 1	< 1	< 2	11	16	467	120	30	83	56	210	27	142943	700	-1	14.31	1.85	2.41	4.01	.58	1.75	3.8
22439		322	51	GR/GD	30	3	<.2	2	< 1	< 1	< 2	17	2	599	79	22	140	65	110	32	67956	400	-1	17.89	3.56	3.28	3.84	.79	2.37	1.44
22441	ST		31		30	1	<.2	< 1	< 1	< 1	< 2	2	< 2	882	58	6	110	62	150	23	60694	400	-1	18.08	2.46	3.91	2.8	.83	3.18	.23

Appendix 2-3. Silt/clay assay results,
in order by sample number.

Number Sample	Type Sample	Hole Drill	Type Drift	Type Bedrock	FA-ICP Sample Wt Au Assay	-63um ppb Au	-63um ppm Ag	Clay ppm As	Clay ppm Sb	Clay ppm Se	Clay ppm Bi	Clay ppm W	Clay ppm Mo	Clay ppm Ba	Clay ppm Cu	Clay ppm Pb	Clay ppm Zn	Clay ppm Ni	Clay ppm Cr	Clay ppm Co	Clay ppm Fe	Clay ppm Mn	Clay % CO2	Clay % Al2O3	Clay % CaO	Clay % MgO	Clay % Na2O	Clay % TiO2	Clay % K2O	Clay % P2O5
22442		323	21	V/S	30	1	<.2	4	< 1	< 1	< 2	3	2	537	28	8	71	26	44	10	32813	260	-1	12.26	11.04	4.29	1.73	.49	2.33	.17
22443		323	11	V/S	30	1	<.2	3	< 1	< 1	< 2	< 1	2	688	51	6	100	51	94	18	45434	370	-1	16.48	4.4	3.44	2.42	.6	2.75	.18
22444		323	13	V/S	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	682	63	6	110	59	110	22	65791	360	-1	18.81	3.47	4	2.65	.67	3.09	.76
22445		323	13	V/S	30	1	<.2	< 1	< 1	< 1	< 2	< 1	2	409	81	< 2	130	80	150	41	104161	210	-1	14.81	8.62	5.15	2.69	.94	1.15	1.08
22446		323	13	V/S	30	1	<.2	2	< 1	< 1	< 2	8	2	499	70	6	76	73	110	24	85312	520	-1	16.9	3.25	4.14	3.24	.82	2.14	1.66
22447		323	10	V/S	30	1	<.2	< 1	< 1	< 1	< 2	11	4	395	53	6	110	62	140	34	97744	660	-1	15.73	6.03	4.9	3.23	.96	1.59	1.49
22450		325	21	GR/GD	30	6	<.2	2	< 1	< 1	< 2	2	4	509	42	10	98	49	70	15	45813	470	-1	15.06	11.21	3.55	2.28	.57	2.58	1.66
22451		325	11	GR/GD	30	5	<.2	1	< 1	< 1	< 2	< 1	2	616	44	10	110	55	94	18	55008	450	-1	16.84	7.17	3.87	2.69	.67	2.78	1.36
22452		325	11	GR/GD	30	1	<.2	2	< 1	< 1	< 2	< 1	2	580	45	12	110	56	92	18	55876	460	-1	16.53	7.15	3.8	3.08	.65	2.66	2.2
22453		325	51	GR/GD	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	581	40	6	90	42	82	17	53080	400	1.32	18.09	5.98	3.36	2.58	.64	2.78	1.6
22454		325	52	GR/GD	30	1	<.2	4	< 1	< 1	< 2	10	10	540	82	12	61	47	160	19	67650	310	-1	14.85	4.02	3.95	3.92	.61	2.13	1.87
22455		325	52	GR/GD	30	2	<.2	2	< 1	< 1	< 2	11	4	550	49	8	53	23	80	14	63173	210	-1	16.65	4.16	3.75	3.82	.68	2.47	2.06
22456		325	53	GR/GD	30	1	<.2	4	< 1	< 1	< 2	16	6	579	57	12	45	37	160	15	58273	220	-1	17.24	3.14	2.75	4.09	.52	2.57	1.88
22457		325	54	GR/GD	30	9	<.2	4	< 1	< 1	< 2	10	14	613	53	10	49	34	170	13	52491	210	-1	16.44	3.22	2.6	4.1	.49	2.63	1.38
22458		326	11	VC	30	2	<.2	1	< 1	< 1	< 2	< 1	< 2	630	48	6	93	48	84	15	49399	480	-1	16.37	7.71	3.89	2.66	.65	2.66	1.61
22459	ST		32		30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	18	< 1	< 2	< 1	< 1	< 2	< 1	316	2	-1	.62	.05	.01	.01	.01	0	.02
22460	ST		31		30	1	<.2	30	< 1	< 1	< 2	15	40	995	87	34	160	76	100	23	60197	660	-1	12.23	5.17	4.25	1.88	.68	4.3	.32
22461	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	929	51	6	120	55	120	20	62239	380	-1	18.28	2.6	3.94	2.85	.84	3.52	.2
22462		326	11	VC	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	651	36	8	93	36	78	15	46790	380	-1	16.19	6.89	3.9	2.85	.62	2.85	1.24
22463		326	11	VC	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	666	36	10	95	42	78	16	43104	370	-1	14.43	6.99	3.75	3.03	.6	2.65	1.06
22464		326	55	VC	30	1	<.2	5	< 1	< 1	< 2	10	< 2	612	68	22	77	43	130	17	59699	210	-1	15.73	2.57	2.52	4.44	.52	2.63	1.99
22465		326	50	VC	30	3	<.2	7	< 1	1	< 2	8	< 2	503	81	8	93	61	110	24	64794	280	-1	19.88	2.37	6.04	2.75	.57	2.24	1.15
22466		326	49	VC	30	1	<.2	< 1	< 1	< 1	< 2	5	< 2	79	12	< 2	54	36	22	4	19480	67	-1	23.48	.33	23.53	.42	.18	.95	.4
22469		326	44	VC	30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	45	< 1	< 2	3	11	4	< 1	12312	29	-1	26.57	.12	17.64	.55	.12	.62	.62
22470		327	11	GR/GD	30	1	<.2	1	< 1	< 1	< 2	11	< 2	647	46	8	110	52	110	20	49813	350	-1	16.19	5.76	3.76	3.35	.63	3.01	.97
22471		327	11	GR/GD	30	1	<.2	2	< 1	< 1	< 2	11	< 2	652	39	8	100	55	46	18	44508	390	-1	15.48	7.65	3.92	3.4	.6	2.91	1.23
22472		327	11	GR/GD	30	1	<.2	2	< 1	< 1	< 2	11	< 2	687	49	16	120	54	52	23	56948	350	-1	16.42	5.06	4.11	3.56	.62	3.13	1.4
22473		327	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	6	< 2	612	52	8	120	49	100	22	54419	440	.88	17.01	5.2	3.65	3.23	.63	2.8	1.26
22474		327	51	GR/GD	30	2	<.2	2	< 1	< 1	< 2	10	< 2	608	55	6	110	64	100	24	58161	430	-1	17.36	5.09	3.68	3.27	.6	2.89	1.19
22475		327	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	8	< 2	618	49	8	97	52	78	20	57087	430	-1	17.51	5.36	3.54	3.19	.65	2.87	1.47
22476		327	51	GR/GD	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	637	42	6	97	30	4	17	57322	380	1.31	18.25	4.93	3.46	2.92	.67	2.83	1.52
22477		327	51	GR/GD	30	1	<.2	2	< 1	< 1	< 2	6	< 2	521	51	10	110	45	80	19	54764	400	-1	18.27	6.38	3.26	2.63	.67	2.76	1.63
22478		327	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	7	< 2	530	47	8	100	41	76	18	55722	370	2.34	18.58	6.65	3.32	2.47	.68	2.8	1.38
22479	ST		31		30	1	<.2	1	< 1	< 1	< 2	1	< 2	909	55	8	140	51	130	21	60441	410	-1	17.88	2.53	3.87	2.79	.83	3.46	.21
22480		327	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	1	< 2	544	47	8	120	53	84	20	59780	390	-1	19.84	4.87	3.07	2.49	.71	2.71	1.36
22481		327	42	GR/GD	30	3	<.2	< 1	< 1	< 1	< 2	8	< 2	129	17	< 2	83	24	46	26	81993	63	-1	30.4	.62	.69	.84	.62	.7	.82
22482		327	44	GR/GD	30	1	<.2	< 1	< 1	< 1	< 2	12	< 2	86	14	< 2	85	26	46	25	71963	37	-1	32.73	.2	.28	.65	.65	.53	.86
22490		329	51	V/S	30	1	<.2	2	< 1	< 1	< 2	9	< 2	492	52	6	120	68	100	22	62587	460	1.02	19.87	4.88	3.62	2.49	.67	2.36	1.42
22491		329	53	V/S	30	4	<.2	1	< 1	< 1	< 2	36	< 2	683	60	6	100	56	110	23	63409	360	-1	16.24	4.83	3.82	3.65	.67	2.71	1.57
22492		329	51	V/S	30	1	<.2	2	< 1	< 1	< 2	23	< 2	528	61	2	97	53	78	26	56020	340	1.03	18.02	5.91	3.21	3.3	.66	2.43	2.02

Appendix 2-3. Silt/clay assay results,
in order by sample number.

Number Sample	Type Sample	Hole Drill	Type Drift	Type Bedrock	FA-ICP Sample Wt Au Assay	-63um ppb Au	-63um ppm Ag	Clay ppm As	Clay ppm Sb	Clay ppm Se	Clay ppm Bi	Clay ppm W	Clay ppm Mo	Clay ppm Ba	Clay ppm Cu	Clay ppm Pb	Clay ppm Zn	Clay ppm Ni	Clay ppm Cr	Clay ppm Co	Clay ppm Fe	Clay ppm Mn	Clay % CO2	Clay % Al2O3	Clay % CaO	Clay % MgO	Clay % Na2O	Clay % TiO2	Clay % K2O	Clay % P2O5
22493		329	41	V/S	30	1	<.2	6	< 1	< 1	< 2	< 1	< 2	82	120	< 2	92	30	2	37	131300	130	-1	23.5	.59	1.82	1.52	1.11	.44	1.6
22494		329	43	V/S	30	19	<.2	3	< 1	< 1	< 2	< 1	< 2	107	29	< 2	100	8	6	59	147776	140	-1	15.26	1.44	3.56	2.72	1.21	1.1	3.28
22495		329	44	V/S	30	1	<.2	11	< 1	< 1	< 2	< 1	< 2	51	130	< 2	130	3	4	32	168581	250	-1	24.03	.27	1.18	.96	1.41	.14	1.23
22496		329	41	V/S	30	388	<.2	8	< 1	< 1	< 2	6	< 2	39	80	38	170	11	4	31	180804	350	-1	23.36	.14	1.23	.92	1.6	.16	.99
22497		329	43	V/S	30	3	<.2	10	< 1	< 1	< 2	< 1	< 2	110	74	< 2	77	3	16	34	163908	280	-1	16.38	1.93	3.16	2.24	1.51	.34	2.9
22499	ST		32		30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	13	< 1	< 2	< 1	< 1	< 2	< 1	280	10	-1	.61	.07	.02	.01	.07	0	.04
22500	ST		31		30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	877	55	6	140	56	150	20	61624	420	-1	18.65	2.48	3.99	2.83	.88	3.34	.18
22501	ST		31		30	1	<.2	1	< 1	< 1	< 2	1	< 2	220	35	< 2	33	8	34	3	264761	190	-1	5.42	2	2.13	.52	.2	1.36	.25
22503		331	21	GR/GD	30	1	<.2	4	< 1	< 1	< 2	< 1	4	427	27	8	84	21	24	8	29794	260	-1	11.89	12.72	4.55	1.48	.55	2.34	.71
22504		331	61	GR/GD	30	1	<.2	3	< 1	< 1	< 2	< 1	2	503	35	8	110	38	70	14	34038	380	3.95	13.24	12.57	4.03	2.36	.58	2.53	.78
22505		331	61	GR/GD	30	3	<.2	1	< 1	1	< 2	< 1	2	631	43	12	110	53	120	18	51800	350	-1	17.19	4.04	3.43	4.08	.66	3.15	1.9
22506		331	60	GR/GD	30	1	<.2	4	< 1	1	< 2	1	2	487	39	40	120	56	70	14	35586	76	-1	15.63	3.6	3.74	3.97	.63	2.48	3.21
22507		331	60	GR/GD	30	4	<.2	2	< 1	< 1	< 2	< 1	< 2	501	56	8	120	52	96	19	60702	280	-1	18.52	2.86	3.67	3.4	.69	2.76	2.07
22509		401	11	PSA	30	1	<.2	3	< 1	< 1	< 2	9	< 2	637	45	6	110	47	68	16	57874	460	-1	16.58	3.02	2.95	3.78	.78	3.11	2.27
22510		401	11	PSA	30	1	<.2	3	< 1	< 1	< 2	9	< 2	597	55	6	100	69	80	19	59161	410	-1	17.39	2.68	2.87	3.56	.81	3.17	2.02
22511		401	11	PSA	30	1	<.2	2	< 1	< 1	< 2	11	< 2	547	47	2	81	49	74	16	59155	390	-1	16.79	3.34	2.77	3.48	.79	3.01	2.2
22512		401	11	PSA	30	1	<.2	3	< 1	< 1	< 2	26	< 2	524	50	6	87	48	90	20	60021	430	-1	16.47	4.13	2.85	3.29	.75	2.82	1.88
22513		401	11	PSA	30	1	<.2	3	< 1	< 1	< 2	14	< 2	581	51	6	100	39	78	32	56555	520	-1	15.97	4.85	2.98	2.93	.74	2.81	1.48
22514		401	11	PSA	30	1	<.2	3	< 1	< 1	< 2	9	< 2	659	41	6	82	33	58	17	43902	450	-1	14.02	4.95	2.73	2.67	.73	2.72	.87
22515		401	11	PSA	30	1	<.2	4	< 1	< 1	< 2	< 1	< 2	600	44	4	97	41	68	18	50686	380	-1	15.37	4.69	2.83	2.9	.76	2.77	1.42
22516		401	61	PSA	30	5	<.2	2	< 1	< 1	< 2	< 1	< 2	367	81	12	78	40	40	15	63559	330	-1	16.44	7.1	3.1	3	.6	1.57	3.16
22517		401	44	PSA	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	237	260	< 2	55	71	50	36	84232	330	-1	15.14	6.63	7.18	2.92	.62	.45	1.65
22519		402	21	IF	30	1	<.2	5	< 1	2	< 2	< 1	< 2	557	63	4	100	52	84	18	61565	420	-1	18.38	1.08	2.86	2.47	.88	2.69	1.07
22520	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	862	51	6	130	48	140	19	60480	410	-1	18.29	2.42	3.93	2.78	.86	3.17	.18
22521		402	21	IF	30	2	<.2	4	< 1	< 1	< 2	< 1	2	552	80	6	100	66	70	18	63220	510	-1	17.08	3.78	3.81	2.52	.8	2.56	.74
22522		402	21	IF	30	3	<.2	4	< 1	< 1	< 2	< 1	< 2	549	76	12	120	54	76	22	68590	520	-1	18.02	2.59	3.64	2.53	.8	2.86	1.19
22523		402	21	IF	30	3	<.2	7	< 1	< 1	< 2	< 1	2	539	84	8	110	63	80	20	82062	470	-1	18.4	1.47	3	2.82	.72	2.86	1.4
22524		402	71	IF	30	2	<.2	5	< 1	1	< 2	< 1	2	440	46	10	92	55	48	13	49534	430	-1	16.57	6.79	3.04	2.11	.69	2.59	1.4
22525		402	71	IF	30	3	<.2	6	< 1	< 1	< 2	< 1	2	403	44	10	89	47	50	15	55029	400	-1	18.59	5.3	2.41	2.3	.71	2.51	1.96
22526		402	71	IF	30	1	<.2	5	< 1	< 1	< 2	6	< 2	469	49	12	93	43	52	16	58974	510	-1	18.02	4.48	2.58	2.75	.7	2.37	2.73
22527		402	71	IF	30	1	<.2	5	< 1	< 1	< 2	< 1	2	453	49	10	98	52	52	17	61815	470	-1	18.56	4.01	2.65	2.61	.74	2.52	1.95
22528		402	71	IF	30	1	<.2	4	< 1	< 1	< 2	< 1	< 2	450	36	14	91	40	46	14	57504	440	-1	16.72	7.17	2.97	2.36	.69	2.12	1.92
22529		402	61	IF	30	1	<.2	3	< 1	< 1	< 2	< 1	4	362	35	12	100	46	56	13	42729	290	-1	18.05	9.45	3.3	1.55	.64	2.29	1.55
22530		402	61	IF	30	1	<.2	5	< 1	< 1	< 2	< 1	< 2	284	32	8	63	35	34	13	39657	150	-1	23.21	4.12	2.43	1.65	.8	2.71	1.73
22531		402	51	IF	30	4	<.2	5	< 1	< 1	< 2	< 1	2	326	36	10	73	36	38	13	59920	180	-1	22.17	3.17	1.99	2.12	.75	2.46	2.65
22532		402	68	IF	30	4	<.2	5	< 1	< 1	< 2	7	4	320	33	22	100	43	40	15	41078	200	-1	20.19	7.53	1.95	1.77	.65	2.35	1.87
22533		402	51	IF	30	2	<.2	5	< 1	< 1	< 2	8	4	356	49	28	130	50	60	19	69790	350	-1	20.34	3.33	2.32	2.57	.71	1.98	2.96
22534		402	51	IF	30	5	<.2	5	< 1	< 1	< 2	9	2	372	57	8	110	58	86	22	78803	260	-1	20.55	1.13	2.56	2.38	.69	2.35	1.92
22535		402	51	IF	30	1	<.2	2	< 1	< 1	< 2	10	4	386	56	6	100	65	86	19	83248	280	-1	20.24	1.3	2.67	2.36	.73	2.34	1.94
22536		402	48	IF	30	1	<.2	21	< 1	< 1	< 2	< 1	2	295	22	< 2	64	17	24	12	135383	220	-1	8.72	4.68	3.99	2.76	.33	2.65	4.39

Appendix 2-3. Silt/clay assay results,
in order by sample number.

Number Sample	Type Sample	Hole Drill	Type Drift	Type Bedrock	FA-ICP Sample Wt Au Assay	-63um ppb Au	-63um ppm Ag	Clay ppm As	Clay ppm Sb	Clay ppm Se	Clay ppm Bi	Clay ppm W	Clay ppm Mo	Clay ppm Ba	Clay ppm Cu	Clay ppm Pb	Clay ppm Zn	Clay ppm Ni	Clay ppm Cr	Clay ppm Co	Clay ppm Fe	Clay ppm Mn	Clay % CO2	Clay % Al2O3	Clay % CaO	Clay % MgO	Clay % Na2O	Clay % TiO2	Clay % K2O	Clay % P2O5
22537		402	42	IF	30	1	<.2	2	< 1	< 1	< 2	3	< 2	42	11	< 2	40	0	8	12	255118	794	-1	2.65	1.68	3.61	1.78	.03	.61	3.01
22539	ST		32		30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	20	1	10	1	6	< 2	1	941	11	-1	.46	.08	.01	0	.01	0	.04
22540	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	229	36	< 2	30	5	32	3	263680	102	-1	5.14	2.01	2.1	.41	.18	1.22	.24
22541	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	2	928	61	10	150	88	170	20	64036	97	-1	18.39	2.48	3.99	2.76	.84	3.39	.18
22548		403	21	PQ	30	1	<.2	8	< 1	< 1	< 2	4	< 2	579	110	22	170	78	82	21	77513	111	-1	18.06	1.07	3.2	2.25	.83	2.82	1.34
22549		403	11	PQ	30	1	<.2	6	< 1	< 1	< 2	2	< 2	620	110	16	170	85	72	24	78411	127	-1	17.79	1.8	3.29	2.54	.87	3	1.69
22550		403	11	PQ	30	1	<.2	6	< 1	3	< 2	1	2	579	110	14	150	92	70	23	80483	115	-1	17.88	1.74	3.07	2.71	.8	3.01	2.25
22551		403	14	PQ	30	1	<.2	3	< 1	2	< 2	9	4	468	90	34	130	82	96	22	98097	101	-1	17.49	1.73	3.79	2.59	.72	2.63	1.83
22552		403	52	PQ	30	1	<.2	6	< 1	1	< 2	4	4	516	100	12	190	90	100	25	90490	115	-1	16.59	1.63	3.18	2.67	.76	2.53	2.02
22553	R	307	11	GR/GD	30	1	<.2	2	< 1	1	< 2	8	< 2	648	59	12	110	80	110	17	53470	87	-1	13.14	11.57	3.96	2.54	.54	2.53	1.54
22554	R	321	51	GR/GD	30	1	<.2	4	< 1	1	< 2	< 1	< 2	571	58	12	120	86	96	16	49077	83	-1	16.64	5.31	3.54	3.21	.63	2.96	1.3
22555	R	322	11	GR/GD	30	1	<.2	3	< 1	< 1	< 2	12	< 2	548	86	12	120	96	140	20	88678	133	-1	16.58	5.98	3.91	2.85	.63	2.71	1.92
22556	R	322	55	GR/GD	30	1	<.2	2	< 1	2	< 2	2	< 2	591	48	42	110	75	100	20	49480	80	-1	16.95	2.29	3.02	3.1	.64	2.55	1.87
22557	R	325	51	GR/GD	30	2	<.2	3	< 1	< 1	< 2	18	< 2	594	35	10	41	67	96	15	51399	60	-1	17.06	6.27	3.41	2.64	.63	2.84	1.44
22558	R	325	53	GR/GD	30	1	<.2	2	< 1	< 1	< 2	5	< 2	655	51	8	110	73	96	9	49636	82	-1	16.59	2.96	2.62	4.21	.51	2.65	1.94
22559	R	326	11	VC	30	2	<.2	2	< 1	< 1	< 2	6	< 2	608	64	10	120	80	120	16	52009	88	-1	15.64	6.57	3.98	2.92	.64	2.62	1.29
22560	R	327	51	GR/GD	30	1	<.2	2	< 1	< 1	< 2	5	< 2	522	58	10	120	81	110	21	53888	83	-1	16.99	5.08	3.62	3.01	.63	2.72	1.2
22561	R	327	51	GR/GD	30	1	<.2	1	1	< 1	< 2	2	< 2	917	57	10	130	109	150	18	60469	95	-1	18.14	6.54	3.33	2.51	.66	2.63	1.67
22562	ST		31		30	1	<.2	3	< 1	1	< 2	7	< 2	688	62	2	120	78	80	18	60048	99	-1	18.14	2.52	3.97	2.75	.83	3.47	.21
22563	R	401	11	PSA	30	1	<.2	4	< 1	< 1	< 2	3	< 2	489	48	12	96	59	50	17	58174	93	-1	17.39	2.36	3.01	3.06	.69	3.4	1.54
22564	R	402	71	IF	30	1	<.2	4	< 1	< 1	< 2	3	< 2	489	48	16	96	59	50	17	58174	93	-1	17.02	6.3	2.93	1.94	.64	2.39	1.85

Appendix 2-4. Nonmagnetic HMC assay results,
in order by drift type and underlying bedrock type.

Sample Number	Sample Type	Drill Hole	Drift Type	Underlying Bedrock Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm
22447		323	10	V/S	1	9	.172	14.8	75	< 0.1	16	< 0.2	0.5	< 1	< 4	3	< 200	70	38	113	68	180	42	14.0	8080.00	5.3	89
22372		313	11	GR-VC	0	0	.103	10.3	55	< 5.0	23	< 0.2	1.0	< 1	39	2	< 200	358	16	167	138	220	90	12.5	5100	5.8	40
22373		313	11	GR-VC	2	821	.075	9.7	50	< 5.0	18	0.4	1.3	< 1	28	< 1	260	351	9	160	129	150	110	11.6	6490	< 0.5	26
22374		313	11	GR-VC	0	0	.052	6.4	71	< 5.0	29	0.6	1.4	< 1	56	2	< 200	246	8	162	138	180	170	16.5	5390	6.3	34
22339		307	11	GR/GD	9	151	.737	24.6	250	< 8.0	24	< 0.2	0.4	< 1	22	2	< 200	61	27	109	133	340	71	18.3	11290	14.0	110
22341		307	11	GR/GD	4	244	1.627	16.3	531	< 7.0	27	< 0.2	0.4	< 1	39	2	< 200	70	25	122	123	380	69	18.4	11850	8.2	130
22342		307	11	GR/GD	2	28	.196	21.2	58	< 6.0	18	< 0.2	0.4	< 1	< 4	2	< 200	58	19	132	130	320	66	16.5	8200	7.0	90
22343		307	11	GR/GD	0	0	.019	21.4	6	< 6.0	30	< 0.2	0.4	< 1	9	2	< 200	44	17	104	110	350	61	16.9	11440	10.0	95
22344		307	11	GR/GD	7	174	.688	22	212	< 5.0	30	0.8	0.5	< 1	15	2	< 200	61	21	124	112	300	49	14.6	10070	7.9	86
22345		307	11	GR/GD	0	13	2.093	19.7	627	< 6.0	18	0.7	0.2	< 1	< 4	< 1	< 200	49	23	126	107	410	53	17.7	10340	8.1	110
22346		307	11	GR/GD	7	412	3.557	22.4	895	< 5.0	36	1.0	0.4	< 1	23	3	< 200	74	22	104	115	350	78	22.7	9160	5.5	85
22347		307	11	GR/GD	1	3	.235	17.4	77	< 7.0	31	< 0.2	0.4	< 1	< 4	3	590	65	26	128	105	390	59	21.5	9400	11.0	130
22348		307	11	GR/GD	3	148	.819	18.8	260	< 6.0	26	< 0.2	0.4	< 1	100	5	890	77	25	125	100	390	56	20.0	7420	9.2	110
22357		311	11	GR/GD	1	70	.351	28.7	100	< 7.0	29	< 0.2	0.5	< 1	< 4	2	< 200	47	26	90	93	290	61	18.4	7160	6.7	790
22358		311	11	GR/GD	5	37	.274	23.4	74	< 8.0	34	< 0.2	0.4	< 1	< 4	< 1	< 200	52	30	121	103	400	60	18.6	9760	7.2	120
22383		314	11	GR/GD	2	120	.335	29.7	103	< 7.0	22	0.6	0.5	< 1	< 4	3	< 200	58	23	141	127	390	56	16.5	7800	8.6	80
22384		314	11	GR/GD	4	145	.729	29.1	279	28.0	25	0.8	0.4	< 1	16	2	< 200	88	24	139	125	430	59	17.9	6600	10.0	90
22385		314	11	GR/GD	0	0	.226	20.5	67	< 6.0	22	< 0.2	0.3	< 1	12	< 1	< 200	69	20	149	106	470	57	17.8	9280	7.3	100
22413		320	11	GR/GD	0	0	.815	23.9	286	< 0.1	37	0.8	0.6	< 1	19	< 1	< 200	51	25	116	83	370	59	17.0	6730.00	10.0	94
22414		320	11	GR/GD	1	74	.611	20.4	176	< 0.1	48	< 0.2	0.4	< 1	< 4	2	< 200	53	26	114	79	420	66	17.0	5910.00	9.6	92
22432		322	11	GR/GD	0	0	.009	12.4	5	< 0.1	26	< 0.2	0.4	< 1	< 4	2	< 200	50	36	115	59	240	34	11.0	5160.00	8.6	90
22433		322	11	GR/GD	0	0	.069	15.1	26	0.1	29	0.3	0.6	< 1	< 4	< 1	< 200	43	37	113	65	210	35	11.0	4860.00	9.9	73
22434		322	11	GR/GD	5	66	.135	14.6	75	< 0.1	30	< 0.2	0.7	< 1	< 4	2	< 200	56	32	106	77	220	45	12.0	5230.00	6.9	62
22435		322	11	GR/GD	0	0	.363	8.4	259	0.1	19	< 0.2	0.6	< 1	< 4	2	630	62	31	97	81	210	45	11.0	4260.00	7.4	62
22436		322	11	GR/GD	0	0	.041	41.8	9	0.1	30	0.8	0.4	< 1	12	2	< 200	58	44	115	63	260	45	18.0	7000.00	11.0	150
22451		325	11	GR/GD	1	34	.184	21.1	64	< 0.1	34	< 0.2	0.3	< 1	< 4	< 1	< 200	51	26	104	71	360	54	16.0	5280.00	11.0	95
22452		325	11	GR/GD	7	97	.143	23.2	52	0.1	36	< 0.2	0.5	< 1	< 4	1	< 200	43	24	100	93	330	54	15.0	5180.00	9.3	81
22470		327	11	GR/GD	1	33	.272	31.6	68	0.1	35	< 0.2	0.6	< 1	24	3	< 200	62	29	103	93	260	61	15.0	4650.00	8.1	93
22471		327	11	GR/GD	0	0	.245	22.7	77	< 0.1	32	< 0.2	0.5	< 1	< 4	4	< 200	49	26	114	84	310	62	17.0	5600.00	9.4	82
22472		327	11	GR/GD	5	1107	2.119	16.3	893	2.7	47	< 0.2	0.7	< 1	13	3	< 200	78	41	97	97	280	90	19.0	6510.00	< 0.9	140
22553	R	307	11	GR/GD	0	0	9.734	31.1	1400	0.2	26	< 0.2	0.4	< 1	< 4	2	< 200	50	26	109	86	320	58	16.0	5960.00	6.5	91
22555	R	322	11	GR/GD	1	1	.681	20.7	333	0.2	42	0.2	0.6	< 1	< 4	2	< 200	57	33	113	78	360	57	17.0	5050.00	12.0	93
22352		310	11	MS	0	0	.11	8.5	82	< 5.0	130	10.0	0.5	5	< 4	4	< 200	1787	99	216	322	160	120	16.3	10540	4.2	60
22549		403	11	PQ	0	0	.26	66.1	32	0.1	15	1.2	0.3	< 1	20	3	< 200	30	13	123	104	300	49	21.0	2650.00	3.2	20
22550		403	11	PQ	1	26	.553	46.9	74	0.1	19	1.9	0.4	< 1	< 4	3	< 200	35	14	130	95	350	50	23.0	2680.00	5.7	24
22509		401	11	PSA	0	0	.033	48.3	5	< 0.1	21	1.3	0.2	< 1	< 4	3	< 200	36	12	112	91	300	47	22.0	3080.00	4.3	28
22510		401	11	PSA	8	228	.39	80.6	44	0.1	21	1.2	0.3	< 1	16	3	< 200	27	14	105	88	340	50	23.0	3160.00	5.1	45
22511		401	11	PSA	1	29	.046	57	5	0.2	15	0.9	0.1	< 1	< 4	4	< 200	28	13	119	95	250	38	17.0	3130.00	3.5	23
22512		401	11	PSA	1	15	.161	54.6	21	0.4	25	1.3	0.2	< 1	13	3	< 200	31	15	102	87	280	42	21.0	3280.00	3.7	28
22513		401	11	PSA	1	36	.39	45.2	65	0.1	19	1.7	0.2	< 1	1400	5	< 200	25	21	110	73	330	86	23.0	4110.00	5.2	37

Appendix 2-4. Nonmagnetic HMC assay results,
in order by drift type and underlying bedrock type.

Sample Number	Sample Type	Drill Hole	Drift Type	Underlying Bedrock Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm
22514		401	11	PSA	3	45	.399	46.5	61	< 0.1	24	1.8	0.2	< 1	45	4	< 200	40	20	105	79	340	44	21.0	3390.00	4.3	36
22515		401	11	PSA	1	34	.032	34.5	5	< 0.1	18	2.4	0.2	< 1	< 4	3	< 200	46	21	115	76	330	44	21.0	4410.00	5.2	37
22563	R	401	11	PSA	4	122	1.654	70.7	206	< 0.1	17	1.2	0.2	< 1	< 4	< 1	< 200	26	10	107	91	230	40	18.0	3710.00	3.2	22
22404		318	11	SM	7	23058	82.165	17.3	27500	1.7	21	< 0.2	0.4	< 1	< 4	< 1	< 200	61	27	110	90	370	81	17.0	6240.00	8.5	100
22406		318	11	SM	5	225	1.355	20.8	408	0.2	10	0.7	0.3	< 1	150	2	600	49	23	107	81	340	58	15.0	5780.00	8.8	75
22443		323	11	V/S	0	0	.004	3.4	8	< 0.1	23	< 0.2	1.5	< 1	19	5	< 200	152	27	130	74	170	54	11.0	4650.00	9.8	49
22390		315	11	VC	2	120	.178	15.2	86	< 5.0	26	< 0.2	0.7	< 1	44	3	< 200	97	18	113	140	230	50	11.1	8250	6.7	73
22391		315	11	VC	1	13	.179	20.6	59	2.0	33	1.0	0.6	< 1	17	14	< 200	64	57	184	97	390	71	18.0	5150	10.0	120
22392		315	11	VC	2	99	.555	25.8	134	2.0	26	0.6	0.4	< 1	< 4	2	< 200	43	41	119	88	400	64	18.0	5120.00	6.9	93
22393		315	11	VC	3	8	.134	25.9	42	2.0	31	< 0.2	0.5	< 1	< 4	2	< 200	41	39	110	87	340	59	16.0	5260.00	9.4	100
22394		315	11	VC	4	275	1.893	23.5	479	1.0	39	< 0.2	0.4	< 1	< 4	< 1	< 200	37	30	118	84	360	71	17.0	5210.00	10.0	86
22395		315	11	VC	2	37	.206	19.1	60	1.0	25	1.2	0.5	< 1	< 4	< 1	< 200	58	28	103	83	420	70	19.0	5490.00	10.0	93
22396		315	11	VC	11	373	.947	26	249	1.0	18	< 0.2	0.4	< 1	9	< 1	< 200	50	30	117	627	360	57	16.0	5040.00	9.0	87
22397		315	11	VC	8	693	2.103	25	497	< 0.1	21	0.6	0.4	< 1	< 4	2	< 200	54	59	108	80	340	54	16.0	5110.00	9.5	84
22398		315	11	VC	1	9	.441	28.3	87	0.2	14	< 0.2	0.2	< 1	< 4	3	< 200	34	34	103	63	390	47	19.0	4920.00	9.7	100
22458		326	11	VC	1	6	.006	8.9	5	< 0.1	25	< 0.2	0.4	< 1	< 4	3	< 200	59	31	111	80	340	45	15.0	4620.00	10.0	84
22462		326	11	VC	0	0	.166	12.7	83	0.1	27	< 0.2	0.4	< 1	< 4	2	< 200	57	23	109	71	300	44	14.0	4930.00	14.0	84
22463		326	11	VC	3	71	.297	20.8	113	0.1	27	< 0.2	0.3	< 1	< 4	3	< 200	38	25	117	64	360	46	17.0	5510.00	12.0	99
22559	R	326	11	VC	1	29	1.016	27	296	0.2	27	0.9	0.3	< 1	< 4	< 1	360	39	26	102	70	360	46	16.0	5310.00	8.0	84
22301		301	11	VU/I	1	21	.171	12.5	78	< 5.0	17	< 0.2	0.9	< 1	< 4	3	< 200	49	34	111	192	1600	55	11.8	12880	10.0	120
22302		301	11	VU/I	7	529	1.187	22.2	584	< 5.0	21	1.1	0.9	< 1	290	2	< 200	83	27	110	111	770	120	18.0	9200	12.0	160
22303		301	11	VU/I	1	7	.377	20.5	170	< 6.0	25	0.8	0.8	< 1	< 4	4	< 200	67	41	137	106	620	49	16.6	10440	13.0	120
22313		302	11	VU/I	4	124	.388	10.8	222	< 5.0	20	< 0.2	0.7	< 1	< 4	2	< 200	62	28	138	103	310	36	12.1	13510		0
22314		302	11	VU/I	2	249	1.162	15.6	660	< 7.0	20	< 0.2	0.5	< 1	< 4	< 1	1200	42	22	129	91	530	49	16.3	14420	8.0	110
22315		302	11	VU/I	2	198	.603	17.8	215	< 7.0	15	< 0.2	0.3	< 1	100	2	760	21	35	147	87	470	50	16.0	11990	6.9	130
22323		303	12	GR/GD	0	0	.097	4.9	121	< 6.0	< 2	< 0.2	0.2	1	< 4	2	< 200	46	19	92	50	350	29	16.7	15330	11.0	130
22403		318	13	SM	16	2745	2.168	29.8	404	0.2	36	1.0	0.6	< 1	< 4	1	< 200	88	32	118	108	390	89	19.0	6310.00	10.0	140
22444		323	13	V/S	1	71	.019	15.2	5	0.1	35	0.6	0.9	< 1	14	3	< 200	113	38	110	88	160	52	14.0	7280.00	< 0.5	72
22445		323	13	V/S	6	673	.849	14	370	0.1	38	0.4	1.3	< 1	18	4	< 200	159	43	112	80	230	55	13.0	7330.00	6.3	110
22446		323	13	V/S	1	19	.146	14.3	68	0.1	24	< 0.2	0.4	< 1	17	2	< 200	66	40	109	69	180	41	15.0	8170.00	4.4	91
22312		302	13	VU/I	5	1218	.412	15.1	224	< 8.0	20	< 0.2	0.7	0	< 4	2	< 200	65	31	136	118	390	50	17.7	15950	9.6	140
22368		312	14	MS	0	0	.168	22.3	50	< 9.0	21	0.9	0.5	< 1	< 4	< 1	< 200	160	36	134	164	360	75	19.2	9850	14.0	140
22551		403	14	PQ	0	0	.042	78.3	5	0.7	44	1.3	1.3	< 1	< 4	3	460	307	45	177	313	110	110	25.0	5210.00	< 0.5	15
22405		318	14	SM	3	45	.548	26	114	0.1	17	< 0.2	0.3	< 1	8	< 1	< 200	42	22	106	76	330	52	16.0	6390.00	5.5	88
22367		312	15	MS	0	0	.094	16.1	34	24.0	30	0.9	0.6	2	< 4	< 1	< 200	232	43	123	173	320	91	20.3	12240	13.0	160
22369		313	21	GR-VC	1	47	.239	9.8	140	< 5.0	54	2.2	1.7	< 1	< 4	7	1700	74	26	251	123	260	41	15.0	9810	8.2	62
22370		313	21	GR-VC	2	240	.123	9.9	73	< 5.0	53	2.0	2.3	< 1	< 4	4	1900	98	31	253	110	310	34	14.3	5590	11.0	90
22371		313	21	GR-VC	0	0	.169	15.3	89	< 7.0	61	1.2	0.6	< 1	< 4	4	590	107	39	149	94	460	65	21.9	8080	17.0	140
22319		303	21	GR/GD	0	0	.002	1.6	8	< 5.0	80	5.4	2.3	1	< 4	7	2000	108	152	235	120	470	46	20.5	7250	12.0	120
22321		303	21	GR/GD	1	23	.118	19.9	70	< 6.0	100	2.5	2.9	< 1	< 4	5	< 200	100	36	144	118	360	66	20.6	9180	12.0	110

Appendix 2-4. Nonmagnetic HMC assay results,
in order by drift type and underlying bedrock type.

Sample Number	Sample Type	Drill Hole	Drift Type	Underlying Bedrock Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm
22322		303	21	GR/GD	0	0	2.317	17.5	900	< 6.0	45	0.8	1.3	< 1	15	3	< 200	87	32	121	135	450	66	22.8	9680	8.0	110
22355		311	21	GR/GD	0	0	.179	3.9	353	< 5.0	110	3.2	1.8	< 1	< 4	6	3500	125	31	279	126	570	57	21.9	6050	23.0	120
22356		311	21	GR/GD	0	0	.042	12.9	19	< 5.0	29	< 0.2	0.6	< 1	< 4	5	830	142	26	171	210	220	48	12.5	6350	6.2	66
22379		314	21	GR/GD	0	0	.046	3.7	87	8.0	120	2.6	1.4	< 1	< 4	5	1200	105	35	285	130	530	60	21.5	6460	16.0	110
22408		319	21	GR/GD	0	0	.363	12.3	162	0.3	22	0.5	0.5	< 1	< 4	3	< 200	61	42	123	60	280	33	12.0	5190.00	11.0	88
22409		319	21	GR/GD	1	112	.363	13.3	145	0.3	24	0.4	0.5	< 1	< 4	3	< 200	75	46	126	62	290	34	12.0	5010.00	8.2	88
22450		325	21	GR/GD	2	47	.196	15.6	74	0.1	33	0.6	0.4	< 1	< 4	3	< 200	57	33	126	65	250	38	13.0	4840.00	9.0	80
22503		331	21	GR/GD	0	0	1.324	4.6	2310	1.0	75	2.1	1.4	< 1	< 4	6	850	80	60	248	107	570	55	20.0	3680.00	22.0	130
22519		402	21	IF	0	0	.316	24.9	77	0.2	22	2.4	0.6	< 1	13	4	< 200	27	15	113	88	330	49	25.0	2740.00	4.4	40
22521		402	21	IF	0	0	.062	98.4	5	0.1	8	1.0	0.2	< 1	< 4	3	< 200	115	5	135	81	110	54	17.0	2530.00	2.6	9.8
22522		402	21	IF	0	0	.037	50.9	5	0.1	37	2.6	1.3	< 1	< 4	9	320	60	17	132	87	280	46	25.0	4250.00	4.0	31
22523		402	21	IF	0	0	.189	91.9	16	< 0.1	92	4.3	3.3	< 1	< 4	13	< 200	79	19	143	95	220	45	26.0	6260.00	4.3	19
22349		310	21	MS	0	0	.107	6.1	102	< 5.0	43	1.3	1.2	< 1	< 4	4	< 200	94	45	174	106	290	44	14.3	10180	8.8	100
22350		310	21	MS	2	575	1.567	8	1090	< 5.0	39	< 0.2	0.8	< 1	< 4	5	< 200	94	38	208	99	280	39	13.3	9980	11.0	93
22351		310	21	MS	0	0	.03	5.8	27	< 5.0	61	< 0.2	0.6	< 1	< 4	4	< 200	92	37	157	118	260	45	12.2	7460	8.3	75
22362		312	21	MS	0	0	.052	11.2	27	< 5.0	28	< 0.2	0.6	< 1	< 4	2	790	67	52	168	94	320	34	11.8	6860	15.0	86
22363		312	21	MS	1	60	.58	7.9	575	< 5.0	47	1.3	0.5	< 1	< 4	2	< 200	65	44	160	81	330	38	12.8	8540	15.0	120
22364		312	21	MS	1	26	.183	10.4	115	< 5.0	41	0.6	0.5	< 1	< 4	3	450	93	43	157	85	290	37	12.1	7540	14.0	96
22365		312	21	MS	1	28	.008	9.7	5	< 5.0	120	0.8	0.5	< 1	< 4	2	360	84	39	155	94	300	37	12.1	7960	15.0	95
22366		312	21	MS	0	0	.071	8.6	47	< 5.0	32	< 0.2	0.5	< 1	< 4	< 1	710	89	43	146	120	290	45	13.4	10170	9.9	90
22548		403	21	PQ	0	0	.033	54.1	5	< 0.1	14	1.5	0.2	< 1	< 4	2	< 200	26	15	130	103	320	45	20.0	2770.00	7.0	24
22401		318	21	SM	5	1506	1.08	12.7	1080	0.3	19	< 0.2	0.7	< 1	11	2	< 200	92	34	121	91	280	50	12.0	5280.00	7.0	79
22442		323	21	V/S	0	0	.537	8.1	470	0.5	54	0.8	1.2	< 1	< 4	3	1100	73	48	118	75	360	38	19.0	5060.00	8.9	76
22328		304	21	VC	1	140	.66	7.2	500	< 5.0	73	3.0	2.8	1	16	12	2900	159	854	365	1	340	36	17.6	6730	8.1	60
22329		304	21	VC	0	0	.078	18.3	45	< 7.0	60	1.2	1.1	< 1	10	3	800	130	291	185	102	440	68	20.9	8300	16.0	140
22310		302	21	VU/I	0	0	.066	10.7	44	< 5.0	21	< 0.2	0.7	< 1	< 4	3	< 200	78	32	135	113	280	41	11.9	22311	8.1	85
22311		302	21	VU/I	2	552	1.047	13.1	600	< 5.0	16	< 0.2	0.7	< 1	< 4	3	< 200	59	34	120	112	270	43	11.5	15660	8.9	120
22331		306	21	VU/I	2	54	.347	16.1	160	< 7.0	46	1.4	0.7	< 1	< 4	4	< 200	68	44	145	99	380	71	25.5	7880	15.0	110
22332		306	21	VU/I	3	249	.454	11.6	230	< 5.0	27	< 0.2	0.4	< 1	< 4	4	< 200	82	45	121	76	290	32	12.6	7910	11.0	89
22590	ST		31		-2	0	0	14.9	5	< 5.0	< 2	0.8	<0.1	4	< 4	8	430	37	< 1	48	19	56	6	31.7	842.00		0
22591	ST		31		-2	0	0	24.9	380	< 5.0	62	2.3	0.1	4	11	37	910	91	29	174	94	200	25	6.3	1247.00		0
22592	ST		31		-2	0	0	15	5	< 5.0	4	0.8	<0.1	3	< 4	6	320	36	< 1	46	18	61	8	34.2	803.00		0
22593	ST		31		-2	0	0	25.1	360	< 5.0	64	2.2	0.1	3	7	38	920	92	32	177	97	200	24	6.1	1241.00		0
22594	ST		31		-2	0	0	15	5	< 5.0	4	1.0	<0.1	4	< 4	9	320	41	< 1	50	17	58	8	32.8	852.00		0
22595	ST		31		-2	0	0	25	377	< 5.0	62	2.2	<0.1	3	10	35	880	99	33	178	94	200	24	6.1	1300.00		0
22493		329	41	V/S	0	0	.071	4.6	88	2.2	2000	6.2	<0.1	< 1	< 4	< 1	< 200	25800	13	103	314	51	69	25.0	4803	7.2	63
22496		329	41	V/S	0	0	.007	7.6	5	0.4	250	5.2	<0.1	< 1	< 4	2	320	24400	< 1	125	82	12	200	25.0	9040.00	< 0.5	2.3
22425		320	42	GR/GD	0	0	.044	13.7	27	0.7	100	3.1	1.0	< 1	< 9	14	< 360	41	78	130	79	< 17	71	19.0	4300.00	19.0	390
22481		327	42	GR/GD	0	0	.023	24.9	6	2.5	13	< 0.2	<0.1	< 1	< 4	< 1	< 200	537	28	201	30	95	54	29.0	7480.00	5.8	40
22537		402	42	IF	0	0	.007	2.3	9	0.1	4000	16.0	0.1	< 1	410	5	340	114	8	68	54	48	73	43.0	7850.00	4.6	20

Appendix 2-4. Nonmagnetic HMC assay results,
in order by drift type and underlying bedrock type.

Sample Number	Sample Type	Drill Hole	Drift Type	Underlying Bedrock Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm
22326		303	43	GR/GD	0	0	.007	1.1	58	< 6.0	26	< 0.2	0.1	< 1	270	20	< 200	3900	74	158	349	820	77	16.6	5150	10.0	120
22421		320	43	GR/GD	0	0	.01	3.5	21	1.6	230	3.3	0.5	< 1	2000	51	< 340	118	139	1340	394	270	390	14.0	5190.00	31.0	400
22494		329	43	V/S	0	0	.038	5.6	44	0.1	250	9.9	<0.1	4	< 4	4	250	1930	8	134	95	18	410	34.0	4710.00	< 0.5	3.9
22497		329	43	V/S	0	0	.03	3.6	35	1.9	1100	11.0	<0.1	< 1	17	< 1	< 200	36800	68	127	48	15	170	24.0	4590.00	< 0.5	.5
22410		319	44	GR/GD	4	398	.052	11.7	35	1.3	36	0.9	3.1	< 1	< 4	2	< 200	516	21	85	112	200	100	12.0	3530.00	7.3	67
22411		319	44	GR/GD	0	0	1.059	3.2	1650	3.1	78	< 0.3	2.5	< 1	13000	9	< 230	1640	37	59	189	160	920	17.0	1780.00	16.0	120
22482		327	44	GR/GD	0	0	.005	5.2	5	0.6	6	0.4	<0.1	3	< 4	< 1	< 200	854	25	218	34	31	57	29.0	7220.00	5.3	11
22517		401	44	PSA	0	0	.007	11.4	5	2.0	18	0.7	0.2	< 1	1400	2	< 200	531	11	51	65	95	120	6.0	1840.00	< 0.5	13
22495		329	44	V/S	0	0	.003	4.4	7	2.2	6000	1.2	<0.1	< 1	< 4	< 1	< 200	84000	29	136	415	< 10	250	24.0	9360.00	< 0.7	3.7
22469		326	44	VC	0	0	.033	4.1	68	< 0.1	9	0.8	<0.1	2	< 4	2	< 200	10	65	14	26	420	6	2.0	70.00	5.3	22
22325		303	48	GR/GD	0	0	.412	11.2	257	< 5.0	20	0.5	0.4	< 1	43	6	< 200	96	39	106	96	160	35	14.4	10070	6.8	64
22536		402	48	IF	0	0	.377	35.9	78	< 0.1	19000	3.4	0.2	< 1	< 4	3	< 200	130	5	62	56	42	210	27.0	10940	< 1.5	5.2
22466		326	49	VC	0	0	.008	7.9	7	< 0.1	< 2	1.0	0.1	< 1	< 4	3	< 200	26	44	105	47	370	27	13.0	5070.00	< 0.9	100
22417		320	50	GR/GD	6	284	.591	30.7	182	0.2	30	1.0	0.2	< 1	23	4	< 200	53	46	107	59	250	48	22.0	5880.00	5.0	94
22465		326	50	VC	0	1353	6.633	17.6	2220	0.1	12	< 0.2	0.1	< 1	9	4	< 200	27	32	107	54	360	37	16.0	4920.00	13.0	110
22324		303	51	GR/GD	1	48	.118	9.8	76	< 5.0	< 2	< 0.2	0.3	< 1	< 4	2	< 200	75	30	136	95	250	33	12.0	9790	6.4	95
22416		320	51	GR/GD	6	689	1.145	18	550	0.1	45	1.2	0.5	< 1	11	3	< 200	62	36	129	72	280	57	24.0	6200.00	9.9	120
22427		321	51	GR/GD	8	355	.566	19.8	212	0.4	43	0.4	0.7	< 1	< 4	3	470	92	147	119	86	290	61	17.0	5630.00	6.3	59
22428		321	51	GR/GD	3	819	.762	23.5	250	0.2	24	< 0.2	0.6	< 1	< 4	2	< 200	65	29	115	80	310	54	17.0	5790.00	8.6	79
22429		321	51	GR/GD	7	282	1.292	21.4	335	0.2	28	< 0.2	0.4	< 1	< 4	2	< 200	50	106	110	74	360	52	18.0	5080.00	7.0	88
22430		321	51	GR/GD	4	397	.012	14.5	5	0.2	8	0.4	0.1	< 1	< 4	< 1	< 200	26	26	114	69	270	27	11.0	6440.00	5.9	65
22439		322	51	GR/GD	5	190	.498	29.9	89	< 0.1	18	< 0.2	0.1	< 1	< 4	2	< 200	41	34	66	30	280	23	18.0	7080.00	< 1.1	140
22453		325	51	GR/GD	0	0	.139	18.8	54	0.1	9	< 0.2	<0.1	< 1	< 4	< 1	< 200	26	35	118	71	420	37	15.0	4770.00	9.8	110
22473		327	51	GR/GD	0	0	.61	23.6	143	0.1	34	< 0.2	0.4	< 1	69	4	490	57	24	112	75	320	54	16.0	5130.00	7.0	79
22474		327	51	GR/GD	1	39	.266	28.4	97	0.2	54	< 0.2	0.7	< 1	55	5	< 200	78	27	115	78	280	68	19.0	5040.00	7.8	80
22475		327	51	GR/GD	0	0	.022	22.2	6	0.2	25	< 0.2	0.2	< 1	< 4	3	< 200	41	25	114	77	350	47	16.0	4890.00	9.7	100
22476		327	51	GR/GD	0	0	.02	21.3	7	0.1	13	< 0.2	0.2	< 1	< 4	2	< 200	39	24	115	79	390	45	18.0	4810.00	9.8	110
22477		327	51	GR/GD	3	102	.085	21	36	0.2	22	< 0.2	0.2	< 1	< 4	2	< 200	52	36	117	67	380	44	19.0	5930.00	10.0	140
22478		327	51	GR/GD	1	41	.284	17.7	128	0.2	16	< 0.2	0.2	< 1	22	3	< 200	49	39	120	67	390	49	20.0	5900.00	9.7	150
22480		327	51	GR/GD	7	1197	1.023	26.1	319	< 0.1	37	< 0.2	0.3	< 1	19	4	< 200	50	42	103	70	360	50	19.0	6540.00	9.9	160
22554	R	321	51	GR/GD	0	0	.02	32.1	6	0.2	31	< 0.2	0.3	< 1	< 4	3	< 200	45	61	105	78	340	49	17.0	4930.00	7.1	76
22557	R	325	51	GR/GD	0	0	.243	12.3	171	< 0.1	7	0.4	<0.1	< 1	< 4	< 1	< 200	27	41	122	69	350	31	13.0	5340.00	8.0	93
22560	R	327	51	GR/GD	0	0	.177	14.9	72	0.1	28	1.0	0.5	< 1	100	2	< 200	68	28	130	77	220	44	13.0	6140.00	7.5	64
22561	R	327	51	GR/GD	0	0	.055	12.2	28	< 0.1	13	0.5	0.2	< 1	34	2	< 200	51	37	125	65	310	35	13.0	5810.00	9.1	100
22531		402	51	IF	1	4	.325	68.3	38	0.5	48	1.6	0.6	< 1	< 4	5	< 200	57	22	137	63	110	38	28.0	3550.00	4.2	37
22533		402	51	IF	0	0	7.711	87.2	877	0.3	57	1.4	1.1	< 1	< 4	8	< 200	60	23	146	81	230	45	26.0	3670.00	5.3	37
22534		402	51	IF	1	19	.63	123.9	60	0.1	68	1.6	0.7	< 1	< 4	6	< 200	65	24	126	80	210	40	23.0	4050.00	5.4	34
22535		402	51	IF	0	0	.255	81.9	33	< 0.1	55	1.9	0.6	< 1	< 4	9	< 200	70	37	118	72	230	38	27.0	4740.00	5.7	36
22490		329	51	V/S	0	0	.023	18.2	7	< 0.1	53	< 0.2	0.4	< 1	< 4	4	< 200	53	32	102	74	360	67	22.0	6160.00	5.1	110
22492		329	51	V/S	0	0	.177	35.1	45	< 0.1	43	1.1	0.4	< 1	< 4	8	< 200	324	29	192	71	190	68	23.0	7180.00	6.5	70

Appendix 2-4. Nonmagnetic HMC assay results,
in order by drift type and underlying bedrock type.

Sample Number	Sample Type	Drill Hole	Drift Type	Underlying Bedrock Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm
22399		315	51	VC	11	346	1.126	26.9	314	< 0.1	< 2	< 0.2	0.4	< 1	1400	2	< 200	40	39	120	54	460	230	21.0	4700.00	12.0	110
22307		301	51	VU/I	1	2	.152	23.7	44	< 5.0	32	0.8	0.9	1	< 4	4	< 200	183	43	160	146	280	66	23.9	9190	8.5	90
22454		325	52	GR/GD	1	167	.24	9	140	< 0.1	20	0.6	0.3	< 1	< 4	2	< 200	82	33	97	62	230	37	14.0	6080.00	< 0.7	88
22455		325	52	GR/GD	0	0	.332	12.6	147	< 0.1	12	< 0.2	0.1	< 1	< 4	3	< 200	58	31	105	61	300	29	12.0	6000.00	5.0	88
22552		403	52	PQ	0	0	.045	62.5	5	0.3	35	1.2	1.7	< 1	14	3	< 200	252	23	157	143	110	76	23.0	4780.00	2.4	10
22456		325	53	GR/GD	0	0	.01	11.7	5	< 0.1	14	0.5	0.1	< 1	< 4	2	< 200	35	37	96	54	280	29	13.0	6220.00	9.9	91
22558	R	325	53	GR/GD	1	403	.01	14.6	5	0.1	15	< 0.2	<0.1	< 1	< 4	2	< 200	28	36	90	56	310	28	12.0	6000.00	6.7	86
22491		329	53	V/S	4	238	1.102	25.4	432	< 0.1	25	< 0.2	0.3	< 1	< 4	3	< 200	87	25	121	51	280	54	23.0	8510.00	6.0	78
22316		302	53	VU/I	3	58	3.2	13.1	1780	< 7.0	7	< 0.2	0.1	1	< 4	3	< 200	46	93	126	51	910	21	10.5	13890	8.5	130
22415		320	54	GR/GD	0	0	.055	19.4	17	< 0.1	< 3	< 0.3	<0.1	< 1	< 4	< 1	< 240	25	103	114	26	450	29	21.0	6090.00	< 1.7	420
22431		321	54	GR/GD	3	576	.852	20.1	283	< 0.1	23	< 0.2	0.2	< 1	< 4	3	630	48	30	119	66	360	43	20.0	7100.00	6.2	79
22438		322	54	GR/GD	1	15	.373	17.6	127	< 0.1	< 3	< 0.3	<0.1	< 1	< 4	< 1	< 240	20	52	113	39	380	28	17.0	6360.00	< 1.6	250
22457		325	54	GR/GD	3	123	3.071	14.8	1460	< 0.1	13	< 0.2	<0.1	< 1	< 4	2	< 200	30	39	109	51	300	29	13.0	6630.00	5.2	100
22437		322	55	GR/GD	0	0	.045	24.4	13	< 0.1	< 2	< 0.3	<0.1	< 1	< 4	< 1	600	22	50	117	38	380	21	17.0	5910.00	21.0	200
22556	R	322	55	GR/GD	0	0	.027	17.4	11	< 0.1	12	< 0.2	<0.1	< 1	< 4	< 1	< 200	30	52	119	40	470	32	20.0	5840.00	20.0	260
22464		326	55	VC	1	11	.241	23.3	66	< 0.1	9	< 0.2	<0.1	< 1	< 4	2	< 200	14	29	116	47	370	31	15.0	5040.00	11.0	100
22387		314	58	GR/GD	0	0	.016	12	8	< 5.0	15	0.7	0.4	< 1	400	5	< 200	52	16	121	82	160	100	12.6	5100	< 0.8	39
22419		320	58	GR/GD	3	48	.576	47.1	71	0.2	39	1.2	1.8	< 1	< 4	9	< 200	67	25	146	68	90	41	24.0	5710.00	4.1	58
22420		320	58	GR/GD	0	0	1.23	42	170	0.1	33	0.4	0.4	< 1	< 4	4	< 200	81	39	140	63	140	46	23.0	6040.00	6.8	83
22506		331	60	GR/GD	1	24	.176	31.5	45	0.2	37	0.7	0.6	< 1	< 4	2	< 200	31	37	110	64	360	51	17.0	5080.00	13.0	110
22507		331	60	GR/GD	0	0	.237	28.2	69	0.2	43	< 0.2	0.5	< 1	< 4	2	< 200	32	34	108	67	370	54	17.0	4850.00	13.0	110
22386		314	61	GR/GD	0	0	.007	9.3	5	< 5.0	8	< 0.2	0.2	< 1	330	3	< 200	49	17	128	81	370	41	11.0	8070	8.4	80
22418		320	61	GR/GD	0	0	.267	38	62	0.4	100	6.0	7.8	< 1	< 4	23	280	68	33	460	75	170	42	27.0	3600.00	5.8	62
22504		331	61	GR/GD	0	0	.016	15.1	9	0.9	45	1.5	0.9	< 1	< 4	3	< 200	57	45	176	61	520	48	19.0	4600.00	23.0	150
22505		331	61	GR/GD	1	46	.018	16.5	8	1.1	57	1.7	1.2	< 1	< 4	5	1500	56	47	125	68	440	58	20.0	4250.00	22.0	140
22529		402	61	IF	0	0	.037	15.5	22	0.5	77	1.4	1.6	< 1	< 4	12	< 200	51	43	185	105	140	40	22.0	2440.00	8.4	47
22530		402	61	IF	0	0	.358	24.5	72	0.6	64	2.0	1.6	< 1	< 4	6	< 200	68	32	159	79	200	54	32.0	3720.00	9.8	82
22516		401	61	PSA	0	0	.305	4.8	300	11.3	24	3.8	<0.1	< 1	52	3	< 200	141	40	110	45	530	36	23.0	4030.00	16.0	140
22305		301	61	VU/I	1	3	.099	18	45	< 6.0	64	2.8	2.8	< 1	< 4	18	< 200	109	43	342	163	650	54	25.7	7750	16.0	130
22306		301	61	VU/I	7	61	.479	21.5	136	< 6.0	35	1.3	0.7	< 1	< 4	4	< 200	131	61	147	132	280	67	24.2	8450	10.0	110
22333		306	61	VU/I	1	21	.249	21.7	92	< 9.0	45	< 0.2	0.4	< 1	< 4	3	720	64	178	175	80	530	51	19.7	8910	11.0	140
22334		306	61	VU/I	0	0	.007	6.7	6	< 5.0	38	< 0.2	0.2	< 1	< 4	5	3200	68	662	210	76	350	28	13.1	6080	10.0	91
22335		306	61	VU/I	1	18	.1	7.1	72	< 5.0	40	< 0.2	0.6	< 1	< 4	7	1100	92	346	145	75	390	27	13.0	9200	14.0	120
22336		306	61	VU/I	1	16	.04	8.1	26	< 5.0	16	1.0	0.3	< 1	< 4	8	< 200	51	695	137	72	410	26	12.1	9030	15.0	110
22426		321	68	GR/GD	17	687	2.516	33.8	457	< 0.1	20	< 0.2	<0.1	< 1	< 4	2	< 200	17	55	102	38	450	32	17.0	6090.00	10.0	200
22532		402	68	IF	2	113	.213	27.8	50	0.4	72	1.9	1.7	8	< 4	12	< 200	51	25	178	59	180	42	32.0	3410.00	6.1	69
22304		301	68	VU/I	7	156	.743	30	223	< 5.0	54	1.9	3.1	< 1	< 4	16	< 200	92	32	348	147	270	42	21.4	7440	10.0	92
22524		402	71	IF	0	0	.038	61.4	6	0.2	36	2.1	0.9	< 1	< 4	5	< 200	40	18	147	71	270	44	23.0	3650.00	6.2	33
22525		402	71	IF	6	59	.472	75.6	61	< 0.1	39	2.2	1.1	< 1	< 4	5	< 200	33	20	140	68	250	41	23.0	3250.00	8.1	52

Appendix 2-4. Nonmagnetic HMC assay results,
in order by drift type and underlying bedrock type.

Sample Number	Sample Type	Drill Hole	Drift Type	Underlying Bedrock Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe %	Mn ppm	U ppm	Th ppm
22526		402	71	IF	0	0	.042	71	5	< 0.1	33	2.6	0.7	< 1	< 4	4	< 200	27	22	121	76	340	43	26.0	3520.00	7.0	50
22527		402	71	IF	0	0	.251	78.1	30	0.1	23	1.4	0.6	< 1	< 4	4	210	31	15	133	78	260	33	16.0	3150.00	< 0.5	29
22528		402	71	IF	3	388	1.136	14.4	505	0.1	140	2.3	0.9	< 1	18	16	< 200	33	18	100	76	270	38	19.0	2460.00	9.6	59
22564	R	402	71	IF	1	120	.159	13.5	86	0.1	96	1.4	0.9	< 1	17	12	< 200	31	22	113	79	250	37	16.0	2820.00	4.2	37

Appendix 2-5. Silt/clay assay results,
in order by drift type and underlying bedrock type.

Number Sample	Type Sample	Hole Drill	Type Drift	Type Bedrock	FA-ICP Sample Wt Au Assay	-63um ppb Au	-63um ppm Ag	Clay ppm As	Clay ppm Sb	Clay ppm Se	Clay ppm Bi	Clay ppm W	Clay ppm Mo	Clay ppm Ba	Clay ppm Cu	Clay ppm Pb	Clay ppm Zn	Clay ppm Ni	Clay ppm Cr	Clay ppm Co	Clay ppm Fe	Clay ppm Mn	Clay % CO2	Clay % Al2O3	Clay % CaO	Clay % MgO	Clay % Na2O	Clay % TiO2	Clay % K2O	Clay % P2O5
22447		323	10	V/S	30	1	<.2	< 1	< 1	< 1	< 2	11	4	395	53	6	110	62	140	34	97744	660	-1	15.73	6.03	4.9	3.23	.96	1.59	1.49
22372		313	11	GR-VC	30	3	<.2	2	< 1	< 1	< 2	1	< 2	487	60	10	94	58	92	19	58480	330	-1	16.07	5.73	4.61	3.35	.65	2.34	1.75
22373		313	11	GR-VC	30	3	<.2	1	< 1	< 1	< 2	< 1	< 2	418	53	6	94	63	98	21	61780	320	-1	16.35	4.52	4.5	3.59	.64	2.04	1.57
22374		313	11	GR-VC	30	2	<.2	< 1	< 1	< 1	< 2	17	< 2	293	64	< 2	71	47	68	24	71683	280	-1	15.49	3.92	4.3	3.89	.68	1.53	.64
22339		307	11	GR/GD	30	2	<.2	1	< 1	< 1	< 2	12	< 2	706	41	8	83	45	88	18	44636	230	-1	17.31	2.94	3.11	4.03	.64	3.37	1.62
22341		307	11	GR/GD	30	2	<.2	1	< 1	< 1	< 2	1	< 2	680	30	6	76	39	94	21	38943	260	-1	15.77	3.65	2.92	4.03	.63	2.96	1.44
22342		307	11	GR/GD	30	2	<.2	1	< 1	< 1	< 2	1	< 2	687	30	6	82	25	88	17	36851	240	-1	15.89	3.69	2.78	4.29	.59	3.03	1.47
22343		307	11	GR/GD	30	1	<.2	1	< 1	< 1	< 2	15	< 2	719	27	6	80	32	86	19	35983	240	-1	16.16	3.46	2.73	4.17	.56	2.99	1.18
22344		307	11	GR/GD	30	1	<.2	1	< 1	< 1	< 2	5	< 2	687	33	8	77	37	94	17	42613	270	-1	15.84	4.42	3.1	3.77	.61	2.79	1.39
22345		307	11	GR/GD	30	1	<.2	1	< 1	< 1	< 2	1	< 2	706	43	8	90	38	94	19	43255	330	-1	15.38	5.4	3.11	3.8	.6	2.62	2.02
22346		307	11	GR/GD	30	3	<.2	2	< 1	< 1	< 2	1	< 2	606	43	6	79	42	86	18	51802	380	-1	17.19	4.98	2.98	2.99	.63	2.68	1.65
22347		307	11	GR/GD	30	2	<.2	1	< 1	< 1	< 2	< 1	< 2	648	43	8	80	20	82	19	50856	320	.88	18.03	4.22	2.97	3.27	.65	2.85	1.85
22348		307	11	GR/GD	30	3	<.2	1	< 1	< 1	< 2	10	< 2	722	38	8	75	52	84	18	48855	300	-1	15.81	5	3.49	3.51	.6	2.59	1.22
22357		311	11	GR/GD	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	690	45	6	130	58	96	23	52351	320	-1	17.65	3.96	3.78	3.61	.78	2.69	1.74
22358		311	11	GR/GD	30	2	<.2	1	< 1	< 1	< 2	19	< 2	660	24	4	73	42	60	17	43509	240	-1	15.57	4.49	3.5	3.92	.66	2.61	1.08
22383		314	11	GR/GD	30	8	<.2	2	< 1	< 1	< 2	14	< 2	677	47	8	90	34	74	17	43506	320	-1	15.51	5.94	3.42	3.47	.59	2.88	1.28
22384		314	11	GR/GD	30	21	<.2	2	< 1	< 1	< 2	11	< 2	683	45	8	94	46	88	20	47204	370	-1	16.02	6	3.48	3.5	.6	2.91	1.17
22385		314	11	GR/GD	30	9	<.2	1	< 1	< 1	< 2	10	< 2	694	39	14	94	47	82	18	47861	310	-1	16.46	5	3.44	3.43	.61	3.09	1.05
22413		320	11	GR/GD	30	1	<.2	1	< 1	< 1	< 2	8	< 2	638	33	10	85	40	92	15	39957	370	-1	14.65	8.11	4.02	3.32	.6	2.32	1.51
22414		320	11	GR/GD	30	2	<.2	1	< 1	< 1	2	13	< 2	704	31	6	82	47	100	18	39213	330	-1	14.46	7.74	4.05	3.6	.61	2.46	1.42
22432		322	11	GR/GD	30	2	<.2	2	< 1	< 1	< 2	28	8	694	42	16	70	31	160	20	64938	300	1.46	17.55	2.09	2.34	4.17	.5	2.7	2.08
22433		322	11	GR/GD	30	1	<.2	2	< 1	< 1	< 2	1	2	557	50	8	120	50	94	20	51702	390	-1	16.94	6.28	3.94	2.89	.65	2.6	1.26
22434		322	11	GR/GD	30	3	<.2	2	< 1	< 1	< 2	2	< 2	553	51	8	100	54	90	20	54100	390	-1	17.67	5.68	3.92	2.7	.7	2.45	1.28
22435		322	11	GR/GD	30	8	<.2	3	< 1	< 1	< 2	1	< 2	556	53	8	93	50	80	18	52031	400	1.75	16.99	5.93	4	2.58	.66	2.68	1.5
22436		322	11	GR/GD	30	2	<.2	1	< 1	< 1	< 2	8	2	551	68	14	110	58	140	29	82197	450	1.31	19.66	2.07	3.66	2.94	.67	2.45	1.32
22451		325	11	GR/GD	30	5	<.2	1	< 1	< 1	< 2	< 1	2	616	44	10	110	55	94	18	55008	450	-1	16.84	7.17	3.87	2.69	.67	2.78	1.36
22452		325	11	GR/GD	30	1	<.2	2	< 1	< 1	< 2	< 1	2	580	45	12	110	56	92	18	55876	460	-1	16.53	7.15	3.8	3.08	.65	2.66	2.2
22470		327	11	GR/GD	30	1	<.2	1	< 1	< 1	< 2	11	< 2	647	46	8	110	52	110	20	49813	350	-1	16.19	5.76	3.76	3.35	.63	3.01	.97
22471		327	11	GR/GD	30	1	<.2	2	< 1	< 1	< 2	11	< 2	652	39	8	100	55	46	18	44508	390	-1	15.48	7.65	3.92	3.4	.6	2.91	1.23
22472		327	11	GR/GD	30	1	<.2	2	< 1	< 1	< 2	11	< 2	687	49	16	120	54	52	23	56948	350	-1	16.42	5.06	4.11	3.56	.62	3.13	1.4
22553	R	307	11	GR/GD	30	1	<.2	2	< 1	1	< 2	8	< 2	648	59	12	110	80	110	17	53470	87	-1	13.14	11.57	3.96	2.54	.54	2.53	1.54
22555	R	322	11	GR/GD	30	1	<.2	3	< 1	< 1	< 2	12	< 2	548	86	12	120	96	140	20	88678	133	-1	16.58	5.98	3.91	2.85	.63	2.71	1.92
22352		310	11	MS	30	3	<.2	3	< 1	< 1	< 2	< 1	< 2	916	55	6	120	110	150	28	77779	350	-1	19.98	1.91	6.23	2.27	.85	3.83	1.33
22549		403	11	PQ	30	1	<.2	6	< 1	< 1	< 2	2	< 2	620	110	16	170	85	72	24	78411	127	-1	17.79	1.8	3.29	2.54	.87	3	1.69
22550		403	11	PQ	30	1	<.2	6	< 1	3	< 2	1	2	579	110	14	150	92	70	23	80483	115	-1	17.88	1.74	3.07	2.71	.8	3.01	2.25
22509		401	11	PSA	30	1	<.2	3	< 1	< 1	< 2	9	< 2	637	45	6	110	47	68	16	57874	460	-1	16.58	3.02	2.95	3.78	.78	3.11	2.27
22510		401	11	PSA	30	1	<.2	3	< 1	< 1	< 2	9	< 2	597	55	6	100	69	80	19	59161	410	-1	17.39	2.68	2.87	3.56	.81	3.17	2.02
22511		401	11	PSA	30	1	<.2	2	< 1	< 1	< 2	11	< 2	547	47	2	81	49	74	16	59155	390	-1	16.79	3.34	2.77	3.48	.79	3.01	2.2
22512		401	11	PSA	30	1	<.2	3	< 1	< 1	< 2	26	< 2	524	50	6	87	48	90	20	60021	430	-1	16.47	4.13	2.85	3.29	.75	2.82	1.88
22513		401	11	PSA	30	1	<.2	3	< 1	< 1	< 2	14	< 2	581	51	6	100	39	78	32	56555	520	-1	15.97	4.85	2.98	2.93	.74	2.81	1.48

Appendix 2-5. Silt/clay assay results,
in order by drift type and underlying bedrock type.

Number Sample	Type Sample	Hole Drill	Type Drift	Type Bedrock	FA-ICP Sample Wt Au Assay	-63um ppb Au	-63um ppm Ag	Clay ppm As	Clay ppm Sb	Clay ppm Se	Clay ppm Bi	Clay ppm W	Clay ppm Mo	Clay ppm Ba	Clay ppm Cu	Clay ppm Pb	Clay ppm Zn	Clay ppm Ni	Clay ppm Cr	Clay ppm Co	Clay ppm Fe	Clay ppm Mn	Clay % CO2	Clay % Al2O3	Clay % CaO	Clay % MgO	Clay % Na2O	Clay % TiO2	Clay % K2O	Clay % P2O5
22514		401	11	PSA	30	1	<.2	3	< 1	< 1	< 2	9	< 2	659	41	6	82	33	58	17	43902	450	-1	14.02	4.95	2.73	2.67	.73	2.72	.87
22515		401	11	PSA	30	1	<.2	4	< 1	< 1	< 2	< 1	< 2	600	44	4	97	41	68	18	50686	380	-1	15.37	4.69	2.83	2.9	.76	2.77	1.42
22563	R	401	11	PSA	30	1	<.2	4	< 1	< 1	< 2	3	< 2	489	48	12	96	59	50	17	58174	93	-1	17.39	2.36	3.01	3.06	.69	3.4	1.54
22404		318	11	SM	30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	678	37	6	90	58	130	20	52236	310	-1	16.41	3.76	3.93	3.99	.68	2.82	1.39
22406		318	11	SM	30	3	<.2	1	< 1	< 1	< 2	12	< 2	681	40	8	81	58	110	21	46085	340	-1	16.11	5.38	3.54	3.74	.6	2.79	1.14
22443		323	11	V/S	30	1	<.2	3	< 1	< 1	< 2	< 1	2	688	51	6	100	51	94	18	45434	370	-1	16.48	4.4	3.44	2.42	.6	2.75	.18
22390		315	11	VC	30	4	<.2	2	< 1	< 1	< 2	2	< 2	601	45	8	100	50	78	18	48017	400	-1	16.19	7.23	3.89	3.09	.63	2.9	1.69
22391		315	11	VC	30	1	<.2	2	< 1	< 1	< 2	7	< 2	647	39	6	78	40	64	14	41410	280	-1	15.18	5.64	3.42	3.49	.62	2.74	1.16
22392		315	11	VC	30	1	<.2	1	< 1	< 1	< 2	10	< 2	617	48	6	80	37	72	15	42247	260	-1	15.37	5	3.54	3.77	.61	2.85	1.38
22393		315	11	VC	30	1	<.2	1	< 1	< 1	< 2	14	< 2	631	60	6	82	38	76	16	38006	260	-1	14.8	4.84	3.27	3.84	.58	2.67	1.03
22394		315	11	VC	30	1	<.2	2	< 1	< 1	4	< 1	< 2	621	39	6	82	44	80	18	42554	270	-1	15.4	4.77	3.55	3.78	.59	2.85	1.18
22395		315	11	VC	30	2	<.2	2	< 1	< 1	6	< 1	< 2	615	35	4	76	48	68	17	46202	230	-1	15.91	4.26	3.57	3.67	.6	2.81	1.08
22396		315	11	VC	30	1	<.2	1	< 1	< 1	4	< 1	< 2	616	40	8	87	46	88	19	50140	380	-1	16.19	6.28	3.86	3.45	.6	2.87	1.34
22397		315	11	VC	30	1	<.2	1	< 1	< 1	2	10	< 2	583	40	8	87	45	90	19	45766	360	-1	15.48	6.06	3.56	3.33	.58	2.71	1.5
22398		315	11	VC	30	1	<.2	3	< 1	< 1	< 2	8	< 2	573	49	6	87	55	110	20	54106	400	1.02	16.26	5.07	3.1	3.21	.66	2.35	1.27
22458		326	11	VC	30	2	<.2	1	< 1	< 1	< 2	< 1	< 2	630	48	6	93	48	84	15	49399	480	-1	16.37	7.71	3.89	2.66	.65	2.66	1.61
22462		326	11	VC	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	651	36	8	93	36	78	15	46790	380	-1	16.19	6.89	3.9	2.85	.62	2.85	1.24
22463		326	11	VC	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	666	36	10	95	42	78	16	43104	370	-1	14.43	6.99	3.75	3.03	.6	2.65	1.06
22559	R	326	11	VC	30	2	<.2	2	< 1	< 1	< 2	6	< 2	608	64	10	120	80	120	16	52009	88	-1	15.64	6.57	3.98	2.92	.64	2.62	1.29
22301		301	11	VU/I	30	8	<.2	2	< 1	< 1	< 2	10	< 2	559	60	10	95	160	120	23	53854	240	-1	16.79	2.24	5.73	3.19	.6	2.87	1.12
22302		301	11	VU/I	30	1	<.2	2	< 1	< 1	< 2	9	< 2	666	65	6	100	90	160	25	64102	330	-1	17.58	2.43	3.76	4.14	.67	3.15	2.29
22303		301	11	VU/I	30	1	<.2	3	< 1	< 1	< 2	8	< 2	594	63	6	92	110	130	20	60771	300	-1	16.75	2.6	4.14	4.4	.64	2.79	3.16
22313		302	11	VU/I	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	614	53	8	95	60	120	20	56897	270	-1	18.05	2.35	3.26	4.19	.71	2.95	2.82
22314		302	11	VU/I	30	2	<.2	2	< 1	< 1	< 2	25	< 2	653	70	8	86	64	140	24	56915	360	-1	17.25	2.36	3.35	3.88	.61	2.97	1.09
22315		302	11	VU/I	30	2	<.2	1	< 1	< 1	< 2	20	< 2	638	100	12	97	60	150	24	59422	350	-1	17.13	2.28	2.98	4.08	.6	3	1.89
22323		303	12	GR/GD	30	2	<.2	14	< 1	< 1	< 2	13	< 2	580	70	24	120	73	130	29	85008	290	-1	18.12	1.48	3.1	4.69	.77	2.79	4.29
22403		318	13	SM	30	5	<.2	3	< 1	< 1	< 2	< 1	< 2	650	63	14	100	55	150	22	58228	300	-1	16.73	2.67	3.73	3.63	.68	2.76	1.16
22444		323	13	V/S	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	682	63	6	110	59	110	22	65791	360	-1	18.81	3.47	4	2.65	.67	3.09	.76
22445		323	13	V/S	30	1	<.2	< 1	< 1	< 1	< 2	< 1	2	409	81	< 2	130	80	150	41	104161	210	-1	14.81	8.62	5.15	2.69	.94	1.15	1.08
22446		323	13	V/S	30	1	<.2	2	< 1	< 1	< 2	8	2	499	70	6	76	73	110	24	85312	520	-1	16.9	3.25	4.14	3.24	.82	2.14	1.66
22312		302	13	VU/I	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	602	57	10	120	44	100	20	54518	260	-1	17.66	2.56	3.55	4.51	.7	3.06	1.75
22368		312	14	MS	30	5	<.2	3	< 1	1	< 2	8	< 2	642	70	10	120	82	140	24	67699	240	-1	18.88	1.69	3.84	3.85	.92	3.44	2.21
22551		403	14	PQ	30	1	<.2	3	< 1	2	< 2	9	4	468	90	34	130	82	96	22	98097	101	-1	17.49	1.73	3.79	2.59	.72	2.63	1.83
22405		318	14	SM	30	1	<.2	1	< 1	< 1	< 2	6	< 2	669	41	6	86	57	110	19	47899	260	-1	16.08	3.73	3.58	3.96	.64	2.61	1.32
22367		312	15	MS	30	14	<.2	3	< 1	< 1	< 2	< 1	< 2	668	66	18	140	94	120	24	70303	250	-1	19.08	1.79	3.59	3.39	1.05	3.24	1.84
22369		313	21	GR-VC	30	2	<.2	4	< 1	< 1	< 2	< 1	< 2	504	32	10	90	35	38	11	38410	360	-1	13.8	6.37	3.01	2.38	.52	2.24	2.31
22370		313	21	GR-VC	30	4	<.2	4	< 1	< 1	< 2	1	< 2	513	29	12	85	28	32	10	38141	360	-1	14.21	7.66	3.13	2.25	.53	2.48	2.26
22371		313	21	GR-VC	30	1	<.2	3	< 1	< 1	< 2	< 1	< 2	505	29	8	73	29	44	11	42625	330	2.93	14.55	11.04	3.94	2.45	.58	2.6	1.51
22319		303	21	GR/GD	30	1	<.2	4	< 1	< 1	< 2	3	< 2	472	55	10	84	30	28	10	32932	230	-1	14.52	10.99	4.11	1.55	.65	2.54	1.11
22321		303	21	GR/GD	30	5	<.2	3	< 1	< 1	< 2	< 1	< 2	570	49	10	120	45	60	17	45815	280	-1	16.81	5.04	3.48	2.89	.66	2.46	2.34

Appendix 2-5. Silt/clay assay results,
in order by drift type and underlying bedrock type.

Number Sample	Type Sample	Hole Drill	Type Drift	Type Bedrock	FA-ICP Sample Wt Au Assay	-63um ppb Au	-63um ppm Ag	Clay ppm As	Clay ppm Sb	Clay ppm Se	Clay ppm Bi	Clay ppm W	Clay ppm Mo	Clay ppm Ba	Clay ppm Cu	Clay ppm Pb	Clay ppm Zn	Clay ppm Ni	Clay ppm Cr	Clay ppm Co	Clay ppm Fe	Clay ppm Mn	Clay % CO2	Clay % Al2O3	Clay % CaO	Clay % MgO	Clay % Na2O	Clay % TiO2	Clay % K2O	Clay % P2O5
22322		303	21	GR/GD	30	1	<.2	3	< 1	< 1	< 2	< 1	< 2	539	110	8	110	47	64	19	53376	250	-1	18.3	3.43	3.57	3.1	.76	2.48	1.97
22355		311	21	GR/GD	30	2	<.2	4	< 1	< 1	< 2	< 1	< 2	496	31	8	74	17	24	8	30995	250	-1	13.43	12.26	4.08	1.56	.59	2.39	1.63
22356		311	21	GR/GD	30	1	<.2	2	< 1	< 1	< 2	1	< 2	605	44	10	100	54	74	17	43873	370	-1	15.89	8.32	4.09	2.72	.64	2.7	1.56
22379		314	21	GR/GD	30	3	<.2	5	< 1	< 1	< 2	3	< 2	452	38	10	84	35	26	9	28143	260	-1	12.01	12.73	4.53	1.56	.54	2.35	1.23
22408		319	21	GR/GD	30	3	<.2	2	< 1	1	< 2	6	< 2	520	34	8	78	36	78	13	38828	340	2.78	13.55	13.01	4.01	2.64	.55	2.35	1.67
22409		319	21	GR/GD	30	2	<.2	2	< 1	< 1	< 2	7	< 2	501	39	8	84	42	90	16	42185	370	2.63	14.13	12.65	3.97	2.9	.59	2.29	2.19
22450		325	21	GR/GD	30	6	<.2	2	< 1	< 1	< 2	2	4	509	42	10	98	49	70	15	45813	470	-1	15.06	11.21	3.55	2.28	.57	2.58	1.66
22503		331	21	GR/GD	30	1	<.2	4	< 1	< 1	< 2	< 1	4	427	27	8	84	21	24	8	29794	260	-1	11.89	12.72	4.55	1.48	.55	2.34	.71
22519		402	21	IF	30	1	<.2	5	< 1	2	< 2	< 1	< 2	557	63	4	100	52	84	18	61565	420	-1	18.38	1.08	2.86	2.47	.88	2.69	1.07
22521		402	21	IF	30	2	<.2	4	< 1	< 1	< 2	< 1	2	552	80	6	100	66	70	18	63220	510	-1	17.08	3.78	3.81	2.52	.8	2.56	.74
22522		402	21	IF	30	3	<.2	4	< 1	< 1	< 2	< 1	< 2	549	76	12	120	54	76	22	68590	520	-1	18.02	2.59	3.64	2.53	.8	2.86	1.19
22523		402	21	IF	30	3	<.2	7	< 1	< 1	< 2	< 1	2	539	84	8	110	63	80	20	82062	470	-1	18.4	1.47	3	2.82	.72	2.86	1.4
22349		310	21	MS	30	2	<.2	3	< 1	< 1	< 2	< 1	< 2	536	42	10	120	48	54	14	41672	350	-1	15.43	9.49	3.78	2.67	.64	2.5	2.63
22350		310	21	MS	30	2	<.2	3	< 1	< 1	< 2	< 1	< 2	572	36	10	96	39	62	13	41350	330	-1	15.07	10.65	4.09	2.47	.62	2.65	1.64
22351		310	21	MS	30	1	<.2	3	< 1	< 1	< 2	1	< 2	620	37	8	93	51	82	14	35569	360	-1	14.18	10.22	4.08	2.47	.59	2.65	.95
22362		312	21	MS	30	1	<.2	3	< 1	< 1	< 2	2	< 2	572	35	14	99	26	56	14	38281	390	-1	14.13	11.2	3.94	2.72	.58	2.48	2.39
22363		312	21	MS	30	1	<.2	3	< 1	< 1	< 2	< 1	< 2	560	39	10	93	32	60	12	37896	360	-1	14.3	11.95	4.13	2.52	.58	2.55	1.81
22364		312	21	MS	30	1	<.2	3	< 1	< 1	< 2	1	< 2	577	35	10	88	29	58	12	35943	320	-1	13.84	12.24	4.22	2.29	.58	2.57	1.24
22365		312	21	MS	30	25	<.2	3	< 1	< 1	< 2	< 1	< 2	579	14	14	85	38	54	11	36094	290	-1	13.81	11.6	4.16	2.41	.58	2.61	1.37
22366		312	21	MS	30	1	<.2	3	< 1	< 1	< 2	< 1	< 2	591	24	8	91	38	56	12	39336	320	-1	14.61	9.54	4.09	2.56	.58	2.7	1.29
22548		403	21	PQ	30	1	<.2	8	< 1	< 1	< 2	4	< 2	579	110	22	170	78	82	21	77513	111	-1	18.06	1.07	3.2	2.25	.83	2.82	1.34
22401		318	21	SM	30	10	<.2	2	< 1	< 1	< 2	< 1	< 2	599	39	6	90	40	82	15	42230	350	-1	15.06	9.09	4.06	2.7	.61	2.67	1.49
22442		323	21	V/S	30	1	<.2	4	< 1	< 1	< 2	3	2	537	28	8	71	26	44	10	32813	260	-1	12.26	11.04	4.29	1.73	.49	2.33	.17
22328		304	21	VC	30	2	<.2	4	< 1	< 1	< 2	< 1	< 2	613	45	20	120	36	46	14	34164	320	-1	14.2	9.39	3.52	2.08	.64	2.5	1.61
22329		304	21	VC	30	5	<.2	2	< 1	< 1	< 2	1	< 2	611	35	10	93	33	72	15	38562	310	-1	14.52	10.41	4.01	2.83	.64	2.73	1.83
22310		302	21	VU/I	30	2	<.2	2	< 1	< 1	< 2	< 1	< 2	541	56	8	120	57	98	21	48478	400	-1	16.34	6.78	3.88	3.01	.63	2.48	1.84
22311		302	21	VU/I	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	605	55	8	110	49	98	19	55904	290	-1	18.5	3.15	3.76	3.32	.67	2.97	1.78
22331		306	21	VU/I	30	3	<.2	4	< 1	< 1	< 2	< 1	< 2	530	35	16	94	29	68	14	36483	350	-1	14.11	12.48	3.79	2.67	.63	2.44	1.95
22332		306	21	VU/I	30	1	<.2	2	< 1	< 1	< 2	2	< 2	517	37	6	92	31	78	16	39411	350	-1	14.73	10.73	4.02	2.92	.63	2.69	1.67
22320	ST		31		30	1	<.2	1	< 1	< 1	< 2	1	< 2	892	44	8	120	53	140	22	60276	360	-1	18.03	2.53	3.99	2.8	.84	3.22	.2
22340	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	927	53	8	130	64	140	22	62101	360	-1	18.6	2.6	4.05	2.85	.87	3.32	.23
22360	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	907	54	4	120	58	120	20	61332	350	-1	18.57	2.54	4.05	2.83	.84	3.27	.2
22381	ST		31		30	1	<.2	< 1	< 1	< 1	< 2	1	< 2	881	49	8	110	53	110	19	59245	340	-1	17.97	2.48	3.92	2.75	.81	3.13	.19
22382	ST		31		30	1	<.2	30	< 1	< 1	< 2	17	< 2	963	87	32	160	71	82	24	60172	600	-1	12.4	5.16	4.38	1.86	.69	4.03	.32
22402	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	909	57	6	130	64	160	24	61227	390	-1	18.64	2.57	4.03	2.83	.87	3.21	.2
22422	ST		31		30	1	<.2	< 1	< 1	< 1	< 2	3	< 2	908	52	8	180	58	130	19	61022	380	-1	18.57	2.48	4	2.81	.84	3.35	.2
22423	ST		31		30	1	<.2	31	< 1	< 1	< 2	17	38	966	90	32	160	75	100	25	59255	640	-1	12.39	5.07	4.33	1.88	.69	4.05	.3
22441	ST		31		30	1	<.2	< 1	< 1	< 1	< 2	2	< 2	882	58	6	110	62	150	23	60694	400	-1	18.08	2.46	3.91	2.8	.83	3.18	.23
22460	ST		31		30	1	<.2	30	< 1	< 1	< 2	15	40	995	87	34	160	76	100	23	60197	660	-1	12.23	5.17	4.25	1.88	.68	4.3	.32
22461	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	929	51	6	120	55	120	20	62239	380	-1	18.28	2.6	3.94	2.85	.84	3.52	.2

Appendix 2-5. Silt/clay assay results,
in order by drift type and underlying bedrock type.

Number Sample	Type Sample	Hole Drill	Type Drift	Type Bedrock	FA-ICP Sample Wt Au Assay	-63um ppb Au	-63um ppm Ag	Clay ppm As	Clay ppm Sb	Clay ppm Se	Clay ppm Bi	Clay ppm W	Clay ppm Mo	Clay ppm Ba	Clay ppm Cu	Clay ppm Pb	Clay ppm Zn	Clay ppm Ni	Clay ppm Cr	Clay ppm Co	Clay ppm Fe	Clay ppm Mn	Clay % CO2	Clay % Al2O3	Clay % CaO	Clay % MgO	Clay % Na2O	Clay % TiO2	Clay % K2O	Clay % P2O5
22479	ST		31		30	1	<.2	1	< 1	< 1	< 2	1	< 2	909	55	8	140	51	130	21	60441	410	-1	17.88	2.53	3.87	2.79	.83	3.46	.21
22500	ST		31		30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	877	55	6	140	56	150	20	61624	420	-1	18.65	2.48	3.99	2.83	.88	3.34	.18
22501	ST		31		30	1	<.2	1	< 1	< 1	< 2	1	< 2	220	35	< 2	33	8	34	3	264761	190	-1	5.42	2	2.13	.52	.2	1.36	.25
22520	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	862	51	6	130	48	140	19	60480	410	-1	18.29	2.42	3.93	2.78	.86	3.17	.18
22540	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	229	36	< 2	30	5	32	3	263680	102	-1	5.14	2.01	2.1	.41	.18	1.22	.24
22541	ST		31		30	1	<.2	1	< 1	< 1	< 2	< 1	2	928	61	10	150	88	170	20	64036	97	-1	18.39	2.48	3.99	2.76	.84	3.39	.18
22562	ST		31		30	1	<.2	3	< 1	1	< 2	7	< 2	688	62	2	120	78	80	18	60048	99	-1	18.14	2.52	3.97	2.75	.83	3.47	.21
22380	ST		32		30	1	<.2	< 1	< 1	< 1	< 2	1	< 2	17	< 1	< 2	< 1	10	< 2	< 1	317	2	-1	.51	.05	.02	.01	.02	.03	.04
22424	ST		32		30	1	<.2	< 1	< 1	< 1	< 2	2	< 2	11	< 1	< 2	< 1	< 1	< 2	< 1	527	2	-1	.53	.06	.02	.02	.02	.01	.03
22459	ST		32		30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	18	< 1	< 2	< 1	< 1	< 2	< 1	316	2	-1	.62	.05	.01	.01	.01	0	.02
22499	ST		32		30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	13	< 1	< 2	< 1	< 1	< 2	< 1	280	10	-1	.61	.07	.02	.01	.07	0	.04
22539	ST		32		30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	20	1	10	1	6	< 2	1	941	11	-1	.46	.08	.01	0	.01	0	.04
22493		329	41	V/S	30	1	<.2	6	< 1	< 1	< 2	< 1	< 2	82	120	< 2	92	30	2	37	131300	130	-1	23.5	.59	1.82	1.52	1.11	.44	1.6
22496		329	41	V/S	30	388	<.2	8	< 1	< 1	< 2	6	< 2	39	80	38	170	11	4	31	180804	350	-1	23.36	.14	1.23	.92	1.6	.16	.99
22425		320	42	GR/GD	30	1	<.2	< 1	< 1	< 1	< 2	19	< 2	724	20	12	140	10	50	12	27131	130	-1	24.39	.83	1.12	3.88	.38	2.93	.65
22481		327	42	GR/GD	30	3	<.2	< 1	< 1	< 1	< 2	8	< 2	129	17	< 2	83	24	46	26	81993	63	-1	30.4	.62	.69	.84	.62	.7	.82
22537		402	42	IF	30	1	<.2	2	< 1	< 1	< 2	3	< 2	42	11	< 2	40	0	8	12	255118	794	-1	2.65	1.68	3.61	1.78	.03	.61	3.01
22326		303	43	GR/GD	30	1	<.2	< 1	< 1	< 1	< 2	1	< 2	409	25	4	150	30	72	14	35246	200	-1	20.25	2.95	1.56	5.03	.84	2.19	1.43
22421		320	43	GR/GD	30	3	<.2	< 1	< 1	< 1	< 2	15	< 2	669	70	4	350	31	110	22	55373	140	-1	23.76	.52	2.39	2.5	.24	3.74	.96
22494		329	43	V/S	30	19	<.2	3	< 1	< 1	< 2	< 1	< 2	107	29	< 2	100	8	6	59	147776	140	-1	15.26	1.44	3.56	2.72	1.21	1.1	3.28
22497		329	43	V/S	30	3	<.2	10	< 1	< 1	< 2	< 1	< 2	110	74	< 2	77	3	16	34	163908	280	-1	16.38	1.93	3.16	2.24	1.51	.34	2.9
22410		319	44	GR/GD	30	34	<.2	1	< 1	< 1	< 2	26	< 2	383	57	< 2	87	120	180	30	62552	320	-1	19.78	2.15	6.02	2.96	.52	2.01	1.28
22411		319	44	GR/GD	30	3	<.2	< 1	< 1	< 1	< 2	27	< 2	418	40	< 2	73	97	110	28	54564	220	-1	24.62	.55	5.21	2.56	.56	2.87	1.19
22482		327	44	GR/GD	30	1	<.2	< 1	< 1	< 1	< 2	12	< 2	86	14	< 2	85	26	46	25	71963	37	-1	32.73	.2	.28	.65	.65	.53	.86
22517		401	44	PSA	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	237	260	< 2	55	71	50	36	84232	330	-1	15.14	6.63	7.18	2.92	.62	.45	1.65
22495		329	44	V/S	30	1	<.2	11	< 1	< 1	< 2	< 1	< 2	51	130	< 2	130	3	4	32	168581	250	-1	24.03	.27	1.18	.96	1.41	.14	1.23
22469		326	44	VC	30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	45	< 1	< 2	3	11	4	< 1	12312	29	-1	26.57	.12	17.64	.55	.12	.62	.62
22325		303	48	GR/GD	30	1	<.2	1	< 1	< 1	< 2	8	< 2	701	34	6	200	27	46	21	39329	170	-1	20.13	2.56	1.81	5.02	.94	2.31	1.41
22536		402	48	IF	30	1	<.2	21	< 1	< 1	< 2	< 1	2	295	22	< 2	64	17	24	12	135383	220	-1	8.72	4.68	3.99	2.76	.33	2.65	4.39
22466		326	49	VC	30	1	<.2	< 1	< 1	< 1	< 2	5	< 2	79	12	< 2	54	36	22	4	19480	67	-1	23.48	.33	23.53	.42	.18	.95	.4
22308		301	49	VU/I	30	3	<.2	1	< 1	< 1	< 2	4	< 2	137	68	< 2	56	33	110	17	69458	130	-1	15.45	4.65	7.15	3.92	.4	.78	3.14
22417		320	50	GR/GD	30	1	<.2	1	< 1	< 1	< 2	3	< 2	504	44	6	85	53	100	20	52099	420	-1	18.89	5.96	3.02	2.34	.62	1.98	1.23
22465		326	50	VC	30	3	<.2	7	< 1	1	< 2	8	< 2	503	81	8	93	61	110	24	64794	280	-1	19.88	2.37	6.04	2.75	.57	2.24	1.15
22324		303	51	GR/GD	30	2	<.2	7	< 1	< 1	< 2	15	< 2	947	110	20	95	41	100	25	75168	210	-1	17.81	2.17	2.9	5.13	.7	3.34	2.04
22416		320	51	GR/GD	30	1	<.2	2	< 1	< 1	< 2	8	< 2	445	49	10	90	52	100	21	54029	450	1.46	19.93	6.13	3.05	2.53	.71	2.04	2.11
22427		321	51	GR/GD	30	2	<.2	1	< 1	< 1	< 2	< 1	< 2	616	42	8	91	41	100	19	48668	350	.43	16.63	4.47	3.37	3.39	.62	2.37	.94
22428		321	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	797	42	8	95	53	110	20	50296	430	.87	16.8	6.36	3.55	3.18	.64	2.53	1.04
22429		321	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	< 1	< 2	613	51	10	110	49	100	20	53243	380	.73	17.56	4.85	3.97	3.09	.67	2.74	1.2
22430		321	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	8	< 2	629	40	10	92	51	100	21	52554	400	1.17	16.94	5.72	3.49	3.39	.62	2.49	1.29
22439		322	51	GR/GD	30	3	<.2	2	< 1	< 1	< 2	17	2	599	79	22	140	65	110	32	67956	400	-1	17.89	3.56	3.28	3.84	.79	2.37	1.44

Appendix 2-5. Silt/clay assay results,
in order by drift type and underlying bedrock type.

Number Sample	Type Sample	Hole Drill	Type Drift	Type Bedrock	FA-ICP Sample Wt Au Assay	-63um ppb Au	-63um ppm Ag	Clay ppm As	Clay ppm Sb	Clay ppm Se	Clay ppm Bi	Clay ppm W	Clay ppm Mo	Clay ppm Ba	Clay ppm Cu	Clay ppm Pb	Clay ppm Zn	Clay ppm Ni	Clay ppm Cr	Clay ppm Co	Clay ppm Fe	Clay ppm Mn	Clay % CO2	Clay % Al2O3	Clay % CaO	Clay % MgO	Clay % Na2O	Clay % TiO2	Clay % K2O	Clay % P2O5
22453		325	51	GR/GD	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	581	40	6	90	42	82	17	53080	400	1.32	18.09	5.98	3.36	2.58	.64	2.78	1.6
22473		327	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	6	< 2	612	52	8	120	49	100	22	54419	440	.88	17.01	5.2	3.65	3.23	.63	2.8	1.26
22474		327	51	GR/GD	30	2	<.2	2	< 1	< 1	< 2	10	< 2	608	55	6	110	64	100	24	58161	430	-1	17.36	5.09	3.68	3.27	.6	2.89	1.19
22475		327	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	8	< 2	618	49	8	97	52	78	20	57087	430	-1	17.51	5.36	3.54	3.19	.65	2.87	1.47
22476		327	51	GR/GD	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	637	42	6	97	30	4	17	57322	380	1.31	18.25	4.93	3.46	2.92	.67	2.83	1.52
22477		327	51	GR/GD	30	1	<.2	2	< 1	< 1	< 2	6	< 2	521	51	10	110	45	80	19	54764	400	-1	18.27	6.38	3.26	2.63	.67	2.76	1.63
22478		327	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	7	< 2	530	47	8	100	41	76	18	55722	370	2.34	18.58	6.65	3.32	2.47	.68	2.8	1.38
22480		327	51	GR/GD	30	1	<.2	1	< 1	< 1	< 2	1	< 2	544	47	8	120	53	84	20	59780	390	-1	19.84	4.87	3.07	2.49	.71	2.71	1.36
22554	R	321	51	GR/GD	30	1	<.2	4	< 1	1	< 2	< 1	< 2	571	58	12	120	86	96	16	49077	83	-1	16.64	5.31	3.54	3.21	.63	2.96	1.3
22557	R	325	51	GR/GD	30	2	<.2	3	< 1	< 1	< 2	18	< 2	594	35	10	41	67	96	15	51399	60	-1	17.06	6.27	3.41	2.64	.63	2.84	1.44
22560	R	327	51	GR/GD	30	1	<.2	2	< 1	< 1	< 2	5	< 2	522	58	10	120	81	110	21	53888	83	-1	16.99	5.08	3.62	3.01	.63	2.72	1.2
22561	R	327	51	GR/GD	30	1	<.2	1	1	< 1	< 2	2	< 2	917	57	10	130	109	150	18	60469	95	-1	18.14	6.54	3.33	2.51	.66	2.63	1.67
22531		402	51	IF	30	4	<.2	5	< 1	< 1	< 2	< 1	2	326	36	10	73	36	38	13	59920	180	-1	22.17	3.17	1.99	2.12	.75	2.46	2.65
22533		402	51	IF	30	2	<.2	5	< 1	< 1	< 2	8	4	356	49	28	130	50	60	19	69790	350	-1	20.34	3.33	2.32	2.57	.71	1.98	2.96
22534		402	51	IF	30	5	<.2	5	< 1	< 1	< 2	9	2	372	57	8	110	58	86	22	78803	260	-1	20.55	1.13	2.56	2.38	.69	2.35	1.92
22535		402	51	IF	30	1	<.2	2	< 1	< 1	< 2	10	4	386	56	6	100	65	86	19	83248	280	-1	20.24	1.3	2.67	2.36	.73	2.34	1.94
22490		329	51	V/S	30	1	<.2	2	< 1	< 1	< 2	9	< 2	492	52	6	120	68	100	22	62587	460	1.02	19.87	4.88	3.62	2.49	.67	2.36	1.42
22492		329	51	V/S	30	1	<.2	2	< 1	< 1	< 2	23	< 2	528	61	2	97	53	78	26	56020	340	1.03	18.02	5.91	3.21	3.3	.66	2.43	2.02
22399		315	51	VC	30	2	<.2	2	< 1	< 1	< 2	15	< 2	761	55	6	100	56	130	31	56129	390	-1	15.79	3.09	3.02	4.1	.69	2.46	.97
22307		301	51	VU/I	30	3	<.2	2	< 1	< 1	< 2	1	< 2	271	43	6	74	47	80	16	57810	150	1.02	24.32	1.32	2.58	1.8	.64	1.67	1.94
22454		325	52	GR/GD	30	1	<.2	4	< 1	< 1	< 2	10	10	540	82	12	61	47	160	19	67650	310	-1	14.85	4.02	3.95	3.92	.61	2.13	1.87
22455		325	52	GR/GD	30	2	<.2	2	< 1	< 1	< 2	11	4	550	49	8	53	23	80	14	63173	210	-1	16.65	4.16	3.75	3.82	.68	2.47	2.06
22552		403	52	PQ	30	1	<.2	6	< 1	1	< 2	4	4	516	100	12	190	90	100	25	90490	115	-1	16.59	1.63	3.18	2.67	.76	2.53	2.02
22456		325	53	GR/GD	30	1	<.2	4	< 1	< 1	< 2	16	6	579	57	12	45	37	160	15	58273	220	-1	17.24	3.14	2.75	4.09	.52	2.57	1.88
22558	R	325	53	GR/GD	30	1	<.2	2	< 1	< 1	< 2	5	< 2	655	51	8	110	73	96	9	49636	82	-1	16.59	2.96	2.62	4.21	.51	2.65	1.94
22491		329	53	V/S	30	4	<.2	1	< 1	< 1	< 2	36	< 2	683	60	6	100	56	110	23	63409	360	-1	16.24	4.83	3.82	3.65	.67	2.71	1.57
22316		302	53	VU/I	30	2	<.2	1	< 1	< 1	< 2	2	< 2	389	31	14	96	130	430	31	81650	230	-1	17.09	1.85	6.51	2.73	.75	1.99	1.41
22415		320	54	GR/GD	30	2	<.2	1	< 1	< 1	4	24	< 2	535	69	12	82	63	120	27	78152	140	-1	17.4	1.39	2.25	3.53	.57	2.18	1.61
22431		321	54	GR/GD	30	1	<.2	1	< 1	< 1	< 2	11	< 2	607	37	10	87	35	80	19	54100	330	-1	17.09	5.06	3.35	3.27	.65	2.58	1.51
22438		322	54	GR/GD	30	3	<.2	5	< 1	< 1	< 2	11	16	467	120	30	83	56	210	27	142943	700	-1	14.31	1.85	2.41	4.01	.58	1.75	3.8
22457		325	54	GR/GD	30	9	<.2	4	< 1	< 1	< 2	10	14	613	53	10	49	34	170	13	52491	210	-1	16.44	3.22	2.6	4.1	.49	2.63	1.38
22437		322	55	GR/GD	30	1	<.2	3	< 1	< 1	< 2	1	4	549	80	32	85	57	130	22	92360	600	-1	16.79	2.65	2.96	2.96	.62	2.27	1.58
22556	R	322	55	GR/GD	30	1	<.2	2	< 1	2	< 2	2	< 2	591	48	42	110	75	100	20	49480	80	-1	16.95	2.29	3.02	3.1	.64	2.55	1.87
22464		326	55	VC	30	1	<.2	5	< 1	< 1	< 2	10	< 2	612	68	22	77	43	130	17	59699	210	-1	15.73	2.57	2.52	4.44	.52	2.63	1.99
22387		314	58	GR/GD	30	6	<.2	2	< 1	< 1	< 2	35	< 2	686	22	8	79	11	36	26	31601	480	-1	15.86	6.33	2.3	6.16	.32	2.61	1.23
22419		320	58	GR/GD	30	2	<.2	4	< 1	< 1	< 2	16	< 2	409	44	10	74	47	86	19	51625	260	-1	21.73	4.31	2.14	1.99	.73	1.95	1.31
22420		320	58	GR/GD	30	3	<.2	3	< 1	< 1	2	11	< 2	377	42	10	67	34	80	19	55597	250	-1	22.6	3.38	2.15	2.1	.69	1.75	1.56
22506		331	60	GR/GD	30	1	<.2	4	< 1	1	< 2	1	2	487	39	40	120	56	70	14	35586	76	-1	15.63	3.6	3.74	3.97	.63	2.48	3.21
22507		331	60	GR/GD	30	4	<.2	2	< 1	< 1	< 2	< 1	< 2	501	56	8	120	52	96	19	60702	280	-1	18.52	2.86	3.67	3.4	.69	2.76	2.07
22386		314	61	GR/GD	30	1	<.2	2	< 1	< 1	< 2	5	< 2	567	44	12	89	22	46	12	45362	430	3.07	15.15	7.44	3.42	2.6	.61	2.52	2.2

Appendix 2-5. Silt/clay assay results,
in order by drift type and underlying bedrock type.

Number Sample	Type Sample	Hole Drill	Type Drift	Type Bedrock	FA-ICP Sample Wt Au Assay	-63um ppb Au	-63um ppm Ag	Clay ppm As	Clay ppm Sb	Clay ppm Se	Clay ppm Bi	Clay ppm W	Clay ppm Mo	Clay ppm Ba	Clay ppm Cu	Clay ppm Pb	Clay ppm Zn	Clay ppm Ni	Clay ppm Cr	Clay ppm Co	Clay ppm Fe	Clay ppm Mn	Clay % CO2	Clay % Al2O3	Clay % CaO	Clay % MgO	Clay % Na2O	Clay % TiO2	Clay % K2O	Clay % P2O5
22418		320	61	GR/GD	30	2	<.2	5	< 1	< 1	< 2	14	4	393	38	8	90	49	66	17	41967	250	-1	18.25	7.98	2.28	1.87	.62	2.19	1.97
22504		331	61	GR/GD	30	1	<.2	3	< 1	< 1	< 2	< 1	2	503	35	8	110	38	70	14	34038	380	3.95	13.24	12.57	4.03	2.36	.58	2.53	.78
22505		331	61	GR/GD	30	3	<.2	1	< 1	1	< 2	< 1	2	631	43	12	110	53	120	18	51800	350	-1	17.19	4.04	3.43	4.08	.66	3.15	1.9
22529		402	61	IF	30	1	<.2	3	< 1	< 1	< 2	< 1	4	362	35	12	100	46	56	13	42729	290	-1	18.05	9.45	3.3	1.55	.64	2.29	1.55
22530		402	61	IF	30	1	<.2	5	< 1	< 1	< 2	< 1	< 2	284	32	8	63	35	34	13	39657	150	-1	23.21	4.12	2.43	1.65	.8	2.71	1.73
22516		401	61	PSA	30	5	<.2	2	< 1	< 1	< 2	< 1	< 2	367	81	12	78	40	40	15	63559	330	-1	16.44	7.1	3.1	3	.6	1.57	3.16
22305		301	61	VU/I	30	3	<.2	3	< 1	1	4	1	< 2	292	34	6	71	95	80	15	47331	210	2.78	20.88	4.88	2.57	1.57	.62	2.09	1.92
22306		301	61	VU/I	30	1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	277	40	6	77	45	76	16	50273	170	-1	25.41	1.45	2.24	1.99	.63	1.85	2.69
22333		306	61	VU/I	30	5	<.2	3	< 1	< 1	< 2	3	< 2	408	33	8	78	32	64	15	42745	270	-1	14.97	12.5	4	2.25	.61	2.49	1.76
22334		306	61	VU/I	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	466	40	12	84	31	74	17	42658	320	-1	15.73	10.59	3.73	2.53	.64	2.58	1.89
22335		306	61	VU/I	30	1	<.2	2	< 1	< 1	< 2	< 1	< 2	461	34	10	78	20	62	14	39528	290	3.66	14.2	13.36	3.82	2.33	.62	2.34	1.71
22336		306	61	VU/I	30	15	<.2	2	< 1	< 1	< 2	3	< 2	546	42	12	95	41	68	15	42834	360	-1	15.52	9.46	3.67	2.35	.62	2.63	1.06
22426		321	68	GR/GD	30	19	<.2	2	< 1	< 1	< 2	< 1	< 2	584	40	122	87	35	74	15	51597	600	-1	15.19	9.04	3.84	2.32	.58	2.5	1.27
22532		402	68	IF	30	4	<.2	5	< 1	< 1	< 2	7	4	320	33	22	100	43	40	15	41078	200	-1	20.19	7.53	1.95	1.77	.65	2.35	1.87
22304		301	68	VU/I	30	5	<.2	4	< 1	1	< 2	7	< 2	375	38	6	72	60	54	15	49952	210	-1	20	4.74	2.73	2.06	.61	2.21	2.08
22524		402	71	IF	30	2	<.2	5	< 1	1	< 2	< 1	2	440	46	10	92	55	48	13	49534	430	-1	16.57	6.79	3.04	2.11	.69	2.59	1.4
22525		402	71	IF	30	3	<.2	6	< 1	< 1	< 2	< 1	2	403	44	10	89	47	50	15	55029	400	-1	18.59	5.3	2.41	2.3	.71	2.51	1.96
22526		402	71	IF	30	1	<.2	5	< 1	< 1	< 2	6	< 2	469	49	12	93	43	52	16	58974	510	-1	18.02	4.48	2.58	2.75	.7	2.37	2.73
22527		402	71	IF	30	1	<.2	5	< 1	< 1	< 2	< 1	2	453	49	10	98	52	52	17	61815	470	-1	18.56	4.01	2.65	2.61	.74	2.52	1.95
22528		402	71	IF	30	1	<.2	4	< 1	< 1	< 2	< 1	< 2	450	36	14	91	40	46	14	57504	440	-1	16.72	7.17	2.97	2.36	.69	2.12	1.92
22564	R	402	71	IF	30	1	<.2	4	< 1	< 1	< 2	3	< 2	489	48	16	96	59	50	17	58174	93	-1	17.02	6.3	2.93	1.94	.64	2.39	1.85

Appendix 2-6. Saprolite information.

Master File Information for Saprolite Samples.

Sample Number	Sample Type	Drill Hole	Sampled Interval	Drift Type	Feet Sampled	Subsamples Analyzed	TWP-RNG-SEC	FORTY	County	Drift Type	Underlying Bedrock Type	Underlying Bedrock Type Key	Remarks
22580	SS	1-2	621.0 624.0	47	3	IJ	139-38-36	SE-SE	B	SAPROLITE: PISOLITIC CLAY			SPEC.MINERAL&ASSAY
22581	SS	1-2	629.0 632.0	47	3	J	139-38-36	SE-SE	B	SAPROLITE: PISOLITIC CLAY			SPEC.MINERAL&ASSAY
22582	SS	1-2	644.0 647.0	43	3	J	139-38-36	SE-SE	B	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE			SPEC.MINERAL&ASSAY
22583	SS	1-2	656.0 659.0	42	3	IJ	139-38-36	SE-SE	B	SAPROLITE: CLAY WITH GRANULES			SPEC.MINERAL&ASSAY
22584	SS	1-2	666.0 669.0	43	3	IJ	139-38-36	SE-SE	B	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE			SPEC.MINERAL&ASSAY
22308		301	87.0- 91.0	49	4	A	61-26-25	SE-SW	I	REWORKED SAPROLITE	ULTRAMAFIC-INTERMED. VOLC	VU/I	SILT/CLAY SAMPLE ONLY
22325		303	144.0-156.0	48	12	ABCJ	63-25-19	NW-NW	K	DRIFT AND SAPROLITE MIXTURE	GRANITE, GRANODIORITE	GR/GD	
22566	SS	303	156.0 157.0	44	1	J	63-25-19	NW-NW	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERALOGY
22326		303	156.0-165.0	43	9	ABCJ	63-25-19	NW-NW	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	GRANITE, GRANODIORITE	GR/GD	
22567	SS	303	167.0 168.0	42	1	IJ	63-25-19	NW-NW	K	SAPROLITE: CLAY WITH GRANULES	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERAL&ASSAY
22565	SS	313	190.0 191.0	44	1	IJ	149-25-22	SW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	GRANITE AND VOLCANICLASTIC	GR-VC	SPEC.MINERAL&ASSAY
22410	R	319	113.0 119.0	44	6	0	149 26 14	NW-NW	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	GRANITE, GRANODIORITE	GR/GD	REPLICATE B,C, NOT ASSAYED
22410		319	113.0-119.0	44	6	ABCJ	149-26-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	GRANITE, GRANODIORITE	GR/GD	
22411		319	119.0-125.0	44	6	ABCJ	149-26-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	GRANITE, GRANODIORITE	GR/GD	
22568	SS	319	122.0 123.0	44	1	IJ	149-26-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERAL&ASSAY
22421		320	198.5-212.0	43	13.5	ABJ	150-26-28	SW-SE	I	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	GRANITE, GRANODIORITE	GR/GD	
22569	SS	320	207.0 208.0	43	1	J	150-26-28	SW-SE	I	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERALOGY
22425		320	212.0-224.0	42	12	ABJ	150-26-28	SW-SE	I	SAPROLITE: CLAY WITH GRANULES	GRANITE, GRANODIORITE	GR/GD	
22570	SS	320	219.0 220.0	42	1	IJ	150-26-28	SW-SE	I	SAPROLITE: CLAY WITH GRANULES	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERAL&ASSAY
22466		326	230.5-238.0	49	7.5	ABCJ	150-27-14	NW-NW	I	REWORKED SAPROLITE	VOLCANICLASTIC ROCKS	VC	
22571	SS	326	237.0 238.0	49	1	J	150-27-14	NW-NW	I	REWORKED SAPROLITE	VOLCANICLASTIC ROCKS	VC	SPEC.MINERALOGY
22469		326	270.0-275.0	44	5	ABCJ	150-27-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	VOLCANICLASTIC ROCKS	VC	
22572	SS	326	271.0 272.0	44	1	IJ	150-27-14	NW-NW	I	SAPROLITE: CLAY & HARD WEATHERED FRAGS	VOLCANICLASTIC ROCKS	VC	SPEC.MINERAL&ASSAY
22481		327	219.0-226.5	42	7.5	ABCJ	152-27-36	SE-NW	K	SAPROLITE: CLAY WITH GRANULES	GRANITE, GRANODIORITE	GR/GD	
22573	SS	327	223.0 224.0	42	1	J	152-27-36	SE-NW	K	SAPROLITE: CLAY WITH GRANULES	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERALOGY
22482		327	226.5-234.0	44	7.5	ABCJ	152-27-36	SE-NW	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	GRANITE, GRANODIORITE	GR/GD	
22574	SS	327	229.0 230.0	44	1	IJ	152-27-36	SE-NW	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	GRANITE, GRANODIORITE	GR/GD	SPEC.MINERAL&ASSAY
22493		329	154.0-165.0	41	11	ABCJ	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22575	SS	329	155.0 156.0	41	1	IJ	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERAL&ASSAY
22576	SS	329	158.0 159.0	41	1	J	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERALOGY
22494		329	165.0-176.0	43	11	ABCJ	153-27-34	SW-SE	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22577	SS	329	174.0 175.0	43	1	IJ	153-27-34	SW-SE	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERAL&ASSAY
22495		329	176.0-186.5	44	10.5	ABC	153-27-34	SW-SE	K	SAPROLITE: CLAY & HARD WEATHERED FRAGS	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22496	R	329	186.5 191.0	41	4.5	0	153 27 34	SW-SE	K	SAPROLITE: MASSIVE CLAY	MIXED VOLC. AND CLASTIC ROCKS	V/S	REPLICATE B,C, NO ASSAY
22496		329	186.5-191.0	41	4.5	ABCJ	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22578	SS	329	188.0 189.0	41	1	J	153-27-34	SW-SE	K	SAPROLITE: MASSIVE CLAY	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERALOGY
22579	SS	329	191.0 193.0	43	1	J	153-27-34	SW-SE	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	MIXED VOLC. AND CLASTIC ROCKS	V/S	SPEC.MINERALOGY
22497		329	191.0-214.0	43	23	ABCJ	153-27-34	SW-SE	K	SAPROLITE: CLAY W/PRESERVED ROCK TEXTURE	MIXED VOLC. AND CLASTIC ROCKS	V/S	
22517		401	99.0-106.0	44	7	ABCJ	46-29-27	NE-SE	CW	SAPROLITE: CLAY & HARD WEATHERED FRAGS	METASEDIMENTARY ROCKS	PSA	
22536		402	207.0-211.5	48	4.5	AB	46-28-10	SE-SW	CW	DRIFT AND SAPROLITE MIXTURE	IRON FORMATION	IF	
22537		402	220.0-226.0	42	6	ABCJ	46-28-10	SE-SW	CW	SAPROLITE: CLAY WITH GRANULES	IRON FORMATION	IF	SILT/CLAY-OILY SUBSTANCE

Part of appendix 2-6. Saprolite information (lab)

Laboratory Information on Saprolites

Sample Number	Sample Type	Drift Type	Gold Grain Count	Total Weight Nmag HMC	Total Weight Mag HMC	Ratio Nmag HMC/ Mag HMC	Feed Slt/Cly	Weight (g) +250um0 Fraction	to -63um Fraction	-63um Fraction	Weight (%) >=VCgr. Sand	Mgr. Sand	Fgr. Sand	Silt	Normalized to 10 Kg Gold Grains Counted	Nmag HMC Wt. (g)	Mag HMC Wt. (g)
22325		48	0	15.7	2.5	6.3	100	58	18	24	36	22	18	24	0	16	2.6
22326		43	0	1.1	.1	11	100	49	20	32	16	33	20	32	0	1.3	.1
22410		44	4	15.4	2.8	5.5	100	50	17	33	34	16	17	33	3.9	15	2.7
22411		44	0	5.2	.6	8.7	100	58	13	30	33	25	13	30	0	6.4	.7
22421		43	0	3.8	.3	12.7	100	46	17	37	18	28	17	37	0	4.6	.4
22425		42	0	18.3	.8	22.9	100	51	18	31	16	35	18	31	0	16.3	.7
22466		49	0	10.2	2.6	3.9	100	41	16	44	22	19	16	44	0	11.2	2.9
22469		44	0	4.5	.2	22.5	100	39	21	39	3	36	21	39	0	4.9	.2
22481		42	0	33.2	1.6	20.8	100	47	19	35	14	33	19	35	0	37.7	1.8
22482		44	0	7	.2	35	100	44	21	34	11	33	21	34	0	10	.3
22493		41	0	6.3	.3	21	100	46	28	26	13	33	28	26	0	8.1	.4
22494		43	0	7.6	2	3.8	100	38	18	44	23	15	18	44	0	8.7	2.3
22495		44	0	5	1.1	4.5	100	48	14	38	32	16	14	38	0	5	1.1
22496		41	0	10.3	1.3	7.9	100	51	11	37	5	46	11	37	0	13.4	1.7
22497		43	0	5.2	.8	6.5	100	24	13	63	69	-1	13	63	0	8.5	1.3
22517		44	0	15.1	1.7	8.9	100	41	17	42	44	-1	17	42	0	14.2	1.6
22536		48	0	43.5	31.7	1.4	100	55	17	28	42	13	17	28	0	48.3	35.2
22537		42	0	7	31.5	.2	100	60	18	22	26	34	18	22	0	8.1	36.6

Part of appendix 2-6. Saprolite information (nonmag)

Assay Results for Nonmagnetic HMC Fractions of Saprolite Samples

Sample Number	Sample Type	Drift Type	Gold Grain Count	Au Assay Est. From Au Grains	Calculated Bulk Au Assay	INAA Sample Weight	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe ppm	Mn ppm	U ppm	Th ppm	Na ppm	Ca ppm
22325		48	0	0	.412	11.2	257	< 5.0	20	0.5	0.4	< 1	43	6	< 200	96	39	106	96	160	35	14.4	10070	6.8	64	994	< 1
22326		43	0	0	.007	1.1	58	< 6.0	26	< 0.2	0.1	< 1	270	20	< 200	3900	74	158	349	820	77	16.6	5150	10.0	120	2420	< 3
22410		44	4	398	.052	11.7	35	1.3	36	0.9	3.1	< 1	< 4	2	< 200	516	21	85	112	200	100	12.0	3530.00	7.3	67	862	< 2
22411		44	0	0	1.059	3.2	1650	3.1	78	< 0.3	2.5	< 1	13000	9	< 230	1640	37	59	189	160	920	17.0	1780.00	16.0	120	1130	< 3
22421		43	0	0	.01	3.5	21	1.6	230	3.3	0.5	< 1	2000	51	< 340	118	139	1340	394	270	390	14.0	5190.00	31.0	400	2640	< 6
22425		42	0	0	.044	13.7	27	0.7	100	3.1	1.0	< 1	< 9	14	< 360	41	78	130	79	< 17	71	19.0	4300.00	19.0	390	4420	36
22466		49	0	0	.008	7.9	7	< 0.1	< 2	1.0	0.1	< 1	< 4	3	< 200	26	44	105	47	370	27	13.0	5070.00	< 0.9	100	1520	< 2
22469		44	0	0	.033	4.1	68	< 0.1	9	0.8	<0.1	2	< 4	2	< 200	10	65	14	26	420	6	2.0	70.00	5.3	22	< 500	< 1
22481		42	0	0	.023	24.9	6	2.5	13	< 0.2	<0.1	< 1	< 4	< 1	< 200	537	28	201	30	95	54	29.0	7480.00	5.8	40	< 500	< 3
22482		44	0	0	.005	5.2	5	0.6	6	0.4	<0.1	3	< 4	< 1	< 200	854	25	218	34	31	57	29.0	7220.00	5.3	11	< 500	< 2
22493		41	0	0	.071	4.6	88	2.2	2000	6.2	<0.1	< 1	< 4	< 1	< 200	25800	13	103	314	51	69	25.0	4803	7.2	63	< 500	< 2
22494		43	0	0	.038	5.6	44	0.1	250	9.9	<0.1	4	< 4	4	250	1930	8	134	95	18	410	34.0	4710.00	< 0.5	3.9	994	< 2
22495		44	0	0	.003	4.4	7	2.2	6000	1.2	<0.1	< 1	< 4	< 1	< 200	84000	29	136	415	< 10	250	24.0	9360.00	< 0.7	3.7	< 500	< 2
22496		41	0	0	.007	7.6	5	0.4	250	5.2	<0.1	< 1	< 4	2	320	24400	< 1	125	82	12	200	25.0	9040.00	< 0.5	2.3	< 500	< 2
22497		43	0	0	.03	3.6	35	1.9	1100	11.0	<0.1	< 1	17	< 1	< 200	36800	68	127	48	15	170	24.0	4590.00	< 0.5	.5	1000	8
22517		44	0	0	.007	11.4	5	2.0	18	0.7	0.2	< 1	1400	2	< 200	531	11	51	65	95	120	6.0	1840.00	< 0.5	13	1980	11
22536		48	0	0	.377	35.9	78	< 0.1	19000	3.4	0.2	< 1	< 4	3	< 200	130	5	62	56	42	210	27.0	10940	< 1.5	5.2	1610	< 3
22537		42	0	0	.007	2.3	9	0.1	4000	16.0	0.1	< 1	410	5	340	114	8	68	54	48	73	43.0	7850.00	4.6	20	920	< 4

Part of appendix 2-6. Saprolite information.

Assay Results for Silt/Clay Fractions of Saprolite Samples

Sample Number	Sample Type	Drift Type	FA-ICP Au Assay Sample Wt	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe ppm	Mn ppm	CO_2 %	Al_2O_3 %	CaO %	MgO %	Na_2O %	TiO_2 %	K_2O %	P_2O_5 %
22308		49	30	3	<.2	1	< 1	< 1	< 2	4	< 2	137	68	< 2	56	33	110	17	69458	130	-1	15.45	4.65	7.15	3.92	.4	.78	3.14
22325		48	30	< 1	<.2	1	< 1	< 1	< 2	8	< 2	701	34	6	200	27	46	21	39329	170	-1	20.13	2.56	1.81	5.02	.94	2.31	1.41
22326		43	30	< 1	<.2	< 1	< 1	< 1	< 2	1	< 2	409	25	4	150	30	72	14	35246	200	-1	20.25	2.95	1.56	5.03	.84	2.19	1.43
22410		44	30	34	<.2	1	< 1	< 1	< 2	26	< 2	383	57	< 2	87	120	180	30	62552	320	-1	19.78	2.15	6.02	2.96	.52	2.01	1.28
22411		44	30	3	<.2	< 1	< 1	< 1	< 2	27	< 2	418	40	< 2	73	97	110	28	54564	220	-1	24.62	.55	5.21	2.56	.56	2.87	1.19
22421		43	30	3	<.2	< 1	< 1	< 1	< 2	15	< 2	669	70	4	350	31	110	22	55373	140	-1	23.76	.52	2.39	2.5	.24	3.74	.96
22425		42	30	< 1	<.2	< 1	< 1	< 1	< 2	19	< 2	724	20	12	140	10	50	12	27131	130	-1	24.39	.83	1.12	3.88	.38	2.93	.65
22466		49	30	< 1	<.2	< 1	< 1	< 1	< 2	5	< 2	79	12	< 2	54	36	22	4	19480	67	-1	23.48	.33	23.53	.42	.18	.95	.4
22469		44	30	< 1	<.2	< 1	< 1	< 1	< 2	< 1	< 2	45	< 1	< 2	3	11	4	< 1	12312	29	-1	26.57	.12	17.64	.55	.12	.62	.62
22481		42	30	3	<.2	< 1	< 1	< 1	< 2	8	< 2	129	17	< 2	83	24	46	26	81993	63	-1	30.4	.62	.69	.84	.62	.7	.82
22482		44	30	< 1	<.2	< 1	< 1	< 1	< 2	12	< 2	86	14	< 2	85	26	46	25	71963	37	-1	32.73	.2	.28	.65	.65	.53	.86
22493		41	30	< 1	<.2	6	< 1	< 1	< 2	< 1	< 2	82	120	< 2	92	30	2	37	131300	130	-1	23.5	.59	1.82	1.52	1.11	.44	1.6
22494		43	30	19	<.2	3	< 1	< 1	< 2	< 1	< 2	107	29	< 2	100	8	6	59	147776	140	-1	15.26	1.44	3.56	2.72	1.21	1.1	3.28
22495		44	30	< 1	<.2	11	< 1	< 1	< 2	< 1	< 2	51	130	< 2	130	3	4	32	168581	250	-1	24.03	.27	1.18	.96	1.41	.14	1.23
22496		41	30	388	<.2	8	< 1	< 1	< 2	6	< 2	39	80	38	170	11	4	31	180804	350	-1	23.36	.14	1.23	.92	1.6	.16	.99
22497		43	30	3	<.2	10	< 1	< 1	< 2	< 1	< 2	110	74	< 2	77	3	16	34	163908	280	-1	16.38	1.93	3.16	2.24	1.51	.34	2.9
22517		44	30	< 1	<.2	2	< 1	< 1	< 2	< 1	< 2	237	260	< 2	55	71	50	36	84232	330	-1	15.14	6.63	7.18	2.92	.62	.45	1.65
22536		48	30	< 1	<.2	21	< 1	< 1	< 2	< 1	2	295	22	< 2	64	17	24	12	135383	220	-1	8.72	4.68	3.99	2.76	.33	2.65	4.39
22537		42	30	< 1	<.2	2	< 1	< 1	< 2	3	< 2	42	11	< 2	40	0	8	12	255118	794	-1	2.65	1.68	3.61	1.78	.03	.61	3.01

Part of appendix 2-6. Saprolite information (mag)

Assay Results for Magnetic HMC Fraction of Saprolite Samples

Sample Number	Sample Type	Drift Type	Total Wt. Mag HMC	Ag ppm	As ppm	Se ppm	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Mg ppm	Ti ppm	Mn ppm	V ppm	Co ppm	Fe2O3 %	SiO2 %	Al2O3 %	CaO %	Na2O %	K2O %	P2O5 %	Ba ppm	Sr ppm	Zr ppm
22325		48	2.5	< 0.5	2	< 1	18	98	10	365	125	1301	5428	61871	3253	2596	441	73.73	8.53	2.28	2.91	0.15	.1	0.05	68	82	180
22326		43	.1	N 0.0	N 0	N 0	N 0	96	N 0	3655	495	21209	11761	28657	3486	1416	3679	55.6	17.77	5.96	5.44	0.54	1.05	0.09	110	214	78
22410		44	2.8	< 0.5	11	< 1	6	75	10	377	114	2311	5066	39808	2479	2151	138	84.31	5.71	1.2	1.6	0.10	.1	0.03	38	32	109
22411		44	.6	N 0.0	N 0	N 0	N 0	196	N 0	148	202	1104	3739	19065	2479	939	5850	74.97	6.61	1.22	1.42	0.16	.25	0.04	45	42	71
22466		49	2.6	< 0.5	12	< 1	4	51	8	288	113	1976	3257	33933	2169	2070	121	86.72	3.99	1.09	1.08	0.06	.1	<0.02	25	29	110
22469		44	.2	N 0.0	N 0	N 0	N 0	202	N 0	88	550	2105	33173	27098	1782	847	80	42.94	35.87	6.37	2.18	0.09	1	0.09	50	127	209
22481		42	1.6	1.8	8	< 1	8	108	6	227	79	1528	2111	26619	1782	1724	146	80.44	3.61	1.19	.83	0.06	.35	0.03	22	24	121
22482		44	.2	N 0.0	N 0	N 0	N 0	649	N 0	113	83	979	1629	10432	1627	1433	806	85.74	7.45	.99	1.29	0.04	1.48	0.06	47	45	836
22493		41	.3	N 0.0	N 0	N 0	N 0	840	N 0	232	189	1426	4403	29017	4803	1609	209	75.61	10.66	2.12	1.12	0.10	.13	0.05	57	42	202
22494		43	2	< 0.5	130	< 1	6	482	12	123	161	61	7177	10552	1084	1107	781	66	18.59	4.01	.56	0.07	1.06	0.12	237	73	203
22495		44	1.1	N 0.0	N 0	N 0	N 0	2638	N 0	88	669	33	2594	28237	1007	1247	2422	73.94	9.45	2.73	.51	0.06	.1	0.24	106	42	78
22496		41	1.3	N 0.0	N 0	N 0	N 0	1316	N 0	127	626	26	3197	63369	1162	1013	1748	61.1	14.26	3.92	.61	0.06	.41	0.17	129	42	121
22497		43	.8	N 0.0	N 0	N 0	N 0	733	N 0	115	249	180	11037	90048	1549	3810	920	43.34	20.04	4.45	9.03	0.09	.19	0.06	155	57	104
22517		44	1.7	N 0.0	N 0	N 0	N 0	163	N 0	334	223	2301	7720	52038	3176	1558	10759	55.4	9.17	4.72	2.71	0.27	.28	0.03	63	78	101
22537		42	31.5	< 0.5	12	< 1	< 2	5	18	5	10	5	965	1139	2014	38	29	93.62	5.17	.15	.11	<0.01	.11	0.14	24	14<	10

Part of appendix 2-6. Saprolite information (bed1)

Assay Results for Wholerock Saprolite Samples

Sample Number	Sample Type	Sampled Interval	Pt ppb	Pd ppb	Au ppb	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %	P2O5 %
22565	SS	190.0 191.0	< 10	4	2	< 0.5	3	< 0.2	< 5	< 1	100	< 2	109	52	6	55	78	126	91	7.64	.05	2.79	.47	1.15	3.63	0.90	13.65	66.44	.13
22567	SS	167.0 168.0	< 10	< 2	< 1	< 0.5	4	< 0.2	< 5	< 1	< 30	< 2	591	18	8	67	50	121	19	1.98	.03	1.12	.25	1.99	5.69	2.37	16.9	65.53	.1
22568	SS	122.0 123.0	< 10	< 2	2	< 0.5	4	< 0.2	< 5	< 1	< 30	< 2	200	46	2	67	93	180	32	5.61	.05	3.94	.35	1.07	2.76	1.44	15.68	63.76	.13
22570	SS	219.0 220.0	< 10	< 2	< 1	< 0.5	2	< 0.2	< 5	< 1	< 30	< 2	350	9	< 1	59	26	165	13	1.67	.03	.58	.14	1.56	4.04	1.23	14.04	73.35	.07
22572	SS	271.0 272.0	< 10	< 2	< 1	< 0.5	1	< 0.2	< 5	< 1	< 30	< 2	22	7	12	23	35	61	12	1.09	.03	13.59	.56	.05	.14	0.22	14.8	62.35	.05
22574	SS	229.0 230.0	< 10	< 2	< 1	< 0.5	2	< 0.2	< 5	< 1	< 30	< 2	62	22	12	73	41	172	25	5.6	.03	.56	.53	.11	.09	0.32	21.3	60.89	.06
22575	SS	155.0 156.0	< 10	< 2	< 1	< 0.5	9	0.6	< 5	< 1	< 30	< 2	82	121	< 1	232	52	26	88	20.65	.07	1.2	1.29	.51	.21	0.18	24.26	41.79	.1
22577	SS	174.0 175.0	< 10	< 2	7	< 0.5	2	< 0.2	< 5	< 1	< 30	< 2	78	50	8	222	19	26	110	19.92	.07	2.92	.88	2.99	1.02	1.13	15.5	49.74	.1
22580	SS	621.0 624.0	< 10	4	< 1	< 0.5	3	< 0.2	< 5	2	< 30	< 2	43	45	16	29	17	217	22	31.46	.16	1.28	1.13	1.22	.11	< 0.10	22.48	23.67	.09
22583	SS	656.0 659.0	< 10	< 2	< 1	< 0.5	3	< 0.2	< 5	< 1	< 30	< 2	144	117	40	83	103	286	33	13.63	.16	.59	1.43	1.65	.53	0.43	20.95	48.95	.15
22584	SS	666.0 669.0	< 10	< 2	< 1	< 0.5	3	< 0.2	< 5	< 1	< 30	< 2	177	204	18	572	688	828	193	15.87	.05	2.74	1.37	.75	1.01	1.21	20.09	47.65	.08

Part of appendix 2-6. Saprolite information (bed2)

Assay Results for Wholerock Saprolite Samples

Sample Number	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P205 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22565	114	< 50	< 1	0.04	230	< 10	< 1	< 1	16	13	99	.13	20	13	23	14	25	105	<100	< 2
22567	30	< 50	< 1	0.02	140	< 10	2	< 1	9	36	480	.1	8	3	5	5	11	69	<100	< 2
22568	80	< 50	< 1	0.08	80	< 10	< 1	< 1	39	21	124	.13	22	14	7	9	16	103	<100	< 2
22570	18	< 50	< 1	< 0.01	96	< 10	1	< 1	6	30	244	.07	6	3	2	8	15	54	<100	< 2
22572	84	< 50	< 1	0.02	260	< 10	1	< 1	21	12	12	.05	14	12	6	4	9	127	<100	< 2
22574	60	< 50	< 1	0.04	70	< 10	1	< 1	19	14	11	.06	8	10	3	3	30	110	<100	< 2
22575	772	< 50	< 1	< 0.01	66	< 10	< 1	< 1	32	3	44	.1	26	62	9	5	12	56	<100	< 2
22577	502	< 50	< 1	< 0.01	52	< 10	< 1	< 1	13	41	226	.1	30	38	47	7	12	44	<100	< 2
22580	219	< 50	< 1	0.08	140	20	< 1	< 1	120	7	28	.09	46	23	7	3	22	251	<100	< 2
22583	167	< 50	< 1	0.15	74	< 10	< 1	< 1	28	14	70	.15	16	45	37	10	29	89	<100	< 2
22584	93	< 50	< 1	< 0.01	100	< 10	< 1	< 1	17	47	175	.08	26	46	168	62	32	61	<100	< 2

Part of appendix 2-6. Saprolite information (mineralogy)

Mineralogy of Saprolite Samples

Sample Number	Sample Type	Sampled Interval	Drift Type	Pyrite	Marcasite	Siderite	Hematite	Goethite	Ilmenite	Sphene	Rutile	Zircon	Garnet	Staur olite	Epidote	Pyroxene	Horn blende	Kyanite	Total	Quartz + Feldspar	Remarks
22325		144.0-156.0	48	2	7	14	9	2	7	0	1	-1	6	0	29	17	6	0	100	6	
22326		156.0-165.0	43	0	7	3	3	0	3	0	0	2	2	0	78	2	0	0	100	4	
22410		113.0-119.0	44	6	0	12	15	0	1	-2	0	0	12	-1	27	26	1	0	100	3	
22411		119.0-125.0	44	12	0	63	3	0	0	1	-1	2	3	0	6	10	0	0	100	1	
22421		198.5-212.0	43	20	0	30	3	0	4	0	1	0	9	0	27	5	1	0	100	4	
22425		212.0-224.0	42	5	0	6	1	-2	-2	0	-2	1	4	0	83	-1	-1	0	100	1	
22466		230.5-238.0	49	-1	0	0	11	-1	12	2	3	1	17	-1	32	17	5	0	100	7	
22469		270.0-275.0	44	0	0	0	0	0	0	0	99	-1	-1	0	0	0	0	0	100	5	
22481		219.0-226.5	42	0	0	71	2	0	4	-1	0	0	12	0	3	4	4	0	100	6	
22482		226.5-234.0	44	0	0	87	1	0	4	0	0	1	6	0	1	-1	-1	0	100	3	
22493		154.0-165.0	41	0	0	35	7	4	42	-1	0	0	3	0	1	-1	0	0	92	4	
22494		165.0-176.0	43	0	0	6	3	81	6	0	0	0	0	0	2	1	0	0	99	7	
22496		186.5-191.0	41	0	0	52	1	4	37	0	0	0	0	0	1	0	0	0	95	1	
22497		191.0-214.0	43	0	0	5	4	12	38	15	0	0	0	0	10	12	0	0	96	6	
22517		99.0-106.0	44	-2	0	0	3	0	-1	23	0	0	2	0	71	1	0	0	100	1	
22537		220.0-226.0	42	27	0	10	23	25	-1	0	0	0	2	0	6	7	0	0	100	14	

Appendix 2-7. All bedrock assays.

Sample Number	Sample Type	Drill Hole	Drift Type	Bedrock Type	Sampled Interval	Pt ppb	Pd ppb	Au ppb	Ag ppm	As ppm	Sb ppm	Se ppm	Bi ppm	W ppm	Mo ppm	Ba ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Cr ppm	Co ppm	Fe2O3 %	MnO %	MgO %	TiO2 %	CaO %	Na2O %	K2O %	Al2O3 %	SiO2 %
22309		301	34	VU/I	91.0- 95.0	23	< 2	2	< 0.2	< 1	1.0	2	< 1	< 30	< 2	101	75	19	79	69	438	49	10.21	.16	7.71	.75	9.45	2.6	0.80	14.95	51.48
22318		302	34	VU/I	79.0- 86.0	< 10	< 2	< 1	< 0.2	< 1	< 1.0	1	< 1	< 30	< 2	131	35	14	97	108	183	51	11.11	.19	5.56	1.39	7.73	2.37	0.48	16.12	50.99
22330		304	34	VC	55.0- 60.0	< 10	< 2	5	< 0.2	< 1	1.0	2	< 1	< 30	< 2	68	123	< 3	100	123	279	61	13.89	.21	7.66	1.37	10.66	1.73	0.42	14.4	47.22
22337		306	34	VU/I	131.0-136.5	< 10	8	8	< 0.2	< 1	< 1.0	2	< 1	< 30	< 2	179	53	34	92	64	100	36	7.8	.13	4.09	.72	7.22	2.81	0.71	14.97	57.34
22338	SS	306	34	VU/I	133.5-134.5	< 10	< 2	4	0.2	< 1	< 1.0	1	< 1	< 30	< 2	120	308	17	82	61	136	27	5.94	.1	3.52	.55	7.62	3	0.41	12.31	61.64
22353		310	34	MS	226.0-236.0	< 10	< 2	< 1	< 0.2	3	< 1.0	2	< 1	< 30	< 2	409	109	16	99	94	209	38	7.41	.11	5.29	.74	.79	3.86	1.35	16.25	60.5
22354	SS	310	34	MS	227.0-228.0	19	< 2	4	< 0.2	4	1.0	1	< 1	< 30	< 2	283	76	14	101	100	232	37	8.07	.15	5.72	.81	1.93	3.75	0.81	15.6	57.92
22359		311	34	GR/GD	141.0-146.0	< 10	< 2	< 1	< 0.2	< 1	< 1.0	1	< 1	< 30	< 2	706	3	12	100	23	80	25	6.51	.12	3.06	.6	4.46	5.31	1.84	17.07	59.37
22361		311	34	GR/GD	143.0-144.0	< 10	< 2	2	< 0.2	1	< 1.0	2	< 1	< 30	< 2	258	10	7	79	18	93	23	5.55	.09	2.6	.62	5.16	5.99	0.90	16.12	61.81
22377		313	34	VC	193.5-195.0	< 10	< 2	3	< 0.2	< 1	< 1.0	1	< 1	< 30	< 2	220	42	11	76	119	143	49	11.26	.13	5.78	.78	3.84	3.4	1.03	16.62	51.33
22378		313	34	GR	188.0-189.0	< 10	< 2	3	< 0.2	1	< 1.0	1	< 1	< 30	< 2	117	22	< 3	35	25	134	10	2.02	.02	.67	.15	1.4	5.25	0.62	12.55	73.47
22388		314	34	GR/GD	109.0-115.0	< 10	< 2	< 1	< 0.2	< 1	< 1.0	2	< 1	< 30	< 2	809	3	< 3	45	18	65	10	2.63	.06	1.33	.28	3.55	7.12	2.63	16.39	61.35
22389	SS	314	34	GR/GD	109.0-112.5	< 10	< 2	3	< 0.2	< 1	< 1.0	2	< 1	< 30	< 2	446	5	< 3	36	28	57	10	2.51	.05	1.07	.24	4.71	6.62	2.84	14.89	60.23
22400		315	34	VC	162.0-171.0	< 10	4	< 1	< 0.2	1	< 1.0	2	< 1	< 30	< 2	651	29	7	50	96	185	30	6.2	.07	3.02	.55	2.47	7.31	2.81	14.75	59.88
22407		318	34	SM	81.0- 89.0	< 10	5	< 1	< 0.2	1	< 1.0	1	< 1	< 30	< 2	500	66	27	60	97	201	34	6.61	.08	3.49	.6	1.34	3.7	1.62	15.34	63.19
22412		319	34	GR/GD	125.0-132.0	< 10	< 2	4	< 0.2	1	< 1.0	2	< 1	< 30	< 2	86	54	44	81	121	153	43	8.61	.12	5.16	1.11	7.35	2.72	0.39	16.41	53.43
22440		322	34	GR/GD	196.0-202.0	< 10	8	2	< 0.2	1	< 1.0	1	< 1	< 30	< 2	609	5	5	66	30	122	13	2.52	.05	1.08	.25	3.25	5.01	2.35	16.44	67.25
22448		323	34	V/S	135.0-143.0	< 10	< 2	< 1	0.4	1	1.0	1	< 1	< 30	< 2	91	98	7	122	80	144	62	13.45	.25	4.46	1.39	8.72	2.44	0.30	13.57	47.64
22449	SS	323	34	V/S	137.0-137.5	< 10	< 2	< 1	< 0.2	1	< 1.0	2	< 1	< 30	< 2	84	175	6	126	90	147	66	14.27	.26	5.09	1.41	8.31	2.48	0.26	13.65	47.69
22467		326	34	VC	251.0-255.0	< 10	5	< 1	< 0.2	3	< 1.0	2	< 1	< 30	< 2	46	8	< 3	20	57	57	11	1.19	.02	13.53	.49	.31	.1	0.90	13.79	61.74
22468		326	34	VC	255.0-270.0	< 10	< 2	< 1	< 0.2	1	< 1.0	1	< 1	< 30	< 2	44	11	10	30	55	57	11	1.32	.02	15	.52	.29	.09	0.77	14.56	59.91
22489		327	34	GR/GD	264.0-271.0	< 10	< 2	< 1	< 2.0	1	1.0	1	< 1	< 30	< 2	277	23	< 3	75	55	168	34	4.87	.07	1.44	.39	3.54	4.36	1.32	16.31	65.53
22498		329	34	V/S	214.0-226.0	< 10	< 2	< 1	< 0.2	2	< 1.0	2	< 1	< 30	< 2	31	25	26	68	23	32	78	14.32	.2	5.53	1.11	9.23	2.61	< 0.01	14.58	48.87
22502	SS	329	34	V/S	216.0-216.5	< 10	< 2	2	< 0.2	2	< 1.0	2	< 1	< 30	< 2	45	46	10	77	31	27	127	15.61	.25	5.25	1.71	8.05	2.46	0.14	15.2	45.8
22508		331	34	GR/GD	209.0-215.5	28	< 2	3	< 0.2	1	< 1.0	1	< 1	< 30	< 2	1093	54	10	25	31	162	6	1.2	.01	.16	.03	1.03	3.83	2.97	12.69	74.97
22518		401	34	PSA	109.0-116.0	< 10	< 2	< 1	< 2.0	1	1.0	1	< 1	< 30	< 2	240	83	16	88	94	157	58	10.17	.16	6.65	.96	12.45	2.13	0.41	16.56	47.73
22546		402	34	IF	211.5-274.0	< 10	14	< 1	< 0.2	4	1.0	1	< 1	< 30	< 2	14	6	23	20	10	65	25	54.67	.97	.92	.02	1.31	.08	0.15	.49	34.15
22547		402	34	PGVI	274.0-276.0	18	6	< 1	< 0.2	3	< 1.0	2	< 1	< 30	< 2	23	13	43	77	39	71	59	25.29	2.92	7.64	1.06	1.06	.11	0.21	10.53	40.59

Appendix 2-7. All Bedrock Assays, continued.

Sample Number	V ppm	Sn ppm	Te ppm	S ppm	F ppm	B ppm	Be ppm	Cd ppm	Li ppm	Rb ppm	Sr ppm	P205 %	Ga ppm	Sc ppm	Y ppm	La ppm	Ce ppm	Zr ppm	Nb ppm	Ta ppm
22309	218	< 50	< 5	0.04	320	< 10	< 1	< 1	24	130	154	.11	< 5	37	22	4	13	59	< 50	< 2
22318	243	< 50	< 5	0.02	450	< 10	< 1	< 1	17	270	292	.15	< 5	23	15	8	18	77	< 50	< 2
22330	302	< 50	< 5	0.14	390	< 10	< 1	< 1	14	150	87	.14	< 5	41	23	3	7	42	< 50	< 2
22337	173	< 50	< 5	0.02	560	< 10	< 1	< 1	15	225	133	.17	< 5	17	14	11	25	95	< 50	< 2
22338	146	< 50	< 5	0.03	430	< 10	< 1	< 1	11	230	100	.15	< 5	16	12	7	15	67	< 50	< 2
22353	138	< 50	< 5	0.18	1100	< 10	1	< 1	50	270	181	.22	< 5	14	10	35	65	135	< 50	< 2
22354	145	< 50	< 5	0.18	1050	< 10	< 1	< 1	55	310	194	.22	< 5	14	11	40	73	144	< 50	< 2
22359	130	< 50	< 5	0.03	840	< 10	1	< 1	13	170	770	.26	< 5	12	13	26	54	127	< 50	< 2
22361	115	< 50	< 5	0.01	1900	< 10	1	< 1	11	110	1051	.25	< 5	12	11	26	53	115	< 50	< 2
22377	191	< 50	< 5	0.01	1250	< 10	< 1	< 1	28	340	181	.13	< 5	24	14	6	14	58	< 50	< 2
22378	7	< 50	< 5	0.02	480	< 10	1	< 1	4	44	113	.06	< 5	4	29	26	49	179	< 50	< 2
22388	43	< 50	< 5	0.03	1000	< 10	3	< 1	1	155	241	.08	< 5	3	3	20	34	98	< 50	2
22389	42	< 50	< 5	0.03	740	< 10	4	< 1	< 1	155	242	.13	< 5	4	11	11	19	80	< 50	< 2
22400	112	< 50	< 5	0.05	7200	< 10	2	< 1	6	200	254	.12	< 5	14	9	24	46	97	< 50	< 2
22407	137	< 50	< 5	0.07	900	< 10	1	< 1	39	260	240	.17	< 5	14	14	31	58	114	< 50	< 2
22412	146	< 50	< 5	0.05	580	< 10	< 1	< 1	15	220	317	.22	< 5	19	14	9	21	71	< 50	< 2
22440	40	< 50	< 5	0.07	940	< 10	1	< 1	19	78	738	.14	< 5	4	4	17	29	81	< 50	< 2
22448	362	< 50	< 5	0.03	900	< 10	< 1	< 1	12	400	100	.14	< 5	37	30	6	16	81	< 50	< 2
22449	367	< 50	< 5	0.02	740	< 10	< 1	< 1	13	400	89	.16	< 5	37	27	6	16	81	< 50	< 2
22467	102	< 50	< 5	0.01	580	< 10	< 1	< 1	7	110	14	.17	< 5	16	22	17	39	110	< 50	< 2
22468	111	< 50	< 5	0.02	460	< 10	< 1	< 1	8	150	18	.19	< 5	14	18	23	49	118	< 50	< 2
22489	69	< 50	< 5	0.04	620	< 10	< 1	< 1	34	170	320	.14	< 5	6	8	12	24	73	< 50	< 2
22498	547	< 50	< 5	0.02	2400	< 10	< 1	< 1	15	250	232	.08	< 5	41	15	4	10	35	< 50	< 2
22502	872	< 50	< 5	0.02	540	< 10	< 1	< 1	15	340	225	.08	< 5	41	14	4	8	33	< 50	< 2
22508	11	< 50	< 5	0.05	1150	< 10	1	< 1	3	27	499	.06	< 5	2	1	3	7	47	< 50	< 2
22518	246	< 50	< 5	0.04	390	< 10	< 1	< 1	23	150	519	.17	< 5	31	14	11	24	47	< 50	< 2
22546	36	< 50	< 5	0.03	1100	< 10	1	< 1	15	830	49	.88	< 5	2	20	10	18	6	< 50	< 2
22547	250	< 50	< 5	0.02	380	< 10	< 1	< 1	10	810	35	.2	< 5	23	19	18	34	58	< 50	< 2

Appendix 2-8. Mineral point counts from nonmagnetic HMC samples, in order by sample number.

Sample Number	Sample Type	Drill Hole	Drift Type	Bedrock Type	Sampled Interval	Pyrite	Marcasite	Siderite	Hematite	Goethite	Ilmenite	Sphene	Rutile	Zircon	Garnet	Staur-olite	Epidote	Pyroxene	Horn-blende	Kyanite	Total	Quartz + Feldspar	Remarks
22301		301	11	VU/I	14.0- 20.0	-1	3	1	10	0	14	-1	1	3	29	0	19	18	2	0	100	6	
22302		301	11	VU/I	27.0- 37.0	2	1	1	13	1	8	-1	0	-1	27	0	29	11	7	0	100	5	
22303		301	11	VU/I	37.0- 47.0	2	6	1	18	0	12	2	-1	1	23	0	10	22	5	0	100	7	
22304		301	68	VU/I	47.0- 57.0	3	22	27	5	2	5	1	-1	-1	7	-2	18	3	7	0	100	4	
22305		301	61	VU/I	57.0- 67.0	1	25	28	7	1	9	0	0	0	11	0	11	3	4	0	100	4	
22306		301	61	VU/I	67.0- 78.0	10	0	32	3	2	19	1	0	0	7	2	11	5	8	0	100	5	
22307		301	51	VU/I	78.0- 87.0	-1	4	35	7	3	3	-1	0	-1	11	-2	21	9	7	0	100	6	
22310		302	21	VU/I	19.0- 27.5	-1	3	3	14	1	8	-1	0	1	27	1	25	9	8	0	100	0	
22311		302	21	VU/I	31.0- 36.0	1	4	3	17	3	7	1	0	-1	36	1	14	7	6	0	100	6	
22312		302	13	VU/I	36.0- 42.5	4	0	1	14	2	8	1	0	1	38	2	11	14	4	0	100	9	
22314		302	11	VU/I	49.5- 56.0	0	1	2	11	1	20	1	2	-1	23	2	18	15	4	0	100	5	
22316		302	53	VU/I	71.0- 76.0	0	-1	-1	10	1	25	1	2	1	16	3	21	12	8	0	100	6	
22319		303	21	GR/GD	66.0- 73.5	4	17	7	9	0	9	5	-1	1	22	0	14	5	7	0	100	7	
22319		303	21	GR/GD	66.0- 73.5	6	14	-1	14	0	11	3	0	2	17	0	21	6	6	0	100	5	DUPLICATE
22319		303	21	GR/GD	66.0- 73.5	1	15	5	2	0	12	1	0	3	24	0	23	7	7	0	100	5	DUPLICATE
22321		303	21	GR/GD	110.0-118.0	1	7	8	10	1	15	-1	1	1	22	1	11	13	9	0	100	7	
22325		303	48	GR/GD	144.0-156.0	2	7	14	9	2	7	0	1	-1	6	0	29	17	6	0	100	6	
22326		303	43	GR/GD	156.0-165.0	0	7	3	3	0	3	0	0	2	2	0	78	2	0	0	100	4	
22328		304	21	VC	26.0- 36.0	3	26	8	4	2	7	-1	1	1	18	0	10	13	7	0	100	6	
22332		306	21	VU/I	76.0- 83.0	-1	3	5	9	1	5	2	1	1	21	1	22	15	14	0	100	4	
22333		306	61	VU/I	100.5-105.0	1	2	8	5	0	16	2	1	1	18	-1	22	10	14	0	100	6	
22336		306	61	VU/I	120.0-129.0	-1	2	5	5	2	11	-1	1	1	16	1	25	18	13	0	100	4	
22339		307	11	GR/GD	100.5-110.5	2	2	2	8	0	10	1	1	-1	32	3	16	12	11	0	100	6	
22344		307	11	GR/GD	142.0-151.0	3	0	1	8	-1	16	0	1	1	17	-1	20	23	10	0	100	8	
22345		307	11	GR/GD	151.0-160.0	-1	0	0	10	-1	8	0	-1	0	23	-1	30	22	7	0	100	6	
22346		307	11	GR/GD	206.0-212.5	1	2	8	4	1	13	0	2	-1	22	1	18	22	6	0	100	5	
22348		307	11	GR/GD	220.0-226.0	-1	5	15	7	2	11	-1	-1	0	13	1	23	11	12	0	100	4	
22350		310	21	MS	183.5-193.5	2	9	10	8	-1	6	2	1	-1	23	-1	19	7	13	0	100	6	
22352		310	11	MS	221.0-224.5	1	21	2	7	1	5	-1	0	2	26	-1	14	13	8	0	100	5	
22355		311	21	GR/GD	42.0- 52.0	1	15	8	6	0	12	5	0	1	25	0	14	9	4	0	100	6	
22355		311	21	GR/GD	42.0- 52.0	-1	13	5	8	0	14	2	1	1	27	0	16	9	4	0	100	3	DUPLICATE
22355		311	21	GR/GD	42.0- 52.0	-1	17	7	12	0	7	3	0	3	17	0	20	12	2	0	100	7	DUPLICATE
22355		311	21	GR/GD	42.0- 52.0	0	16	3	3	1	12	-1	0	5	18	0	25	12	5	0	100	3	DUPLICATE
22356		311	21	GR/GD	110.0-120.0	1	2	1	6	0	3	-1	2	1	21	1	24	27	11	0	100	7	
22357		311	11	GR/GD	123.0-131.0	0	-1	12	9	2	10	-1	1	-1	12	1	31	10	12	0	100	4	
22358		311	11	GR/GD	131.0-140.0	1	1	5	11	2	9	1	2	-1	20	1	23	17	7	0	100	6	
22362		312	21	MS	136.0-146.0	2	7	5	7	2	6	1	2	2	23	1	29	12	1	0	100	5	
22365		312	21	MS	198.0-208.0	1	6	3	9	1	7	-1	1	-1	29	1	16	16	10	0	100	4	
22368		312	14	MS	281.5-291.5	3	-1	10	8	1	10	0	-1	1	28	-1	18	13	8	0	100	4	
22370		313	21	GR-VC	139.0-149.0	8	10	6	6	0	10	-1	-1	1	15	1	14	16	13	0	100	6	

Appendix 2-8. Mineral point counts from nonmagnetic HMC samples, in order by sample number.

Sample Number	Sample Type	Drill Hole	Drift Type	Bedrock Type	Sampled Interval	Pyrite	Marcasite	Siderite	Hematite	Goethite	Ilmenite	Sphene	Rutile	Zircon	Garnet	Staur-olite	Epidote	Pyroxene	Horn-blende	Kyanite	Total	Quartz + Feldspar	Remarks
22373		313	11	GR-VC	166.0-173.0	1	3	1	8	1	8	-1	1	0	7	-1	18	41	11	0	100	4	
22374		313	11	GR-VC	173.0-180.0	2	1	3	6	1	12	0	1	0	9	-1	21	31	13	0	100	6	
22385		314	11	GR/GD	90.5- 99.0	2	3	4	10	1	10	2	2	-1	17	-1	25	14	10	0	100	6	
22386		314	61	GR/GD	99.0-106.0	-1	2	1	8	1	10	1	3	1	22	-1	23	18	10	0	100	5	
22387		314	58	GR/GD	106.0-109.0	-1	3	1	4	2	3	0	-1	0	15	0	15	46	11	0	100	7	
22394		315	11	VC	115.0-125.0	-1	0	1	8	-2	5	-1	-2	1	13	-1	31	34	7	0	100	1	
22396		315	11	VC	133.5-143.5	2	-1	2	13	-2	-1	-2	0	-1	26	-2	15	35	7	0	100	4	
22397		315	11	VC	143.5-152.5	3	0	1	13	0	9	-2	-2	0	32	-2	16	22	4	0	100	4	
22398		315	11	VC	152.5-156.5	1	0	14	16	0	2	2	1	1	19	1	16	23	4	0	100	5	
22399		315	51	VC	156.5-162.0	1	0	5	24	0	1	2	0	1	13	0	26	1	6	0	80	-1	
22399		315	51	VC	156.5-162.0	1	0	2	10	-2	10	1	1	-2	14	-1	34	23	4	0	100	-1	DUPLICATE
22401		318	21	SM	29.5- 39.5	6	0	1	14	0	8	1	0	-1	26	-1	27	15	2	0	100	-1	
22403		318	13	SM	49.0- 60.0	6	0	2	10	0	8	1	0	2	27	-1	20	20	4	0	100	3	
22404		318	11	SM	60.0- 66.0	4	0	2	11	0	5	1	-2	-2	26	-1	17	30	4	0	100	3	
22406		318	11	SM	73.5- 81.0	3	0	3	15	0	-1	-2	1	0	18	-1	19	28	13	0	100	4	
22409		319	21	GR/GD	103.5-113.0	6	0	5	15	0	6	1	0	2	20	0	24	16	5	0	100	-1	
22410		319	44	GR/GD	113.0-119.0	6	0	12	15	0	1	-2	0	0	12	-1	27	26	1	0	100	3	
22411		319	44	GR/GD	119.0-125.0	12	0	63	3	0	0	1	-1	2	3	0	6	10	0	0	100	1	
22414		320	11	GR/GD	119.0-127.0	1	0	5	12	0	0	-1	1	-2	19	-1	22	33	7	0	100	3	
22416		320	51	GR/GD	152.0-158.0	7	0	31	13	0	2	0	-2	1	15	0	17	8	6	0	100	3	
22418		320	61	GR/GD	173.5-184.0	33	0	26	6	-2	1	0	0	0	12	0	7	13	2	0	100	1	
22421		320	43	GR/GD	198.5-212.0	20	0	30	3	0	4	0	1	0	9	0	27	5	1	0	100	4	
22425		320	42	GR/GD	212.0-224.0	5	0	6	1	-2	-2	0	-2	1	4	0	83	-1	-1	0	100	1	
22426		321	68	GR/GD	173.5-179.0	0	0	2	20	0	5	0	0	2	28	0	24	17	2	0	100	-1	
22427		321	51	GR/GD	193.0-201.0	4	0	7	4	0	8	3	0	2	18	0	19	32	3	0	100	2	
22429		321	51	GR/GD	211.0-220.0	2	0	6	4	0	1	1	1	1	27	0	19	30	7	0	100	2	
22434		322	11	GR/GD	88.5- 98.5	3	0	6	17	0	2	-2	0	0	23	-2	25	19	5	0	100	5	
22435		322	11	GR/GD	115.5-122.0	3	0	6	9	0	-1	1	0	1	19	-2	29	23	9	0	100	3	
22439		322	51	GR/GD	192.0-196.0	0	0	0	13	0	2	1	0	1	39	-2	24	17	3	0	100	4	
22442		323	21	V/S	80.0- 90.0	7	0	5	13	0	1	-1	-2	1	28	-1	19	20	6	0	100	3	
22445		323	13	V/S	130.0-135.0	4	0	16	18	0	6	-1	0	2	15	0	24	13	2	0	100	3	
22450		325	21	GR/GD	45.0- 52.0	2	0	8	12	0	4	-2	-2	1	24	1	22	18	8	0	100	-1	
22452		325	11	GR/GD	60.5- 69.0	-1	0	3	6	0	3	1	0	3	23	-2	23	34	4	0	100	3	
22462		326	11	VC	97.5-105.5	2	0	5	8	0	14	1	-1	0	23	0	25	20	2	0	100	5	
22463		326	11	VC	110.0-118.5	1	0	1	10	0	12	1	1	0	20	-1	33	17	4	0	100	7	
22465		326	50	VC	220.5-230.5	-1	0	0	12	-1	7	0	1	0	15	-1	29	27	9	0	100	8	
22466		326	49	VC	230.5-238.0	-1	0	0	11	-1	12	2	3	1	17	-1	32	17	5	0	100	7	
22469		326	44	VC	270.0-275.0	0	0	0	0	0	0	0	99	-1	-1	0	0	0	0	0	100	5	
22470		327	11	GR/GD	120.5-127.5	2	0	3	5	-1	8	1	0	1	20	-1	31	20	9	0	100	5	
22472		327	11	GR/GD	142.0-151.5	5	0	4	12	0	9	2	0	1	22	-1	20	24	1	0	100	2	

Appendix 2-8. Mineral point counts from nonmagnetic HMC samples, in order by sample number.

Sample Number	Sample Type	Drill Hole	Drift Type	Bedrock Type	Sampled Interval	Pyrite	Marcasite	Siderite	Hematite	Goethite	Ilmenite	Sphene	Rutile	Zircon	Garnet	Staurolite	Epidote	Pyroxene	Hornblende	Kyanite	Total	Quartz + Feldspar	Remarks
22474		327	51	GR/GD	162.5-172.0	6	0	2	5	-1	5	2	3	1	25	0	26	22	3	0	100	7	
22477		327	51	GR/GD	194.5-204.5	3	0	8	9	-1	12	1	1	0	15	-1	27	18	6	0	100	5	
22480		327	51	GR/GD	214.0-219.0	2	0	15	9	0	7	1	0	0	27	0	18	18	3	0	100	4	
22481		327	42	GR/GD	219.0-226.5	0	0	71	2	0	4	-1	0	0	12	0	3	4	4	0	100	6	
22482		327	44	GR/GD	226.5-234.0	0	0	87	1	0	4	0	0	1	6	0	1	-1	-1	0	100	3	
22490		329	51	V/S	120.5-131.0	4	0	10	12	2	5	-1	0	1	20	-1	24	16	6	0	100	7	
22492		329	51	V/S	146.5-154.0	6	0	28	7	-1	10	1	0	0	14	0	19	13	2	0	100	6	
22493		329	41	V/S	154.0-165.0	0	0	35	7	4	42	-1	0	0	3	0	1	-1	0	0	92	4	
22494		329	43	V/S	165.0-176.0	0	0	6	3	81	6	0	0	0	0	0	2	1	0	0	99	7	
22496		329	41	V/S	186.5-191.0	0	0	52	1	4	37	0	0	0	0	0	1	0	0	0	95	1	
22497		329	43	V/S	191.0-214.0	0	0	5	4	12	38	15	0	0	0	0	10	12	0	0	96	6	
22503		331	21	GR/GD	56.0- 66.0	15	0	9	6	0	11	0	1	1	22	1	16	13	5	0	100	10	
22504		331	61	GR/GD	149.5-156.5	9	0	6	11	-2	6	2	0	1	18	2	22	18	5	0	100	3	
22510		401	11	PSA	46.0- 55.0	6	0	3	22	0	14	-1	0	0	7	1	6	38	3	0	100	4	
22514		401	11	PSA	82.5- 89.0	-1	0	3	26	1	9	0	0	1	4	1	12	40	3	0	100	2	
22516		401	61	PSA	95.5- 99.0	2	0	2	24	0	10	-2	0	0	20	-2	28	12	2	0	100	4	
22517		401	44	PSA	99.0-106.0	-2	0	0	3	0	-1	23	0	0	2	0	71	1	0	0	100	1	
22519		402	21	IF	0.0- 8.0	1	0	16	28	4	7	0	0	0	7	0	3	30	3	0	99	1	
22523		402	21	IF	26.0- 30.5	3	0	18	28	3	5	0	-2	-2	8	0	8	25	2	0	100	1	
22524		402	71	IF	85.0- 89.5	5	0	15	30	-1	6	0	0	0	10	0	8	25	1	0	100	5	
22525		402	71	IF	89.5-100.0	4	0	23	28	0	17	0	0	-2	3	0	5	18	2	0	100	4	
22527		402	71	IF	105.0-113.0	8	0	11	13	-2	11	0	0	1	9	0	10	33	4	0	100	1	
22529		402	61	IF	124.0-133.0	30	0	37	11	0	6	0	0	1	4	0	5	5	1	0	100	3	
22530		402	61	IF	133.0-137.5	22	0	61	3	0	2	0	0	0	6	0	6	2	0	0	102	2	
22531		402	51	IF	137.5-144.0	12	0	50	19	4	2	0	0	0	6	0	4	1	2	0	100	6	
22535		402	51	IF	181.5-192.0	8	0	24	25	11	9	0	0	0	7	0	7	8	1	0	100	5	
22537		402	42	IF	220.0-226.0	27	0	10	23	25	-1	0	0	0	2	0	6	7	0	0	100	14	
22548		403	21	PQ	2.5- 8.0	0	0	5	26	10	15	1	0	-1	3	0	5	34	1	0	100	-1	
22550		403	11	PQ	16.0- 24.0	1	0	5	21	12	15	0	0	1	2	0	5	34	4	0	100	1	
22563	R	401	11	PSA	35.0- 46.0	1	0	7	26	-1	17	-1	0	0	6	0	6	33	4	0	100	1	
22564	R	402	71	IF	113.0-124.0	26	0	7	22	-2	12	0	0	0	5	0	8	19	1	0	100	4	

Appendix 2-9. Mineral point counts from nonmagnetic HMC samples, in order by drift type and rock type.

Sample Number	Sample Type	Drill Hole	Drift Type	Bedrock Type	Sampled Interval	Pyrite	Marcasite	Siderite	Hematite	Goethite	Ilmenite	Sphene	Rutile	Zircon	Garnet	Staur-olite	Epidote	Pyroxene	Horn-blende	Kyanite	Total	Quartz + Feldspar	Remarks
22373		313	11	GR-VC	166.0-173.0	1	3	1	8	1	8	-1	1	0	7	-1	18	41	11	0	100	4	
22374		313	11	GR-VC	173.0-180.0	2	1	3	6	1	12	0	1	0	9	-1	21	31	13	0	100	6	
22339		307	11	GR/GD	100.5-110.5	2	2	2	8	0	10	1	1	-1	32	3	16	12	11	0	100	6	
22344		307	11	GR/GD	142.0-151.0	3	0	1	8	-1	16	0	1	1	17	-1	20	23	10	0	100	8	
22345		307	11	GR/GD	151.0-160.0	-1	0	0	10	-1	8	0	-1	0	23	-1	30	22	7	0	100	6	
22346		307	11	GR/GD	206.0-212.5	1	2	8	4	1	13	0	2	-1	22	1	18	22	6	0	100	5	
22348		307	11	GR/GD	220.0-226.0	-1	5	15	7	2	11	-1	-1	0	13	1	23	11	12	0	100	4	
22357		311	11	GR/GD	123.0-131.0	0	-1	12	9	2	10	-1	1	-1	12	1	31	10	12	0	100	4	
22358		311	11	GR/GD	131.0-140.0	1	1	5	11	2	9	1	2	-1	20	1	23	17	7	0	100	6	
22385		314	11	GR/GD	90.5- 99.0	2	3	4	10	1	10	2	2	-1	17	-1	25	14	10	0	100	6	
22414		320	11	GR/GD	119.0-127.0	1	0	5	12	0	0	-1	1	-2	19	-1	22	33	7	0	100	3	
22434		322	11	GR/GD	88.5- 98.5	3	0	6	17	0	2	-2	0	0	23	-2	25	19	5	0	100	5	
22435		322	11	GR/GD	115.5-122.0	3	0	6	9	0	-1	1	0	1	19	-2	29	23	9	0	100	3	
22452		325	11	GR/GD	60.5- 69.0	-1	0	3	6	0	3	1	0	3	23	-2	23	34	4	0	100	3	
22470		327	11	GR/GD	120.5-127.5	2	0	3	5	-1	8	1	0	1	20	-1	31	20	9	0	100	5	
22472		327	11	GR/GD	142.0-151.5	5	0	4	12	0	9	2	0	1	22	-1	20	24	1	0	100	2	
22352		310	11	MS	221.0-224.5	1	21	2	7	1	5	-1	0	2	26	-1	14	13	8	0	100	5	
22550		403	11	PQ	16.0- 24.0	1	0	5	21	12	15	0	0	1	2	0	5	34	4	0	100	1	
22510		401	11	PSA	46.0- 55.0	6	0	3	22	0	14	-1	0	0	7	1	6	38	3	0	100	4	
22514		401	11	PSA	82.5- 89.0	-1	0	3	26	1	9	0	0	1	4	1	12	40	3	0	100	2	
22563	R	401	11	PSA	35.0- 46.0	1	0	7	26	-1	17	-1	0	0	6	0	6	33	4	0	100	1	
22404		318	11	SM	60.0- 66.0	4	0	2	11	0	5	1	-2	-2	26	-1	17	30	4	0	100	3	
22406		318	11	SM	73.5- 81.0	3	0	3	15	0	-1	-2	1	0	18	-1	19	28	13	0	100	4	
22394		315	11	VC	115.0-125.0	-1	0	1	8	-2	5	-1	-2	1	13	-1	31	34	7	0	100	1	
22396		315	11	VC	133.5-143.5	2	-1	2	13	-2	-1	-2	0	-1	26	-2	15	35	7	0	100	4	
22397		315	11	VC	143.5-152.5	3	0	1	13	0	9	-2	-2	0	32	-2	16	22	4	0	100	4	
22398		315	11	VC	152.5-156.5	1	0	14	16	0	2	2	1	1	19	1	16	23	4	0	100	5	
22462		326	11	VC	97.5-105.5	2	0	5	8	0	14	1	-1	0	23	0	25	20	2	0	100	5	
22463		326	11	VC	110.0-118.5	1	0	1	10	0	12	1	1	0	20	-1	33	17	4	0	100	7	
22301		301	11	VU/I	14.0- 20.0	-1	3	1	10	0	14	-1	1	3	29	0	19	18	2	0	100	6	
22302		301	11	VU/I	27.0- 37.0	2	1	1	13	1	8	-1	0	-1	27	0	29	11	7	0	100	5	
22303		301	11	VU/I	37.0- 47.0	2	6	1	18	0	12	2	-1	1	23	0	10	22	5	0	100	7	
22314		302	11	VU/I	49.5- 56.0	0	1	2	11	1	20	1	2	-1	23	2	18	15	4	0	100	5	
22403		318	13	SM	49.0- 60.0	6	0	2	10	0	8	1	0	2	27	-1	20	20	4	0	100	3	
22445		323	13	V/S	130.0-135.0	4	0	16	18	0	6	-1	0	2	15	0	24	13	2	0	100	3	
22312		302	13	VU/I	36.0- 42.5	4	0	1	14	2	8	1	0	1	38	2	11	14	4	0	100	9	
22368		312	14	MS	281.5-291.5	3	-1	10	8	1	10	0	-1	1	28	-1	18	13	8	0	100	4	
22370		313	21	GR-VC	139.0-149.0	8	10	6	6	0	10	-1	-1	1	15	1	14	16	13	0	100	6	
22319		303	21	GR/GD	66.0- 73.5	4	17	7	9	0	9	5	-1	1	22	0	14	5	7	0	100	7	
22319		303	21	GR/GD	66.0- 73.5	6	14	-1	14	0	11	3	0	2	17	0	21	6	6	0	100	5	DUPLICATE

Appendix 2-9. Mineral point counts from nonmagnetic HMC samples, in order by drift type and rock type.

Sample Number	Sample Type	Drill Hole	Drift Type	Bedrock Type	Sampled Interval	Pyrite	Marcasite	Siderite	Hematite	Goethite	Ilmenite	Sphene	Rutile	Zircon	Garnet	Staur-olite	Epidote	Pyroxene	Horn-blende	Kyanite	Total	Quartz + Feldspar	Remarks
22319		303	21	GR/GD	66.0- 73.5	1	15	5	2	0	12	1	0	3	24	0	23	7	7	0	100	5	DUPLICATE
22321		303	21	GR/GD	110.0-118.0	1	7	8	10	1	15	-1	1	1	22	1	11	13	9	0	100	7	
22355		311	21	GR/GD	42.0- 52.0	1	15	8	6	0	12	5	0	1	25	0	14	9	4	0	100	6	
22355		311	21	GR/GD	42.0- 52.0	-1	13	5	8	0	14	2	1	1	27	0	16	9	4	0	100	3	DUPLICATE
22355		311	21	GR/GD	42.0- 52.0	-1	17	7	12	0	7	3	0	3	17	0	20	12	2	0	100	7	DUPLICATE
22355		311	21	GR/GD	42.0- 52.0	0	16	3	3	1	12	-1	0	5	18	0	25	12	5	0	100	3	DUPLICATE
22356		311	21	GR/GD	110.0-120.0	1	2	1	6	0	3	-1	2	1	21	1	24	27	11	0	100	7	
22409		319	21	GR/GD	103.5-113.0	6	0	5	15	0	6	1	0	2	20	0	24	16	5	0	100	-1	
22450		325	21	GR/GD	45.0- 52.0	2	0	8	12	0	4	-2	-2	1	24	1	22	18	8	0	100	-1	
22503		331	21	GR/GD	56.0- 66.0	15	0	9	6	0	11	0	1	1	22	1	16	13	5	0	100	10	
22519		402	21	IF	0.0- 8.0	1	0	16	28	4	7	0	0	0	7	0	3	30	3	0	99	1	
22523		402	21	IF	26.0- 30.5	3	0	18	28	3	5	0	-2	-2	8	0	8	25	2	0	100	1	
22350		310	21	MS	183.5-193.5	2	9	10	8	-1	6	2	1	-1	23	-1	19	7	13	0	100	6	
22362		312	21	MS	136.0-146.0	2	7	5	7	2	6	1	2	2	23	1	29	12	1	0	100	5	
22365		312	21	MS	198.0-208.0	1	6	3	9	1	7	-1	1	-1	29	1	16	16	10	0	100	4	
22548		403	21	PQ	2.5- 8.0	0	0	5	26	10	15	1	0	-1	3	0	5	34	1	0	100	-1	
22401		318	21	SM	29.5- 39.5	6	0	1	14	0	8	1	0	-1	26	-1	27	15	2	0	100	-1	
22442		323	21	V/S	80.0- 90.0	7	0	5	13	0	1	-1	-2	1	28	-1	19	20	6	0	100	3	
22328		304	21	VC	26.0- 36.0	3	26	8	4	2	7	-1	1	1	18	0	10	13	7	0	100	6	
22310		302	21	VU/I	19.0- 27.5	-1	3	3	14	1	8	-1	0	1	27	1	25	9	8	0	100	0	
22311		302	21	VU/I	31.0- 36.0	1	4	3	17	3	7	1	0	-1	36	1	14	7	6	0	100	6	
22332		306	21	VU/I	76.0- 83.0	-1	3	5	9	1	5	2	1	1	21	1	22	15	14	0	100	4	
22493		329	41	V/S	154.0-165.0	0	0	35	7	4	42	-1	0	0	3	0	1	-1	0	0	92	4	
22496		329	41	V/S	186.5-191.0	0	0	52	1	4	37	0	0	0	0	0	1	0	0	0	95	1	
22425		320	42	GR/GD	212.0-224.0	5	0	6	1	-2	-2	0	-2	1	4	0	83	-1	-1	0	100	1	
22481		327	42	GR/GD	219.0-226.5	0	0	71	2	0	4	-1	0	0	12	0	3	4	4	0	100	6	
22537		402	42	IF	220.0-226.0	27	0	10	23	25	-1	0	0	0	2	0	6	7	0	0	100	14	
22326		303	43	GR/GD	156.0-165.0	0	7	3	3	0	3	0	0	2	2	0	78	2	0	0	100	4	
22421		320	43	GR/GD	198.5-212.0	20	0	30	3	0	4	0	1	0	9	0	27	5	1	0	100	4	
22494		329	43	V/S	165.0-176.0	0	0	6	3	81	6	0	0	0	0	0	2	1	0	0	99	7	
22497		329	43	V/S	191.0-214.0	0	0	5	4	12	38	15	0	0	0	0	10	12	0	0	96	6	
22410		319	44	GR/GD	113.0-119.0	6	0	12	15	0	1	-2	0	0	12	-1	27	26	1	0	100	3	
22411		319	44	GR/GD	119.0-125.0	12	0	63	3	0	0	1	-1	2	3	0	6	10	0	0	100	1	
22482		327	44	GR/GD	226.5-234.0	0	0	87	1	0	4	0	0	1	6	0	1	-1	-1	0	100	3	
22517		401	44	PSA	99.0-106.0	-2	0	0	3	0	-1	23	0	0	2	0	71	1	0	0	100	1	
22469		326	44	VC	270.0-275.0	0	0	0	0	0	0	0	99	-1	-1	0	0	0	0	0	100	5	
22325		303	48	GR/GD	144.0-156.0	2	7	14	9	2	7	0	1	-1	6	0	29	17	6	0	100	6	
22466		326	49	VC	230.5-238.0	-1	0	0	11	-1	12	2	3	1	17	-1	32	17	5	0	100	7	
22465		326	50	VC	220.5-230.5	-1	0	0	12	-1	7	0	1	0	15	-1	29	27	9	0	100	8	
22416		320	51	GR/GD	152.0-158.0	7	0	31	13	0	2	0	-2	1	15	0	17	8	6	0	100	3	

Appendix 2-9. Mineral point counts from nonmagnetic HMC samples, in order by drift type and rock type.

Sample Number	Sample Type	Drill Hole	Drift Type	Bedrock Type	Sampled Interval	Pyrite	Marcasite	Siderite	Hematite	Goethite	Ilmenite	Sphene	Rutile	Zircon	Garnet	Staur-olite	Epidote	Pyroxene	Horn-blende	Kyanite	Total	Quartz + Feldspar	Remarks
22427		321	51	GR/GD	193.0-201.0	4	0	7	4	0	8	3	0	2	18	0	19	32	3	0	100	2	
22429		321	51	GR/GD	211.0-220.0	2	0	6	4	0	1	1	1	1	27	0	19	30	7	0	100	2	
22439		322	51	GR/GD	192.0-196.0	0	0	0	13	0	2	1	0	1	39	-2	24	17	3	0	100	4	
22474		327	51	GR/GD	162.5-172.0	6	0	2	5	-1	5	2	3	1	25	0	26	22	3	0	100	7	
22477		327	51	GR/GD	194.5-204.5	3	0	8	9	-1	12	1	1	0	15	-1	27	18	6	0	100	5	
22480		327	51	GR/GD	214.0-219.0	2	0	15	9	0	7	1	0	0	27	0	18	18	3	0	100	4	
22531		402	51	IF	137.5-144.0	12	0	50	19	4	2	0	0	0	6	0	4	1	2	0	100	6	
22535		402	51	IF	181.5-192.0	8	0	24	25	11	9	0	0	0	7	0	7	8	1	0	100	5	
22490		329	51	V/S	120.5-131.0	4	0	10	12	2	5	-1	0	1	20	-1	24	16	6	0	100	7	
22492		329	51	V/S	146.5-154.0	6	0	28	7	-1	10	1	0	0	14	0	19	13	2	0	100	6	
22399		315	51	VC	156.5-162.0	1	0	5	24	0	1	2	0	1	13	0	26	1	6	0	80	-1	
22399		315	51	VC	156.5-162.0	1	0	2	10	-2	10	1	1	-2	14	-1	34	23	4	0	100	-1	DUPLICATE
22307		301	51	VU/I	78.0- 87.0	-1	4	35	7	3	3	-1	0	-1	11	-2	21	9	7	0	100	6	
22316		302	53	VU/I	71.0- 76.0	0	-1	-1	10	1	25	1	2	1	16	3	21	12	8	0	100	6	
22387		314	58	GR/GD	106.0-109.0	-1	3	1	4	2	3	0	-1	0	15	0	15	46	11	0	100	7	
22386		314	61	GR/GD	99.0-106.0	-1	2	1	8	1	10	1	3	1	22	-1	23	18	10	0	100	5	
22418		320	61	GR/GD	173.5-184.0	33	0	26	6	-2	1	0	0	0	12	0	7	13	2	0	100	1	
22504		331	61	GR/GD	149.5-156.5	9	0	6	11	-2	6	2	0	1	18	2	22	18	5	0	100	3	
22529		402	61	IF	124.0-133.0	30	0	37	11	0	6	0	0	1	4	0	5	5	1	0	100	3	
22530		402	61	IF	133.0-137.5	22	0	61	3	0	2	0	0	0	6	0	6	2	0	0	102	2	
22516		401	61	PSA	95.5- 99.0	2	0	2	24	0	10	-2	0	0	20	-2	28	12	2	0	100	4	
22305		301	61	VU/I	57.0- 67.0	1	25	28	7	1	9	0	0	0	11	0	11	3	4	0	100	4	
22306		301	61	VU/I	67.0- 78.0	10	0	32	3	2	19	1	0	0	7	2	11	5	8	0	100	5	
22333		306	61	VU/I	100.5-105.0	1	2	8	5	0	16	2	1	1	18	-1	22	10	14	0	100	6	
22336		306	61	VU/I	120.0-129.0	-1	2	5	5	2	11	-1	1	1	16	1	25	18	13	0	100	4	
22426		321	68	GR/GD	173.5-179.0	0	0	2	20	0	5	0	0	2	28	0	24	17	2	0	100	-1	
22304		301	68	VU/I	47.0- 57.0	3	22	27	5	2	5	1	-1	-1	7	-2	18	3	7	0	100	4	
22524		402	71	IF	85.0- 89.5	5	0	15	30	-1	6	0	0	0	10	0	8	25	1	0	100	5	
22525		402	71	IF	89.5-100.0	4	0	23	28	0	17	0	0	-2	3	0	5	18	2	0	100	4	
22527		402	71	IF	105.0-113.0	8	0	11	13	-2	11	0	0	1	9	0	10	33	4	0	100	1	
22564	R	402	71	IF	113.0-124.0	26	0	7	22	-2	12	0	0	0	5	0	8	19	1	0	100	4	

Appendix 3-1. This interpretation is from the geologic base map, scale 1:250,000 (Map 1-7). By using a map of that scale, significant errors could be present in this data.

Drill Hole No.	Underlying Bedrock Type	Distance Up Ice to Next Bedrock mi.	km	Next Bedrock Type	Rainy Lobe Direction(°)	Remarks
301	Ultramafic-Intermed. Volc.	.8	1	Granite/Granodiorite	140*	
302	Ultramafic-Intermed. Volc.	.9	1	Metasediment	130*	
303	Granite, Granodiorite	1.9	3	Volcaniclastic	115*	Did not drill to bedrock
304	Volcaniclastic Rocks	.2	<1	Mixed Volcanic/Clastic	115*	
306	Ultramafic-Intermed. Volc.	.3	<1	Granite/Granodiorite	135*	
307	Granite, Granodiorite	2.4	4	Volcaniclastic	140	Did not drill to bedrock
310	Medasedimentary Rocks	3.4	6	Schist-rich Migmatite	180	
311	Granite, Granodiorite	2.1	3	Mixed Volcanic/Clastic	180	
312	Metasedimentary Rocks	5.1	8	Schist-rich Migmatite	180	Did not drill to bedrock
313	Granite, Granodiorite/Volc.	.3	<1	Volcaniclastic	200	
314	Granite, Granodiorite	3.1	5	Volcaniclastic	200	
315	Volcaniclastic Rocks	.7	1	Granite/Granodiorite-Metased.	200	
318	Schist-rich Migmatite	4.0	7	Metavolcanics	180	
319	Granite, Granodiorite	4.6	8	Mafic-Ultramafic Int.	180	
320	Granite, Granodiorite	1.3	2	Mafic-Ultramafic Int.	180	Did not drill to bedrock
321	Granite, Granodiorite	8.5	14	Mixed Volcanic/Clastic	180	Did not drill to bedrock
322	Granite, Granodiorite	.1	<1	Mixed Volcanic/Clastic	200	
323	Mixed Volcanic/Clastic	.9	1	Volcaniclastic	200	
325	Granite, Granodiorite	5.1	8	Ultramafic-Intermed. Volc.	200	Did not drill to bedrock
326	Volcaniclastic Rocks	.1	<1	Ultramafic-Intermed. Volc.	200	
327	Granite, Granodiorite	1.7	3	Mixed Volcanic/Clastic	200	
329	Mixed Volcanic/Clastic Rocks	1.4	2	Iron Formation	200	
331	Granite, Granodiorite	.9	1	Mixed Volcanic/Clastic	200	
401	Metasedimentary	6.9	11	Siltstone-Graywacke-Argillite	230	
402	Iron Formation in Metasedimentary and Metavolcanic	1.3	2	Metasedimentary	230	
403	Quartzite	.6	1	Metadiabase and Metabasalt	230	Did not drill to bedrock

*hole near glacial striation measurement

Appendix 3-2. Discussion of the conceptual models for an Archean Superior Province gold mining-camp-scale-mineralization and also for landscape geochemistry.

A. There is very good potential for gold ore to occur in Minnesota within the Archean Superior Province, since 33 gold mines (each with production greater than 1 million ounces) exist in the same terrane in Canada (Hodgson & MacGeeham, 1982). It is fundamental to the design of this project that those gold deposits occur in clusters described by Colvine and Stewart (1984):

" Concentrations of gold deposits occur along linear zones that . . . have been variously termed "breaks," "growth faults" or facies changes . . . . Felsic and alkalic stocks, often porphyritic, are more common among these zones . . . . Gold mineralization is not uniformly distributed along these zones, <u>but is focused in individual mining camps up to tens of kilometers long and normally less than ten kilometers wide</u>.

In Minnesota, these potential occurrences are buried by layers of glacial drift which commonly contain clay layers that hinder many exploration techniques. A goal of this project is to utilize the glacial till that is so detrimental to other exploration methods. Basically, as the advancing glacial ice overrode any exposed bedrock, the ice eroded, transported, and deposited that bedrock some distance down its path. Ore clasts can occur within discrete dispersal trains[1] within the glacial drift (see Fig. 1 and 2) which provide geochemical trace element "targets" that in two dimensions can be orders of magnitude larger in size than the actual bedrock ore zone being sought.

In combination, a cluster of gold ore occurrences could be eroded and transported by the glacier and deposited as dispersal trains in till, thus providing the fundamental conceptual model for the widely spaced drilling of this reconnaissance survey (see example from literature in Fig. 3). That is, we sought large-scale targets of clustered dispersal trains of gold or pathfinder trace elements in the glacial drift. No intent was made to determine the nature of any specific gold occurrence; however, significant information is available for interpretation.

----

[1] Dispersal trains are so call since the dispersal of subglacial sediment down-ice from its bedrock source assumes the form of a negative exponential decay curve which can be quantified by its decay constant, half-distance, and total transport distance (Shilts, 1976; Clark, 1987).

B. The following is an excerpt from Hoffman and Thomson (1986) that describes "landscape geochemistry":

"(For a complete discussion of landscape geochemistry, which originated in Russia during the 1930's, you are referred to the useful textbook by Fortescue (1980)). Landscape geochemistry is a holistic approach that involves consideration of the complete environment. Landscape is here defined as a dynamic system involving the relationships between vegetation, soils, underlying rocks, the atmosphere, surface and groundwaters, geomorphology and geology. It is these interrelationships at or near the daylight surface that govern the migration (dispersion) of elements.

Fortescue (1980) identifies six fundamental concepts within landscape geochemistry. These are:

(1) Element abundances--the absolute or relative (partial, selectively extractable, etc.) abundance of elements in a given medium.
(2) Element migration--the movement of elements, their absolute and relative mobility and the forms in which movement takes place.
(3) Geochemical flow--the pathways or plumbing systems along which element migration takes place and the speed at which this proceeds.
(4) Geochemical gradients--the rate of change in the abundance of elements. This is often descriptive of changes in substrate, geochemical flow and geochemical barriers.
(5) Geochemical barriers--these are caused by changes in conditions usually related to migration (Eh, pH, etc.) or flow (permeability, porosity, etc.).
(6) Historical development--the position in time in the evolution of the landscape such as partial or complete development of a process with a defined end point (e.g., podzolization of soil), overprinting by a change of conditions, pollution, contamination, etc.

. . . From these fundamentals it is an easy step to consider geochemical data as an expression of landscape. By recognizing that patterns of element abundances are an expression of changes in a given medium, geochemical barriers, gradients, flow and migration, it is possible to interpret a landscape and identify the underlying controls. The exploration geochemist can be more specific and focus on those features that permit recognition of the presence of potentially economic mineral deposits and may used to locate the site of the mineralization."

Appendix 4-1. Detailed description of weathered bedrock cores.

Hole No.: OB-303

Footage	Description	Color	pH	Interp
149 - 159	Greenish gray clay to weathered rock. Quartz is unaltered. Some of the feldspars are unaltered (still vitreous). Relic texture from parent rock. Slight yellow tint in some areas. Very calcareous.	5 GY 6/1	9.4	Saprolite
159 - 163	Moderate olive-brown clay to weathered rock. Quartz unaltered, feldspars are altered (white powder). Chlorite rich. 162-163 powdered by drill. Very calcareous to slightly calcareous. Less calcareous in the more olive colored areas.	5 Y 4/4	8.7	Saprolite
163 - 166	Dusky yellow-green weathered rock to gritty clay. Becomes very grainy at 165′ with a few black pebbles (3mm). Feldspars and quartz unaltered, calcareous.	5 GY 5/2	9.5	Saprolite
166 - 169	Similar to above except more clayey. Very dry, calcareous.	5 GY 5/2	9.4	Saprolite
169 - 171	Similar to 156-159. Core has a powdered rind. Calcareous to noncalcareous. More calcareous in more weathered areas.	5 GY 6/1	9.0	Saprolite

Hole No.: OB-313

Footage	Description	Color	pH	Interp
180 - 189	Core stones, fines were lost.			
189 - 193.5	Pale green to grayish green weathered rock. Contains many fragments of less weathered rock (dark gray aphanitic). Light olive-brown (5Y 5/6) coating along fragment surfaces. White, powdery area at 193′. Drilled wet up to 190′ and fines were lost.	5 G 7/2 10 GY 5/2	7.5	Saprolite

Hole No.: OB-319

Footage	Description	Color	pH	Interp
113 - 115	Grayish yellow green sandy/gritty clay with large dark rock fragments (probably bedrock). Sand grains are mostly quartz and average .5 mm. Rusty-yellow staining in a few areas. Highly calcareous.	5 GY 7/2	8.8	Reworked Saprolite
115 - 125	Light greenish gray weathered rock and clay. Hard rock ("good core") for about 5" at 115′ (relatively unweathered). Rest is weathered rock fragments in a light greenish gray matrix. Fragments are lighter in color and contain a lot of quartz and altered feldspars. Blocky from 117 to 120.5 with larger fragments and blocks of hard rock with clay in between. Core becomes lighter at 117, and is very dry. Calcareous.	5 GY 8/1	8.8	Reworked Saprolite

Hole No.: OB-320

Footage	Description	Color	pH	Interp
198.5 - 201	Light greenish gray weathered rock and clay. Light olive-gray (5Y 5/2) 2 cm rind on core. Contains abundant quartz, powdery white feldspars and light greenish gray clay. Crystalline texture is somewhat preserved. Few areas of light brown clay (veins or staining?). Calcareous.	5 G 8/1	9.0	Saprolite
201 - 201.5	Dusky yellow-green clay. Still contains a lot of quartz up to 2 mm. A few areas rich in white, powdery feldspars. Core is very wet compared to above. Calcareous.	5 GY 5/2	9.1	Saprolite
202 - 203.5	Color change - same as above except color is grayish green. Abrupt contact with above color. Appears to be a zone of white powder along this contact. Core is very wet. Calcareous.	5 G 5/2	8.9	Saprolite
203.5 - 209	Dusky green and light greenish gray weathered rock and clay. Similar to 198.5-201 (except for olive-green rind) with dusky green clay marbled in. Some large pieces of quartz (1 cm). Slightly calcareous.	5 G 3/2 5 G 8/1	8.9	Saprolite
209 - 216	Light greenish gray weathered rock and clay. Same as 198.5-201. Calcareous.	5 G 8/1	9.1	Saprolite
216 - 224	Light greenish gray gritty clay. Almost all of rock texture is gone. More of a yellow cast or stain than above. Core is very dry. Slightly calcareous.	5 G 8/1	9.2	Saprolite

Hole No.: OB-326

Footage	Description	Color	pH	Interp
230.5 - 238	White to very light gray weathered rock and sandy/gritty clay. Some of the sand may be due to sluff material and drilling. Many 1 cm pebbles at 235-236. Less weathered fragments are talc-rich (greasy). Noncalcareous.	N9 - N8	9.1	Reworked Saprolite
238 - 251	Unknown			
251 - 270	Apparently rock and weathered rock. Drilled wet so fines were lost and recovered only rock.			
270 - 275	White, chalky clay (N9) and very light gray weathered rock (N8). Very similar to above without the sand and pebbles. Rock from 71.5-72. Noncalcareous.	N9	7.6	Saprolite

Hole No.: OB-327

Footage	Description	Color	pH	Interp
220 - 225	Greenish gray, pebbly, sandy, soft clay. Many gray to dark gray pebbles at 219-219.5 (up to 2 cm) contain 2-4 mm lumps of pure clay. Quartz is unaltered although rock texture is not preserved. More clay 220-225, no sand, still small 2 mm black pebbles at 200. Quartz appears to be altered, light brown 5 YR 5/6 staining on grains and around them. Light bluish gray area at 220-221.5 in middle of the core. Quartz has not altered in this area. Sandy sluff material contaminates(?) outer surface of core and in between sections of core. Calcareous.	5 GY 6/1	8.6	Kaolinitic Saprolite

Footage	Description	Color	pH	Interp
225 - 231	Greenish gray weathered rock and clay. The more clayey material is more yellow. Some pebbles of differing lithologies at 226.5 (reworked?) and a couple of cobbles at 225. Contains much quartz especially in the less weathered parts (10%). Core is rather broken up from 225-228. 228-231 "good core." Contains geothite. Noncalcareous.	5 GY 6/1	7.7	Kaolinitic Saprolite
231 - 234	Similar to above only dry and light in color. 232-234 rusty specs.	5 GY 8/1	8.0	
234 - 238.5	Light olive-gray weathered granite. Core is very hard. Noncalcareous. Feldspars are greenish gray. Biotite is unrecognizable and quartz is unaltered and in some cases stained red.	5 Y 6/1		Weathered Rock or Saprolite
232.5 - 242.5	Same as 225-231.	5 GY 6/1	7.3	Kaolinitic Saprolite
242.5 - 257	Light olive-gray weathered granite similar to 234-238.5.	5 Y 6/1		Weathered Rock or Saprolite
257 - 264	Greenish gray weathered granite (phenos 4 mm). Less weathered than above. Some biotite. Feldspars are white and chalky and quartz is unaltered. Becomes more weathered at about 263. Noncalcareous.	5 GY 6/1	8.3	

Hole No.: OB-329

Footage	Description	Color	pH	Interp
154 - 155	Dusky yellow-green pebbly clay - reworked saprolite. Red tint on the lower half. Most pebbles are dark gray and range up to 12 mm. One small limestone pebble. Appears to be some light gray lake clay worked in. Slightly calcareous.	5 GY 5/2	7.0	Reworked Saprolite
155 - 155.5	Light grayish green clay. 8 mm olive rind on outer edges of core (result of rotasonic drill). Slightly calcareous.	5 GY 8/1	8.0	Kaolinitic Saprolite
155.5 - 156.5	Moderate brown clay. Very homogeneous. Only a couple of green clay stringers. Slightly calcareous.	5 YR 4/4	8.0	Kaolinitic Saprolite
156.5 - 158	Yellowish gray clay. Clay is mottled with a light gray-green clay. Ranges from noncalcareous to calcareous.	5 Y 7/2	7.9	Kaolinitic Saprolite
158 - 159	Light olive-brown clay. Mottled with lighter and darker shades. Slightly calcareous to noncalcareous.	5 Y 5/6	8.6	Kaolinitic Saprolite
159 - 159.5	Dark yellowish brown clay. Has a small amount of green clay. Mostly noncalcareous except for a couple of calcite lenses at 159'.	10 YR 4/2	6.1	Kaolinitic Saprolite
159.5 - 160	Dusky yellow-green clay. Contains white powdery specs. Noncalcareous.	5 GY 5/2	8.2	Kaolinitic Saprolite
160 - 163	Core was drilled wet and so fines were washed away. Large pebbles of different lithologies were left. Result of drilling? They range in size up to 7 cm. There is one section of "good" core. It is moderate olive-brown pebbly clay. Most pebbles have weathered to soft material and range up to 10 mm in diameter. Dark purple in areas. Calcareous.	5 Y 4/4	9.0	Saprolite

Footage	Description	Color	pH	Interp
163 - 167	Hard weathered rock fragments in moderate olive-brown decayed rock material. Fragments/pebbles range up to 4 cm. Serpentine/chlorite giving green color. At 164' becomes much more clayey and more of a brownish gray color with some oxidized (red) areas that may be along relic fractures. Slightly calcareous.	5 Y 4/4	8.8	Saprolite
167 - 175	Moderate olive-brown clay/ weathered rock. Crystalline texture is still evident. Phenocrysts range from .5-2 mm. Contains chlorite/serpentine. Oxidized along some fractures. Slightly calcareous, very calcareous along some of the fractures. Texture becomes finer at 172.5-175.	5 Y 4/4	7.7	Saprolite
175 - 177.5	Fragments of dark yellowish brown weathered rock and clay. Light tan, muddy coating on core. Contains pink altered feldspars (less than .3 mm). Slightly calcareous to noncalcareous.	10 YR 4/2	8.8	Saprolite
177.5 - 181	Moderate yellowish brown to grayish green clay. Similar to above, only light tan is the more dominant color. Oxidized. Noncalcareous. Almost looks brecciated in areas.	10 YR 5/4	8.3	Saprolite
181 - 187	Dark yellowish brown pulverized saprolite. Result of drilling. Looks similar to above, only wet and muddy with rock fragments up to 4 cm. Noncalcareous.	10 YR 5/4		Saprolite
187 - 191	Light brown clay. Mottled with green clay in some areas. Slight relic rock texture is recognizable by lighter and darker shades. Noncalcareous.	5 YR 6/4	8.2	Oxidized - Saprolite

Footage	Description	Color	pH	Interp
191 - 214	Core was drilled wet--much of it was washed away. Light olive-gray to light brown weathered rock and clay. Rock texture is still evident, but relatively fine - .5 mm. Weathered rock is relatively soft (can cut through with a knife). Noncalcareous.	5 Y 5/2 5 YR 6/4	8.6	Saprolite

Hole No.: Becker 1-2

Footage	Description	Color	pH	Interp
621 - 628	Grayish pink to yellowish gray pisolitic clay. Pisolites up to 4 mm in diameter and range in color from dark reddish brown to white. Clay is very hard at 621' and becomes a lot softer at 626'. Also becomes lightly stained red at 621'. Noncalcareous.	5 YR 7/2 5 Y 7/2	7.1	Pisolitic Layer or Lateritic Duracrust
628 - 636	Moderate reddish brown, pisolitic clay. Abrupt color change to red. Pisolites are fewer in number and generally smaller although there are a couple large ones. Mottled red-gray zone at about 631',and then turns gray again from 634'-635', then red again from 635'-636'. Pisolites become smaller and fewer. Core is relatively soft. Noncalcareous.	10 R 6/6	8.2	Reworked Saprolite or Lower Pisolitic Layer
636 - 638	Grayish, yellow-green pisolitic clay. Pisolites average .3 - .5 mm. Large (15 mm) reddish purple pisolite at 638'.	5 GY 7/2	8.0	Kaolinitic Saprolite
638 - 647	Grayish, yellow-green clay. Very few pisolites. Relic texture from rock in patchy zones. Noncalcareous.	5 GY 7/2	7.5	Kaolinitic Saprolite

Footage	Description	Color	pH	Interp
647 - 655	Pale reddish brown clay. No pisolites. A few visible stringers of goethite. At 651′ many horizontal stringers of greenish gray clay and goethite. Relatively massive noncalcareous core.	10 R 5/4	7.9	Kaolinitic Saprolite
655 - 656	Yellowish gray and pale reddish brown mottled clay. Patchy relic texture from parent rock. Dark reddish brown phenos. of hematite. Noncalcareous.	5 Y 7/2	8.3	Kaolinitic Saprolite
656 - 660	Pale reddish brown clay, very broken. From 656-658 lenses of red-brown noncal-careous clay in sandy material with a high percentage of subrounded quartz grains (contamination?) and very calcareous. At 658 only reddish brown clay (noncalcareous). Core is broken up in small pieces.	10 R 5/4	8.8	Kaolinitic Saprolite
660 - 666	Pale, reddish brown and moderate olive-brown mottled clay. At 663′ clay becomes very waxy with more serpentine and chlorite and the core becomes more broken.	10 R 5/4	9.0	Saprolite
666 - 674	Moderate olive-brown clay. Very broken up, noncalcareous, mostly talc, contains slickensides. Calcareous along fracture surface at 669′. Slight hint of parent rock texture in some areas.	5 Y 4/4	9.0	Saprolite

Appendix 8-1: Interpretation of 1988 drill hole data for seismic depth-to-bedrock estimates.

OB-401

Starting with the largest error using estimates made without a NMO correction, OB-401 has a +83 percent variation. We note that a large part of this error is corrected using a NMO correction. With the NMO correction the shallower estimate is almost correct. This suggests two problems. The first is an incorrect velocity profile which the NMO correction took care of.

On the preliminary drill log 0-35 feet is logged as silts and sand, then from 35 feet to 99 feet there are sandy tills, with silty tills and some loamy tills. The water table is calculated as being 23 feet. Therefore the velocity of the saturated sediments would be taken from saturated silts and sand. These should have a higher velocity than the sandy tills below it. With a high Vrms model from equation two and increased T (time) for equation three the depth (D) would increase. The bedrock updip minus downdip velocity is only 111 feet per second and there isn't a near surface velocity change therefore a NMO correction should and did work very well.

The second problem is apparently a reflector below the regolith-bedrock interface. At present we are working on a way to recognize or correct this problem. See the description of Reflectors Below Bedrock Ledge within the Introduction and Conclusions sections.

OB-402

OB-402 has a -23 percent variation for a depth estimate without NMO. With a NMO correction the error is -21 percent. Both are the deep or expected bedrock estimates. The depth to water table is 10 to 15 feet, meaning the velocity model is derived from clay till for the unsaturated sediments and loamy till for saturated sediments. Below this there is a mixture of clay tills, loamy tills and sandy tills. From the log there is no reason to believe the velocity model isn't correct. The bedrock updip minus downdip velocity is 538 feet per second and the NMO correction should work reasonably well. Looking at first breaks on the seismic wave forms, OB-402 has a near surface velocity change of 4,378 feet per second and this is the problem. This problem is clearly observed on forward and reverse seismic waveforms of OB-302, Figure 8-1.

OB-302

OB-302 has a positive +17 percent variation for a depth estimate without a NMO correction and a +38 percent variation with a NMO correction. The problem with the +38 percent variation has already been explained but we want to look at other factors in both figures. OB-302 has a shallow water table, about five feet. This means the saturated velocity is a clay with fairly high velocity. Below this is a lot of sand or sandy till with some loamy or clayey till. The Vrms model has a higher velocity than it should have which would increase depths. The bedrock updip minus downdip velocity change is only 434 feet per second. If there hadn't been a large near surface velocity change the NMO probably would have corrected the error. Since both the shallow depth estimates and the deep estimates are deeper than the actual saprolite-bedrock interface, there is probably a bedrock reflector below this interface.

OB-313

OB-313 had a -15 percent error without a NMO correction and -9 percent error with a NMO correction. The depth of the water table was twelve feet. There was a near surface velocity change of 1321 feet feet second. The least squared trend line on Figure 8-2 shows a nine percent error would be expected. We did not have good data from both directions to measure bedrock updip minus downdip velocities.

The twelve foot water table would be an interface between loamy to silty till and sandy silt. The Vs is 5,255 feet per second and Vrms is 4,339 feet per second. This is below the average Vrms of 4,777 fps. This suggests the error will be negative which it is. It is difficult to judge from the drill log why the Vs would be low. There is a lot of sand with considerable rocky till and some cobbles with boulders. Of 188 feet only eleven feet contain clay while seventy-seven feet have coarser deposits than the sandy silt where the Vs was measured. If anything the Vrms should be high. The NMO correction reduced the error by six percent. This suggests reasonable updip minus downdip bedrock velocities and if near surface conditions had been uniform the NMO correction would have worked satisfactorily.

OB-326

OB-326 had a -13 percent error without an NMO correction and -2 percent with a NMO correction, suggesting a velocity model problem corrected by the NMO. The Vs is 5,770 and the Vrms is 5,019 fps, 242 fps above average. The near surface velocity change was 1,429 fps. This indicates an eight percent error would be expected. We didn't obtain bedrock updip minus downdip velocity analysis but the good results with a NMO correction show a reasonably horizontal interface.

The depth to water table is six feet. That would place this interface in a clay. Most of the hole from forty six to 230.5 feet is sand with some sandy silt. If anything the velocity model should be high and the error a positive error rather than a negative error. However, the corrected Vrms is 5,666 fps. There may be more clay in the sand than was recognized in the preliminary log.

Other Holes

The five holes discussed here all have more than ten percent error without using a NMO correction. Three of these were reduced to less than ten percent error using a NMO correction. However, two holes with less than ten percent error were increased to over ten percent error using a NMO correction and for two others the error was increased although not over ten percent. The holes where percentage of error was increased were OB-301, OB-302, OB-306, and OB-320. These had respective near surface velocity changes in feet per second of 4,534, 7,703, 4,496 and 1,030. These near surface velocity changes would account for most of the errors. OB-320 increased from a +1 percent error without a NMO correction to -10 percent with a NMO, but a change of 1,030 in near surface velocity would plot at +or- 8 percent error on the least squares plot, Figure 8-2.

```
01♦LBL "SEIS 12"
02 "LABEL"
03 PROMPT
04 "VU"
05 PROMPT
06 STO 00
07 "VS"
08 PROMPT
09 STO 01
10 +
11 RCL 01
12 RCL 00
13 -
14 X<>Y
15 /
16 SQRT
17 "XC"
18 PROMPT
19 2
20 /
21 *
22 STO 02
23 "DU="
24 ARCL X
25 AVIEW

26♦LBL 01
27 "DS"
28 PROMPT
29 STO 03
30 RCL 01
31 /
32 RCL 02
33 RCL 00
34 /
35 +
36 STO 04
37 RCL 03
38 RCL 01
39 *
40 RCL 02
41 RCL 00
42 *
43 +
44 RCL 04
45 /
46 STO 05

47♦LBL 02
48 "T"
49 PROMPT
50 X↑2
51 STO 06
52 "X"
53 PROMPT
54 X↑2
55 STO 07
56 RCL 05
57 RCL 06
58 *
59 RCL 07
60 -
61 4
62 /
63 SQRT
64 "DS="
65 ARCL X
66 AVIEW
67 STO 08
68 RCL 03
69 X>Y?
70 GTO 03
71 "X<Y?"
72 GTO 04
73 X=Y?
74 GTO 01

75♦LBL 03
76 RCL 03
77 5
78 -
79 STO 03
80 GTO 05

81♦LBL 05
82 RCL 01
83 /
84 RCL 02
85 RCL 00
86 /
87 +
88 STO 04
89 RCL 03
90 RCL 01
91 *
92 RCL 02
93 RCL 00
94 *
95 +
96 RCL 04
97 /
98 RCL 06
99 *
100 RCL 07
101 -
102 4
103 /
104 SQRT
105 "DS="
106 ARCL X
107 AVIEW
108 RCL 03
109 X<=Y?
110 GTO 01
111 GTO 03

112♦LBL 04
113 RCL 03
114 5
115 +
116 STO 03
117 GTO 06

118♦LBL 06
119 RCL 01
120 /
121 RCL 02
122 RCL 00
123 /
124 +
125 STO 04
126 RCL 03
127 RCL 01
128 *
129 RCL 02
130 RCL 00
131 *
132 +
133 RCL 04
134 /
135 RCL 06
136 *
137 RCL 07
138 -
139 4
140 /
141 SQRT
142 "DS="
143 ARCL X
144 AVIEW
145 STO 08
146 RCL 03
147 X<=Y?
148 GTO 04
149 RCL 08
150 RCL 03
151 -
152 "X<=0?"
153 GTO 01
154 GTO 04
155 END
```

```
          XEQ "SEIS 12"
LABEL
SAMPLE
                        RUN
VU
      1,415.0000        RUN
VS
      6,000.0000        RUN
XC
         32.3000        RUN
DU=12.6995
DS
        650.0000        RUN
T
           .2605        RUN
X
        328.0000        RUN
DS=734.6557
DS=734.8675
DS=735.0762
DS=735.2821
DS=735.4850
DS=735.6851
DS=735.8824
DS=736.0770
DS=736.2689
DS=736.4582
DS=736.6449
DS=736.8291
DS=737.0109
DS=737.1903
DS=737.3673
DS=737.5420
DS=737.7144
DS=737.8846
DS=738.0526
```

```
DS
        780.0000    RUN
T
           .2605    RUN
X
        328.0000    RUN
DS=739.3230
DS=739.1710
DS=739.0172
DS=738.8614
DS=738.7037
DS=738.5440
DS=738.3823
DS=738.2185
DS=738.0526
DS=737.8846
```

DS = DEPTH SATURATED LAYER
DU = DEPTH UNSATURATED LAYER
T = ARRIVAL TIME IN SECONDS
VS = VELOCITY SATURATED LAYER
VU = VELOCITY UNSATURATED LAYER
X = SHOT TO GEOPHONE DISTANCE
XC = CRITICAL DISTANCE

Appendix 8-3: HP-41C program for reflection seismic algorithm with a normal move out correction feature.

```
01♦LBL "SEIS 13"
02 "LABEL"
03 PROMPT
04 "VU"
05 PROMPT
06 STO 00
07 "VS"
08 PROMPT
09 STO 01
10 +
11 RCL 01
12 RCL 00
13 -
14 X<>Y
15 /
16 SQRT
17 "XC"
18 PROMPT
19 2
20 /
21 *
22 STO 02
23 "DU="
24 ARCL X
25 AVIEW
26 "TO"
27 PROMPT
28 STO 10

29♦LBL 01
30 "DS"
31 PROMPT
32 STO 03
33 RCL 01
34 /
35 RCL 02
36 RCL 00
37 /
38 +
39 STO 04
40 RCL 03
41 RCL 01
42 *
43 RCL 02
44 RCL 00
45 *
46 +
47 RCL 04
48 /
49 STO 05

50♦LBL 02
51 "TX"
52 PROMPT
53 X↑2
54 STO 06
55 "X"
56 PROMPT
57 X↑2
58 STO 07
59 RCL 05
60 RCL 06
61 *
62 RCL 07
63 -
64 4
65 /
66 SQRT
67 "DS="
68 ARCL X
69 AVIEW
70 STO 08
71 RCL 03
72 X>Y?
73 GTO 03
74 "X<Y?"
75 GTO 04
76 X=Y?
77 GTO 01

78♦LBL 03
79 RCL 03
80 5
81 -
82 STO 03
83 GTO 05

84♦LBL 05
85 RCL 01
86 /
87 RCL 02
88 RCL 00
89 /
90 +
91 STO 04
92 RCL 03
93 RCL 01
94 *
95 RCL 02
96 RCL 00
97 *
98 +
99 RCL 04
100 /
101 STO 12
102 RCL 06
103 *
104 RCL 07
105 -
106 4
107 /
108 SQRT
109 STO 08
110 RCL 03
111 X<=Y?
112 GTO 07
113 GTO 03

114♦LBL 04
115 RCL 03
116 5
117 +
118 STO 03
119 GTO 06

120♦LBL 06
121 RCL 01
122 /
123 RCL 02
124 RCL 00
125 /
126 +
127 STO 04
128 RCL 03
129 RCL 01
130 *
131 RCL 02
132 RCL 00
133 *
134 +
135 RCL 04
136 /
137 STO 12
138 RCL 06
139 *
140 RCL 07
141 -
142 4
143 /
144 SQRT
145 STO 08
146 RCL 03
147 X<=Y?
148 GTO 04
149 RCL 08
150 RCL 03
151 -
152 "X<=0?"
153 GTO 07
154 GTO 04

155♦LBL 07
156 RCL 12
157 SQRT
158 "VRMS="
159 ARCL X
160 AVIEW
161 RCL 08
162 "COR DS="
163 ARCL X
164 AVIEW
165 RCL 07
166 RCL 05
167 RCL 10
168 *
169 2
170 *
171 /
172 "NMC="
173 ARCL X
174 AVIEW
175 RCL 06
176 SQRT
177 RCL 10
178 -
179 STO 11
180 X>Y?
181 GTO 08
182 "X<Y?"
183 GTO 09
184 X=Y?
185 GTO 01

186♦LBL 08
187 RCL 05
188 RCL 05
189 .05
190 *
191 -
192 STO 05
193 RCL 10
194 *
195 2
196 *
197 RCL 07
198 X<>Y
199 /
200 RCL 11
201 X>Y?
202 GTO 08
203 X<=Y?
204 GTO 10

205♦LBL 09
206 RCL 05
207 RCL 05
208 .05
209 *
210 +
211 STO 05
212 RCL 10
213 *
214 2
215 *
216 RCL 07
217 X<>Y
218 /
219 RCL 11
220 X<=Y?
221 GTO 09
222 "X=>Y?"
223 GTO 10

224♦LBL 10
225 "NMC="
226 ARCL X
227 AVIEW
228 RCL 06
229 RCL 05
230 *
231 RCL 07
232 -
233 4
234 /
235 SQRT
236 "COR DS="
237 ARCL X
238 AVIEW
239 RCL 05
240 SQRT
241 "VRMS="
242 ARCL X
243 AVIEW
244 GTO 01
245 .END.
```

```
              XEQ "SEIS 13"
LABEL
SAMPLE DS=100 FT
                        RUN
VU
     1,000.00000        RUN
VS
     5,000.00000        RUN
XC
        24.49000        RUN
DU=9.99800
TO
          .05000        RUN
DS
        90.00000        RUN
TX
          .05154        RUN
X
        50.00000        RUN
DS=101.41908
VRMS=4,154.40888
COR DS=104.09925
NMC=0.00152
NMC=0.00154
COR DS=98.69290
VRMS=3,950.72013
DS
       110.00000        RUN
TX
          .05154        RUN
X
        50.00000        RUN
DS=104.86806
VRMS=4,123.23494
COR DS=103.27288
NMC=0.00143
NMC=0.00154
COR DS=99.31835
VRMS=3,974.25219
DS
```

DS = DEPTH SATURATED LAYER
DU = DEPTH UNSATURATED LAYER
NMC = NORMAL MOVE OUT TIME CALCULATED
NMO = NORMAL MOVE OUT TIME OBSERVED
TO = ARRIVAL TIME WITH NO OFFSET
TX = GEOPHONE ARRIVAL TIME IN SECONDS
VRMS = VELOCITY ROOT MEAN SQUARED
VS = VELOCITY SATURATED LAYER
VU = VELOCITY UNSATURATED LAYER
X = SHOT TO GEOPHONE DISTANCE
XC = CRITICAL DISTANCE

Appendix 9-1. Outline of analytical methods.

A. HMC - Nonmagnetic Fraction
Technical Service Laboratories

Element Symbol	Lower Detection Limit	Subsample Weight Assayed (g)	Extraction	Assay Method
Au	5 ppb	30-60	NA	INAA
Ag	.5 ppm	1	HF/HCL/HNO_3	AA
Sb	.2 ppm	30-60	NA	INAA
As	2 ppm	30-60	NA	INAA
Ba	200 ppm	30-60	NA	INAA
Bi	2 ppm	1	HF/HCL/HNO_2	Hydride ICP
Co	5 ppm	30-60	NA	INAA
Cr	10 ppm	30-60	NA	INAA
Cu	1 ppm	1	HF/HCL/HNO_2	AA
Fe	.02 %	30-60	NA	INAA
Pb	1 ppm	1	HF/HCL/HNO_3	AA
Mo	20 ppm	30-60	NA	INAA
Ni	2 ppm	1	HF/HCL/HNO_3	AA
Mn	1000 ppm	1	HF/HCL/HNO_3	ICP
Se	5 ppm	1	HCL/HNO_3	Hydride ICP
W	4 ppm	30-60	NA	INAA
Zn	10 ppm	1	HF/HCL/HNO_3	AA

Additional elements assayed: V, Th, Na, Ca, Ce, Eu, La, Hf, Ta, Ir, Sc, Sm, Lu, Yb

Note: Multi-acid digestion for Cu, Pb, Ni and Zn is a total metal extraction.

B. HMC - Magnetic Fraction
Technical Service Laboratories

Element Symbol	Lower Detection Limit	Subsample Weight Assayed (g)	Extraction	Assay Method
Ag	.5 ppm	1	HF/HCL/HNO_3	AA
As	1 ppm	1	HCL/HNO_3	Hydride ICP
Co	1 ppm	.2	HTF + TAD	WR
Cr	5 ppm	.2	HTF + TAD	WR
Cu	5 ppm	.2	HTF + TAD	WR
Pb	1 ppm	1	HF/HCL/HNO_3	AA
Mo	1 ppm	1	HF/HCL/HNO_3	AA
Ni	5 ppm	.2	HTF + TAD	WR
Mn	1 ppm	1	HF/HCL/HNO_3	AA
Se	1 ppm	1	HCL/HNO_3	Hydride ICP
Zn	5 ppm	.2	HTF + TAD	WR
V	1 ppm	.2	HTF + TAD	WR
Ti	100 ppm	.2	HTF + TAD	WR
Mg	100 ppm	.2	HTF + TAD	WR

Additional elements assayed: SiO_2, Al_2O_3, Fe_2O_3, CaO, MgO, Na_2O, K_2O, P_2O_5, Ba, Sr, Zr, Sc

Note: 1. HTF + TAD = high temperature fusion and total acid digestion.
2. Multi-acid digestion for Cu, Pb, Ni and Zn is a total metal extraction.

C. Silt/Clay Fraction
Technical Service Laboratories

Element Symbol	Lower Detection Limit	Subsample Weight Assayed (g)	Extraction	Assay Method
Au	1 ppb	30	Fire Assay	FA-ICP
Ag	.1 ppm	1	$HF/HCL/HNO_3$	AA
Sb	.5 ppm	1	HCL/HNO_3	Hydride ICP
As	1 ppm	1	HCL/HNO_3	Hydride ICP
Ba	1 ppm	.2	HTF + TAD	WR
Bi	1 ppm	1	$HF/HCL/HNO_3$	Hydride ICP
Co	1 ppm	1	$HF/HCL/HNO_3$	AA
Cr	1 ppm	1	$HF/HCL/HNO_3$	AA
Cu	1 ppm	1	$HF/HCL/HNO_3$	AA
Fe	100 ppm	.2	HFT + TAD	WR
Pb	1 ppm	1	$HF/HCL/HNO_3$	AA
Mo	1 ppm	1	$HF/HCL/HNO_3$	AA
Ni	2 ppm	1	$HF/HCL/HNO_3$	AA
Mn	1 ppm	1	$HF/HCL/HNO_3$	AA
Se	1 ppm	1	HCL/HNO_3	Hydride ICP
W	1 ppm	1	NA	INAA
Zn	1 ppm	1	$HF/HCL/HNO_3$	AA

Additional elements assayed: CO_2, SiO_2, Al_2O_3, CaO, MgO, Na_2O, TiO_2, K_2O, MnO, P_2O_5, Sr, Zr, Sc

Note: HTF + TAD = high temperature fusion and total acid digestion.

D. Bedrock/Saprolite (whole sample)
Technical Service Laboratories

Element Symbol	Lower Detection Limit	Subsample Weight Assayed (g)	Extraction	Assay Method
MgO	.01 %	.2	HTF + TAD	WR
MnO	.01 %	.2	HTF + TAD	WR
Fe_2O_3	.01 %	.2	HTF + TAD	WR
TiO_2	.01 %	.2	HTF + TAD	WR
V	1 ppm	.2	HTF + TAD	WR
Cr	5 ppm	.2	HTF + TAD	WR
Co	1 ppm	.2	HTF + TAD	WR
Ni	5 ppm	.2	HTF + TAD	WR
Cu	5 ppm	.2	HTF + TAD	WR
Pt	10 ppb	30	Fire Assay	FA-ICP
Pd	2 ppb	30	Fire Assay	FA-ICP
Ag	0.2 or .5 ppm	1	$HF/HCL/HNO_3$	AA
Au	1 ppb	30	Fire Assay	FA-ICP
As	1 ppm	1	$HF/HCL/HNO_3$	Hydride ICP
Sb	0.2 or 1 ppm	1	$HF/HCL/HNO_3$	Hydride ICP
Bi	3 ppm	1	$HF/HCL/HNO_3$	Hydride ICP
B	2 ppm	1	HCL/HNO_3	ICP
Ba	1 ppm	.2	HTF + TAD	WR
Te	1 or 5 ppm	1	HCL/HNO_3	Hydride ICP
Se	5 ppm	1	HCL/HNO_3	Hydride ICP
S	.01 ppm	.5	Unknown	LECO
F	20 ppm	.1	Unknown	SP ION EL
Sn	50 ppm	.2	HTF + TAD	WR
W	30 ppm	.2	HTF + TAD	WR
Mo	2 ppm	1	$HF/HCL/HNO_3$	AA
Pb	1 or 3 ppm	1	$HF/HCL/HNO_3$	AA
Zn	5 ppm	.2	HTF + TAD	WR
Cd	1 ppm	.2	HTF + TAD	WR
Li	1 ppm	1	$HF/HCL/HNO_3$	AA
Be	1 ppm	.2	HTF + TAD	WR
K_2O	.01 or .1%	.2	HTF + TAD	WR
Na_2O	.01 %	.2	HTF + TAD	WR
CaO	.01 %	.2	HTF + TAD	WR
Rb	20 ppm	1	$HF/HCL/HNO_3$	AA
Sr	1 ppm	.2	HTF + TAD	WR
P_2O_5	.01 %	.2	HTF + TAD	WR
Al_2O_3	.01 %	.2	HTF + TAD	WR
Ga	5 ppm	1	$HF/HCL/HNO_3$	ICP
Sc	1 ppm	.2	HTF + TAD	WR
Y	1 ppm	.2	HTF + TAD	WR
La	1 ppm	1	NA	INAA
Ce	5 ppm	1	NA	INAA
Zr	1 ppm	.2	HTF + TAD	WR
Nb	50 or 100 ppm	1	$HF/HCL/HNO_3$	ICP
Ta	2 ppm	1	NA	INAA

Additional elements assayed: SiO_2 and Th
Note: HTF + TAD = high temperature fusion and total digestion.

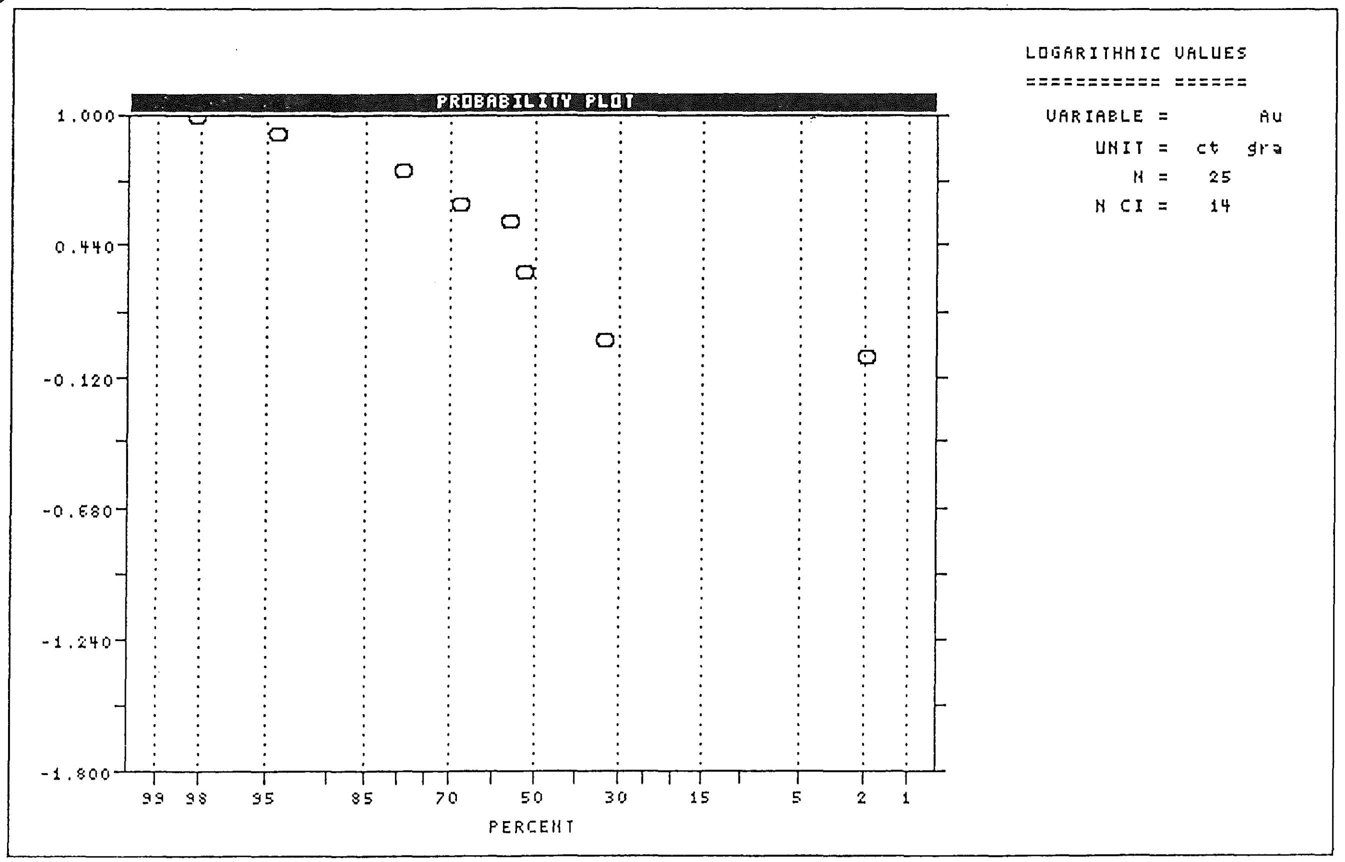
A

```
SUMMARY STATISTICS and HISTOGRAM                          LOGARITHMIC VALUES
 Variable =         Au            Unit =  ct  gra              N =      25

       Mean =     0.4088        Min =     0.0000  1st Quartile =     0.0000
Std. Dev. =     0.3430        Max =     0.9542        Median =     0.3010
       CV % =    83.8994   Skewness =     0.0382  3rd Quartile =     0.6990

          Anti-Log Mean =      2.563      Anti-Log Std. Dev. : (-)      1.164
                                                            (+)      5.647

=============================================================================
  %    cum %    antilog  cls int  (# of bins = 14   -  bin size =    0.0734)
-----  -----  ---------  -------  ----------------------------------------
 0.00   1.92      0.919  -0.0367
32.00  32.69      1.088   0.0367  ********
 0.00  32.69      1.289   0.1101
 0.00  32.69      1.526   0.1835
 0.00  32.69      1.807   0.2569
20.00  51.92      2.140   0.3303  *****
 0.00  51.92      2.533   0.4037
 0.00  51.92      3.000   0.4771
 4.00  55.77      3.552   0.5505  *
12.00  67.31      4.207   0.6239  ***
 0.00  67.31      4.981   0.6973
12.00  78.85      5.898   0.7707  ***
 0.00  78.85      6.985   0.8441
16.00  94.23      8.271   0.9175  ****
 4.00  98.08      9.794   0.9909  *
-----------------------------------------------------------------------------
                                  0          1          2          3         4
```

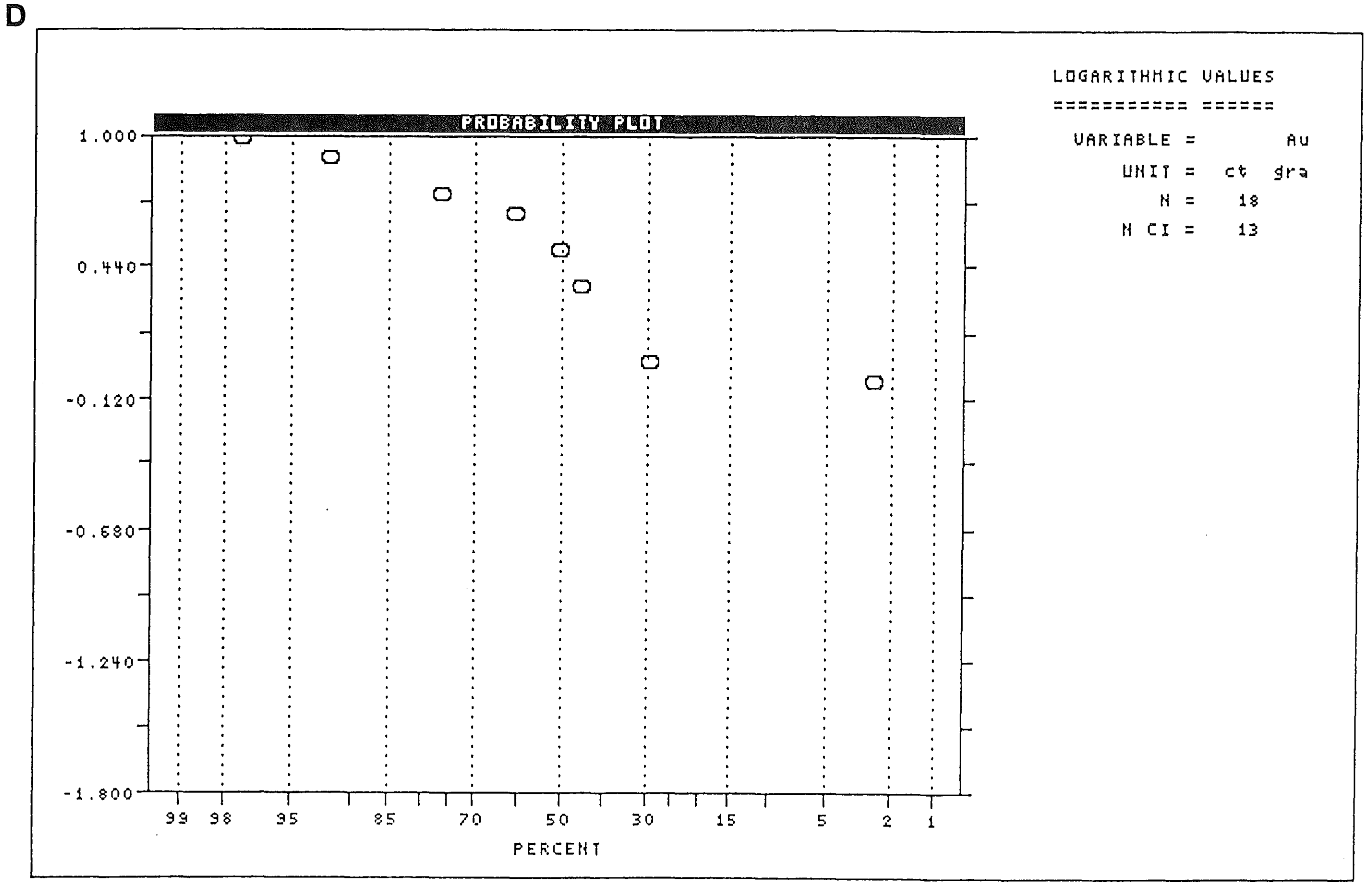
C

```
SUMMARY STATISTICS and HISTOGRAM                          LOGARITHMIC VALUES
 Variable =         Au            Unit =  ct  gra              N =      18

       Mean =     0.4539        Min =     0.0000  1st Quartile =     0.0000
Std. Dev. =     0.3459        Max =     0.9542        Median =     0.6021
       CV % =    76.2066   Skewness =    -0.1747  3rd Quartile =     0.6990

          Anti-Log Mean =      2.844      Anti-Log Std. Dev. : (-)      1.282
                                                            (+)      6.308

=============================================================================
  %    cum %    antilog  cls int  (# of bins = 13   -  bin size =    0.0795)
-----  -----  ---------  -------  ----------------------------------------
 0.00   2.63      0.913  -0.0398
27.78  28.95      1.096   0.0398  *****
 0.00  28.95      1.316   0.1193
 0.00  28.95      1.581   0.1988
 0.00  28.95      1.898   0.2783
16.67  44.74      2.280   0.3578  ***
 0.00  44.74      2.738   0.4374
 5.56  50.00      3.288   0.5169  *
 0.00  50.00      3.948   0.5964
11.11  60.53      4.742   0.6759  **
16.67  76.32      5.694   0.7554  ***
 0.00  76.32      6.839   0.8350
16.67  92.11      8.213   0.9145  ***
 5.56  97.37      9.863   0.9940  *
-----------------------------------------------------------------------------
                                  0          1          2          3         4
```

B



D



Appendix 10-1. Histograms and probability plots for gold grain count in the nonmagnetic HMC fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for all nonmagnetic samples regardless of underlying bedrock type.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = Au Unit = ppb N = 29

Mean =	1.9909	Min =	0.6990	1st Quartile =	1.7577
Std. Dev. =	0.5712	Max =	2.9518	Median =	1.8808
CV % =	28.6924	Skewness =	-0.4179	3rd Quartile =	2.4018

Anti-Log Mean = 97.928 Anti-Log Std. Dev. : (-) 26.283
(+) 364.877

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.1609)
0.00	1.67	4.154	0.6185	
6.90	8.33	6.018	0.7794	**
0.00	8.33	8.717	0.9403	
3.45	11.67	12.626	1.1013	*
0.00	11.67	18.289	1.2622	
3.45	15.00	26.491	1.4231	*
0.00	15.00	38.372	1.5840	
10.34	25.00	55.582	1.7449	***
31.03	55.00	80.511	1.9059	*********
6.90	61.67	116.620	2.0668	**
0.00	61.67	168.924	2.2277	
6.90	68.33	244.686	2.3886	**
17.24	85.00	354.428	2.5495	*****
0.00	85.00	513.388	2.7104	
6.90	91.67	743.642	2.8714	**
6.90	98.33	1077.165	3.0323	**

0 1 2 3 4

C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = Au Unit = ppb N = 22

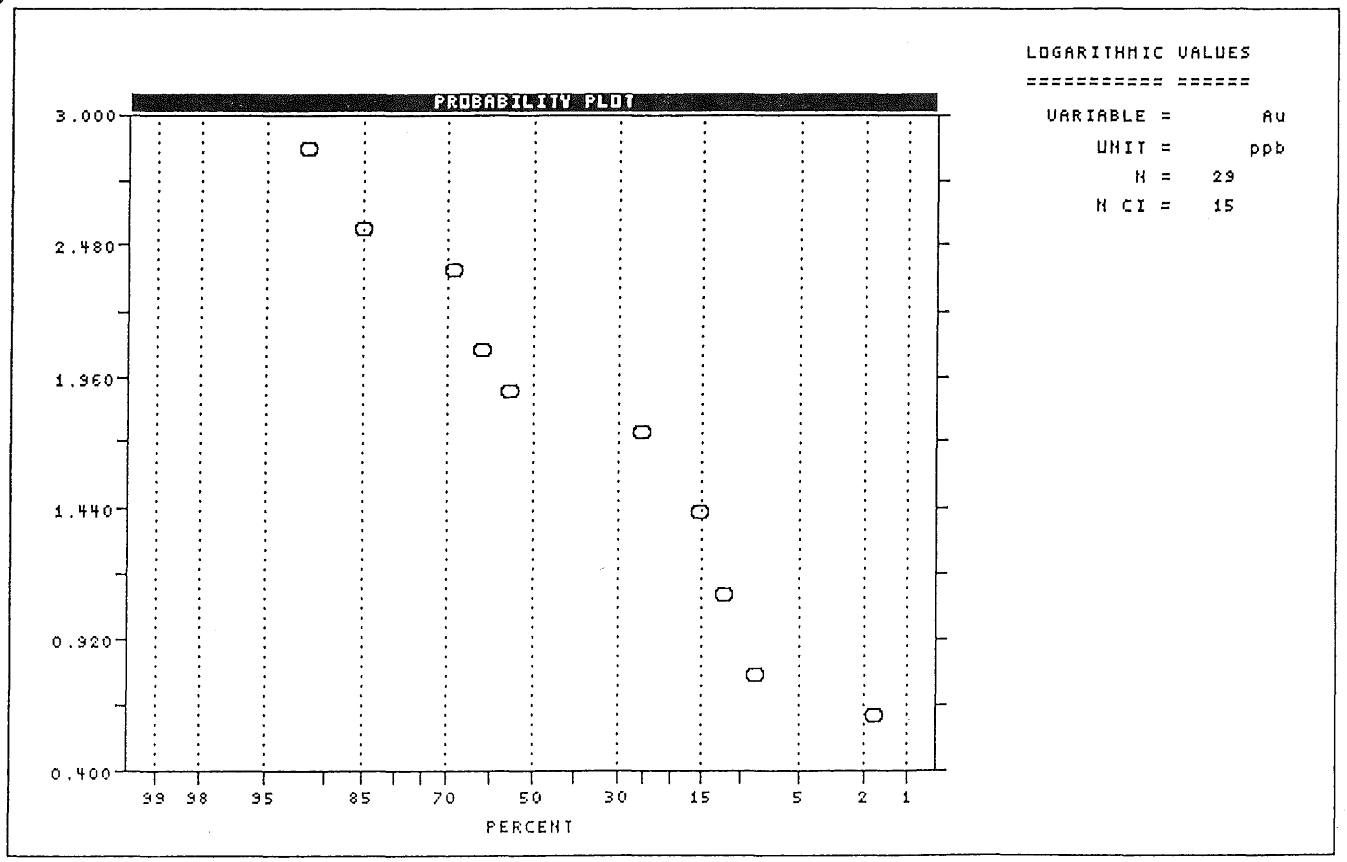
Mean =	2.1760	Min =	0.6990	1st Quartile =	1.8351
Std. Dev. =	0.7394	Max =	4.4393	Median =	2.1271
CV % =	33.9807	Skewness =	0.7972	3rd Quartile =	2.5034

Anti-Log Mean = 149.962 Anti-Log Std. Dev. : (-) 27.325
(+) 822.990

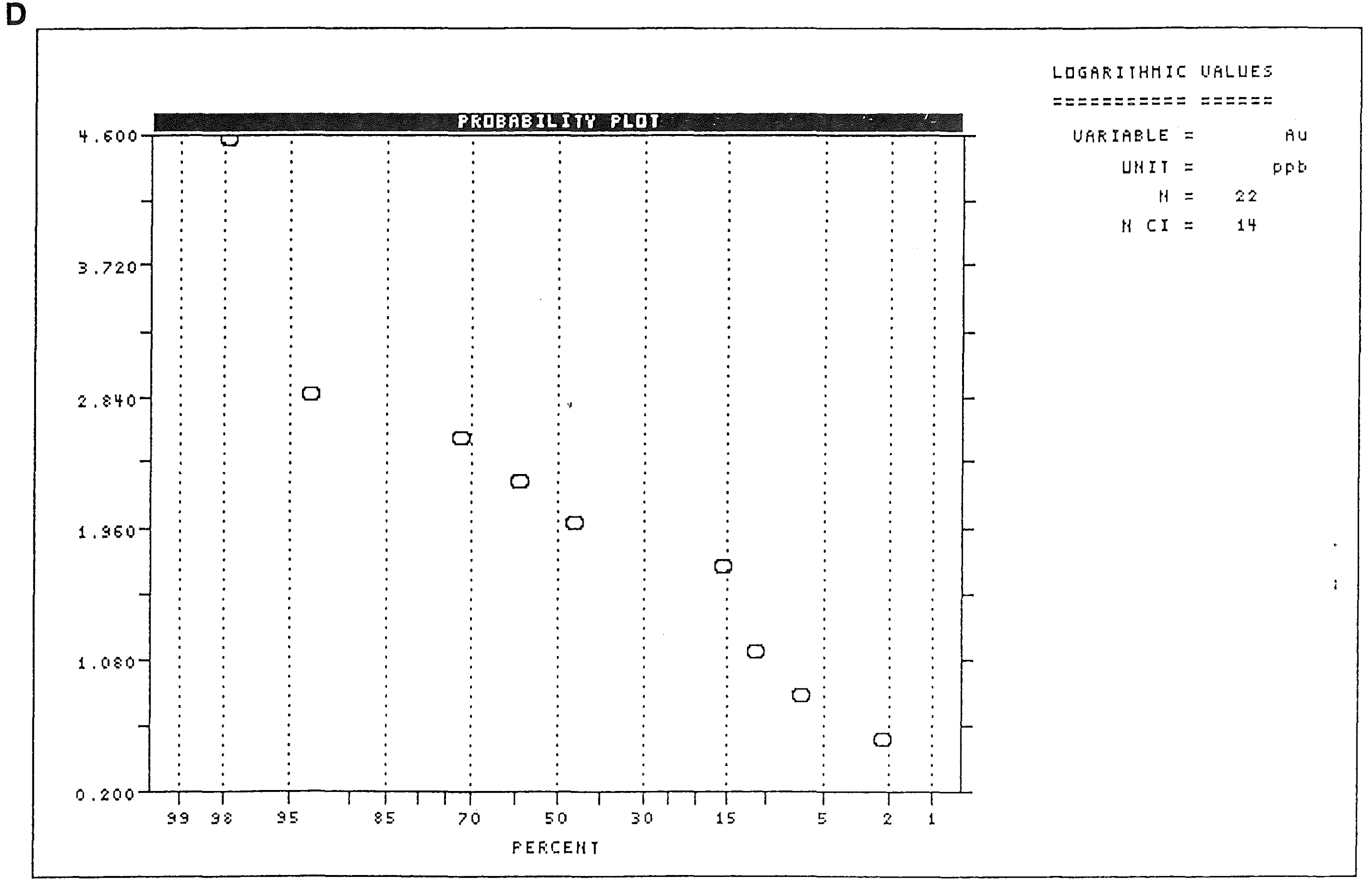
%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.2877)
0.00	2.17	3.590	0.5551	
4.55	6.52	6.964	0.8428	*
4.55	10.87	13.507	1.1306	*
0.00	10.87	26.198	1.4183	
4.55	15.22	50.815	1.7060	*
31.82	45.65	98.562	1.9937	*******
13.64	58.70	191.175	2.2814	***
13.64	71.74	370.810	2.5692	***
22.73	93.48	719.236	2.8569	*****
0.00	93.48	1395.056	3.1446	
0.00	93.48	2705.901	3.4323	
0.00	93.48	5248.463	3.7200	
0.00	93.48	10180.108	4.0078	
0.00	93.48	19745.703	4.2955	
4.55	97.83	38299.473	4.5832	*

0 1 2 3 4

B



D



Appendix 10-1. Histograms and probability plots for Au in the nonmagnetic HMC fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = As Unit = ppm N = 29

Mean =	1.4505	Min =	1.2553	1st Quartile =	1.3756
Std. Dev. =	0.1124	Max =	1.6812	Median =	1.4624
CV % =	7.7525	Skewness =	-0.0458	3rd Quartile =	1.5117

Anti-Log Mean = 28.215 Anti-Log Std. Dev. : (-) 21.779 (+) 36.554

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0304)
0.00	1.67	17.380	1.2401	
10.34	11.67	18.642	1.2705	***
3.45	15.00	19.995	1.3009	*
0.00	15.00	21.446	1.3313	
10.34	25.00	23.002	1.3618	***
3.45	28.33	24.671	1.3922	*
10.34	38.33	26.462	1.4226	***
3.45	41.67	28.382	1.4530	*
24.14	65.00	30.442	1.4835	*******
6.90	71.67	32.651	1.5139	**
10.34	81.67	35.021	1.5443	***
10.34	91.67	37.562	1.5747	***
0.00	91.67	40.288	1.6052	
0.00	91.67	43.212	1.6356	
0.00	91.67	46.348	1.6660	
6.90	98.33	49.711	1.6965	**

0 1 2 3 4

C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = As Unit = ppm N = 22

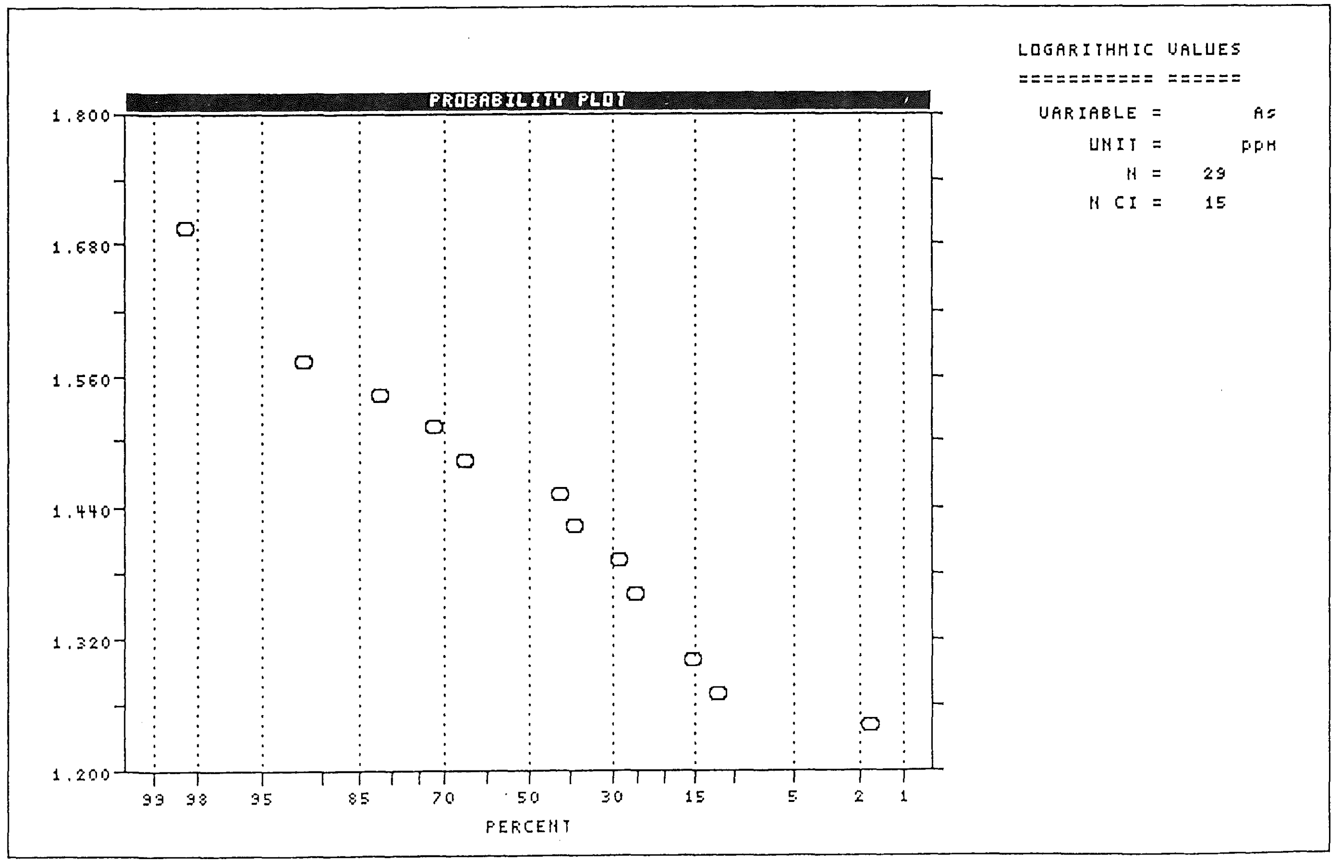
Mean =	1.3791	Min =	1.0000	1st Quartile =	1.2782
Std. Dev. =	0.2099	Max =	2.1139	Median =	1.3979
CV % =	15.2177	Skewness =	1.6936	3rd Quartile =	1.4232

Anti-Log Mean = 23.938 Anti-Log Std. Dev. : (-) 14.764 (+) 38.810

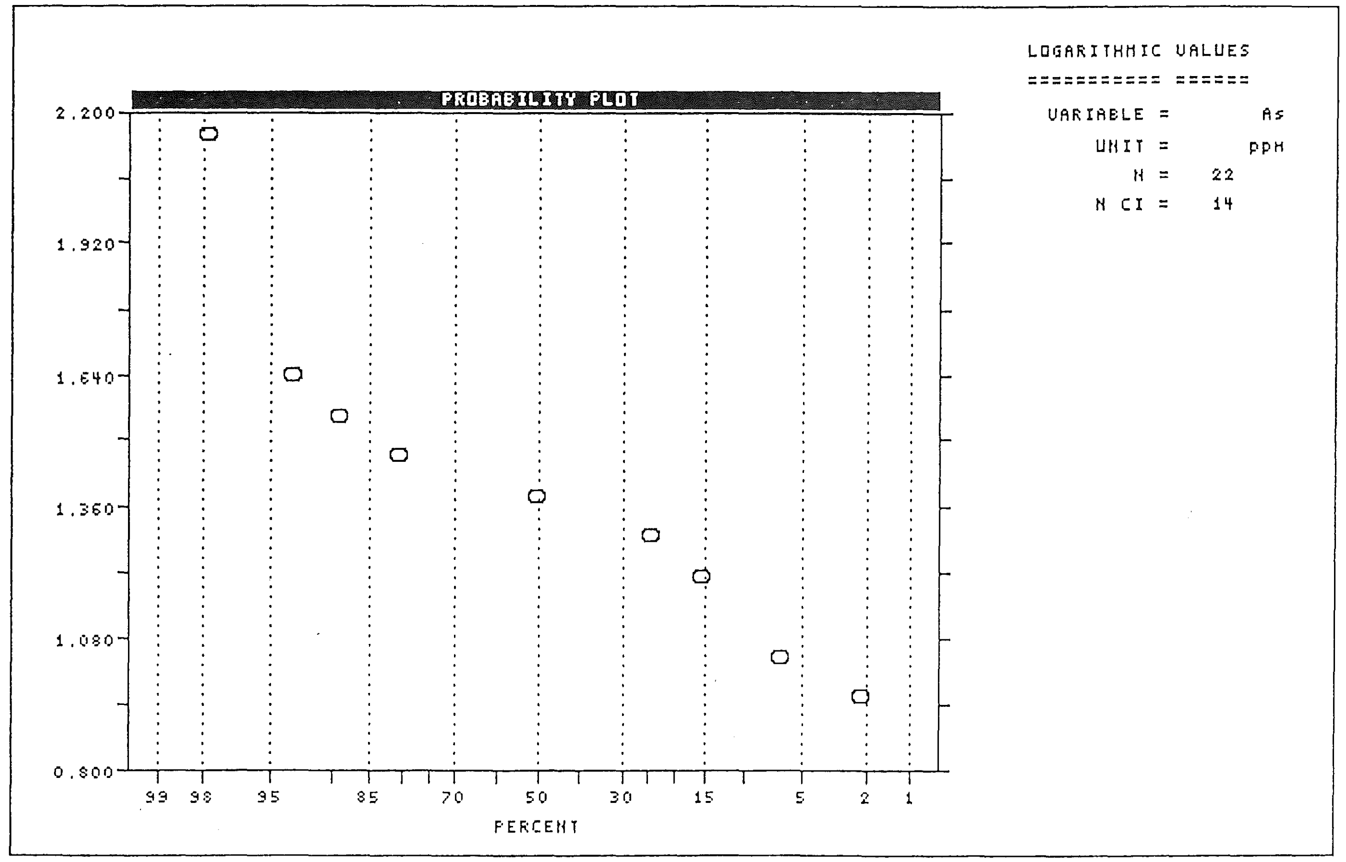
%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0857)
0.00	2.17	9.061	0.9572	
4.55	6.52	11.037	1.0428	*
0.00	6.52	13.444	1.1285	
9.09	15.22	16.376	1.2142	**
9.09	23.91	19.948	1.2999	**
27.27	50.00	24.299	1.3856	******
31.82	80.43	29.599	1.4713	*******
9.09	89.13	36.056	1.5570	**
4.55	93.48	43.920	1.6427	*
0.00	93.48	53.499	1.7283	
0.00	93.48	65.168	1.8140	
0.00	93.48	79.382	1.8997	
0.00	93.48	96.697	1.9854	
0.00	93.48	117.788	2.0711	
4.55	97.83	143.479	2.1568	*

0 1 2 3 4

B



D



Appendix 10-1. Histograms and probability plots for As in the nonmagnetic HMC fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

SUMMARY STATISTICS and HISTOGRAM LOGARITHMIC VALUES

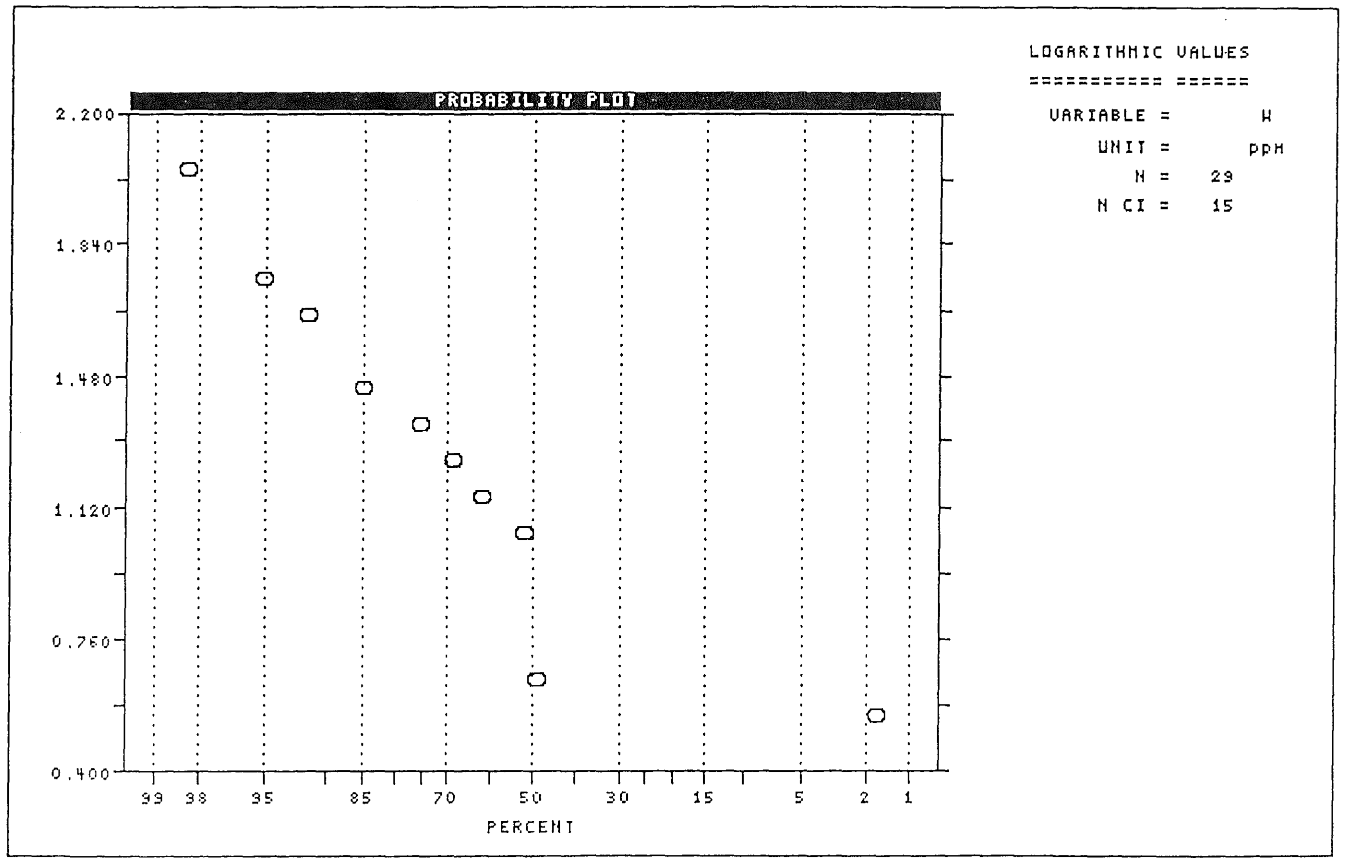
Variable = W Unit = ppm N = 29

Mean =	0.9923	Min =	0.6021	1st Quartile =	0.6021
Std. Dev. =	0.4328	Max =	2.0000	Median =	0.7782
CV % =	43.6146	Skewness =	0.5908	3rd Quartile =	1.2947

Anti-Log Mean = 9.824 Anti-Log Std. Dev. : (-) 3.627
(+) 26.611

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0999)
0.00	1.67	3.566	0.5521	
48.28	48.33	4.487	0.6520	**************
0.00	48.33	5.647	0.7518	
0.00	48.33	7.107	0.8517	
0.00	48.33	8.944	0.9515	
3.45	51.67	11.256	1.0514	*
10.34	61.67	14.166	1.1513	***
6.90	68.33	17.828	1.2511	**
6.90	75.00	22.437	1.3510	**
10.34	85.00	28.236	1.4508	***
0.00	85.00	35.535	1.5507	
6.90	91.67	44.721	1.6505	**
3.45	95.00	56.282	1.7504	*
0.00	95.00	70.831	1.8502	
0.00	95.00	89.140	1.9501	
3.45	98.33	112.183	2.0499	*
				0 1 2 3 4

B



C

SUMMARY STATISTICS and HISTOGRAM LOGARITHMIC VALUES

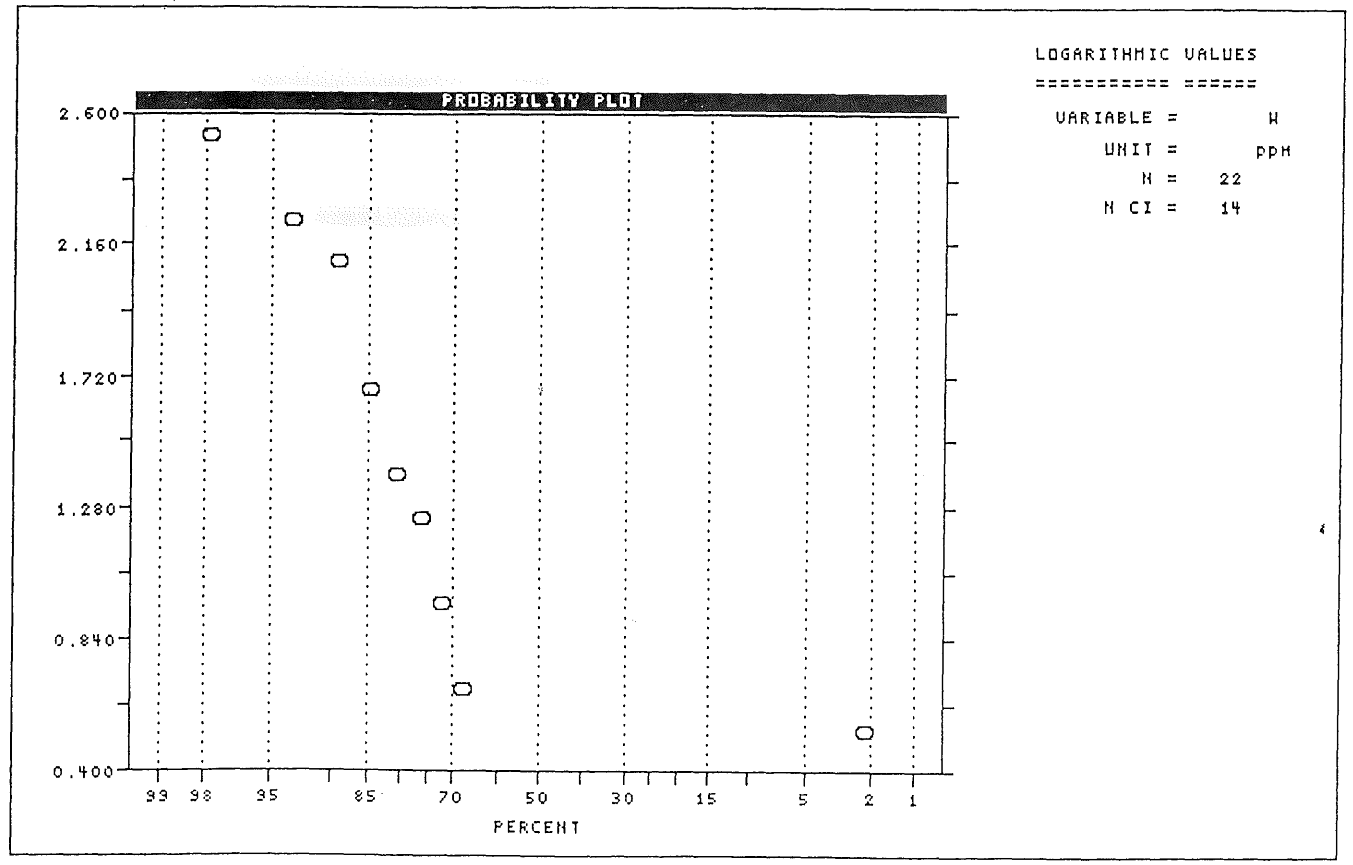
Variable = W Unit = ppm N = 22

Mean =	0.9444	Min =	0.6021	1st Quartile =	0.6021
Std. Dev. =	0.5927	Max =	2.4624	Median =	0.6021
CV % =	62.7561	Skewness =	1.4512	3rd Quartile =	1.0923

Anti-Log Mean = 8.798 Anti-Log Std. Dev. : (-) 2.248
(+) 34.437

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.1431)
0.00	2.17	3.392	0.5305	
68.18	67.39	4.716	0.6736	***************
0.00	67.39	6.557	0.8167	
4.55	71.74	9.116	0.9598	*
0.00	71.74	12.674	1.1029	
4.55	76.09	17.621	1.2460	*
4.55	80.43	24.498	1.3891	*
0.00	80.43	34.059	1.5322	
4.55	84.78	47.351	1.6753	*
0.00	84.78	65.832	1.8184	
0.00	84.78	91.525	1.9615	
4.55	89.13	127.245	2.1046	*
4.55	93.48	176.906	2.2477	*
0.00	93.48	245.950	2.3908	
4.55	97.83	341.940	2.5339	*
				0 1 2 3 4

D



Appendix 10-1. Histograms and probability plots for <u>W</u> in the <u>nonmagnetic HMC</u> fraction of <u>Rainy Lobe Till</u> samples. A and B) histogram/summary statistics and probability plot for samples overlying <u>granitic</u> bedrock, C and D) histogram/summary statistics and probability plot for samples overlying <u>greenstone</u> bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = Cu   Unit = ppm   N = 29

Mean =	1.8376	Min =	1.6335	1st Quartile =	1.7054
Std. Dev. =	0.2424	Max =	2.5539	Median =	1.7634
CV % =	13.1908	Skewness =	2.1187	3rd Quartile =	1.8404

Anti-Log Mean = 68.802   Anti-Log Std. Dev. : (−) 39.374
(+) 120.225

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0657)
0.00	1.67	39.865	1.6006	
10.34	11.67	46.381	1.6663	***
27.59	38.33	53.962	1.7321	********
27.59	65.00	62.781	1.7978	********
10.34	75.00	73.042	1.8636	***
10.34	85.00	84.980	1.9293	***
3.45	88.33	98.869	1.9951	*
0.00	88.33	115.028	2.0608	
0.00	88.33	133.828	2.1265	
0.00	88.33	155.701	2.1923	
0.00	88.33	181.149	2.2580	
0.00	88.33	210.756	2.3238	
0.00	88.33	245.202	2.3895	
3.45	91.67	285.277	2.4553	*
0.00	91.67	331.903	2.5210	
6.90	98.33	386.149	2.5868	**

0 1 2 3 4

C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = Cu   Unit = ppm   N = 22

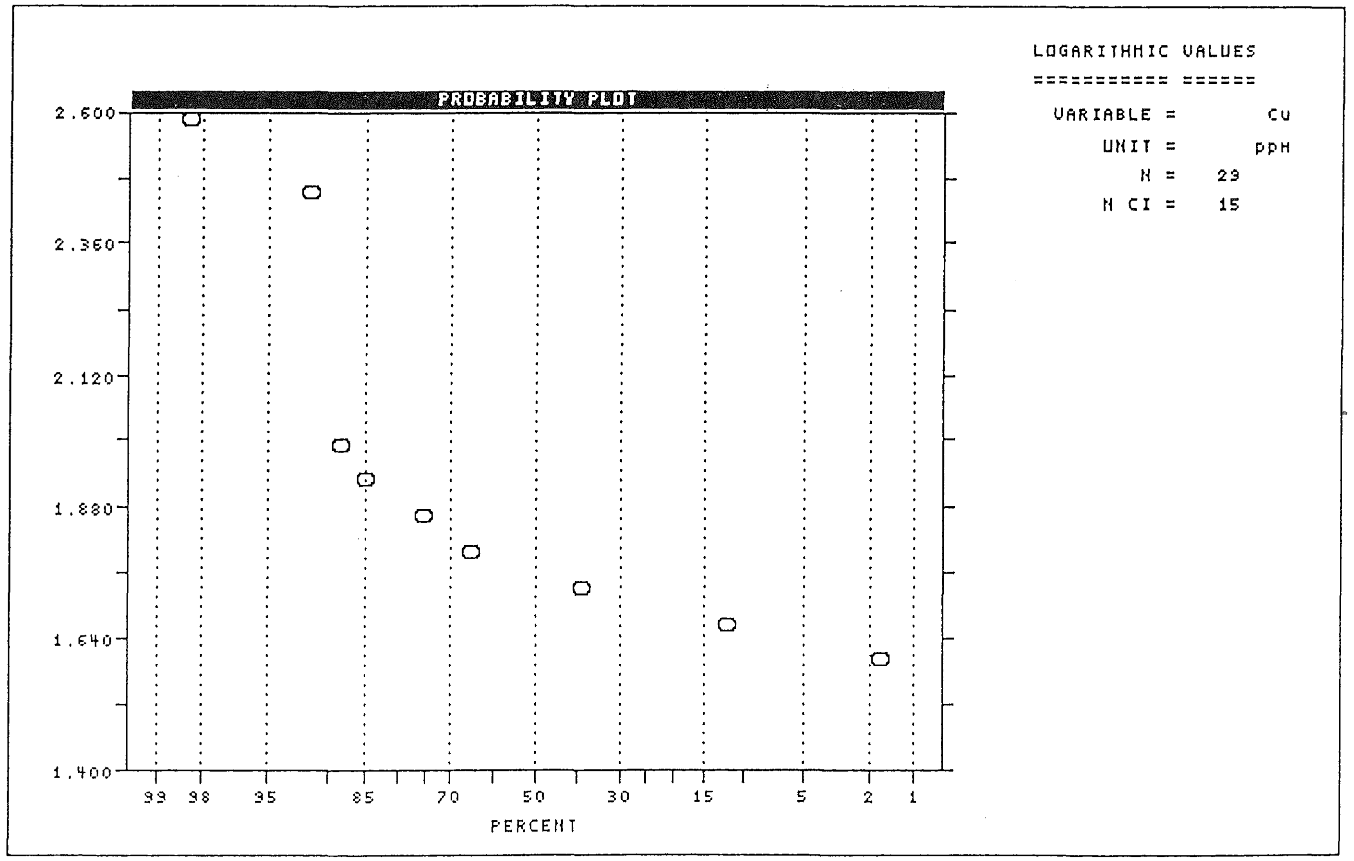
Mean =	1.7965	Min =	1.3222	1st Quartile =	1.6180
Std. Dev. =	0.3680	Max =	3.2521	Median =	1.7559
CV % =	20.4843	Skewness =	2.8507	3rd Quartile =	1.7993

Anti-Log Mean = 62.589   Anti-Log Std. Dev. : (-) 26.822
(+) 146.048

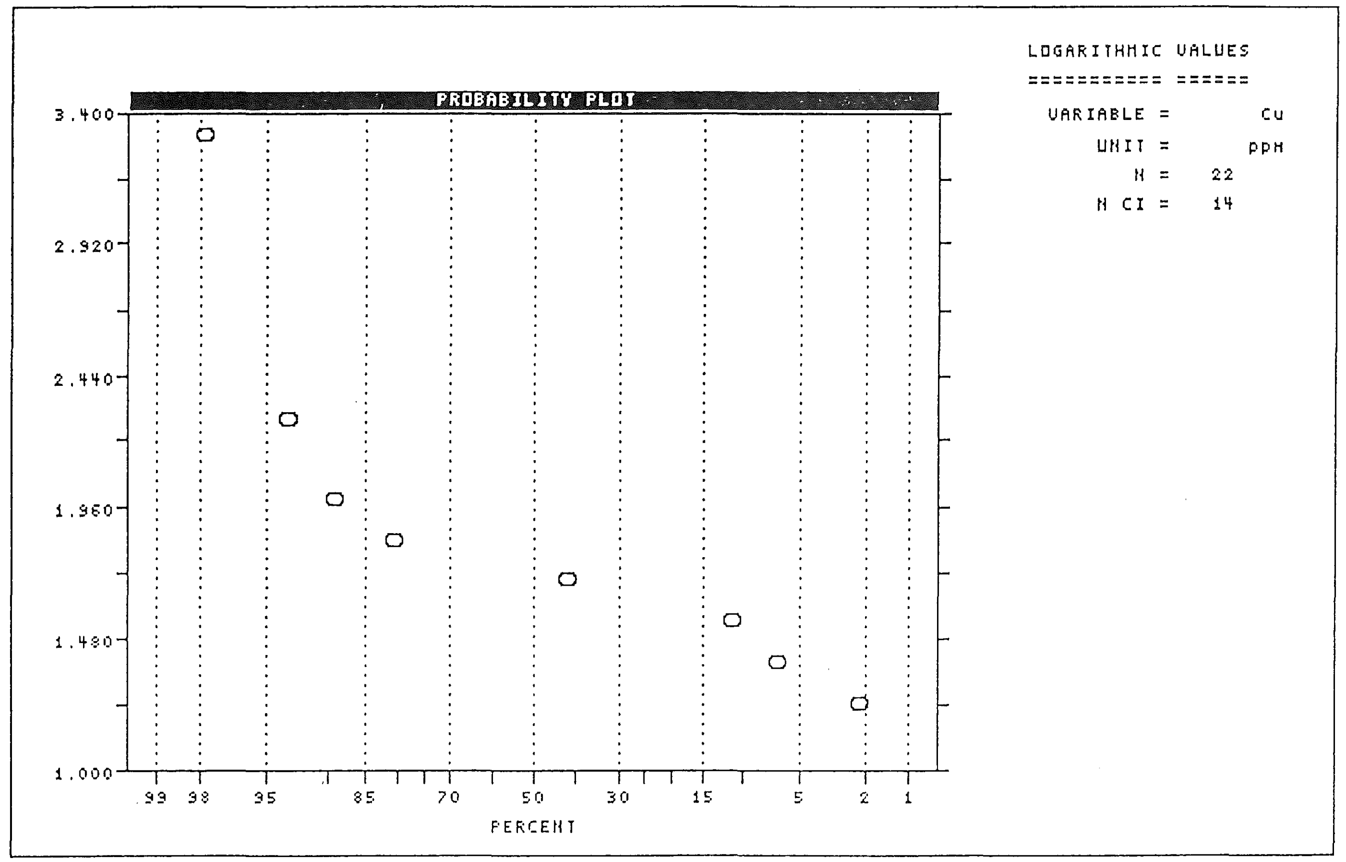
%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.1485)
0.00	2.17	17.701	1.2480	
4.55	6.52	24.914	1.3964	*
4.55	10.87	35.067	1.5449	*
31.82	41.30	49.358	1.6934	*******
40.91	80.43	69.472	1.8418	*********
9.09	89.13	97.783	1.9903	**
0.00	89.13	137.631	2.1387	
4.55	93.48	193.719	2.2872	*
0.00	93.48	272.663	2.4356	
0.00	93.48	383.778	2.5841	
0.00	93.48	540.175	2.7325	
0.00	93.48	760.307	2.8810	
0.00	93.48	1070.146	3.0294	
0.00	93.48	1506.251	3.1779	
4.55	97.83	2120.077	3.3264	*

0 1 2 3 4

B



D

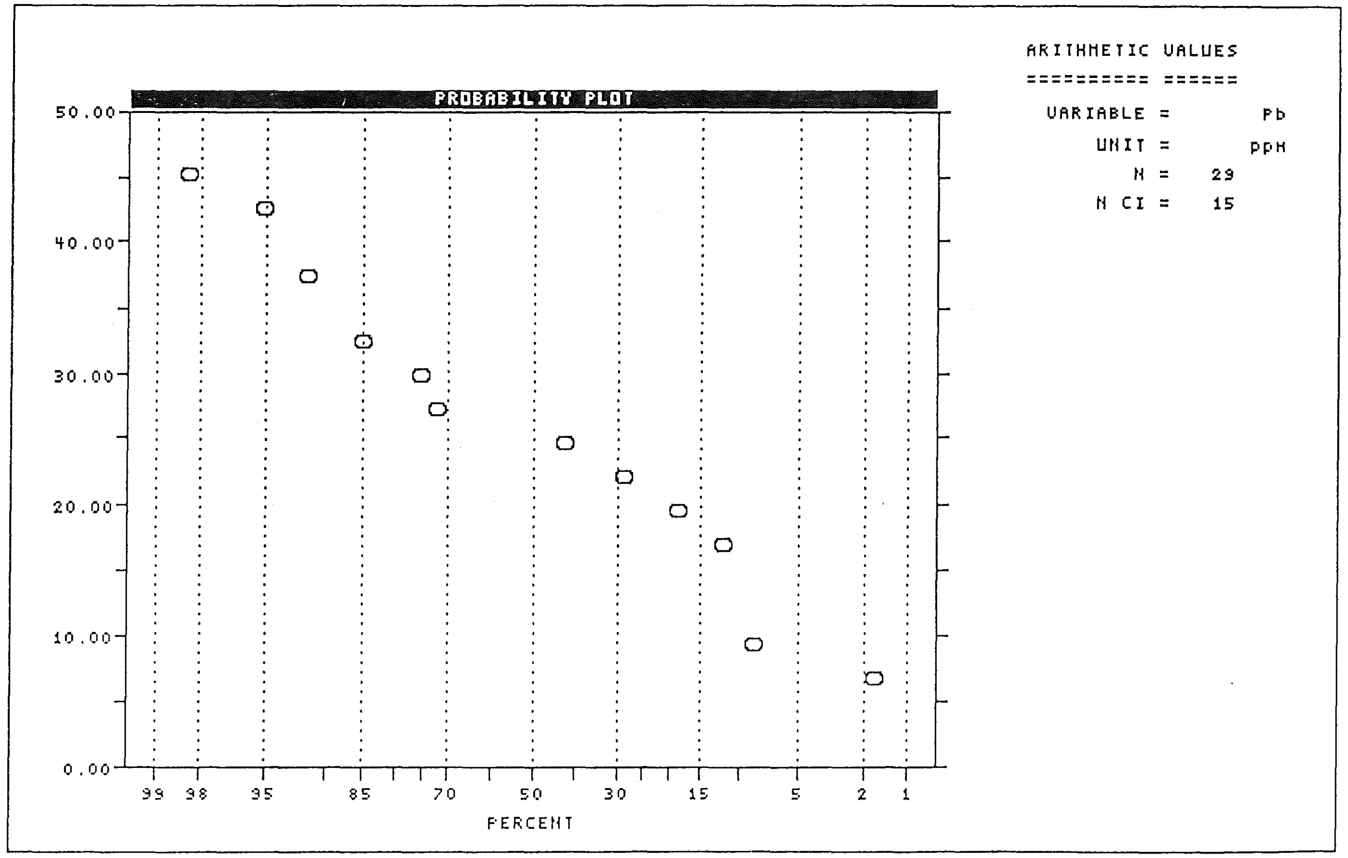


Appendix 10-1. Histograms and probability plots for Cu in the nonmagnetic HMC fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

```
SUMMARY STATISTICS and HISTOGRAM                              ARITHMETIC VALUES

 Variable =       Pb         Unit =       ppm            N =      29

     Mean =     25.448        Min =      8.000   1st Quartile =     21.750
Std. Dev. =      8.012        Max =     44.000         Median =     25.000
     CV % =     31.482   Skewness =      0.115   3rd Quartile =     27.500

==============================================================================
  %    cum %    cls int              (# of bins = 15   -  bin size =    2.571)
-----  -----   --------              -----------------------------------------
 0.00   1.67     6.714
 6.90   8.33     9.286               **
 0.00   8.33    11.857
 0.00   8.33    14.429
 3.45  11.67    17.000               *
 6.90  18.33    19.571               **
10.34  28.33    22.143               ***
13.79  41.67    24.714               ****
31.03  71.67    27.286               *********
 3.45  75.00    29.857               *
10.34  85.00    32.429               ***
 0.00  85.00    35.000
 6.90  91.67    37.571               **
 0.00  91.67    40.143
 3.45  95.00    42.714               *
 3.45  98.33    45.286               *
------------------------------------------------------------------------------
                                     0         1          2          3        4
```

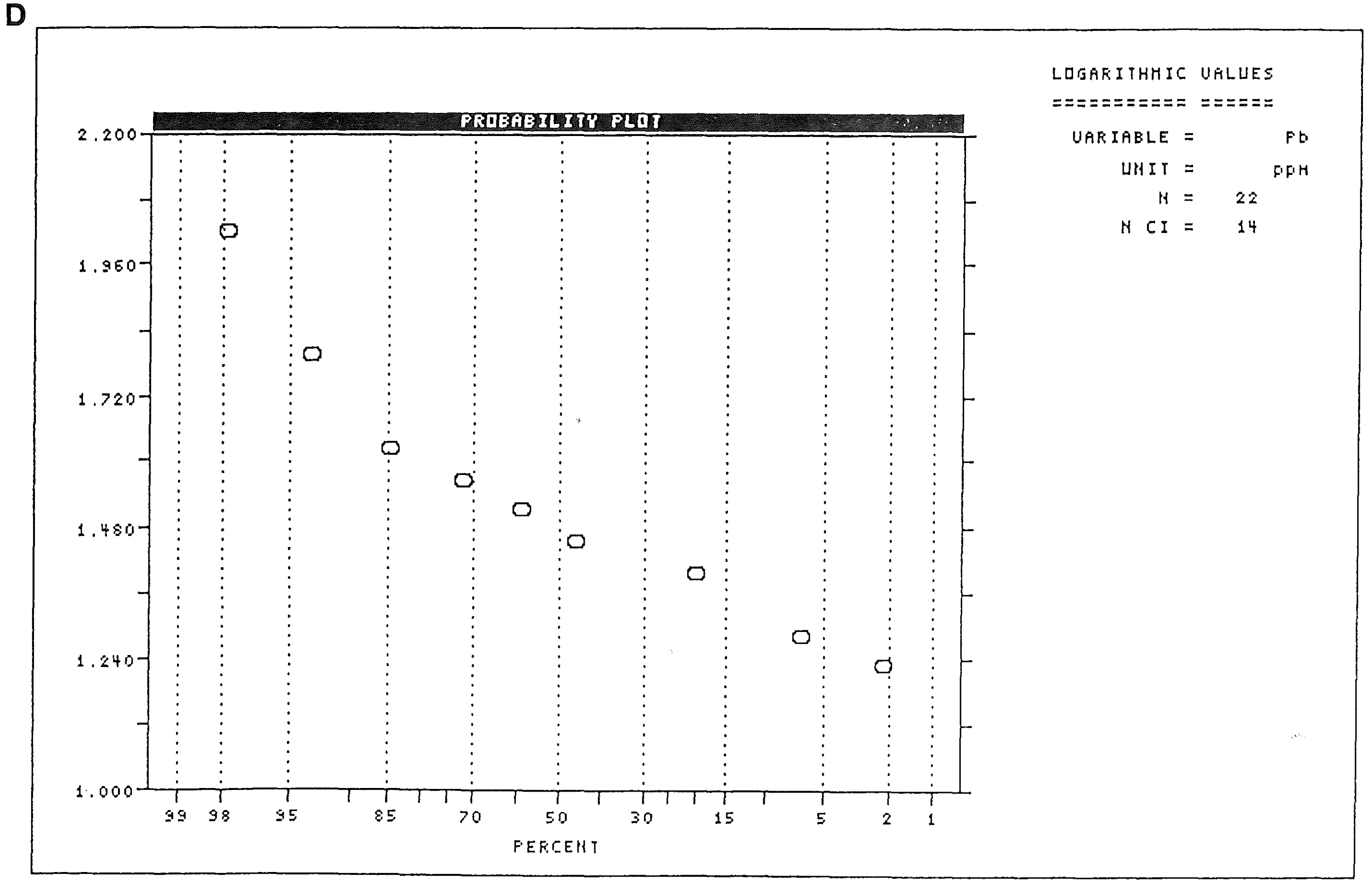
B



C

```
SUMMARY STATISTICS and HISTOGRAM                              LOGARITHMIC VALUES

 Variable =       Pb         Unit =       ppm                 N =     22

     Mean =     1.5136        Min =     1.2553   1st Quartile =     1.4147
Std. Dev. =     0.1651        Max =     1.9956         Median =     1.4771
     CV % =    10.9066   Skewness =     1.1912   3rd Quartile =     1.5676

       Anti-Log Mean =       32.628      Anti-Log Std. Dev. : (-)     22.311
                                                              (+)     47.718

==============================================================================
  %    cum %    antilog   cls int   (# of bins = 14   -  bin size =    0.0570)
-----  -----   --------   -------   -----------------------------------------
 0.00   2.17     16.858    1.2268
 4.55   6.52     19.220    1.2837   *
 0.00   6.52     21.913    1.3407
13.64  19.57     24.983    1.3976   ***
27.27  45.65     28.484    1.4546   ******
13.64  58.70     32.475    1.5116   ***
13.64  71.74     37.026    1.5685   ***
13.64  84.78     42.214    1.6255   ***
 0.00  84.78     48.129    1.6824
 0.00  84.78     54.873    1.7394
 9.09  93.48     62.561    1.7963   **
 0.00  93.48     71.328    1.8533
 0.00  93.48     81.322    1.9102
 0.00  93.48     92.717    1.9672
 4.55  97.83    105.709    2.0241   *
------------------------------------------------------------------------------
                                    0         1          2          3        4
```

D

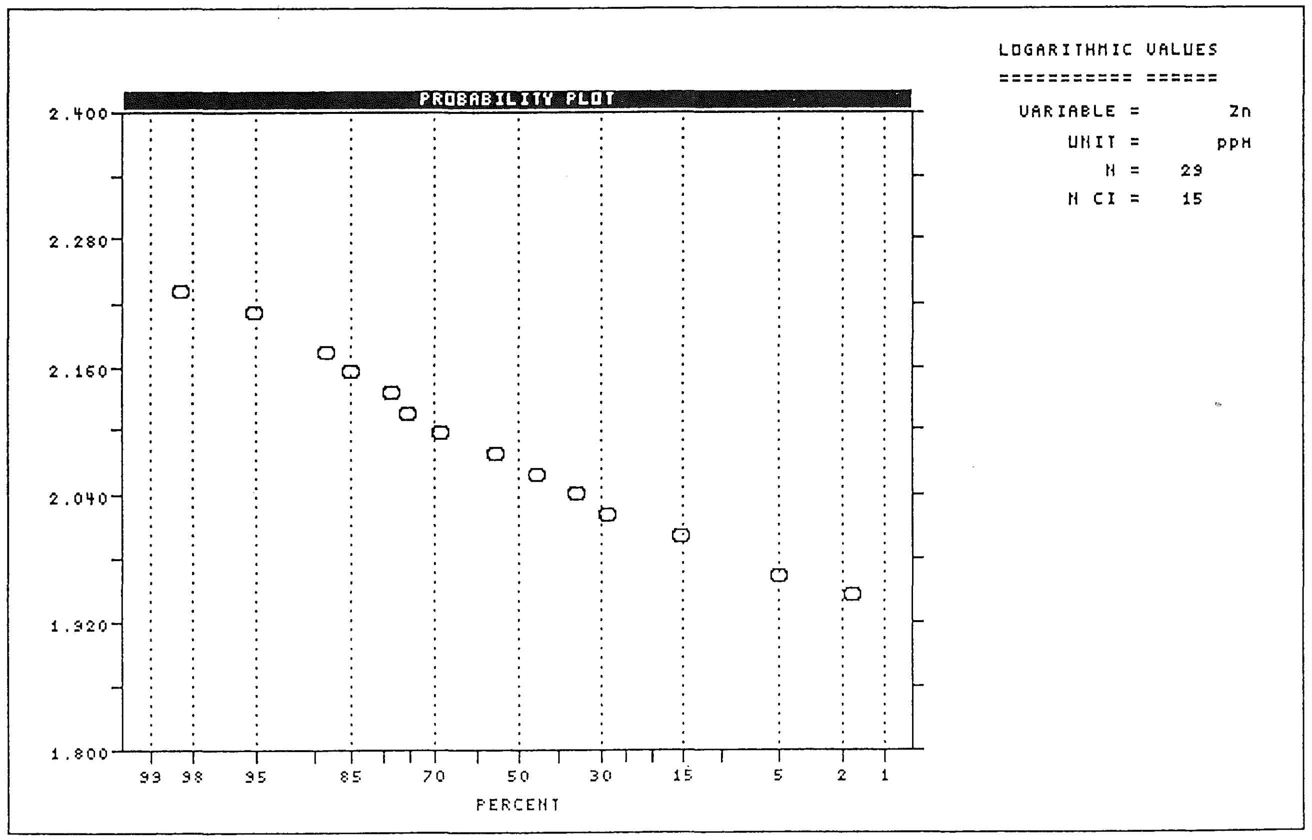


Appendix 10-1. Histograms and probability plots for Pb in the nonmagnetic HMC fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

```
SUMMARY STATISTICS and HISTOGRAM                         LOGARITHMIC VALUES

 Variable =        Zn          Unit =       ppm                 N =     29

      Mean =     2.0757           Min =     1.9542   1st Quartile =     2.0170
Std. Dev. =     0.0698           Max =     2.2227         Median =     2.0607
      CV % =     3.3621      Skewness =     0.4993   3rd Quartile =     2.1021

         Anti-Log Mean =     119.054      Anti-Log Std. Dev. : (-)   101.381
                                                             (+)   139.808

================================================================================
   %    cum %    antilog   cls int   (# of bins = 15   -   bin size =    0.0192)
 -----  -----   --------   -------   ---------------------------------------------
  0.00   1.67     88.035    1.9447
  3.45   5.00     92.009    1.9638   *
  0.00   5.00     96.163    1.9830
 10.34  15.00    100.504    2.0022   ***
 13.79  28.33    105.042    2.0214   ****
  6.90  35.00    109.784    2.0405   **
 10.34  45.00    114.740    2.0597   ***
 10.34  55.00    119.920    2.0789   ***
 13.79  68.33    125.334    2.0981   ****
  6.90  75.00    130.992    2.1172   **
  3.45  78.33    136.906    2.1364   *
  6.90  85.00    143.086    2.1556   **
  3.45  88.33    149.546    2.1748   *
  0.00  88.33    156.297    2.1940
  6.90  95.00    163.353    2.2131   **
  3.45  98.33    170.728    2.2323   *
--------------------------------------------------------------------------------
                                     0          1          2          3          4
```

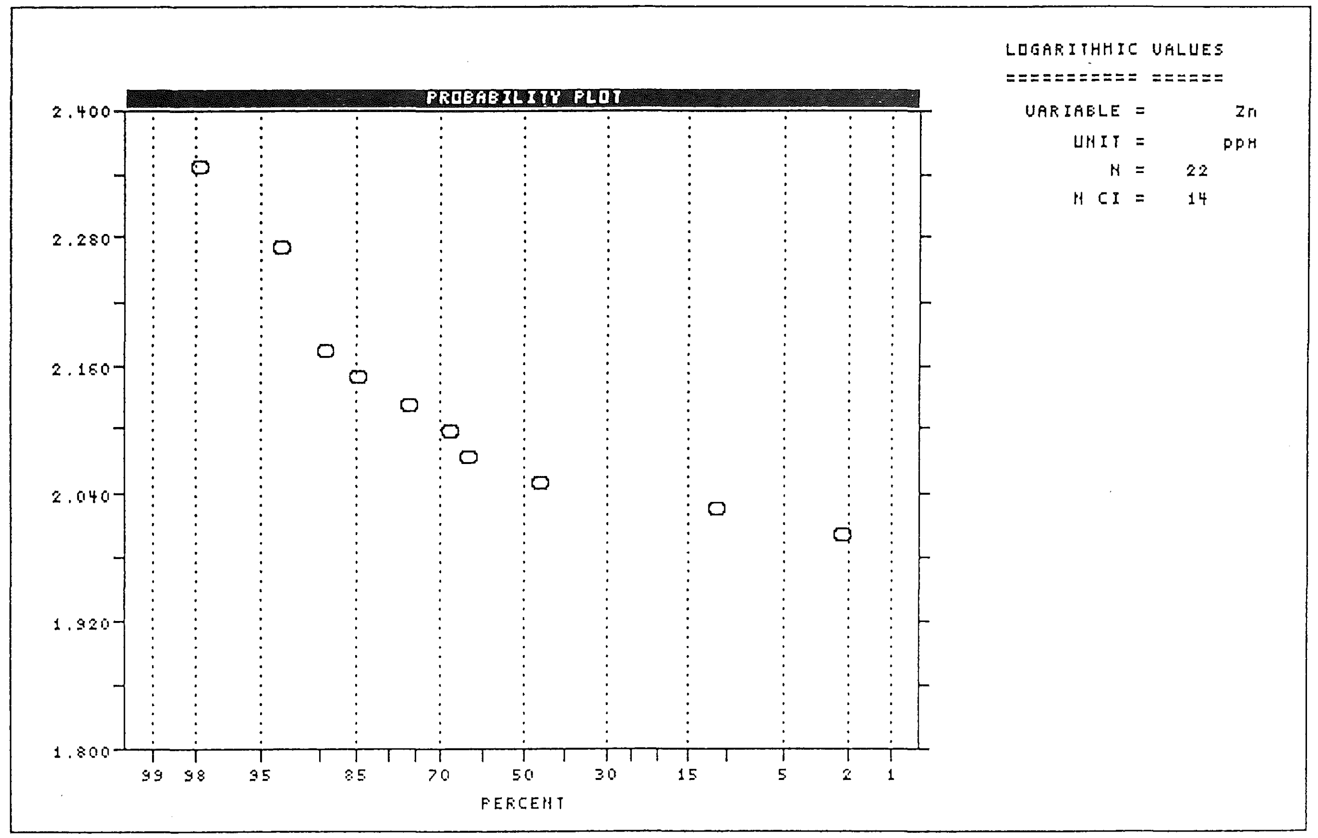
B



C

```
SUMMARY STATISTICS and HISTOGRAM                         LOGARITHMIC VALUES

 Variable =        Zn          Unit =       ppm                 N =     22

      Mean =     2.0884           Min =     2.0128   1st Quartile =     2.0394
Std. Dev. =     0.0809           Max =     2.3345         Median =     2.0682
      CV % =     3.8730      Skewness =     1.7313   3rd Quartile =     2.1123

         Anti-Log Mean =     122.581      Anti-Log Std. Dev. : (-)   101.751
                                                             (+)   147.676

================================================================================
   %    cum %    antilog   cls int   (# of bins = 14   -   bin size =    0.0247)
 -----  -----   --------   -------   ---------------------------------------------
  0.00   2.17    100.108    2.0005
  9.09  10.87    105.976    2.0252   **
 36.36  45.65    112.188    2.0499   ********
 18.18  63.04    118.764    2.0747   ****
  4.55  67.39    125.726    2.0994   *
  9.09  76.09    133.096    2.1242   **
  9.09  84.78    140.898    2.1489   **
  4.55  89.13    149.158    2.1736   *
  0.00  89.13    157.901    2.1984
  0.00  89.13    167.157    2.2231
  0.00  89.13    176.956    2.2479
  4.55  93.48    187.329    2.2726   *
  0.00  93.48    198.310    2.2973
  0.00  93.48    209.935    2.3221
  4.55  97.83    222.241    2.3468   *
--------------------------------------------------------------------------------
                                     0          1          2          3          4
```

D



Appendix 10-1. Histograms and probability plots for Zn in the nonmagnetic HMC fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable =	Ni	Unit =	ppm	N =	29
Mean =	1.9938	Min =	1.7709	1st Quartile =	1.9164
Std. Dev. =	0.1059	Max =	2.1399	Median =	2.0064
CV % =	5.3099	Skewness =	-0.4538	3rd Quartile =	2.0680
Anti-Log Mean =	98.591	Anti-Log Std. Dev. :	(-) 77.262		(+) 125.809

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0264)
0.00	1.67	57.236	1.7577	
3.45	5.00	60.818	1.7840	*
3.45	8.33	64.624	1.8104	*
3.45	11.67	68.667	1.8367	*
3.45	15.00	72.964	1.8631	*
3.45	18.33	77.530	1.8895	*
6.90	25.00	82.381	1.9158	**
6.90	31.67	87.536	1.9422	**
10.34	41.67	93.013	1.9685	***
3.45	45.00	98.833	1.9949	*
10.34	55.00	105.018	2.0213	***
10.34	65.00	111.589	2.0476	***
6.90	71.67	118.572	2.0740	**
6.90	78.33	125.991	2.1003	**
13.79	91.67	133.875	2.1267	****
6.90	98.33	142.252	2.1531	**

0 1 2 3 4

C

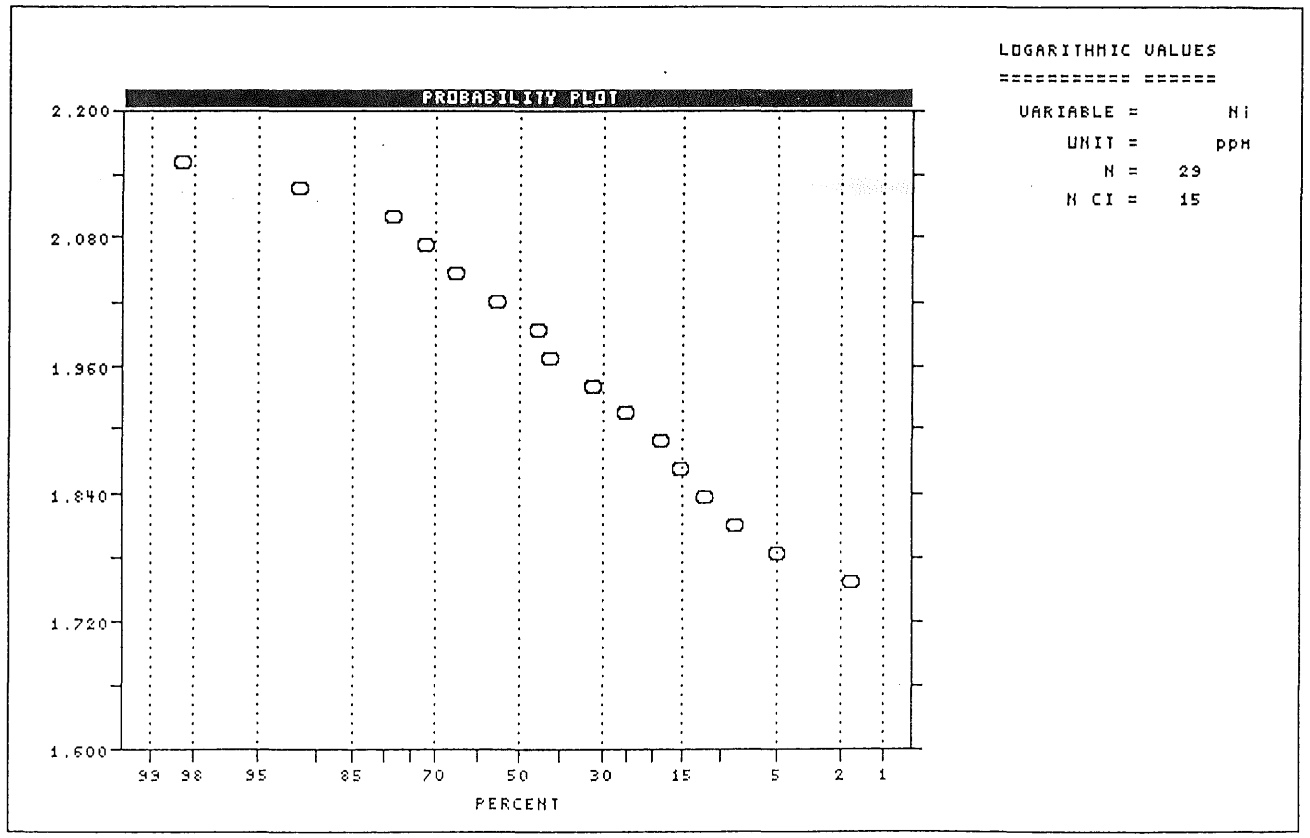
SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable =	Ni	Unit =	ppm	N =	22
Mean =	2.0193	Min =	1.7993	1st Quartile =	1.9031
Std. Dev. =	0.2351	Max =	2.7973	Median =	1.9445
CV % =	11.6420	Skewness =	2.0926	3rd Quartile =	2.0191
Anti-Log Mean =	104.555	Anti-Log Std. Dev. :	(-) 60.849		(+) 179.655

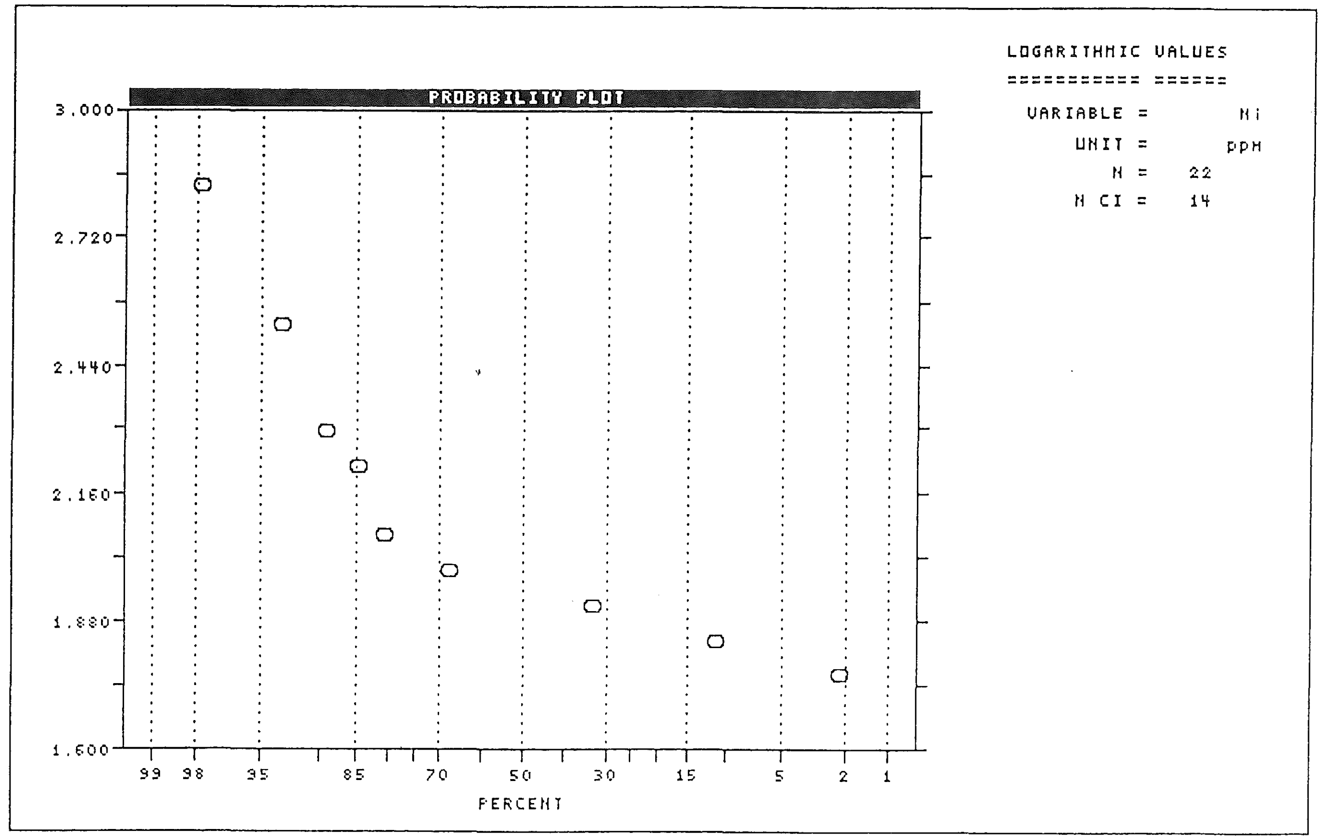
%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0768)
0.00	2.17	57.671	1.7610	
9.09	10.87	68.821	1.8377	**
22.73	32.61	82.127	1.9145	*****
36.36	67.39	98.005	1.9912	********
13.64	80.43	116.953	2.0680	***
0.00	80.43	139.565	2.1448	
4.55	84.78	166.548	2.2215	*
4.55	89.13	198.749	2.2983	*
0.00	89.13	237.174	2.3751	
0.00	89.13	283.029	2.4518	
4.55	93.48	337.750	2.5286	*
0.00	93.48	403.050	2.6054	
0.00	93.48	480.975	2.6821	
0.00	93.48	573.965	2.7589	
4.55	97.83	684.935	2.8356	*

0 1 2 3 4

B



D



Appendix 10-1. Histograms and probability plots for <u>Ni</u> in the <u>nonmagnetic HMC</u> fraction of <u>Rainy Lobe Till</u> samples. A and B) histogram/summary statistics and probability plot for samples overlying <u>granitic</u> bedrock, C and D) histogram/summary statistics and probability plot for samples overlying <u>greenstone</u> bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

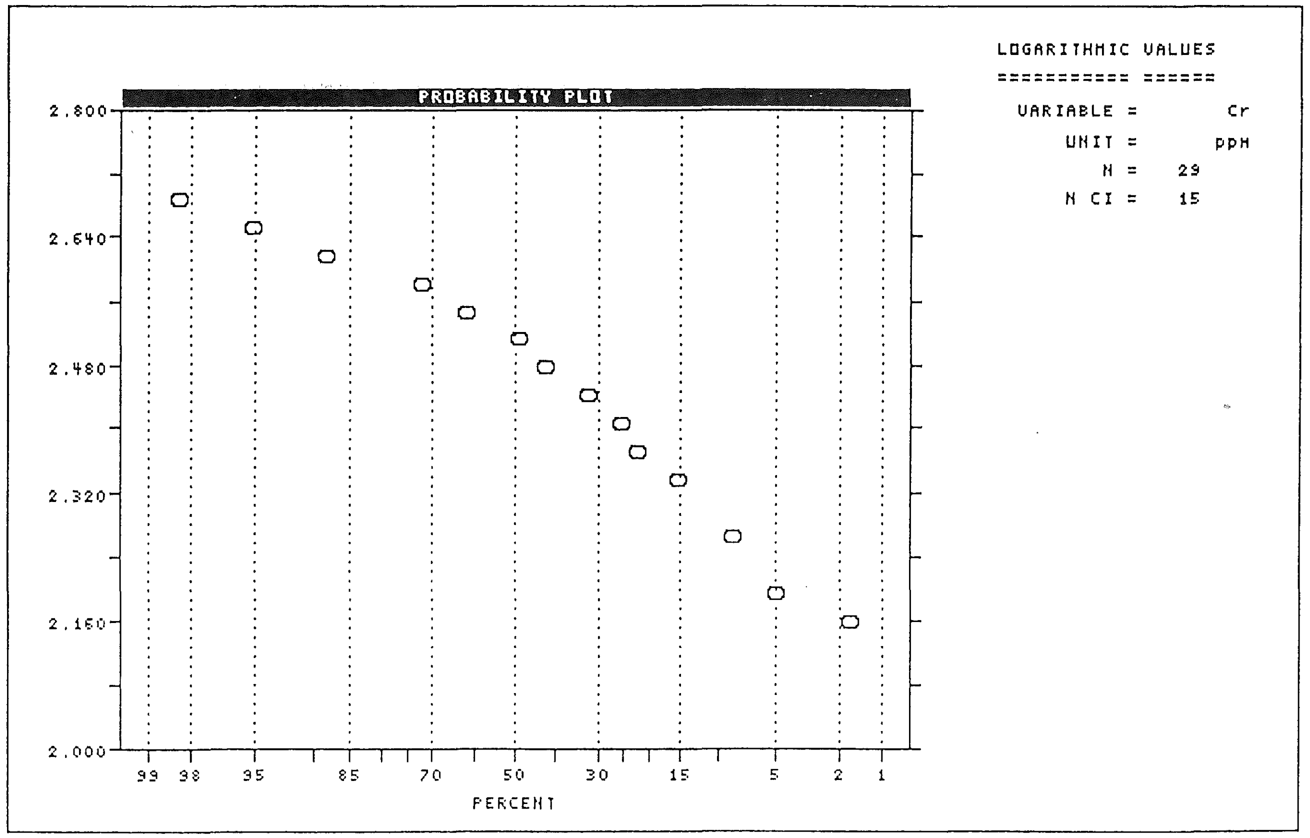
Variable = Cr Unit = ppm N = 29

Mean =	2.4867	Min =	2.1761	1st Quartile =	2.4063
Std. Dev. =	0.1248	Max =	2.6721	Median =	2.5118
CV % =	5.0194	Skewness =	-0.6984	3rd Quartile =	2.5826

Anti-Log Mean = 306.665 Anti-Log Std. Dev. : (-) 230.064 (+) 408.770

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0354)
0.00	1.67	144.005	2.1584	
3.45	5.00	156.245	2.1938	*
0.00	5.00	169.525	2.2292	
3.45	8.33	183.935	2.2647	*
0.00	8.33	199.569	2.3001	
6.90	15.00	216.532	2.3355	**
6.90	21.67	234.937	2.3710	**
3.45	25.00	254.906	2.4064	*
6.90	31.67	276.573	2.4418	**
10.34	41.67	300.081	2.4772	***
6.90	48.33	325.587	2.5127	**
13.79	61.67	353.261	2.5481	****
10.34	71.67	383.288	2.5835	***
17.24	88.33	415.867	2.6190	*****
6.90	95.00	451.215	2.6544	**
3.45	98.33	489.567	2.6898	*
				0 1 2 3 4

B



C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

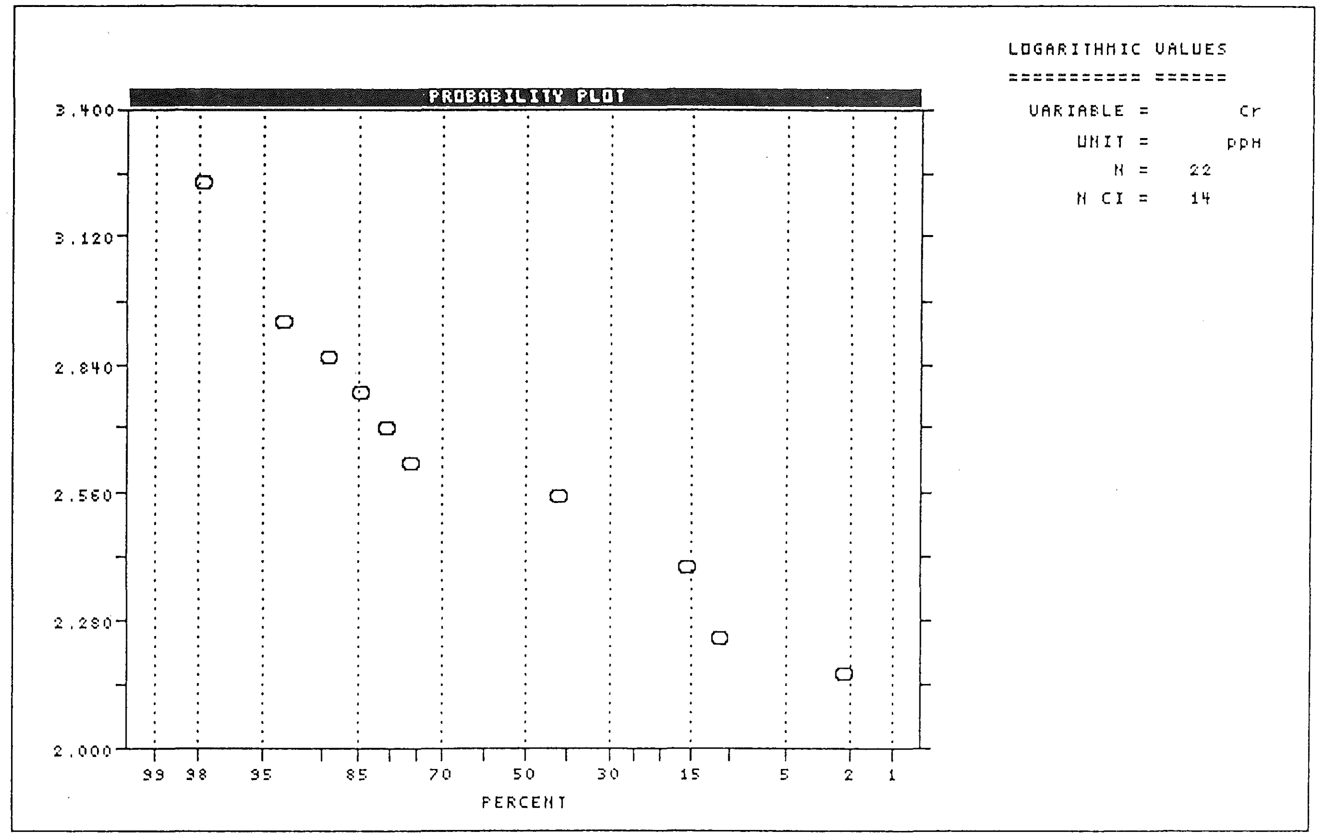
Variable = Cr Unit = ppm N = 22

Mean =	2.5825	Min =	2.2041	1st Quartile =	2.5114
Std. Dev. =	0.2071	Max =	3.2041	Median =	2.5563
CV % =	8.0213	Skewness =	0.9115	3rd Quartile =	2.6127

Anti-Log Mean = 382.369 Anti-Log Std. Dev. : (-) 237.319 (+) 616.074

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0769)
0.00	2.17	146.440	2.1657	
9.09	10.87	174.816	2.2426	**
0.00	10.87	208.691	2.3195	
4.55	15.22	249.131	2.3964	*
0.00	15.22	297.407	2.4734	
27.27	41.30	355.037	2.5503	******
36.36	76.09	423.835	2.6272	********
4.55	80.43	505.964	2.7041	*
4.55	84.78	604.009	2.7810	*
4.55	89.13	721.051	2.8580	*
4.55	93.48	860.774	2.9349	*
0.00	93.48	1027.572	3.0118	
0.00	93.48	1226.692	3.0887	
0.00	93.48	1464.396	3.1657	
4.55	97.83	1748.161	3.2426	*
				0 1 2 3 4

D



Appendix 10-1. Histograms and probability plots for Cr in the nonmagnetic HMC fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = Co Unit = ppm N = 29

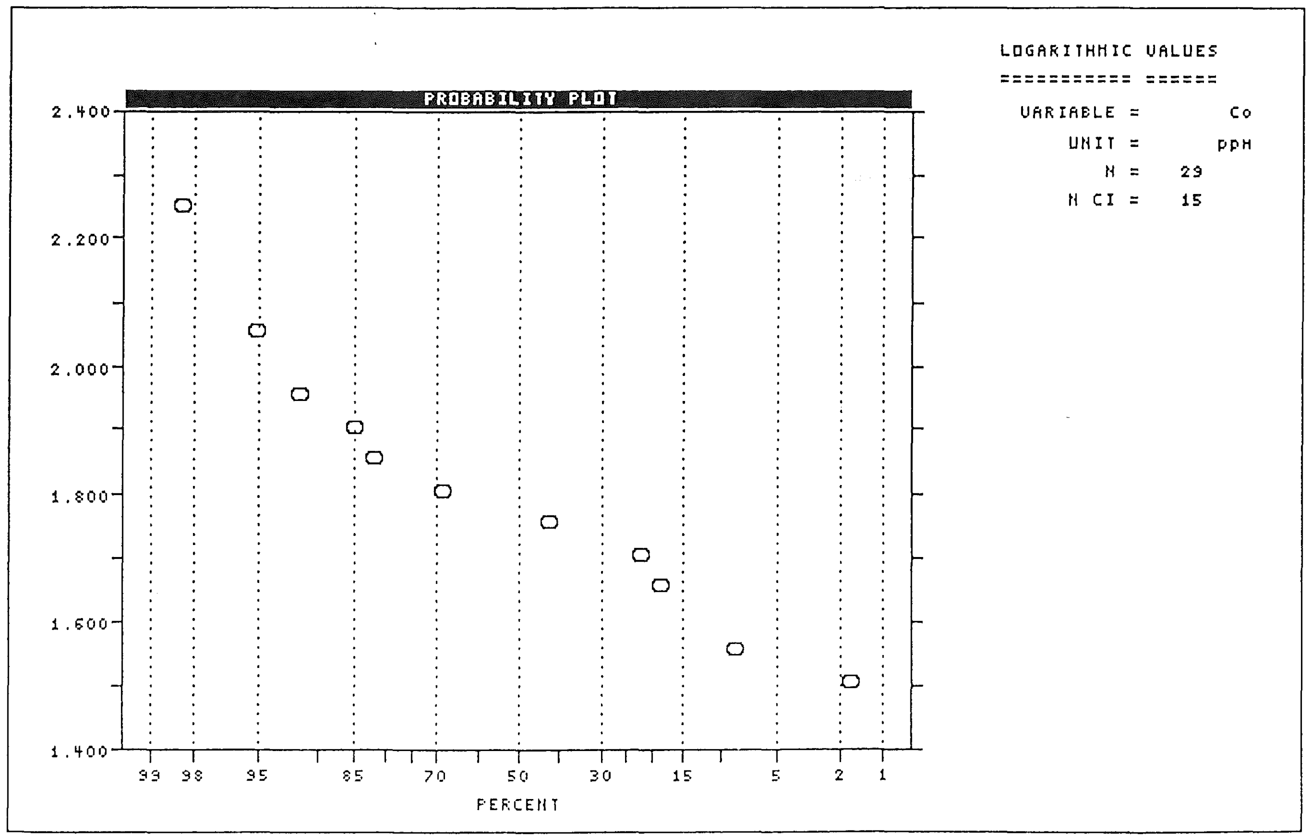
Mean =	1.7865	Min =	1.5315	1st Quartile =	1.7304
Std. Dev. =	0.1388	Max =	2.2304	Median =	1.7709
CV % =	7.7695	Skewness =	1.0108	3rd Quartile =	1.8195

Anti-Log Mean = 61.159 Anti-Log Std. Dev. : (-) 44.429 (+) 84.190

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0499)
0.00	1.67	32.101	1.5065	
6.90	8.33	36.012	1.5564	**
0.00	8.33	40.399	1.6064	
10.34	18.33	45.321	1.6563	***
3.45	21.67	50.842	1.7062	*
20.69	41.67	57.036	1.7561	******
27.59	68.33	63.984	1.8061	********
13.79	81.67	71.780	1.8560	****
3.45	85.00	80.524	1.9059	*
6.90	91.67	90.334	1.9559	**
0.00	91.67	101.340	2.0058	
3.45	95.00	113.686	2.0557	*
0.00	95.00	127.536	2.1056	
0.00	95.00	143.074	2.1556	
0.00	95.00	160.504	2.2055	
3.45	98.33	180.058	2.2554	*

0 1 2 3 4

B



C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = Co Unit = ppm N = 22

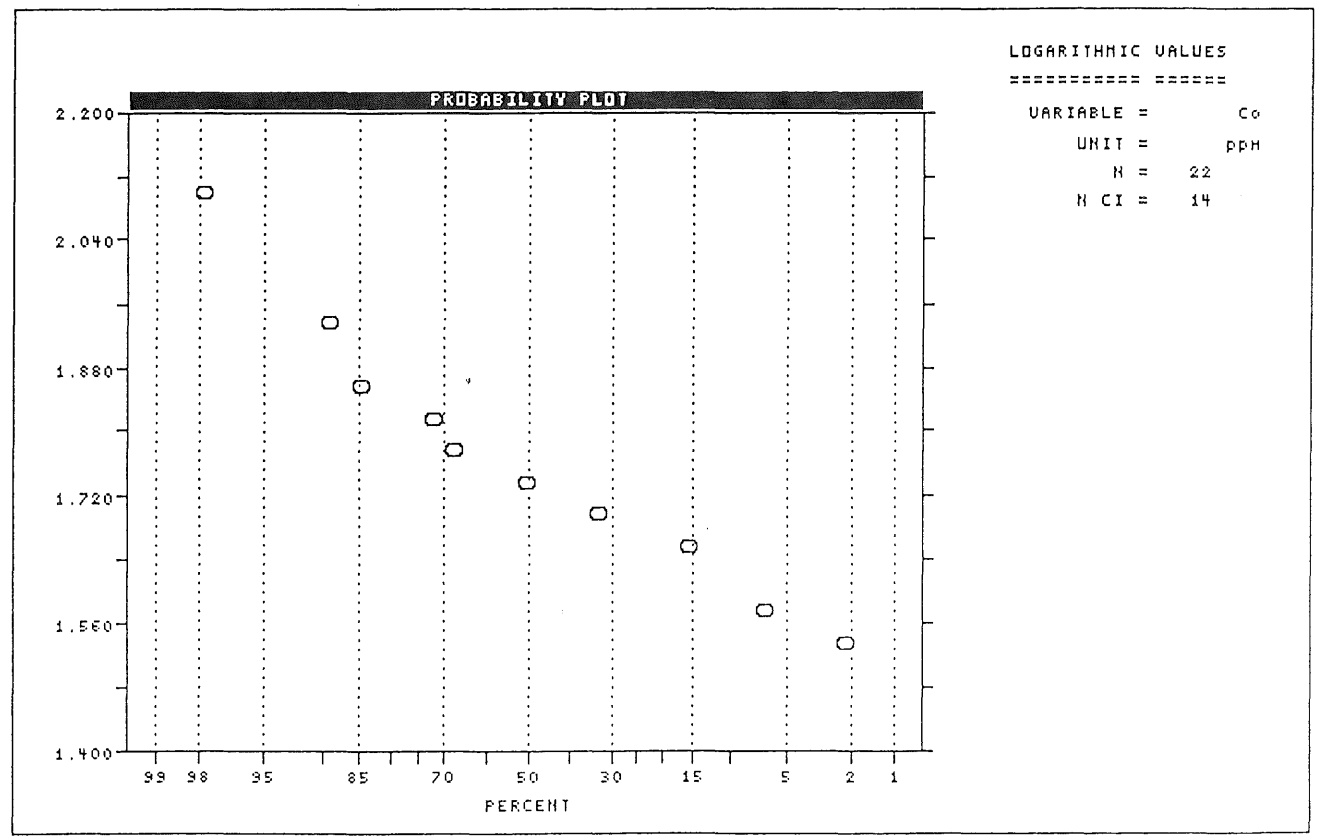
Mean =	1.7674	Min =	1.5563	1st Quartile =	1.6811
Std. Dev. =	0.1298	Max =	2.0792	Median =	1.7404
CV % =	7.3416	Skewness =	1.0613	3rd Quartile =	1.8256

Anti-Log Mean = 58.529 Anti-Log Std. Dev. : (-) 43.413 (+) 78.908

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0402)
0.00	2.17	34.371	1.5362	
4.55	6.52	37.706	1.5764	*
0.00	6.52	41.365	1.6166	
9.09	15.22	45.379	1.6569	**
18.18	32.61	49.783	1.6971	****
18.18	50.00	54.613	1.7373	****
18.18	67.39	59.913	1.7775	****
4.55	71.74	65.727	1.8177	*
13.64	84.78	72.105	1.8580	***
0.00	84.78	79.102	1.8982	
4.55	89.13	86.777	1.9384	*
0.00	89.13	95.198	1.9786	
0.00	89.13	104.436	2.0188	
0.00	89.13	114.570	2.0591	
9.09	97.83	125.687	2.0993	**

0 1 2 3 4

D

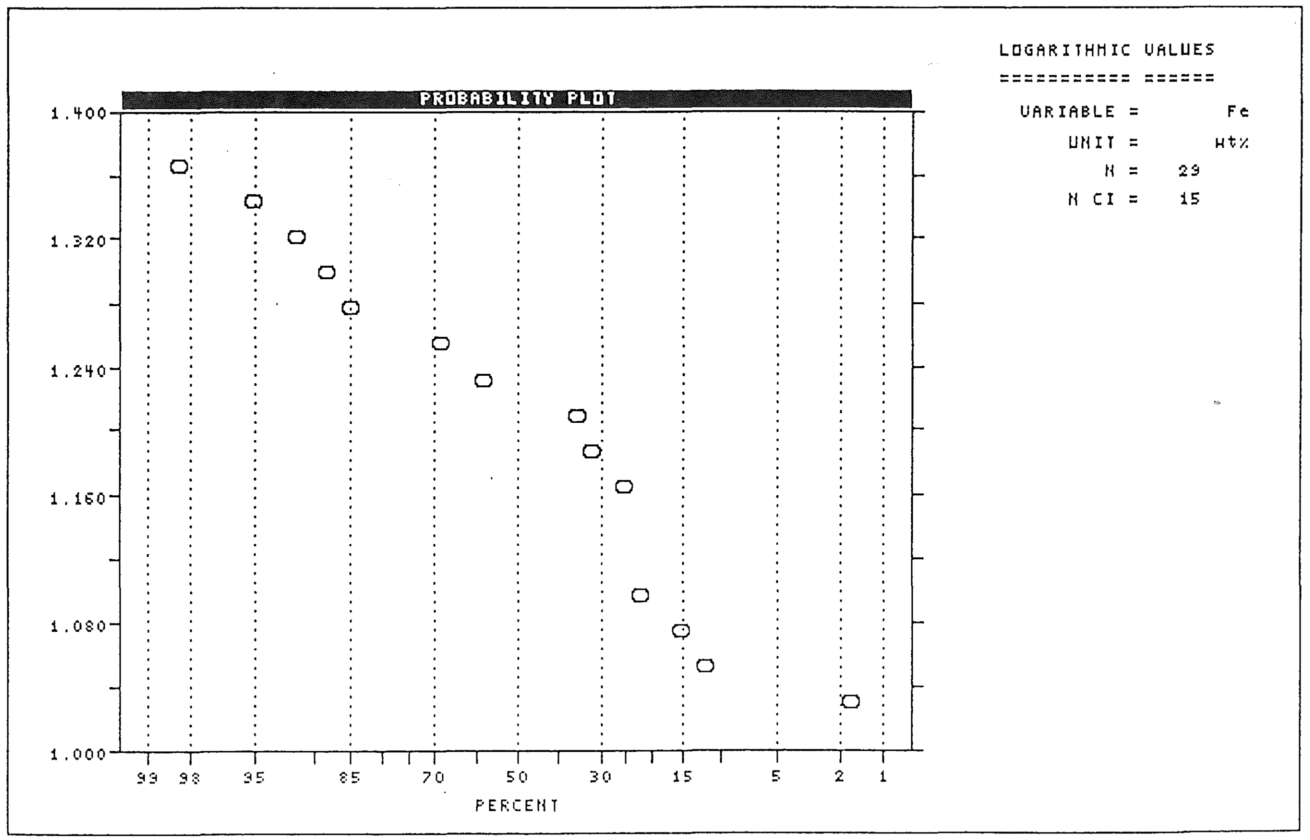


Appendix 10-1. Histograms and probability plots for Co in the nonmagnetic HMC fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

```
SUMMARY STATISTICS and HISTOGRAM                         LOGARITHMIC VALUES

 Variable =        Fe         Unit =       wt%               N =    29

     Mean =     1.2067          Min =     1.0414   1st Quartile =     1.1732
Std. Dev. =     0.0868          Max =     1.3560         Median =     1.2292
     CV % =     7.1907     Skewness =    -0.6657   3rd Quartile =     1.2571

        Anti-Log Mean =     16.094     Anti-Log Std. Dev. : (-)      13.180
                                                            (+)      19.653

============================================================================
  %    cum %     antilog   cls int   (# of bins = 15  -  bin size =   0.0225)
----- -----    --------  --------  ---------------------------------------
 0.00  1.67     10.719    1.0302
10.34 11.67     11.288    1.0526   ***
 3.45 15.00     11.888    1.0751   *
 6.90 21.67     12.519    1.0976   **
 0.00 21.67     13.184    1.1201
 0.00 21.67     13.884    1.1425
 3.45 25.00     14.622    1.1650   *
 6.90 31.67     15.398    1.1875   **
 3.45 35.00     16.216    1.2099   *
24.14 58.33     17.077    1.2324   *******
10.34 68.33     17.984    1.2549   ***
17.24 85.00     18.939    1.2774   *****
 3.45 88.33     19.945    1.2998   *
 3.45 91.67     21.005    1.3223   *
 3.45 95.00     22.120    1.3448   *
 3.45 98.33     23.295    1.3673   *
----------------------------------------------------------------------------
                                   0          1          2          3          4
```

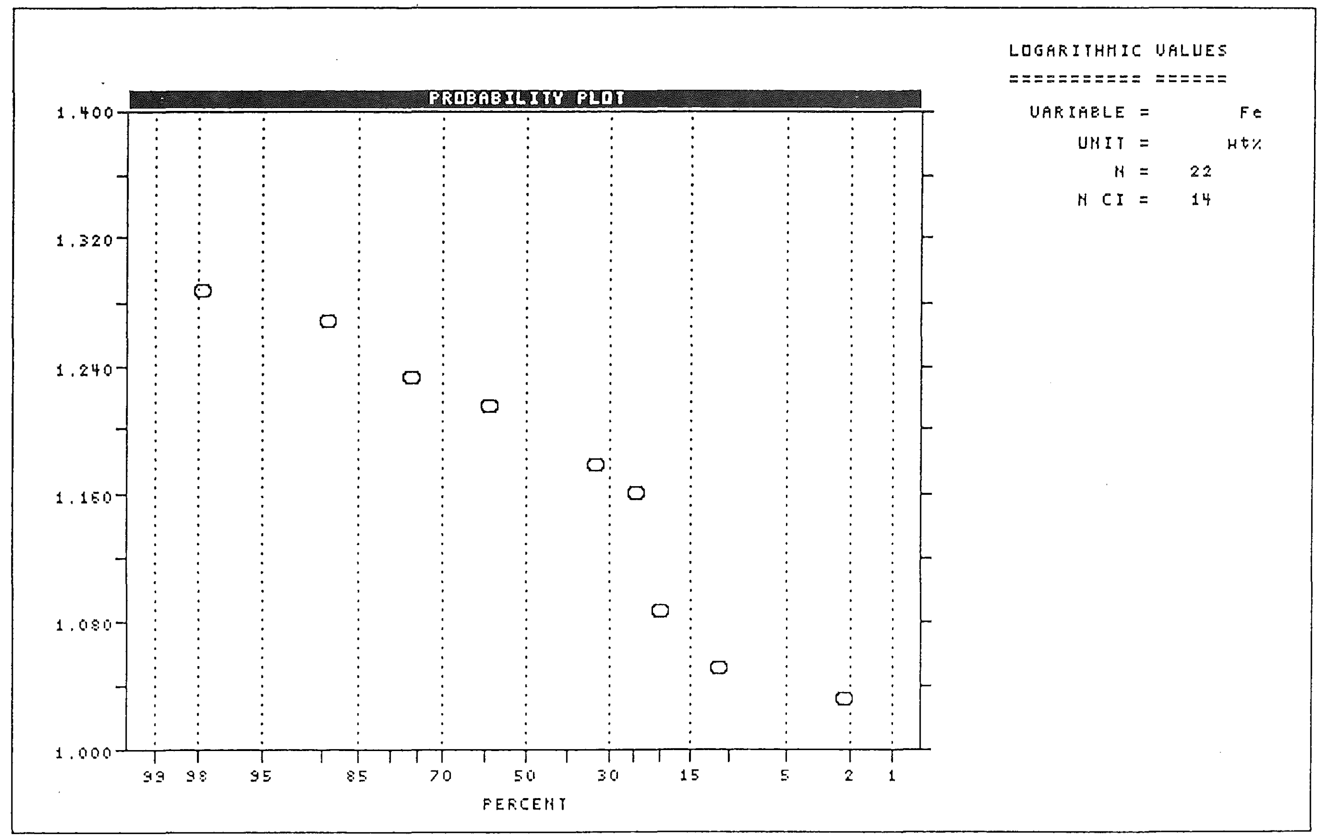
B



C

```
SUMMARY STATISTICS and HISTOGRAM                         LOGARITHMIC VALUES

 Variable =        Fe         Unit =       wt%               N =    22

     Mean =     1.1916          Min =     1.0414   1st Quartile =     1.1611
Std. Dev. =     0.0713          Max =     1.2788         Median =     1.2122
     CV % =     5.9861     Skewness =    -0.9583   3rd Quartile =     1.2304

        Anti-Log Mean =     15.546     Anti-Log Std. Dev. : (-)      13.191
                                                            (+)      18.320

============================================================================
  %    cum %     antilog   cls int   (# of bins = 14  -  bin size =   0.0183)
----- -----    --------  --------  ---------------------------------------
 0.00  2.17     10.771    1.0323
 9.09 10.87     11.234    1.0505   **
 0.00 10.87     11.716    1.0688
 9.09 19.57     12.219    1.0870   **
 0.00 19.57     12.744    1.1053
 0.00 19.57     13.291    1.1236
 0.00 19.57     13.862    1.1418
 4.55 23.91     14.457    1.1601   *
 9.09 32.61     15.078    1.1783   **
 0.00 32.61     15.725    1.1966
27.27 58.70     16.400    1.2148   ******
18.18 76.09     17.104    1.2331   ****
 0.00 76.09     17.839    1.2514
13.64 89.13     18.605    1.2696   ***
 9.09 97.83     19.404    1.2879   **
----------------------------------------------------------------------------
                                   0          1          2          3          4
```

D



Appendix 10-1. Histograms and probability plots for Fe in the nonmagnetic HMC fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = Mn Unit = ppm N = 29

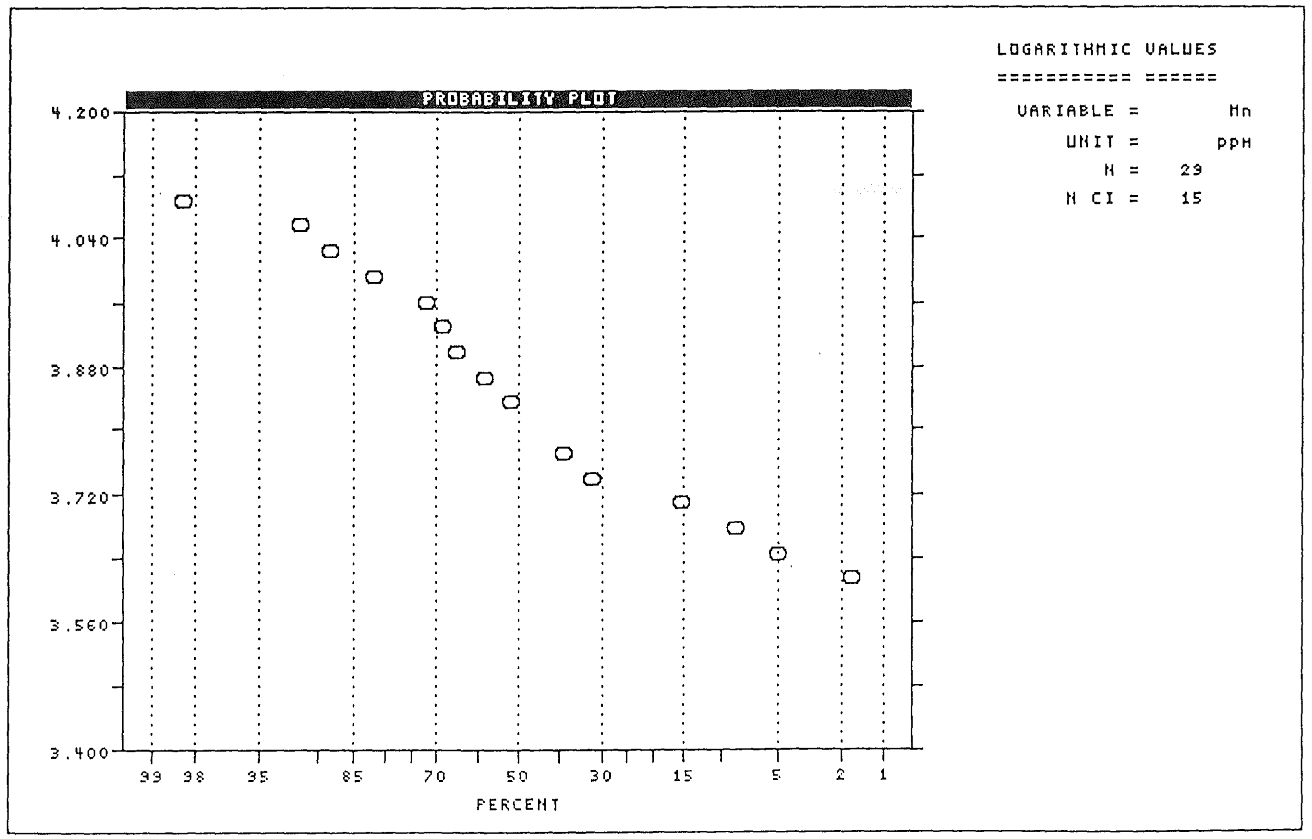
Mean =	3.8467	Min =	3.6294	1st Quartile =	3.7216
Std. Dev. =	0.1318	Max =	4.0737	Median =	3.8238
CV % =	3.4265	Skewness =	0.1954	3rd Quartile =	3.9633

Anti-Log Mean = 7026.072 Anti-Log Std. Dev. : (-) 5186.880 (+) 9517.416

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0317)
0.00	1.67	4107.158	3.6135	
3.45	5.00	4418.530	3.6453	*
3.45	8.33	4753.507	3.6770	*
6.90	15.00	5113.879	3.7088	**
17.24	31.67	5501.572	3.7405	*****
6.90	38.33	5918.656	3.7722	**
0.00	38.33	6367.361	3.8040	
13.79	51.67	6850.083	3.8357	****
6.90	58.33	7369.400	3.8674	**
6.90	65.00	7928.088	3.8992	**
3.45	68.33	8529.132	3.9309	*
3.45	71.67	9175.741	3.9626	*
10.34	81.67	9871.372	3.9944	***
6.90	88.33	10619.739	4.0261	**
3.45	91.67	11424.841	4.0579	*
6.90	98.33	12290.980	4.0896	**

0 1 2 3 4

B



C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = Mn Unit = ppm N = 22

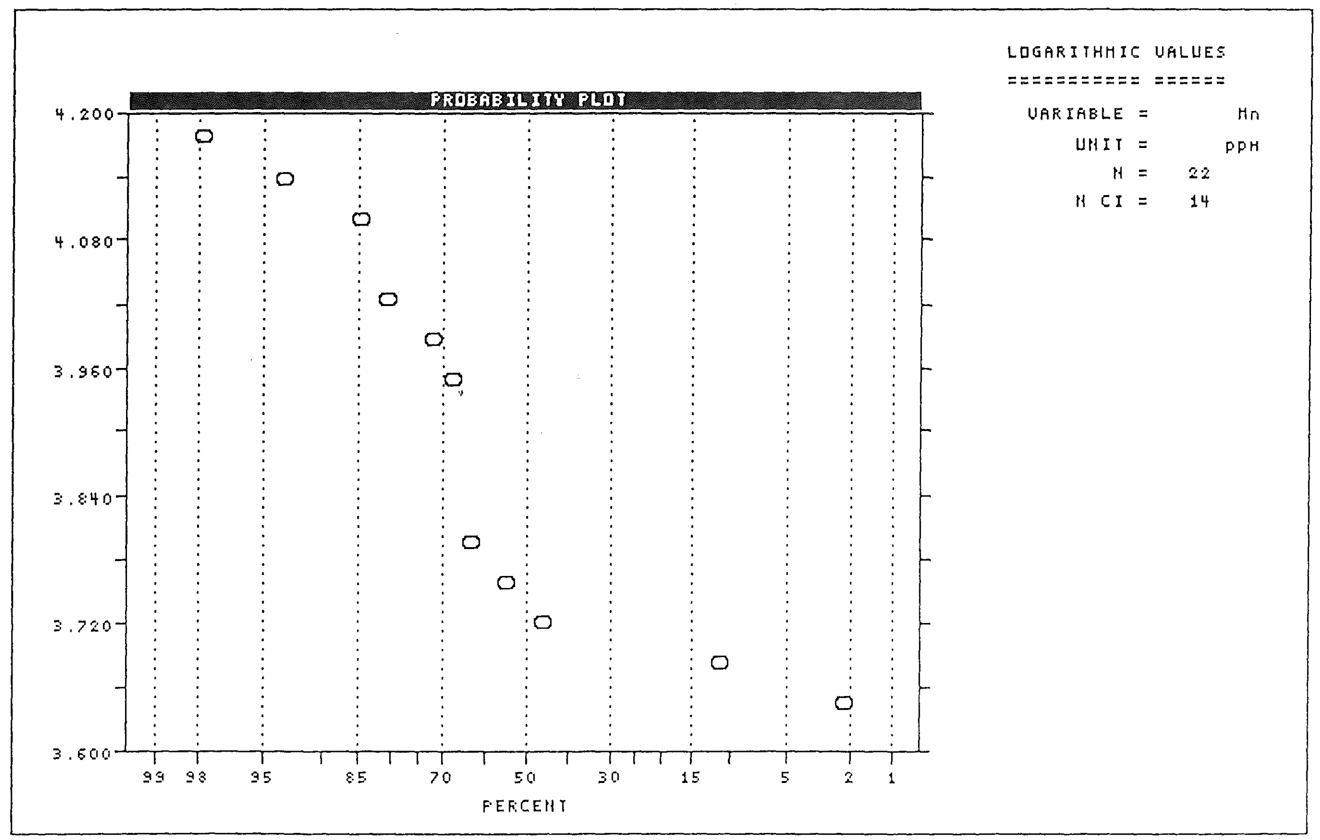
Mean =	3.8375	Min =	3.6646	1st Quartile =	3.7054
Std. Dev. =	0.1737	Max =	4.1590	Median =	3.7412
CV % =	4.5266	Skewness =	0.6992	3rd Quartile =	3.9912

Anti-Log Mean = 6878.336 Anti-Log Std. Dev. : (-) 4610.811 (+)10260.993

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0380)
0.00	2.17	4422.110	3.6456	
9.09	10.87	4826.746	3.6837	**
36.36	45.65	5268.407	3.7217	********
9.09	54.35	5750.481	3.7597	**
9.09	63.04	6276.666	3.7977	**
0.00	63.04	6850.999	3.8358	
0.00	63.04	7477.884	3.8738	
0.00	63.04	8162.132	3.9118	
4.55	67.39	8908.990	3.9498	*
4.55	71.74	9724.188	3.9879	*
9.09	80.43	10613.979	4.0259	**
0.00	80.43	11585.188	4.0639	
4.55	84.78	12645.266	4.1019	*
9.09	93.48	13802.343	4.1400	**
4.55	97.83	15065.297	4.1780	*

0 1 2 3 4

D



Appendix 10-1. Histograms and probability plots for Mn in the nonmagnetic HMC fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = Au   Unit = ppb   N = 29

Mean =	0.3406	Min =	0.0000	1st Quartile =	0.0000
Std. Dev. =	0.3469	Max =	1.3222	Median =	0.3010
CV % =	101.8471	Skewness =	1.0238	3rd Quartile =	0.4771

Anti-Log Mean = 2.191   Anti-Log Std. Dev. : (-) 0.986
(+) 4.869

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0944)
0.00	1.67	0.897	-0.0472	
34.48	35.00	1.115	0.0472	**********
0.00	35.00	1.386	0.1417	
0.00	35.00	1.722	0.2361	
31.03	65.00	2.141	0.3306	*********
0.00	65.00	2.661	0.4250	
17.24	81.67	3.307	0.5194	*****
0.00	81.67	4.110	0.6139	
3.45	85.00	5.109	0.7083	*
0.00	85.00	6.350	0.8028	
0.00	85.00	7.893	0.8972	
10.34	95.00	9.810	0.9917	***
0.00	95.00	12.193	1.0861	
0.00	95.00	15.155	1.1806	
0.00	95.00	18.836	1.2750	
3.45	98.33	23.412	1.3694	*
				0 1 2 3 4

C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

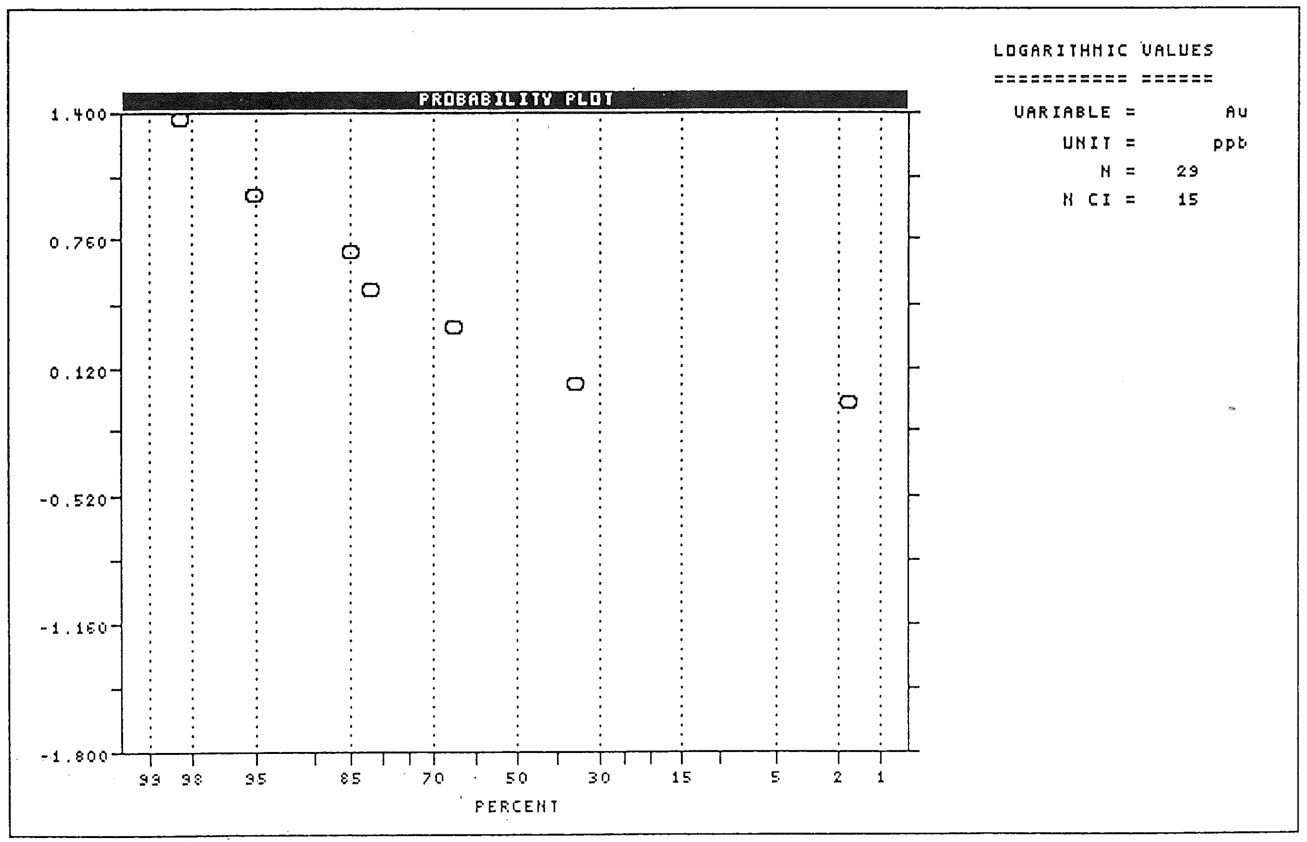
Variable = Au   Unit = ppb   N = 22

Mean =	0.1665	Min =	0.0000	1st Quartile =	0.0000
Std. Dev. =	0.2569	Max =	0.9031	Median =	0.0000
CV % =	154.2618	Skewness =	1.3688	3rd Quartile =	0.3010

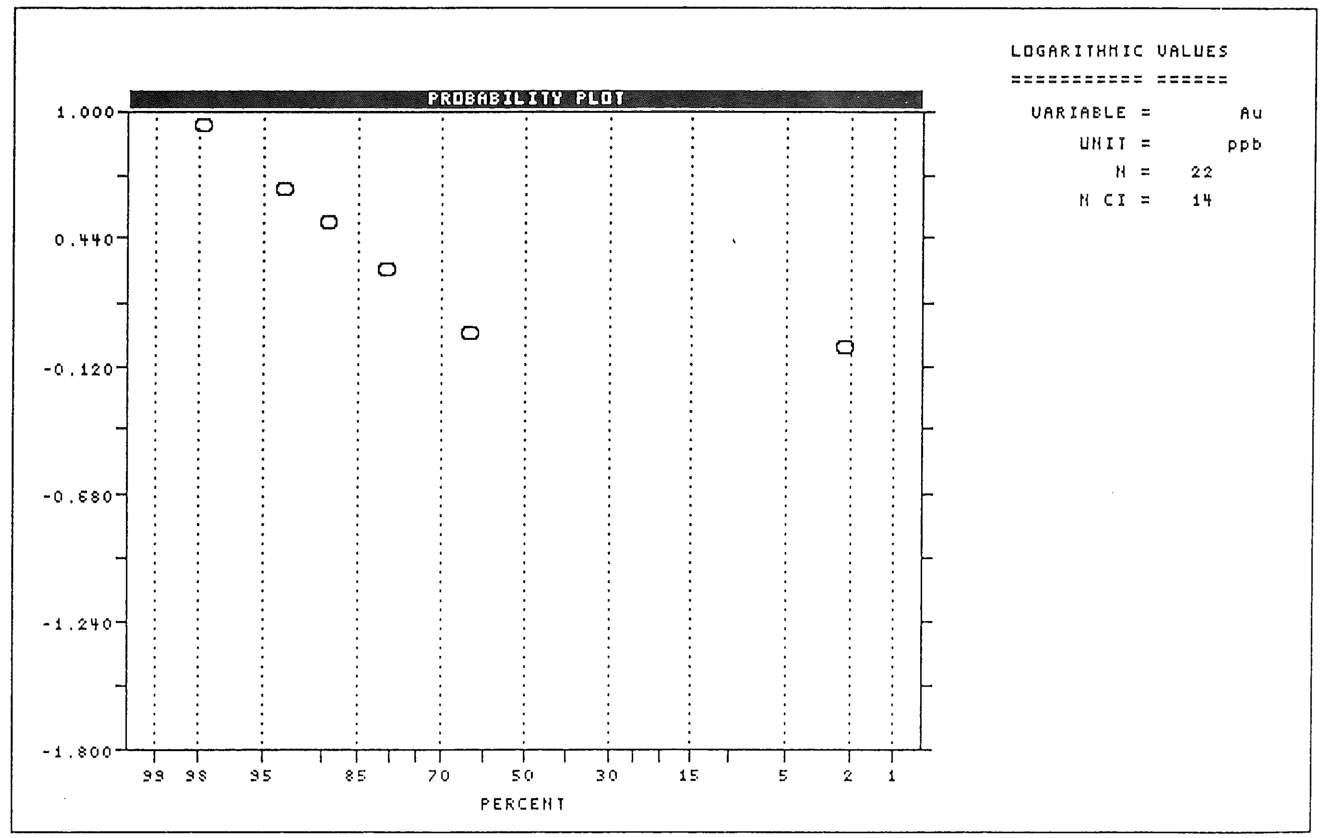
Anti-Log Mean = 1.467   Anti-Log Std. Dev. : (-) 0.812
(+) 2.651

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0695)
0.00	2.17	0.923	-0.0347	
63.64	63.04	1.083	0.0347	**************
0.00	63.04	1.271	0.1042	
0.00	63.04	1.492	0.1737	
0.00	63.04	1.750	0.2431	
18.18	80.43	2.054	0.3126	****
0.00	80.43	2.410	0.3821	
0.00	80.43	2.828	0.4515	
9.09	89.13	3.319	0.5210	**
0.00	89.13	3.895	0.5905	
4.55	93.48	4.570	0.6600	*
0.00	93.48	5.363	0.7294	
0.00	93.48	6.293	0.7989	
0.00	93.48	7.385	0.8684	
4.55	97.83	8.666	0.9378	*
				0 1 2 3 4

B



D



Appendix 10-1. Histograms and probability plots for Au in the silt/clay fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = As   Unit = ppm   N = 29

Mean =	0.1306	Min =	0.0000	1st Quartile =	0.0000
Std. Dev. =	0.1614	Max =	0.4771	Median =	0.0000
CV % =	123.5616	Skewness =	0.4935	3rd Quartile =	0.3010

Anti-Log Mean = 1.351   Anti-Log Std. Dev. : (-) 0.932 (+) 1.959

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0341)
0.00	1.67	0.962	-0.0170	
58.62	58.33	1.040	0.0170	*****************
0.00	58.33	1.125	0.0511	
0.00	58.33	1.217	0.0852	
0.00	58.33	1.316	0.1193	
0.00	58.33	1.424	0.1534	
0.00	58.33	1.540	0.1874	
0.00	58.33	1.665	0.2215	
0.00	58.33	1.801	0.2556	
0.00	58.33	1.948	0.2897	
37.93	95.00	2.107	0.3238	***********
0.00	95.00	2.280	0.3578	
0.00	95.00	2.466	0.3919	
0.00	95.00	2.667	0.4260	
0.00	95.00	2.885	0.4601	
3.45	98.33	3.120	0.4942	*
				0 1 2 3 4

C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

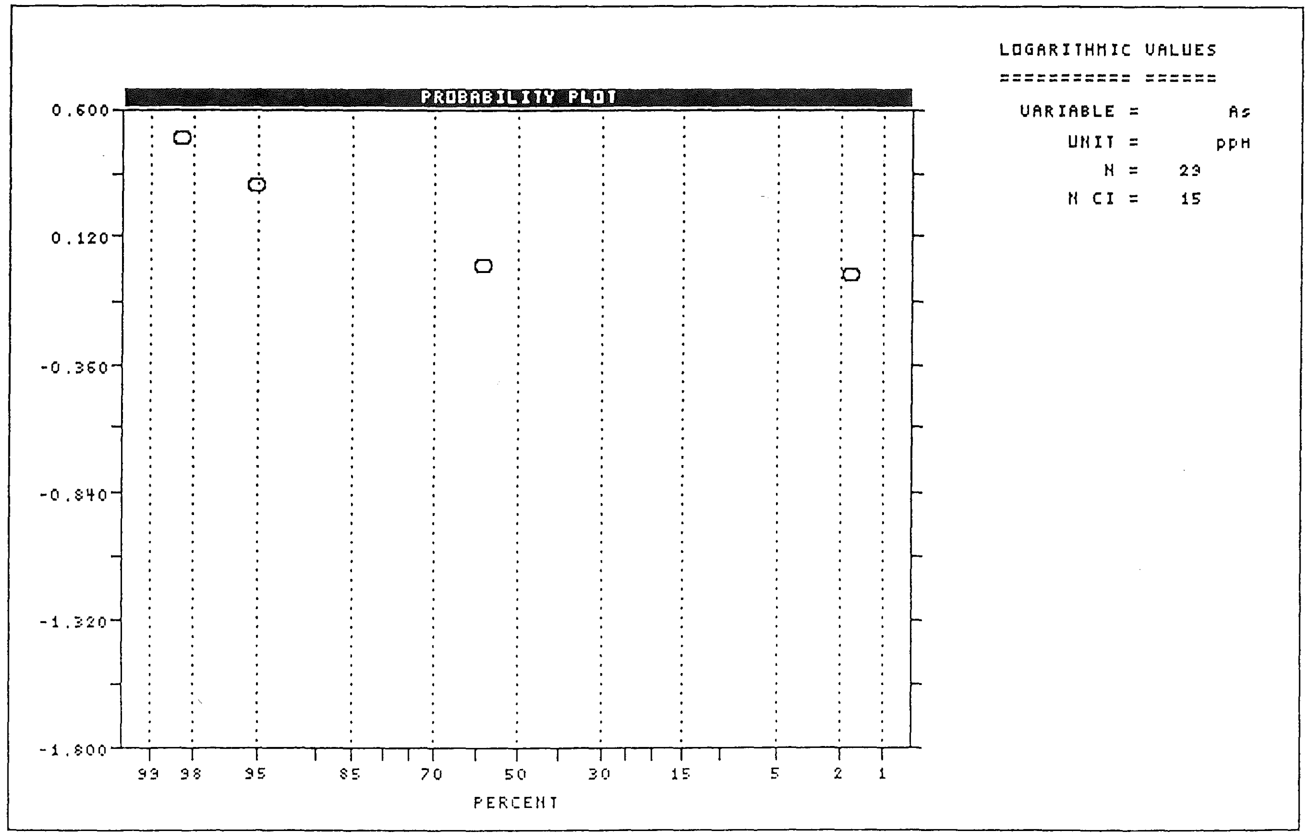
Variable = As   Unit = ppm   N = 22

Mean =	0.2236	Min =	0.0000	1st Quartile =	0.0000
Std. Dev. =	0.1848	Max =	0.4771	Median =	0.3010
CV % =	82.6459	Skewness =	-0.1477	3rd Quartile =	0.3010

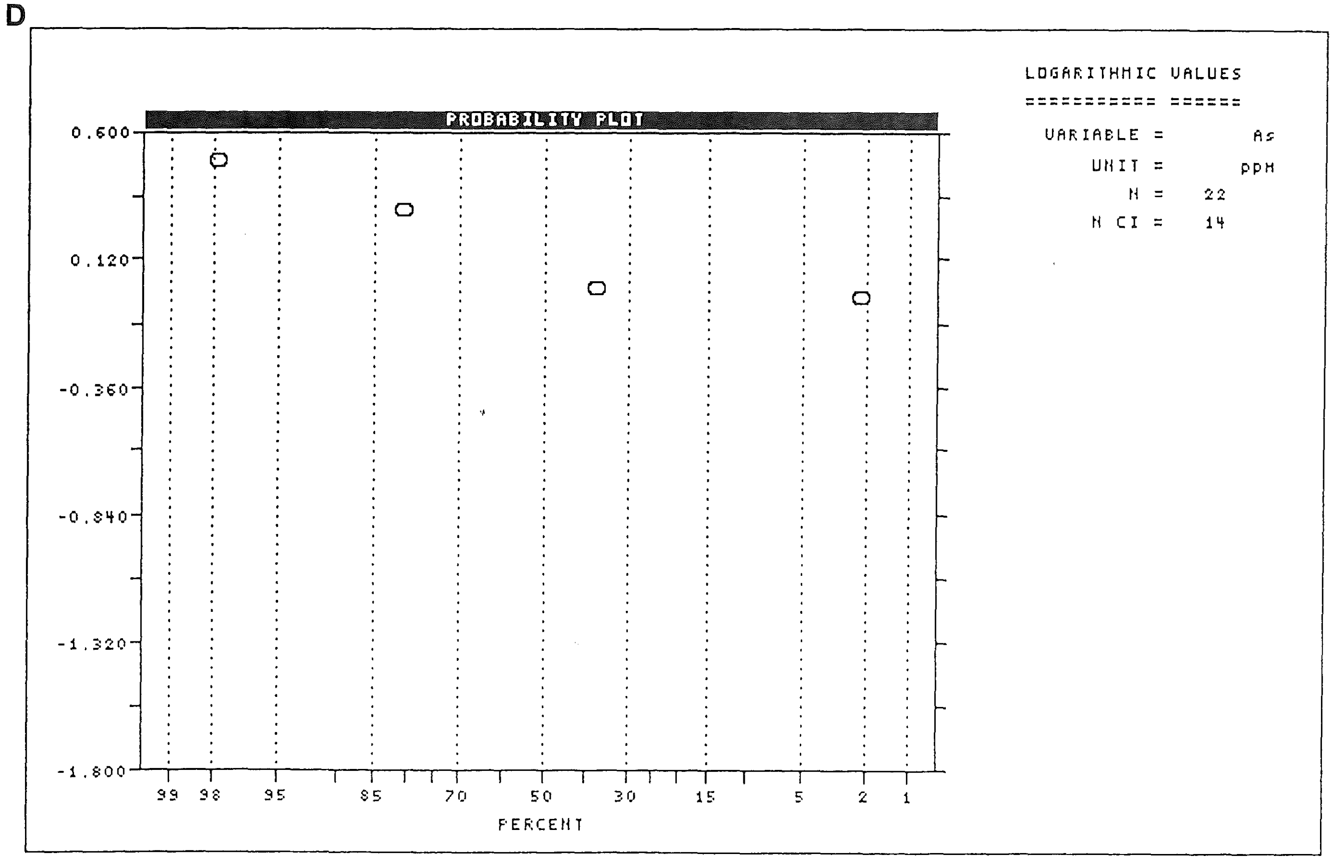
Anti-Log Mean = 1.673   Anti-Log Std. Dev. : (-) 1.093 (+) 2.561

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0367)
0.00	2.17	0.959	-0.0184	
36.36	36.96	1.043	0.0184	********
0.00	36.96	1.135	0.0551	
0.00	36.96	1.235	0.0918	
0.00	36.96	1.344	0.1285	
0.00	36.96	1.463	0.1652	
0.00	36.96	1.592	0.2019	
0.00	36.96	1.732	0.2386	
0.00	36.96	1.885	0.2753	
45.45	80.43	2.051	0.3120	**********
0.00	80.43	2.232	0.3487	
0.00	80.43	2.429	0.3854	
0.00	80.43	2.643	0.4221	
0.00	80.43	2.876	0.4588	
18.18	97.83	3.129	0.4955	****
				0 1 2 3 4

B



D



Appendix 10-1. Histograms and probability plots for <u>As</u> in the <u>silt/clay</u> fraction of <u>Rainy Lobe Till</u> samples. A and B) histogram/summary statistics and probability plot for samples overlying <u>granitic</u> bedrock, C and D) histogram/summary statistics and probability plot for samples overlying <u>greenstone</u> bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = W   Unit = ppm   N = 29

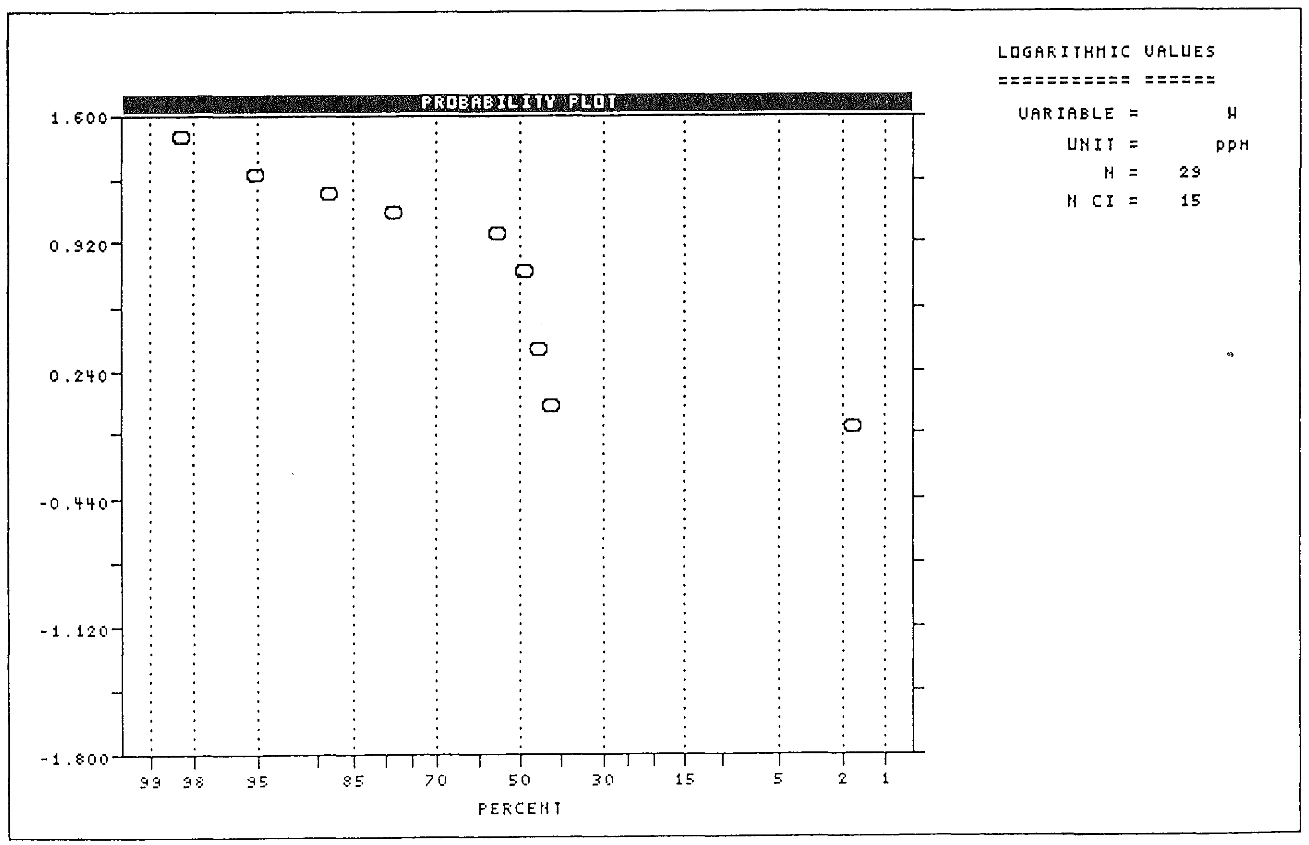
Mean =	0.6015	Min =	0.0000	1st Quartile =	0.0000
Std. Dev. =	0.5478	Max =	1.4472	Median =	0.8010
CV % =	91.0699	Skewness =	-0.0775	3rd Quartile =	1.0414

Anti-Log Mean = 3.995   Anti-Log Std. Dev. : (-) 1.132
(+) 14.102

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.1034)
0.00	1.67	0.888	-0.0517	
41.38	41.67	1.126	0.0517	************
0.00	41.67	1.429	0.1551	
0.00	41.67	1.813	0.2584	
3.45	45.00	2.300	0.3618	*
0.00	45.00	2.918	0.4652	
0.00	45.00	3.703	0.5685	
0.00	45.00	4.698	0.6719	
3.45	48.33	5.960	0.7753	*
0.00	48.33	7.562	0.8786	
6.90	55.00	9.594	0.9820	**
24.14	78.33	12.172	1.0854	*******
10.34	88.33	15.443	1.1887	***
6.90	95.00	19.593	1.2921	**
0.00	95.00	24.858	1.3955	
3.45	98.33	31.539	1.4988	*

0 1 2 3 4

B



C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = W   Unit = ppm   N = 22

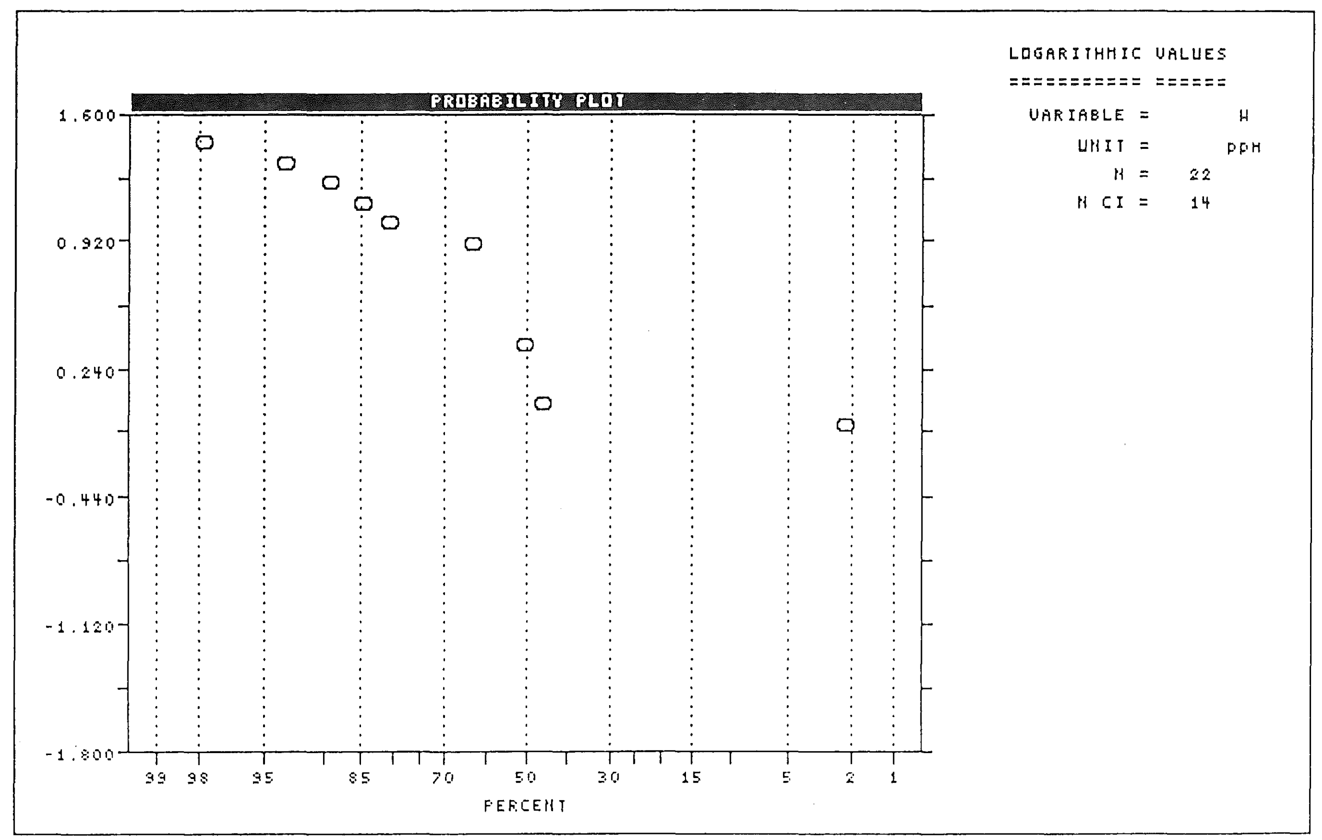
Mean =	0.5378	Min =	0.0000	1st Quartile =	0.0000
Std. Dev. =	0.5394	Max =	1.3979	Median =	0.8451
CV % =	100.2998	Skewness =	0.1188	3rd Quartile =	1.0000

Anti-Log Mean = 3.450   Anti-Log Std. Dev. : (-) 0.996
(+) 11.944

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.1075)
0.00	2.17	0.884	-0.0538	
45.45	45.65	1.132	0.0538	**********
0.00	45.65	1.450	0.1613	
0.00	45.65	1.857	0.2688	
4.55	50.00	2.379	0.3764	*
0.00	50.00	3.047	0.4839	
0.00	50.00	3.903	0.5914	
0.00	50.00	5.000	0.6990	
0.00	50.00	6.405	0.8065	
13.64	63.04	8.204	0.9140	***
18.18	80.43	10.509	1.0216	****
4.55	84.78	13.462	1.1291	*
4.55	89.13	17.244	1.2366	*
4.55	93.48	22.089	1.3442	*
4.55	97.83	28.295	1.4517	*

0 1 2 3 4

D

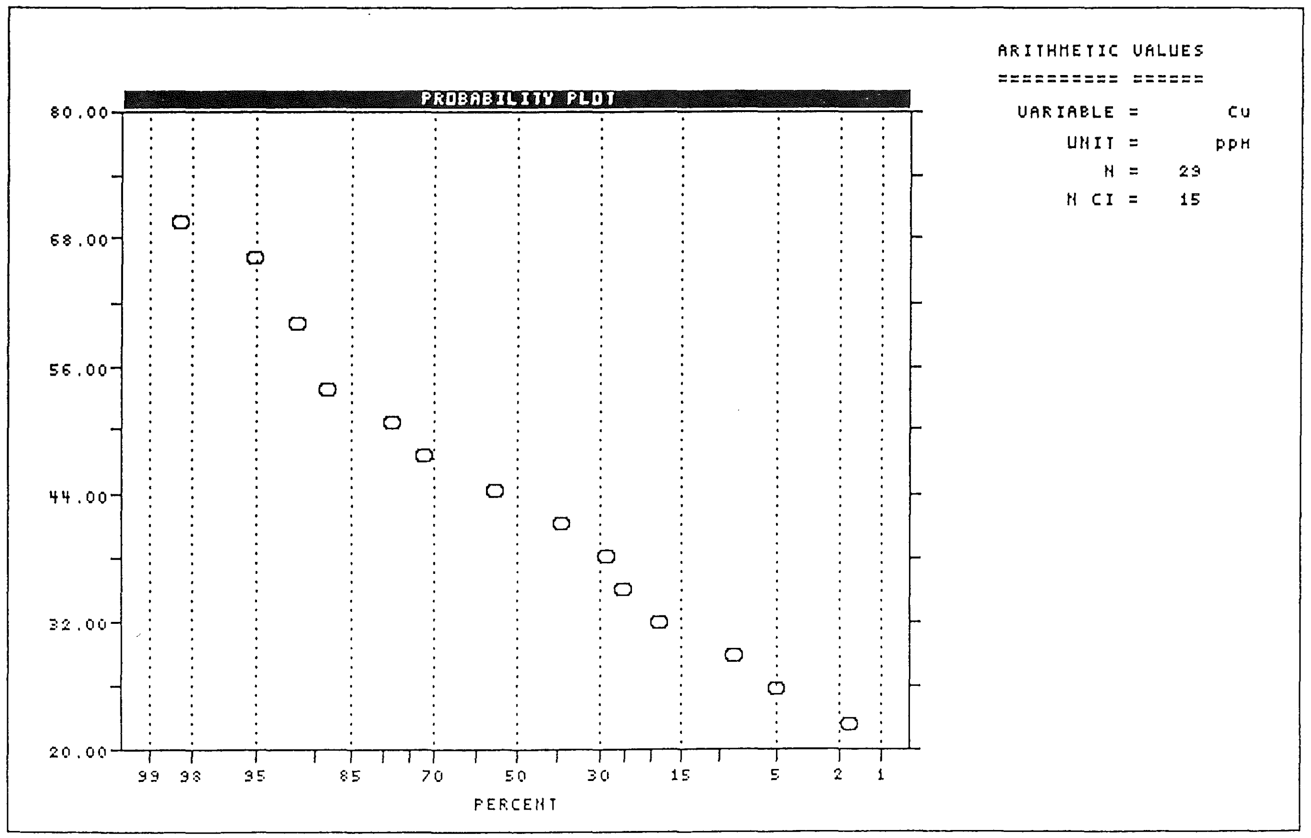


Appendix 10-1. Histograms and probability plots for W in the silt/clay fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

```
SUMMARY STATISTICS and HISTOGRAM                              ARITHMETIC VALUES

 Variable =        Cu          Unit =       ppm                  N =    29

     Mean =      43.310         Min =     24.000   1st Quartile =     36.750
Std. Dev. =      10.522         Max =     68.000         Median =     43.000
     CV % =      24.295    Skewness =      0.330   3rd Quartile =     47.500

==========================================================================
   %    cum %    cls int              (# of bins = 15  -  bin size =    3.143)
 -----  -----   --------              ------------------------------------
  0.00   1.67    22.429
  3.45   5.00    25.571               *
  3.45   8.33    28.714               *
 10.34  18.33    31.857               ***
  6.90  25.00    35.000               **
  3.45  28.33    38.143               *
 10.34  38.33    41.286               ***
 17.24  55.00    44.429               *****
 17.24  71.67    47.571               *****
  6.90  78.33    50.714               **
 10.34  88.33    53.857               ***
  0.00  88.33    57.000
  3.45  91.67    60.143               *
  0.00  91.67    63.286
  3.45  95.00    66.429               *
  3.45  98.33    69.571               *
--------------------------------------------------------------------------
                                      0         1         2         3         4
```

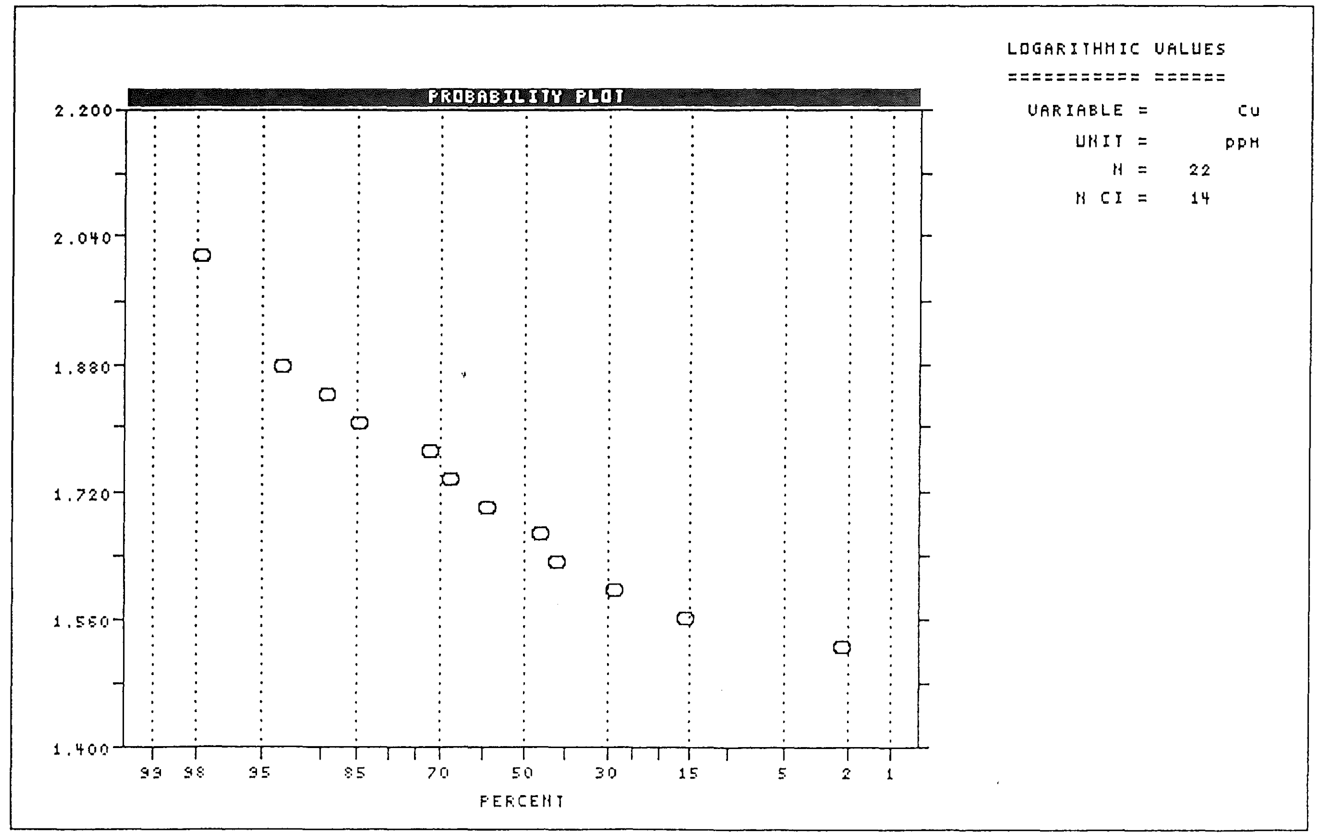
B



C

```
SUMMARY STATISTICS and HISTOGRAM                              LOGARITHMIC VALUES

 Variable =        Cu          Unit =       ppm                  N =    22

     Mean =    1.6866          Min =     1.5441   1st Quartile =     1.5911
Std. Dev. =    0.1160          Max =     2.0000         Median =     1.6812
     CV % =    6.8792     Skewness =     0.8355   3rd Quartile =     1.7593

     Anti-Log Mean =     48.595     Anti-Log Std. Dev. : (-)     37.202
                                                         (+)     63.476

==========================================================================
   %    cum %    antilog   cls int   (# of bins = 14  -  bin size =    0.0351)
 -----  -----   --------   ------    ------------------------------------
  0.00   2.17    33.615    1.5265
 13.64  15.22    36.442    1.5616    ***
 13.64  28.26    39.507    1.5967    ***
 13.64  41.30    42.830    1.6317    ***
  4.55  45.65    46.432    1.6668    *
 13.64  58.70    50.337    1.7019    ***
  9.09  67.39    54.571    1.7370    **
  4.55  71.74    59.161    1.7720    *
 13.64  84.78    64.137    1.8071    ***
  4.55  89.13    69.531    1.8422    *
  4.55  93.48    75.379    1.8772    *
  0.00  93.48    81.719    1.9123
  0.00  93.48    88.592    1.9474
  0.00  93.48    96.043    1.9825
  4.55  97.83   104.120    2.0175    *
--------------------------------------------------------------------------
                                     0         1         2         3         4
```

D



Appendix 10-1. Histograms and probability plots for Cu in the silt/clay fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

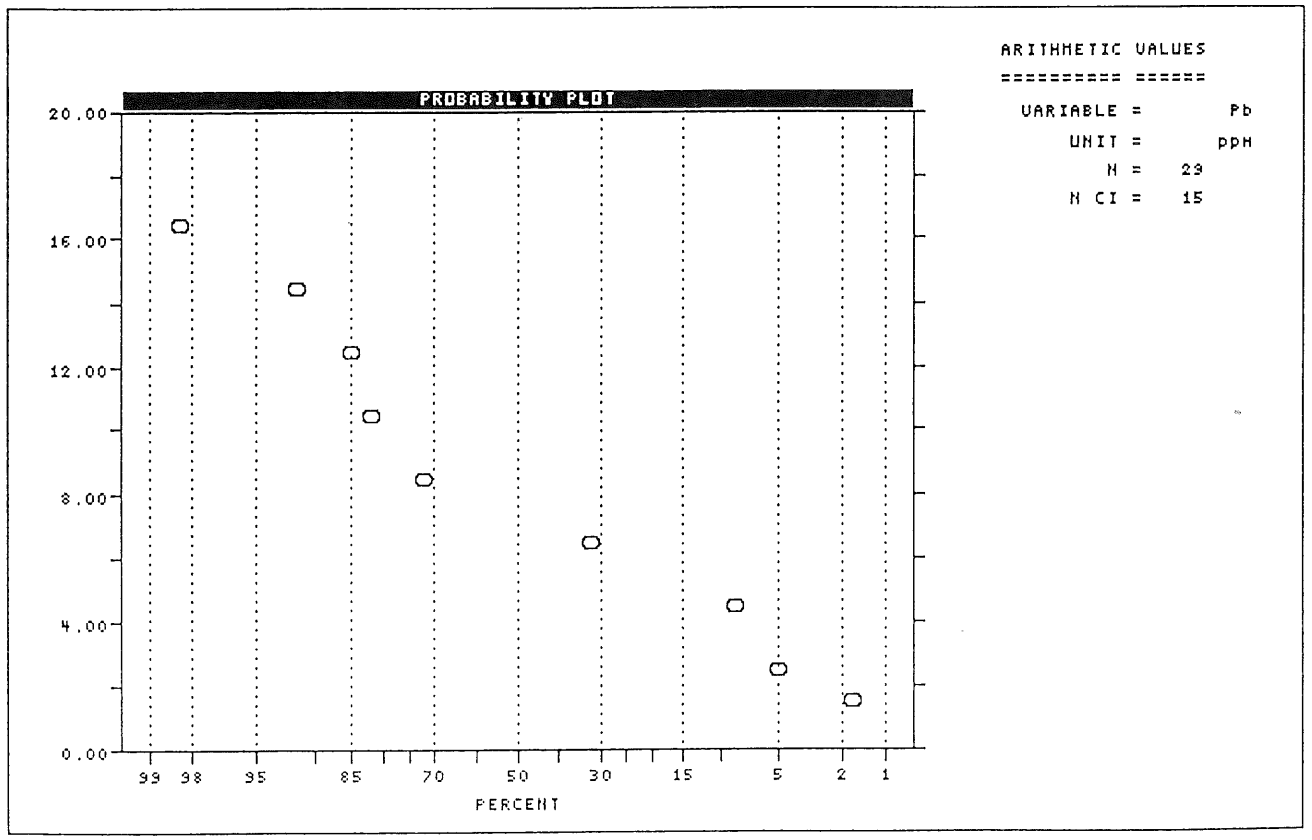
A

SUMMARY STATISTICS and HISTOGRAM — ARITHMETIC VALUES

Variable =	Pb	Unit =	ppm	N =	29
Mean =	8.483	Min =	2.000	1st Quartile =	6.000
Std. Dev. =	3.280	Max =	16.000	Median =	8.000
CV % =	38.667	Skewness =	0.778	3rd Quartile =	8.500

%	cum %	cls int	(# of bins = 15 - bin size = 1.000)
0.00	1.67	1.500	
3.45	5.00	2.500	*
0.00	5.00	3.500	
3.45	8.33	4.500	*
0.00	8.33	5.500	
24.14	31.67	6.500	*******
0.00	31.67	7.500	
41.38	71.67	8.500	************
0.00	71.67	9.500	
10.34	81.67	10.500	***
0.00	81.67	11.500	
3.45	85.00	12.500	*
0.00	85.00	13.500	
6.90	91.67	14.500	**
0.00	91.67	15.500	
6.90	98.33	16.500	**
			0 1 2 3 4

B



C

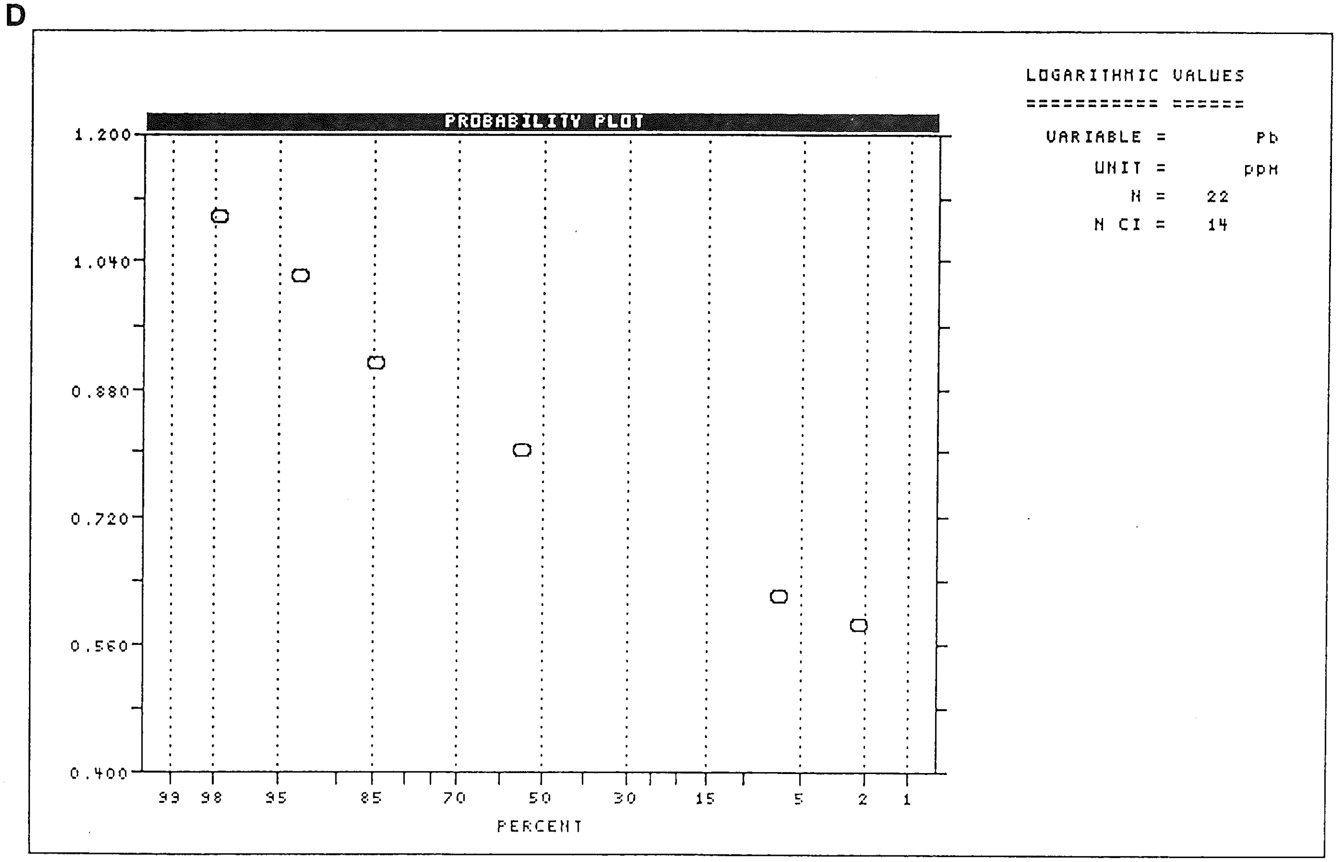
SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable =	Pb	Unit =	ppm	N =	22
Mean =	0.8438	Min =	0.6021	1st Quartile =	0.7782
Std. Dev. =	0.1057	Max =	1.0792	Median =	0.7782
CV % =	12.5282	Skewness =	0.1982	3rd Quartile =	0.9031

Anti-Log Mean = 6.978 Anti-Log Std. Dev. : (-) 5.471 (+) 8.901

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0367)
0.00	2.17	3.835	0.5837	
4.55	6.52	4.173	0.6204	*
0.00	6.52	4.541	0.6571	
0.00	6.52	4.941	0.6938	
0.00	6.52	5.377	0.7305	
0.00	6.52	5.851	0.7672	
50.00	54.35	6.367	0.8039	***********
0.00	54.35	6.928	0.8406	
0.00	54.35	7.539	0.8773	
31.82	84.78	8.204	0.9140	*******
0.00	84.78	8.927	0.9507	
0.00	84.78	9.715	0.9874	
9.09	93.48	10.571	1.0241	**
0.00	93.48	11.504	1.0608	
4.55	97.83	12.518	1.0975	*
				0 1 2 3 4

D



Appendix 10-1. Histograms and probability plots for Pb in the silt/clay fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

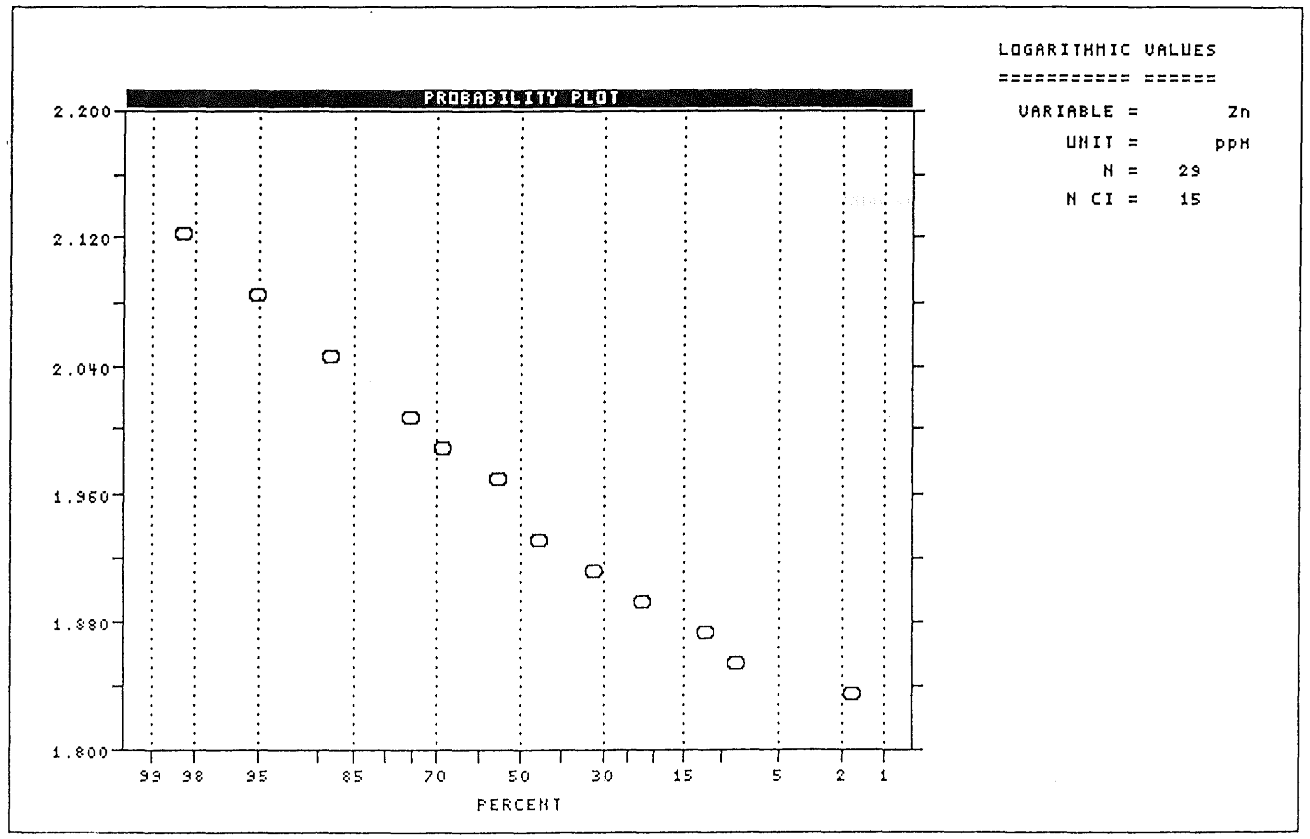
Variable = Zn   Unit = ppm   N = 29

Mean =	1.9583	Min =	1.8451	1st Quartile =	1.9017
Std. Dev. =	0.0739	Max =	2.1139	Median =	1.9542
CV % =	3.7755	Skewness =	0.3546	3rd Quartile =	2.0000

Anti-Log Mean = 90.835   Anti-Log Std. Dev. : (-) 76.616
(+) 107.693

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0192)
0.00	1.67	68.469	1.8355	
6.90	8.33	71.565	1.8547	**
3.45	11.67	74.800	1.8739	*
10.34	21.67	78.182	1.8931	***
10.34	31.67	81.716	1.9123	***
13.79	45.00	85.411	1.9315	****
0.00	45.00	89.272	1.9507	
10.34	55.00	93.308	1.9699	***
13.79	68.33	97.526	1.9891	****
6.90	75.00	101.936	2.0083	**
0.00	75.00	106.544	2.0275	
13.79	88.33	111.361	2.0467	****
0.00	88.33	116.395	2.0659	
6.90	95.00	121.657	2.0851	**
0.00	95.00	127.157	2.1043	
3.45	98.33	132.906	2.1235	*
				0 1 2 3 4

B



C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

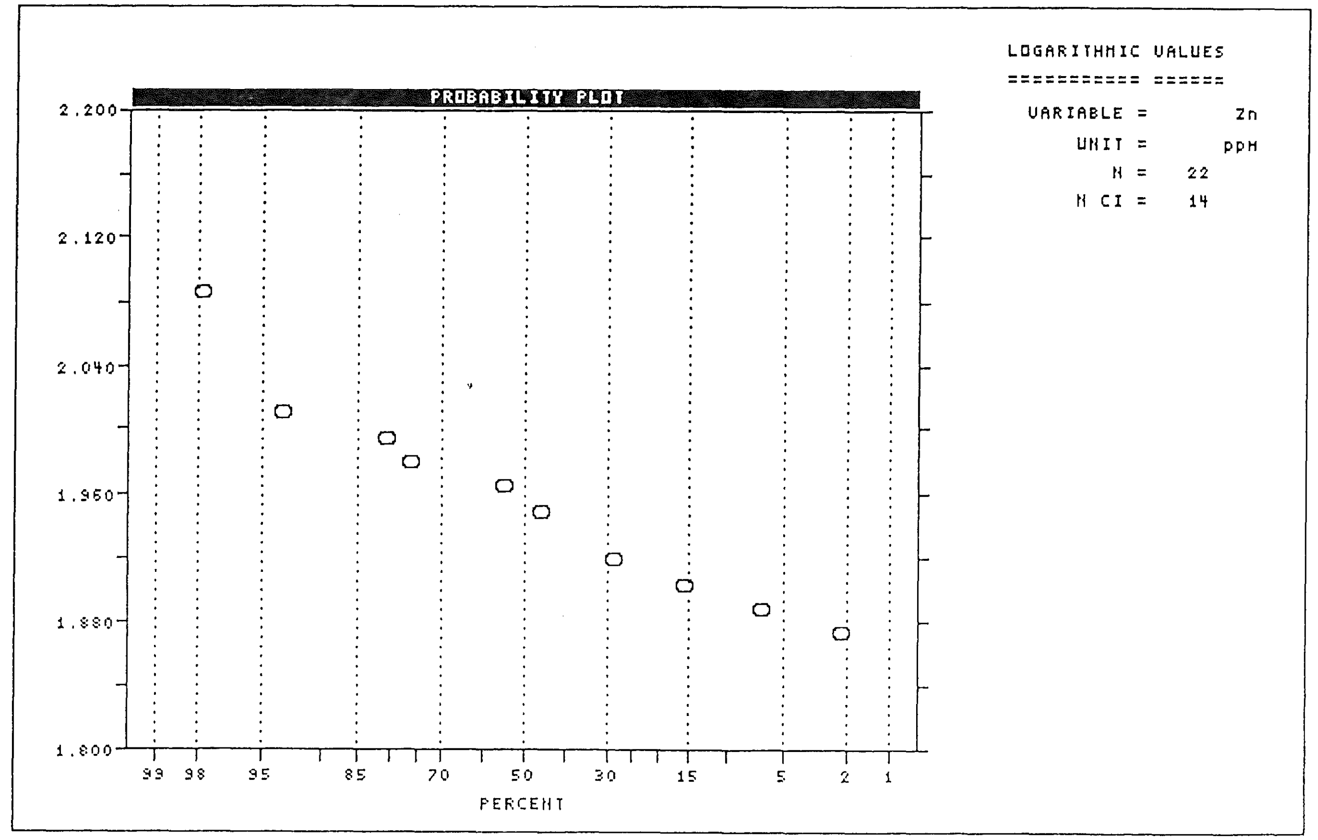
Variable = Zn   Unit = ppm   N = 22

Mean =	1.9554	Min =	1.8808	1st Quartile =	1.9138
Std. Dev. =	0.0454	Max =	2.0792	Median =	1.9638
CV % =	2.3233	Skewness =	0.5836	3rd Quartile =	1.9777

Anti-Log Mean = 90.245   Anti-Log Std. Dev. : (-) 81.281
(+) 100.197

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0153)
0.00	2.17	74.677	1.8732	
4.55	6.52	77.347	1.8884	*
9.09	15.22	80.113	1.9037	**
13.64	28.26	82.978	1.9190	***
0.00	28.26	85.945	1.9342	
18.18	45.65	89.018	1.9495	****
9.09	54.35	92.202	1.9647	**
22.73	76.09	95.499	1.9800	*****
4.55	80.43	98.914	1.9953	*
13.64	93.48	102.451	2.0105	***
0.00	93.48	106.114	2.0258	
0.00	93.48	109.909	2.0410	
0.00	93.48	113.839	2.0563	
0.00	93.48	117.910	2.0716	
4.55	97.83	122.127	2.0868	*
				0 1 2 3 4

D



Appendix 10-1. Histograms and probability plots for Zn in the silt/clay fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

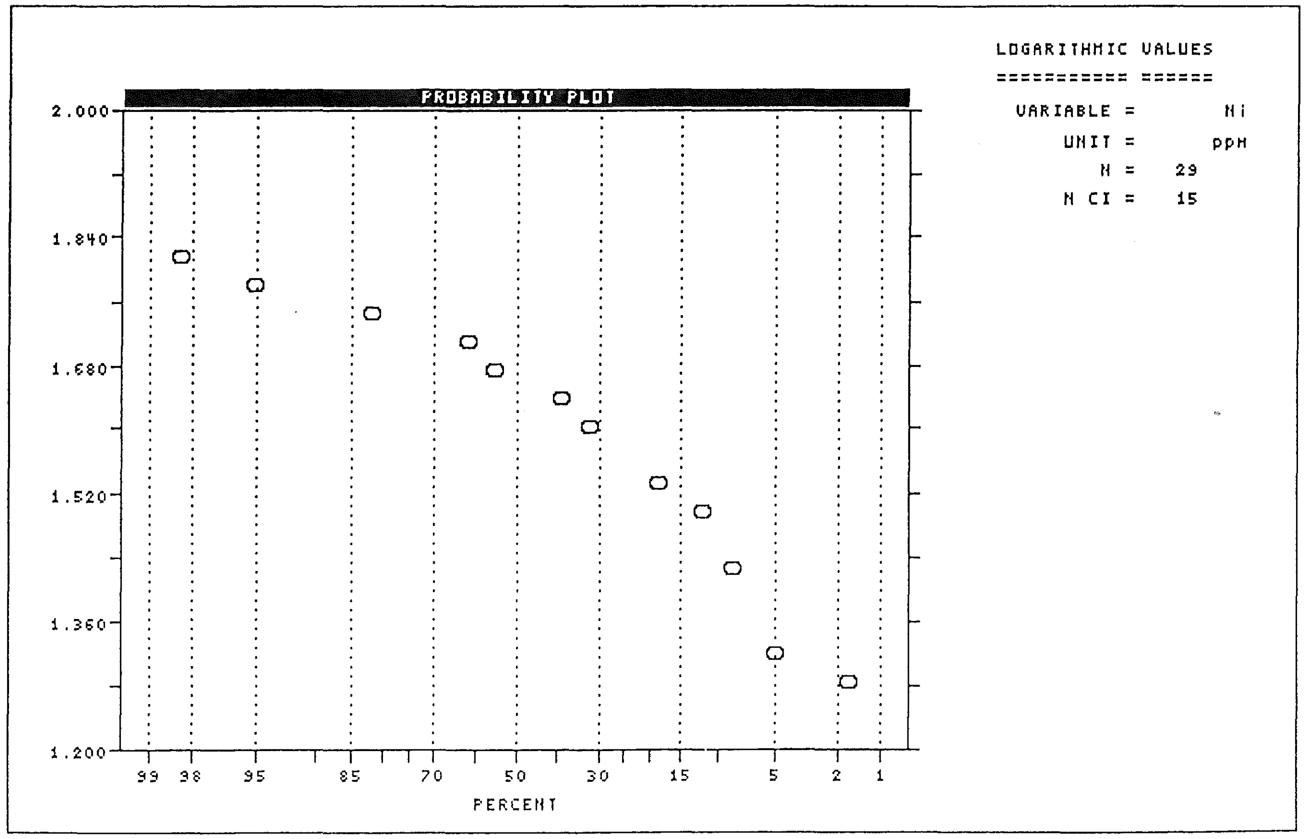
Variable = Ni   Unit = ppm   N = 29

Mean =	1.6469	Min =	1.3010	1st Quartile =	1.5882
Std. Dev. =	0.1164	Max =	1.7993	Median =	1.6721
CV % =	7.0704	Skewness =	-1.1950	3rd Quartile =	1.7324

Anti-Log Mean = 44.351   Anti-Log Std. Dev. : (-) 33.920
(+) 57.989

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0356)
0.00	1.67	19.197	1.2832	
3.45	5.00	20.837	1.3188	*
0.00	5.00	22.616	1.3544	
0.00	5.00	24.548	1.3900	
3.45	8.33	26.645	1.4256	*
0.00	8.33	28.920	1.4612	
3.45	11.67	31.390	1.4968	*
6.90	18.33	34.071	1.5324	**
0.00	18.33	36.981	1.5680	
13.79	31.67	40.140	1.6036	****
6.90	38.33	43.568	1.6392	**
17.24	55.00	47.289	1.6748	*****
6.90	61.67	51.328	1.7104	**
20.69	81.67	55.712	1.7460	******
13.79	95.00	60.471	1.7815	****
3.45	98.33	65.635	1.8171	*
				0 1 2 3 4

B



C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

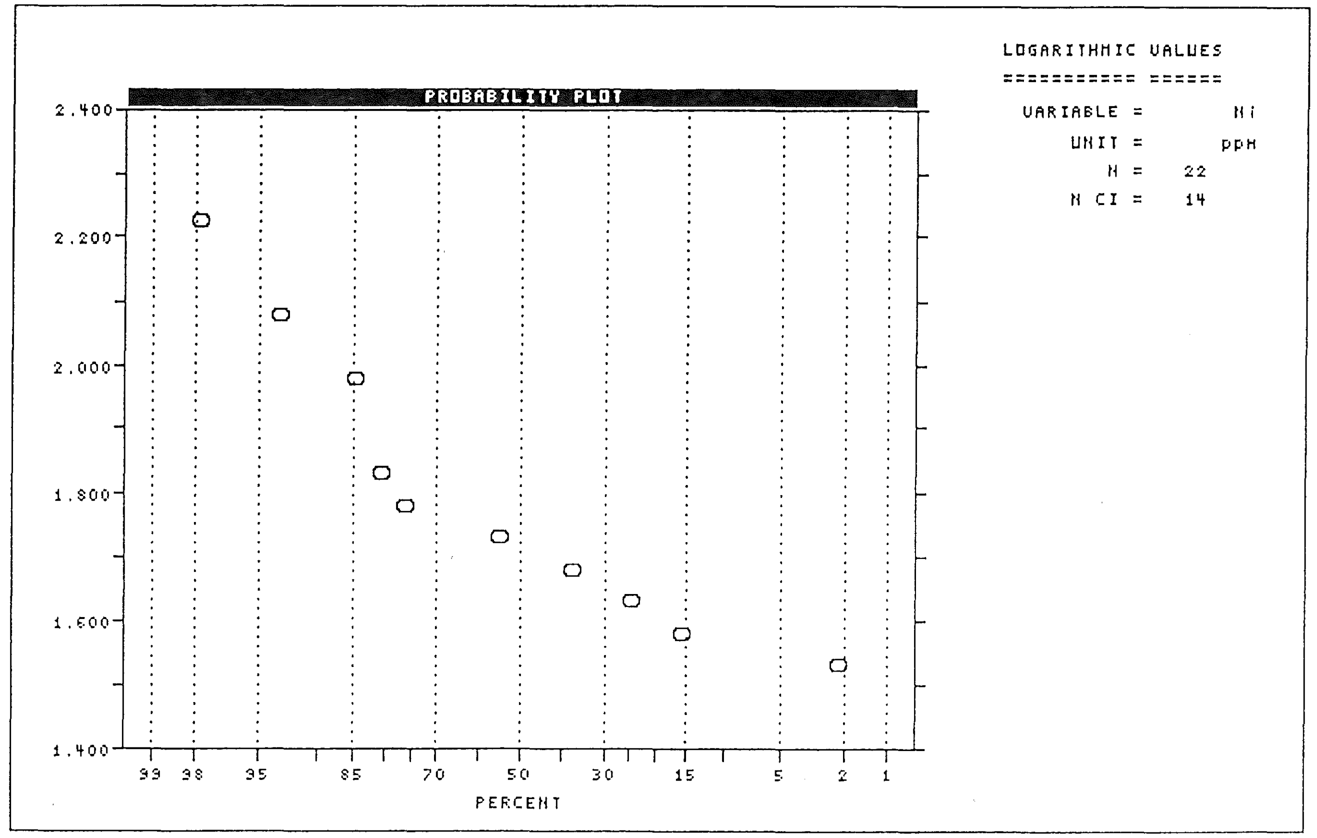
Variable = Ni   Unit = ppm   N = 22

Mean =	1.7513	Min =	1.5563	1st Quartile =	1.6334
Std. Dev. =	0.1694	Max =	2.2041	Median =	1.7076
CV % =	9.6726	Skewness =	1.1989	3rd Quartile =	1.7782

Anti-Log Mean = 56.404   Anti-Log Std. Dev. : (-) 38.187
(+) 83.313

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0498)
0.00	2.17	33.993	1.5314	
13.64	15.22	38.126	1.5812	***
9.09	23.91	42.761	1.6311	**
13.64	36.96	47.960	1.6809	***
18.18	54.35	53.792	1.7307	****
22.73	76.09	60.332	1.7805	*****
4.55	80.43	67.667	1.8304	*
0.00	80.43	75.895	1.8802	
0.00	80.43	85.122	1.9300	
4.55	84.78	95.472	1.9799	*
0.00	84.78	107.080	2.0297	
9.09	93.48	120.099	2.0795	**
0.00	93.48	134.701	2.1294	
0.00	93.48	151.079	2.1792	
4.55	97.83	169.448	2.2290	*
				0 1 2 3 4

D

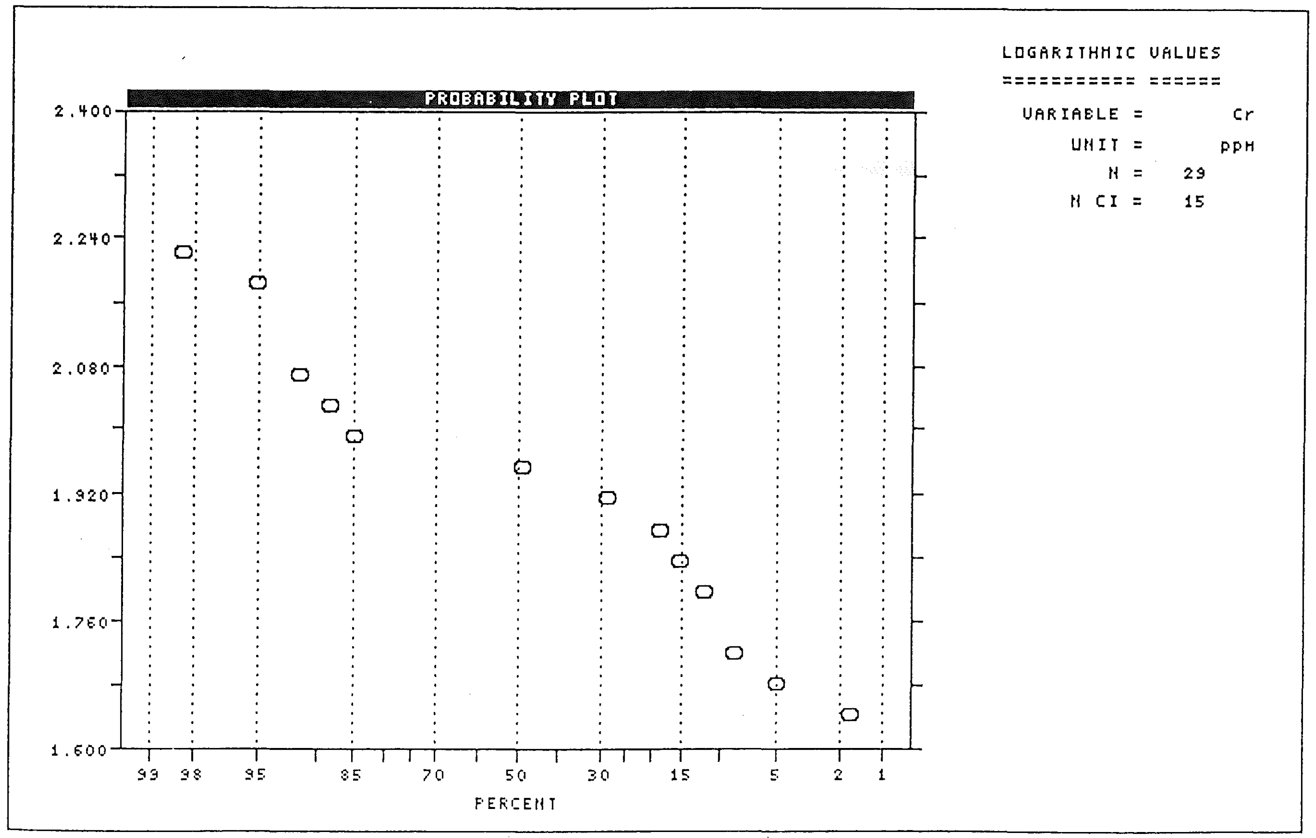


Appendix 10-1. Histograms and probability plots for Ni in the silt/clay fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

```
SUMMARY STATISTICS and HISTOGRAM                          LOGARITHMIC VALUES

 Variable =        Cr          Unit =       ppm              N =     29

     Mean =      1.9411          Min =     1.6628   1st Quartile =     1.9138
Std. Dev. =      0.1054          Max =     2.2041         Median =     1.9494
     CV % =      5.4275     Skewness =    -0.3250   3rd Quartile =     1.9731

        Anti-Log Mean =     87.321      Anti-Log Std. Dev. : (-)     68.512
                                                             (+)    111.295

=========================================================================
  %    cum %    antilog   cls int   (# of bins = 15  -  bin size =   0.0387)
-----  -----   --------   -------   --------------------------------------
 0.00   1.67     43.997    1.6434
 3.45   5.00     48.094    1.6821   *
 3.45   8.33     52.573    1.7208   *
 0.00   8.33     57.468    1.7594
 3.45  11.67     62.820    1.7981   *
 3.45  15.00     68.670    1.8368   *
 3.45  18.33     75.065    1.8754   *
10.34  28.33     82.055    1.9141   ***
20.69  48.33     89.696    1.9528   ******
37.93  85.00     98.049    1.9914   ***********
 3.45  88.33    107.179    2.0301   *
 3.45  91.67    117.160    2.0688   *
 0.00  91.67    128.070    2.1074
 0.00  91.67    139.996    2.1461
 3.45  95.00    153.033    2.1848   *
 3.45  98.33    167.284    2.2235   *
-------------------------------------------------------------------------
                                    0         1         2         3         4
```

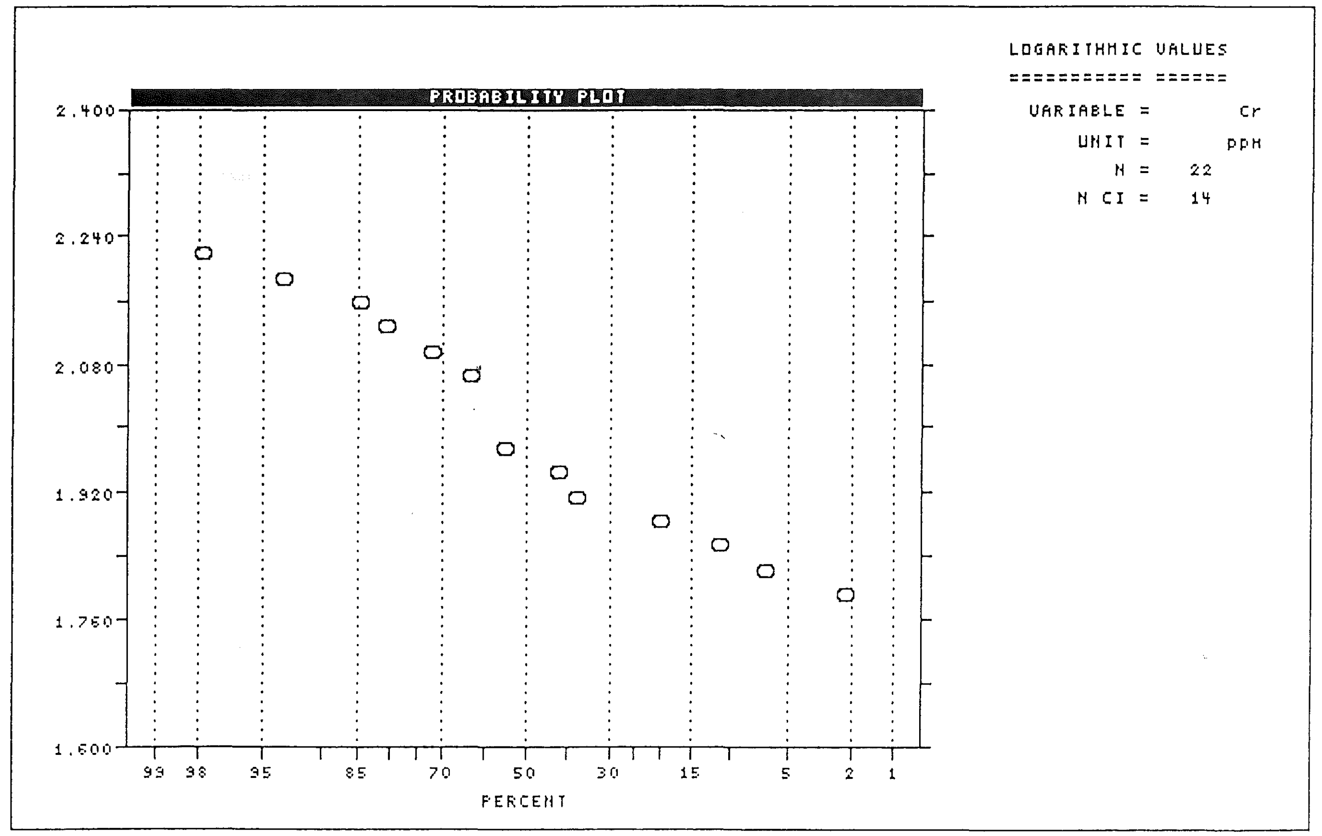
B



C

```
SUMMARY STATISTICS and HISTOGRAM                          LOGARITHMIC VALUES

 Variable =        Cr          Unit =       ppm              N =     22

     Mean =      1.9965          Min =     1.8062   1st Quartile =     1.8921
Std. Dev. =      0.1240          Max =     2.2041         Median =     1.9731
     CV % =      6.2102     Skewness =     0.2003   3rd Quartile =     2.0966

        Anti-Log Mean =     99.206      Anti-Log Std. Dev. : (-)     74.567
                                                             (+)    131.985

=========================================================================
  %    cum %    antilog   cls int   (# of bins = 14  -  bin size =   0.0306)
-----  -----   --------   -------   --------------------------------------
 0.00   2.17     61.784    1.7909
 4.55   6.52     66.296    1.8215   *
 4.55  10.87     71.137    1.8521   *
 9.09  19.57     76.332    1.8827   **
18.18  36.96     81.906    1.9133   ****
 4.55  41.30     87.888    1.9439   *
13.64  54.35     94.306    1.9745   ***
 0.00  54.35    101.193    2.0051
 0.00  54.35    108.583    2.0358
 9.09  63.04    116.512    2.0664   **
 9.09  71.74    125.021    2.0970   **
 9.09  80.43    134.151    2.1276   **
 4.55  84.78    143.947    2.1582   *
 9.09  93.48    154.459    2.1888   **
 4.55  97.83    165.739    2.2194   *
-------------------------------------------------------------------------
                                    0         1         2         3         4
```

D



Appendix 10-1. Histograms and probability plots for <u>Cr</u> in the <u>silt/clay</u> fraction of <u>Rainy Lobe Till</u> samples. A and B) histogram/summary statistics and probability plot for samples overlying <u>granitic</u> bedrock, C and D) histogram/summary statistics and probability plot for samples overlying <u>greenstone</u> bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = Co   Unit = ppm   N = 29

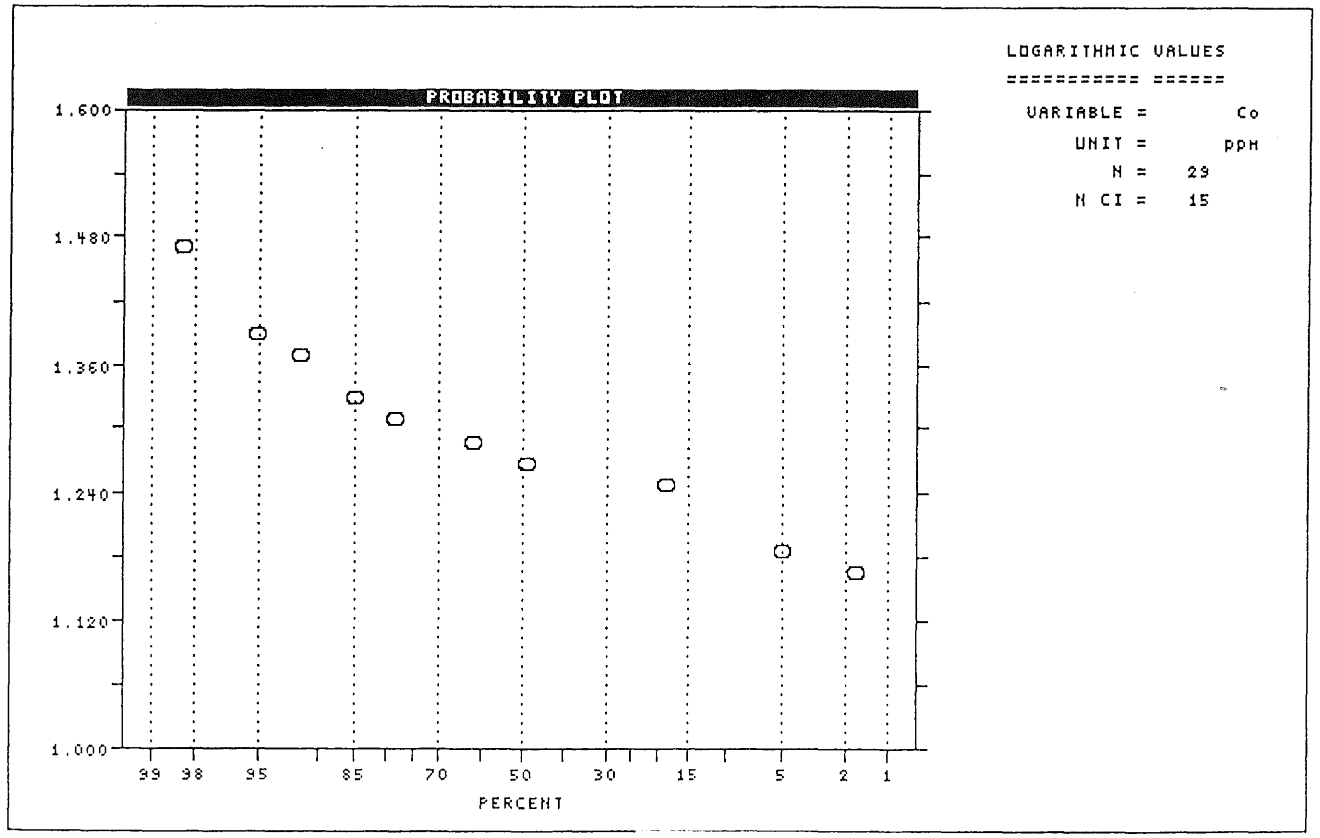
Mean =	1.2837	Min =	1.1761	1st Quartile =	1.2553
Std. Dev. =	0.0561	Max =	1.4624	Median =	1.2670
CV % =	4.3719	Skewness =	1.1417	3rd Quartile =	1.3010

Anti-Log Mean = 19.216   Anti-Log Std. Dev. : (-) 16.886
(+) 21.866

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0205)
0.00	1.67	14.651	1.1659	
3.45	5.00	15.357	1.1863	*
0.00	5.00	16.098	1.2068	
0.00	5.00	16.874	1.2272	
13.79	18.33	17.688	1.2477	****
31.03	48.33	18.540	1.2681	*********
13.79	61.67	19.434	1.2886	****
17.24	78.33	20.371	1.3090	*****
6.90	85.00	21.354	1.3295	**
0.00	85.00	22.383	1.3499	
6.90	91.67	23.462	1.3704	**
3.45	95.00	24.594	1.3908	*
0.00	95.00	25.779	1.4113	
0.00	95.00	27.022	1.4317	
0.00	95.00	28.325	1.4522	
3.45	98.33	29.691	1.4726	*

0 1 2 3 4

B



C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = Co   Unit = ppm   N = 22

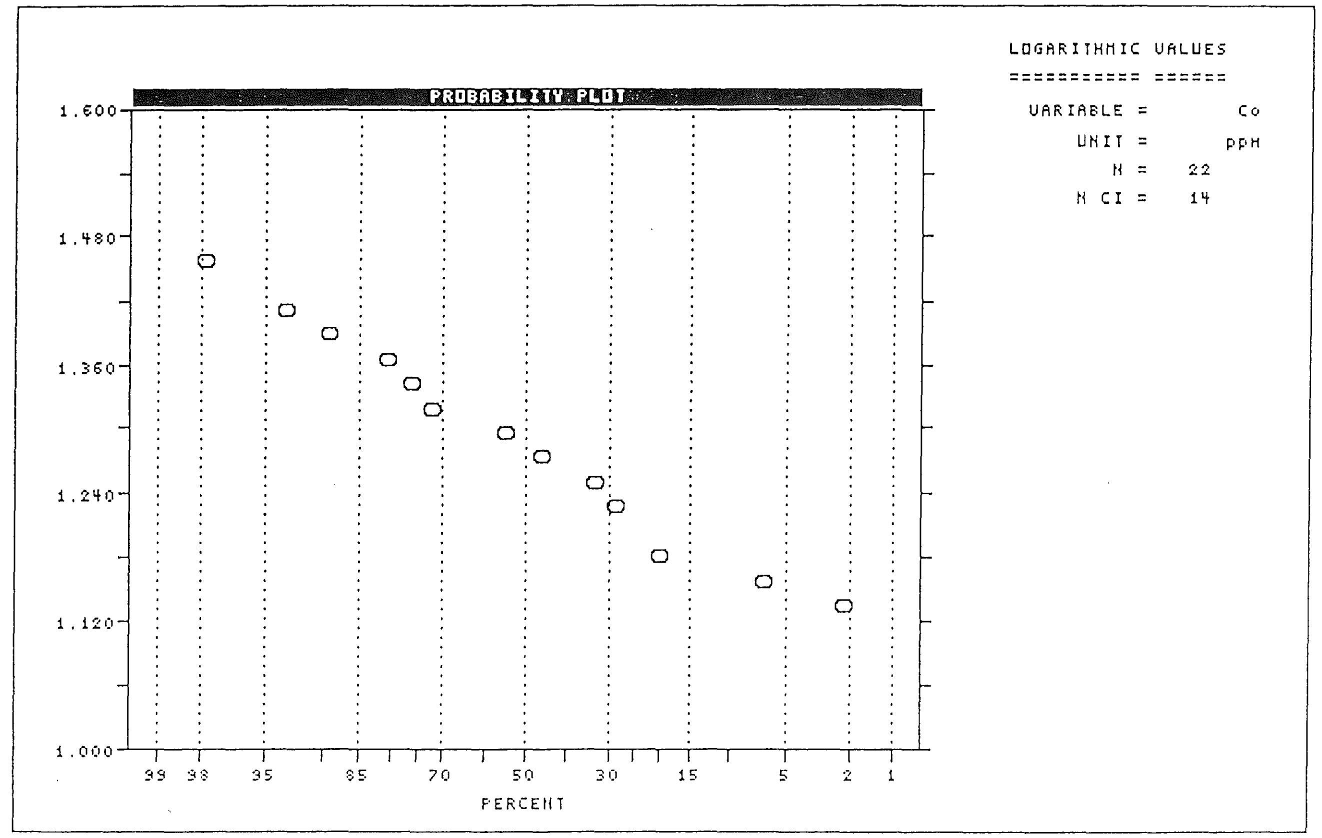
Mean =	1.2786	Min =	1.1461	1st Quartile =	1.2041
Std. Dev. =	0.0811	Max =	1.4472	Median =	1.2788
CV % =	6.3456	Skewness =	0.2445	3rd Quartile =	1.3116

Anti-Log Mean = 18.995   Anti-Log Std. Dev. : (-) 15.758
(+) 22.897

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0232)
0.00	2.17	13.632	1.1345	
4.55	6.52	14.378	1.1577	*
13.64	19.57	15.166	1.1809	***
0.00	19.57	15.996	1.2040	
9.09	28.26	16.872	1.2272	**
4.55	32.61	17.796	1.2503	*
13.64	45.65	18.771	1.2735	***
9.09	54.35	19.799	1.2966	**
18.18	71.74	20.883	1.3198	****
4.55	76.09	22.027	1.3430	*
4.55	80.43	23.233	1.3661	*
9.09	89.13	24.506	1.3893	**
4.55	93.48	25.848	1.4124	*
0.00	93.48	27.263	1.4356	
4.55	97.83	28.757	1.4587	*

0 1 2 3 4

D



Appendix 10-1. Histograms and probability plots for Co in the silt/clay fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable = Fe   Unit = ppm   N = 29

Mean =	4.6957	Min =	4.5561	1st Quartile =	4.6379
Std. Dev. =	0.0843	Max =	4.9149	Median =	4.6931
CV % =	1.7948	Skewness =	0.5311	3rd Quartile =	4.7350

Anti-Log Mean = 49625.247   Anti-Log Std. Dev. : (-)40872.050
(+)60253.037

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0256)
0.00	1.67	34936.916	4.5433	
6.90	8.33	37060.406	4.5689	**
6.90	15.00	39312.964	4.5945	**
3.45	18.33	41702.434	4.6202	*
13.79	31.67	44237.138	4.6458	****
6.90	38.33	46925.902	4.6714	**
10.34	48.33	49778.092	4.6970	***
20.69	68.33	52803.640	4.7227	******
10.34	78.33	56013.083	4.7483	***
6.90	85.00	59417.598	4.7739	**
3.45	88.33	63029.042	4.7995	*
3.45	91.67	66859.992	4.8252	*
0.00	91.67	70923.789	4.8508	
3.45	95.00	75234.588	4.8764	*
0.00	95.00	79807.400	4.9020	
3.45	98.33	84658.150	4.9277	*
				0 1 2 3 4

C

SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

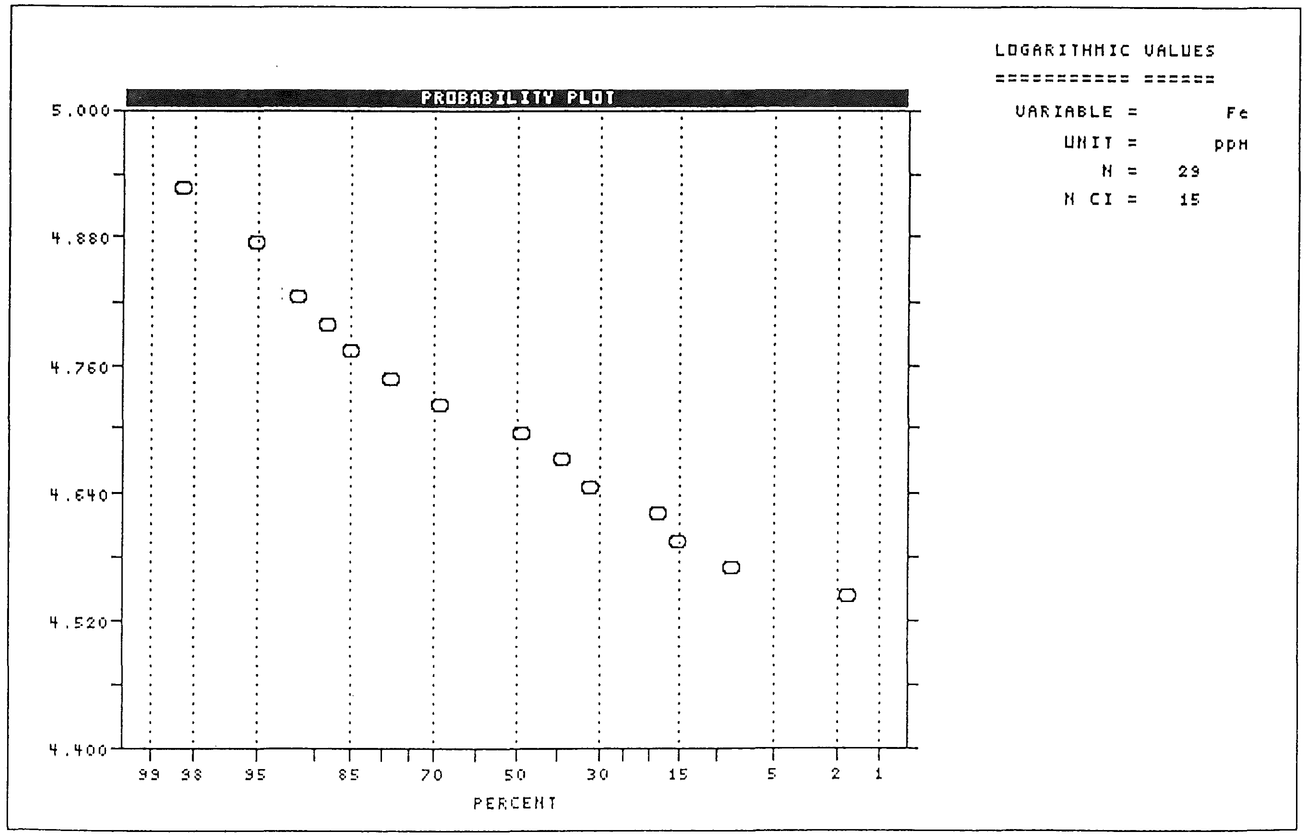
Variable = Fe   Unit = ppm   N = 22

Mean =	4.7012	Min =	4.5799	1st Quartile =	4.6459
Std. Dev. =	0.0731	Max =	4.8909	Median =	4.6937
CV % =	1.5545	Skewness =	0.6782	3rd Quartile =	4.7442

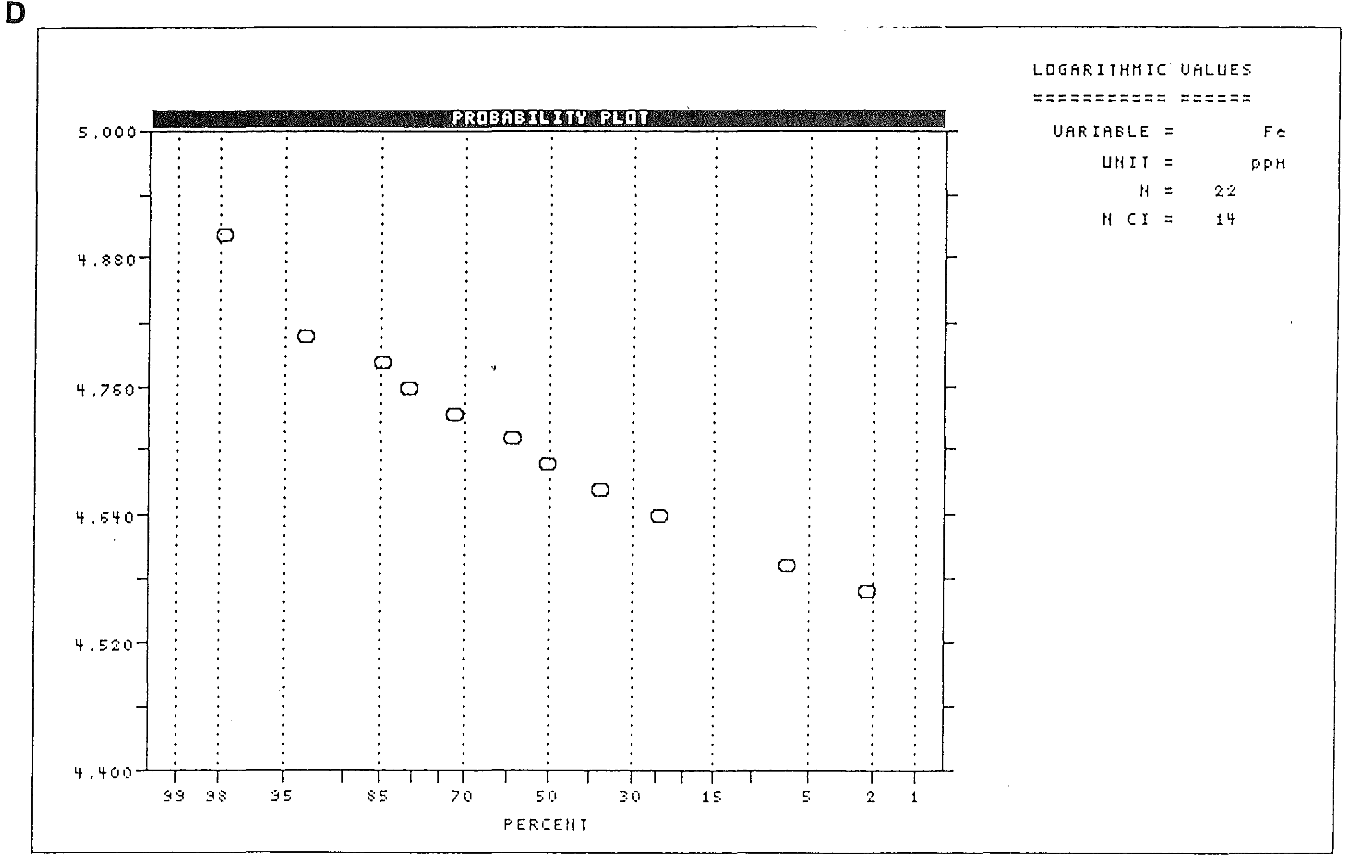
Anti-Log Mean = 50254.942   Anti-Log Std. Dev. : (-)42471.518
(+)59464.773

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0239)
0.00	2.17	36973.472	4.5679	
4.55	6.52	39067.363	4.5918	*
0.00	6.52	41279.835	4.6157	
18.18	23.91	43617.605	4.6397	****
13.64	36.96	46087.768	4.6636	***
13.64	50.00	48697.822	4.6875	***
9.09	58.70	51455.689	4.7114	**
13.64	71.74	54369.740	4.7354	***
9.09	80.43	57448.821	4.7593	**
4.55	84.78	60702.277	4.7832	*
9.09	93.48	64139.983	4.8071	**
0.00	93.48	67772.375	4.8311	
0.00	93.48	71610.477	4.8550	
0.00	93.48	75665.939	4.8789	
4.55	97.83	79951.071	4.9028	*
				0 1 2 3 4

B



D



Appendix 10-1. Histograms and probability plots for Fe in the silt/clay fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.

A

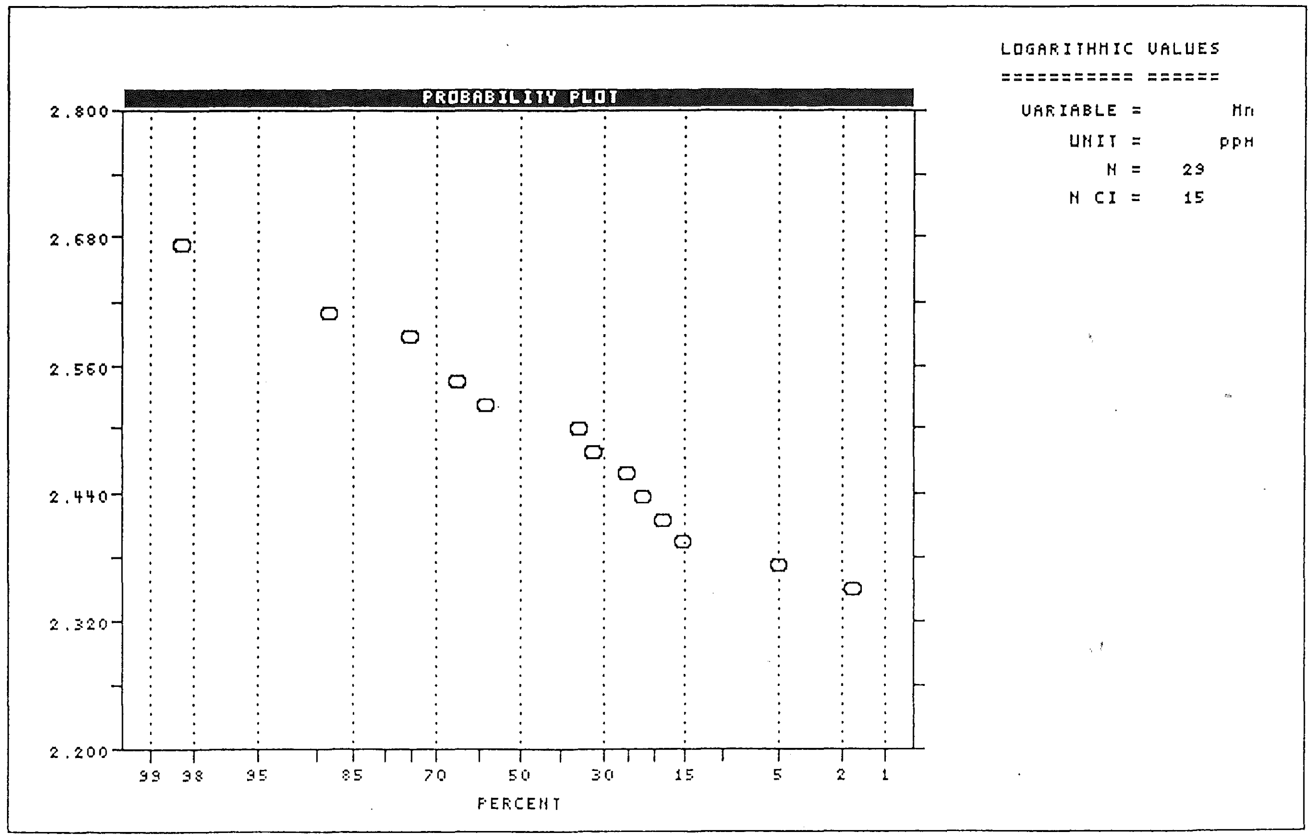
SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable =	Mn	Unit =	ppm	N =	29
Mean =	2.5161	Min =	2.3617	1st Quartile =	2.4696
Std. Dev. =	0.0845	Max =	2.6628	Median =	2.5118
CV % =	3.3585	Skewness =	-0.1486	3rd Quartile =	2.5711

Anti-Log Mean = 328.157 Anti-Log Std. Dev. : (-) 270.134
(+) 398.643

%	cum %	antilog	cls int	(# of bins = 15 - bin size = 0.0215)
0.00	1.67	224.376	2.3510	
3.45	5.00	235.765	2.3725	*
10.34	15.00	247.731	2.3940	***
3.45	18.33	260.305	2.4155	*
3.45	21.67	273.518	2.4370	*
3.45	25.00	287.400	2.4585	*
6.90	31.67	301.988	2.4800	**
3.45	35.00	317.316	2.5015	*
24.14	58.33	333.422	2.5230	*******
6.90	65.00	350.345	2.5445	**
0.00	65.00	368.127	2.5660	
10.34	75.00	386.812	2.5875	***
13.79	88.33	406.446	2.6090	****
0.00	88.33	427.075	2.6305	
0.00	88.33	448.752	2.6520	
10.34	98.33	471.530	2.6735	***
				0 1 2 3 4

B



C

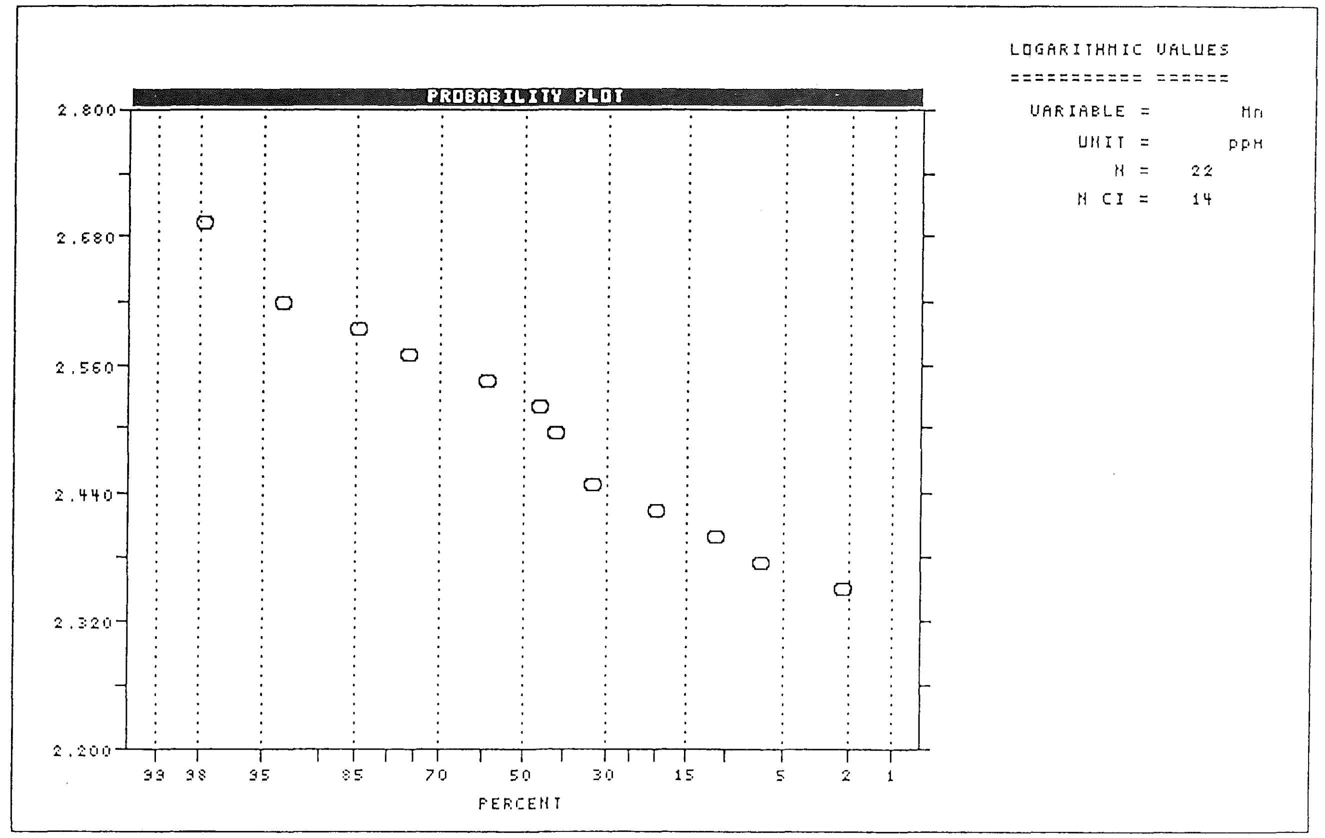
SUMMARY STATISTICS and HISTOGRAM — LOGARITHMIC VALUES

Variable =	Mn	Unit =	ppm	N =	22
Mean =	2.5128	Min =	2.3617	1st Quartile =	2.4314
Std. Dev. =	0.0829	Max =	2.6812	Median =	2.5441
CV % =	3.2998	Skewness =	-0.1427	3rd Quartile =	2.5682

Anti-Log Mean = 325.711 Anti-Log Std. Dev. : (-) 269.100
(+) 394.232

%	cum %	antilog	cls int	(# of bins = 14 - bin size = 0.0246)
0.00	2.17	223.583	2.3494	
4.55	6.52	236.601	2.3740	*
4.55	10.87	250.377	2.3986	*
9.09	19.57	264.955	2.4232	**
13.64	32.61	280.382	2.4478	***
0.00	32.61	296.708	2.4723	
9.09	41.30	313.983	2.4969	**
4.55	45.65	332.265	2.5215	*
13.64	58.70	351.611	2.5461	***
18.18	76.09	372.084	2.5706	****
9.09	84.78	393.748	2.5952	**
9.09	93.48	416.674	2.6198	**
0.00	93.48	440.935	2.6444	
0.00	93.48	466.608	2.6690	
4.55	97.83	493.776	2.6935	*
				0 1 2 3 4

D



Appendix 10-1. Histograms and probability plots for Mn in the silt/clay fraction of Rainy Lobe Till samples. A and B) histogram/summary statistics and probability plot for samples overlying granitic bedrock, C and D) histogram/summary statistics and probability plot for samples overlying greenstone bedrock.