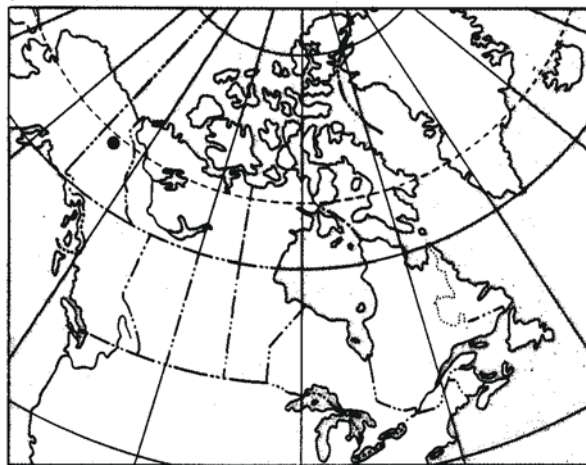


**GEOLOGICAL SURVEY OF CANADA OPEN FILE 2176
(NTS 116A and 116H South)
CANADA – YUKON ECONOMIC DEVELOPMENT PROGRAM (1989–1990)**

**REGIONAL STREAM SEDIMENT AND WATER GEOCHEMICAL DATA,
CENTRAL YUKON**



INDEX MAP

Recommended citation:

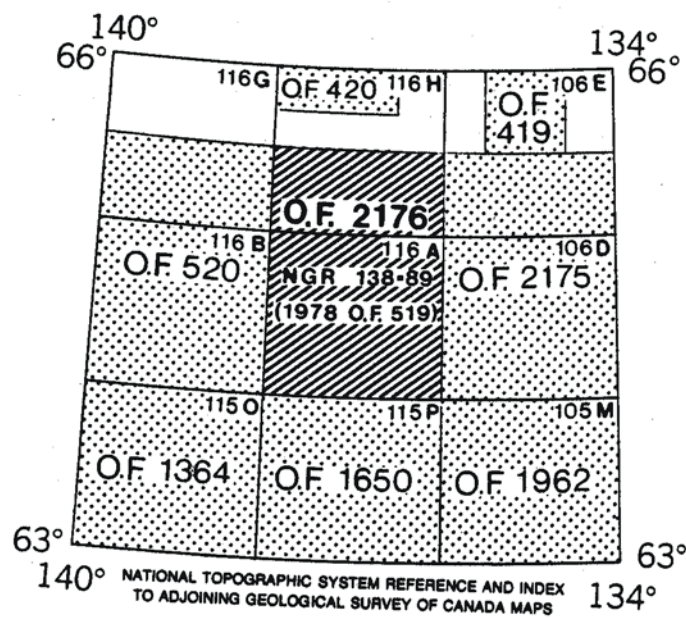
Friske, P.W.B., Hornbrook, E.H.W., Lynch, J.J., McCurdy, M.W., Gross, H., Galletta, A.C., Durham, C.C.

1990: National Geochemical Reconnaissance Stream Sediment and Water Geochemical Data, Central Yukon (116A and 116H South), Geological Survey of Canada

Open File 2176

August, 1990

NATIONAL GEOCHEMICAL RECONNAISSANCE
STREAM SEDIMENT AND WATER GEOCHEMICAL DATA
YUKON 1990
GEOLOGICAL SURVEY OF CANADA OPEN FILE 2176, NGR 138-1990
NTS 116A and 116H South



Open File 2176 represents a contribution to the Canada – Yukon Economic Development Program (1989-1990). This project was managed by the Geological Survey of Canada.

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**REGIONAL STREAM SEDIMENT AND WATER GEOCHEMICAL DATA, YUKON 1990,
GSC OPEN FILE 2176, NGR 138-1990
NTS 116A and 116H South**

INTRODUCTION

Open File 2176 contains new data for gold and 25 other elements obtained by re-analyzing stream sediments collected in 1976 and 1977 from areas of central Yukon Territory. Original analytical data selected from Open File 519 (published in 1978) for 13 elements in sediments, and uranium, pH and fluoride values in concomitant waters, are also included in this open file.

The original reconnaissance surveys were carried out by the Geological Survey of Canada under the Federal Uranium Reconnaissance Program. Funds for the determination of mercury in sediments at this time were provided by Fisheries and Environment Canada. Analyses of archived samples for Open File 2176 were undertaken under the Canada - Yukon Economic Development Program (1989-1990).

Analytical results and field observations are used to build a national geochemical data base for resource assessment, mineral exploration, geological mapping and environmental studies. Sample collection and preparation procedures and analytical methods are strictly specified and carefully monitored to ensure consistent and reliable results regardless of the area, the year or the analytical laboratory.

CREDITS

E.H.W. Hornbrook directed the surveys.

P.W.B. Friske coordinated the operational activities of contract and Geological Survey of Canada staff.

Contracts were let to the following companies for sample preparation and analysis and were managed by the following staff of the Regional Geochemical Studies section:

Preparation: Bondar-Clegg & Company
Ottawa, Ontario
J.J. Lynch

Analysis: Bondar-Clegg and Company
Ottawa, Ontario
J.J. Lynch

M. McCurdy edited open files and coordinated production.

A.C. Galletta managed the digital geochemical data and provided computer processing support.

The personal computer data base and software programs used for data entry, verification, processing and presentation in the publication of reports were designed and programmed by Harry Gross, Geochemical Data Manager for the Exploration Geochemistry Subdivision.

Sample location and gold value maps were plotted by Canada Lands Data Systems staff at Environment Canada, Hull, Quebec. Symbol-trend maps were prepared by GSC staff.

Pat Doyle, C.C. Durham and Rob Phillips provided technical assistance.

DESCRIPTION OF SURVEY AND SAMPLE MANAGEMENT

Helicopter-supported sample collection was carried out during the summers of 1976 and 1977. Stream sediment and water samples were collected at an average density of one sample per 13 square kilometres throughout the 15,900 square kilometres of the central Yukon survey.

Sample site duplicate samples were routinely collected in each analytical block of twenty samples.

Field observations were recorded on standard forms used by the Geological Survey of Canada (Garrett, 1974).

The sample site positions were marked on appropriate 1:250 000 scale NTS maps in the field. These maps were digitized at the Geological Survey in Ottawa to obtain the sample site UTM coordinates.

In Ottawa, field dried samples were air-dried and sieved through a minus 80 mesh (177 micron) screen, and ball-milled before analyses. At this time, control reference and blind duplicate samples were inserted into each block of twenty sediment samples. For the water samples, only control reference samples were inserted into the block. There were no blind duplicate water samples.

The sample site coordinates were checked as follows: a sample location map was produced on a Calcomp 1051 drum plotter using the digitized coordinates; the original sample location map produced in the field was then overlain on the Calcomp map; the two sets of points were checked for coincidence. The dominant rock types in the stream catchment basins were identified on appropriate geological maps used as the bedrock geological base on NGR maps.

Thorough inspections of the field and analytical data were made to check for any missing information and/or gross errors.

Quality control and monitoring of the geochemical data was undertaken by a standard method used by the Exploration Geochemistry Subdivision at the Geological Survey of Canada.

ANALYTICAL PROCEDURES

Instrumental Neutron Activation Analysis (INAA)

The weighed sample (generally 10 to 40 g) is irradiated epithermally for 20 minutes in a neutron flux with an approximate density of 1×10^{11} neutrons/cm²/second. Counting begins seven days after irradiation. The counting time is somewhat variable (6 to 11 minutes) and is matrix dependent. Counting is done on a germanium-lithium co-axial counter. The counting data is accumulated on a VAX computer and is subsequently converted to concentrations. Numerous international reference samples are irradiated with each batch of

routine samples. Elements determined by INA analyses include: Na, Sc, Cr, Fe, Co, Ni, Zn, As, Se, Br, Rb, Zr, Mo, Ag, Cd, Sn, Sb, Te, Cs, Ba, La, Ce, Sm, Eu, Tb, Yb, Lu, Hf, Ta, W, Ir, Au, Th, and U. The sample weight is also reported. Data for Zn, Se, Zr, Ag, Cd, Sn, Te, and Ir are not published because of inadequate detection limits and/or precision.

Atomic Absorption Spectroscopy (AAS) and Other Analyses

For the determination of Zn, Cu, Pb, Ni, Co, Ag, Mn and Fe, a 1 gram sample was reacted with 3 mL concentrated HNO₃ in a test tube at 90° C and held at this temperature for 30 minutes. At this point, one mL of concentrated HCl was added and the digestion continued for another 90 minutes. The sample solution was then diluted to 20 mL with metal-free water and mixed. Zn, Cu, Pb, Ni, Co, Ag, Mn and Fe were determined by atomic absorption spectroscopy using an air-acetylene flame. Background corrections were made for Pb, Ni, Co and Ag.

Molybdenum was determined by atomic absorption spectroscopy using a nitrous oxide acetylene flame. A 0.5 gram sample was reacted with 1.5 mL concentrated HNO₃ at 90° C for 30 minutes. At this point, 0.5 mL concentrated HCl was added and the digestion continued at 90° C for an additional 90 minutes. After cooling, 8 mL of 1250 ppm Al solution were added and the sample solution diluted to 10 mL before aspiration.

Mercury was determined by the Hatch and Ott procedure with some modifications. The method is described by Jonasson *et al.* (1973). A 0.5 gram sample was reacted with 20 mL concentrated HNO₃ and 1 mL concentrated HCl in a test-tube for 10 minutes at room temperature prior to two hours of digestion with mixing at 90° C in a hot water bath. After digestion, the sample solutions were cooled and diluted to 100 mL with metal-free water. The Hg present is reduced to the elemental state by the addition of 10 mL 10% w/v SnSO₄ in M H₂SO₄. The Hg vapour was then flushed by a stream of air into an absorption cell mounted in the light path of an atomic absorption spectrophotometer. Absorption measurements were made at 253.7 nm.

Barium was determined by atomic absorption spectroscopy using a nitrous oxide-acetylene flame. A 0.5 g sample was decomposed with 5 mL concentrated HF, 5 mL concentrated HClO₄ and 2 mL concentrated HNO₃. The sample was then heated to fumes of perchloric acid. Three mL concentrated HClO₄ were added to the residue, heated to light fumes and then 5 mL of water were added. The sample solution was transferred to a test tube calibrated at 25 mL, containing 0.5 mL ionization buffer solution (0.05 g NaCl/mL). The sample solution was diluted and 25 mL, mixed and analysed.

Tungsten was determined as follows: a 0.2 g sample of lake sediment was fused with 1 g K₂S₂O₇ in a rimless test tube at 575° C for 15 minutes in a furnace. The cooled melt was then leached with 10 mL concentrated HCl in a water bath heated to 85° C. After the soluble material had completely dissolved, the insoluble material was allowed to settle and an aliquot of 5 mL transferred to another test tube. 5 mL of 20% SnCl₂ solution were then added to the sample aliquot, mixed and heated for

10 minutes at 85° C in a hot water bath. A 1 mL aliquot of dithiol solution (1% dithiol in iso-amyl acetate) was added to the test solution and the test solution then heated for 4 - 6 hours at 80° - 85° C in a hot water bath. This solution was removed from the hot water bath, cooled and 2.5 mL of kerosene added to dissolve the globule. The colour intensity of the kerosene solution was measured at 630 nm using a spectrophotometer. The method is described by Quin and Brooks (1972).

Uranium was determined using a neutron activation method with delayed neutron counting. A detailed description of the method is provided by Boulanger *et al.* (1975). In brief, a 1 gram sample was weighed in a 7 dram polyethylene vial, capped and sealed. The irradiation was provided by the Slowpoke reactor with an operating flux of 10¹² neutrons/cm²/second. The samples were pneumatically transferred from an automatic loader to the reactor, where each sample was irradiated for 60 seconds. After irradiation, the samples were again transferred pneumatically to the counting facility where, after a 10 second delay, the sample was counted for 60 seconds with six BF₃ detector tubes embedded in paraffin. Following counting, the samples were automatically ejected into a shielded storage container. Calibration was carried out twice a day as a minimum, using natural materials of known uranium concentration.

Water Analyses

Fluoride in water samples was determined using a specific ion electrode. Prior to measurement an aliquot of the sample was mixed with an equal volume of TISAB buffer solution (total ionic strength adjustment buffer). The fluoride was measured initially with a Chemtrix and subsequently with a Fisher Accument expanded scale meter, using an Orion fluoride electrode.

For the determination of pH, an aliquot of the water sample was transferred to a clean dry beaker. The pH was measured using a Chemtrix expanded scale meter with a Corning combination electrode.

Uranium in waters was determined by a fluorometric method. The uranium was initially preconcentrated by evaporation. The residue after evaporation was fused with a mixture of NaF and LiF in a platinum dish. After cooling, the fluorescence of the fused pellet was measured using a Jarrel-Ash Fluorometer Model 26-000.

A summary of analytical methods and detection limits is provided in Table 1.

PRESENTATION AND INTERPRETATION OF GOLD DATA

The following discussion reviews the format used to present the Au geochemical data and outlines some important points to consider when interpreting this data. This discussion is included in recognition of the special geochemical behaviour and mode of occurrence of Au in nature and the resultant difficulties in obtaining and analyzing samples which reflect the actual concentration level at a given site.

To correctly interpret Au geochemical data from regional

stream sediment or lake sediment surveys requires an appreciation of the unique chemical and physical characteristics of Au and its mobility in the surficial environment. Key properties of Au that distinguish its geochemical behaviour from most other elements include (Harris, 1982):

- (1) Gold occurs most commonly in the native form which is chemically and physically resistant. A significant proportion of the metal is dispersed in micron-sized particulate form, and the high specific gravity of gold results in heterogeneous distribution, especially in stream sediment and clastic-rich (low LOI) lake sediment environments. Gold distribution appears to be more homogeneous in organic-rich fluvial and lake sediments.
- (2) Gold typically occurs at low concentrations in the ppb range. Whereas gold concentrations of only a few ppm may represent economic deposits, background levels encountered from stream and centre-lake sediments seldom exceed 10 ppb, and commonly are near the detection limit of 2 ppb.

These factors result in a particle sparsity effect wherein very low concentrations of gold are heterogeneously enriched in the surficial environment. Hence, a major problem facing the geochemist is to obtain a representative sample. In general, areas where concentrations of gold in sediments are low, and/or grain sizes of the gold present relatively high, proportionally larger samples are required to reduce the uncertainty between subsample analytical values and actual values. Conversely, as actual gold concentrations increase or grain size decreases, the number of gold particles to be shared in random subsamples increases and variability of results decreases (Clifton *et al.*, 1969; Harris, 1982). The limited amount of material collected during the rapid, reconnaissance-style regional surveys and the need to analyze for a broad spectrum of elements, precludes the use of a significantly large sample weight for the gold analyses. Therefore, to obtain representative samples, grain size is reduced by sieving and ball milling of the dried samples.

The following control methods are currently employed to evaluate and monitor the sampling and analytical variability which are inherent in the analysis of gold in geochemical media:

- (1) For each block of 20 samples:
 - (a) random insertion of a standard reference sample to control analytical accuracy and long-term precision;
 - (b) collection of a field duplicate (two samples from one site) to measure sampling variance;
 - (c) analysis of a second subsample (blind duplicate) from one sample to measure and control short-term precision.
- (2) For both stream and lake sediments, routine repeat analyses on a second subsample are performed for all samples having values that are statistically above approximately the 90th

percentile of total data set.

- (3) For lake sediments only, a routine repeat analysis on a second subsample is performed on those samples with LOI values below 10%, indicating a large clastic component. Ongoing studies suggest that the gold distribution in these samples is more likely to be variable than in samples with a higher LOI content.

The presentation of gold data, statistical treatment and the value map format are different than for other elements. Gold data listed in the open file may include initial analytical results, values determined from repeat analyses, together with sample weights and corresponding detection limits for all analyzed samples. The gold, statistical parameters and regional symbol-trend plots are determined using only the first analytical value. Gold values less than the detection limit are set to half that limit. On the value map, initial values are followed by a comma and a value obtained by a second analysis, where determined. Samples weights used can be found in the text. Following are possible variations in data presentation on a value map.

+ *	No data
+27	Single analysis
+27,14	Repeat analysis
+ <1	Single analysis, less than detection limit

In summary, geochemical follow-up investigations for gold should be based on a careful consideration of all geological and geochemical information, and especially a careful appraisal of gold geochemical data and its variability. In some instances, prospective follow-up areas may be indirectly identified by pathfinder element associations in favourable geology, although a complementary gold response due to natural variability may be lacking. Once an anomalous area has been identified, field investigations should be designed to include detailed geochemical follow-up surveys and collection of large representative samples. Subsequent repeat subsample analyses will increase the reliability of results and permit a better understanding of natural variability which can then be used to improve sampling methods and interpretation.

FIELD DATA LEGEND

Table 2 describes the field and map information appearing on the following pages preceding the analytical data for each sample site.

TABLE 1. Summary of Analytical Data and Methods

ELEMENT	DETECTION LEVEL	METHOD
<u>SEDIMENTS:</u>		
Zn Zinc	2 ppm	AAS
Cu Copper	2 ppm	AAS
Pb Lead	2 ppm	AAS
Ni Nickel	2 ppm	AAS
Co Cobalt	2 ppm	AAS
Ag Silver	0.2 ppm	AAS
Mn Manganese	5 ppm	AAS
Mo Molybdenum	2 ppm	AAS
Fe Iron	0.02 pct	AAS
Ba Barium	40 ppm	AAS
W Tungsten	4 ppm	COL
U Uranium	0.2 ppm	NADNC
Hg Mercury	10 ppb	CV-AAS
Na Sodium	0.02 pct	INAA
Sc Scandium	0.2 ppm	INAA
Cr Chromium	20 ppm	INAA
Fe Iron	0.2 pct	INAA
Co Cobalt	5 ppm	INAA
Ni Nickel	10 ppm	INAA
As Arsenic	0.5 ppm	INAA
Br Bromine	0.5 ppm	INAA
Rb Rubidium	5 ppm	INAA
Mo Molybdenum	1 ppm	INAA
Sb Antimony	0.1 ppm	INAA
Cs Cesium	0.5 ppm	INAA
Cs Barium	50 ppm	INAA
La Lanthanum	2 ppm	INAA
Ce Cerium	5 ppm	INAA
Sm Samarium	0.10 ppm	INAA
Eu Europium	1 ppm	INAA
Tb Terbium	0.5 ppm	INAA
Yb Ytterbium	2 ppm	INAA
Lu Lutetium	0.2 ppm	INAA
Hf Hafnium	1 ppm	INAA
Ta Tantalum	0.5 ppm	INAA
W Tungsten	1 ppm	INAA
Th Thorium	0.2 ppm	INAA
U Uranium	0.2 ppm	INAA
Wt Weight	0.01 g	-
Au Gold	2 ppb	INAA
<u>WATERS:</u>		
F Fluoride	20 ppb	ISE
pH Hydrogen ion activity	- -	GCM
U Uranium	0.05 ppb	LIF

- AAS - atomic absorption spectrometry
 COL - colorimetry using dithiol
 CV-AAS - cold vapour (flameless) atomic absorption
 GCM - glass Calomel electrode and pH meter
 INAA - Instrumental Neutron Activation Analysis
 ISE - ion selective electrode
 LIF - laser-induced fluorescence
 NADNC - neutron activation, delayed neutron counting

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TABLE 2. Field Observations Legend

FIELD RECORD	DEFINITION	TEXT CODE
MAP SHEET	National topographic system (NTS); lettered quadrangle (1:250 000 scale or 1:50 000 scale).	116A or 116H
SAMPLE ID	Remainder of sample number: Year of collection Field crew Sample sequence number	76 or 77 1 or 5 001-999
REP STAT	Replicate status; relationship of the sample to others within the survey: Routine sample site First of a duplicate pair..... Second of a duplicate pair.....	00 10 20
UTM	Universal Transverse Mercator UTM co-ordinate system; digitized sample location coordinates	
ZN	Zone (7 to 22)	
EASTING	UTM Easting in metres	
NORTHING	UTM Northing in metres	
ROCK UNIT	Major rock type of stream catchment area: glacial material..... argillite..... sandstone..... shale..... limestone quartzite..... dolomite siltstone unknown	GLCM ARGL SNDS SHLE LMSN QRTZ DLMT SLSN UNKN
ROCK AGE	Stratigraphic age of dominant rock type in catchment basin: Quaternary Cretaceous Jurassic Permian..... Pennsylvanian-Permian Carboniferous Devonian-Mississippian..... Devonian Silurian-Devonian Ordovician-Silurian Cambrian..... Proterozoic-Paleozoic Proterozoic	64 52 47 36 35 30 29 25 24 19 10 08 04
SAMPLE TYPE	Sample material collected: Stream bed sediment only Stream water only Simultaneous stream sediment and water	SedOnly Strm Sed/Water
STREAM WIDTH	Stream width in feet	
STREAM DEPTH	Water depth in tenths of feet	
SAMPLE CONT.	Contamination; human or natural: None Possible Definite	- Possible Definite

FIELD RECORD	DEFINITION	TEXT CODE
BANK TYPE	Bank type; the general nature of the bank material adjacent to the sample site: Alluvial Colluvial (bare rock, residual or mountain soils)..... Glacial till..... Glacial outwash sediments Bare rock Talus scree Organic predominant (debris, peat, muskeg, swamp)	Alluv Colluv Till Outwash Bare Rk Tal/Scr Organic
WATER COLOUR	Water colour; the general colour and suspended load of the sampled water: Clear Brown transparent White cloudy Brown cloudy	Clear BnTrans WhCl'dy BnCl'dy
STREAM FLOW	Water flow rate: Stagnant Slow..... Moderate Fast Torrential.....	Stagnant Slow Modert Fast Torrant
SAMPLE COLOUR	Predominant sediment colour: Red-brown White-buff Black..... Yellow Green..... Grey, blue grey Pink Buff to brown Brown	Rd-Bn Wh-Bf Black Yellow Green Gy-Blu Pink Bf-Bn Brown
SAMPLE COMP.	Sediment composition; description of the bulk mechanical composition of the collected sample on a scale of 1 to 3, the total of the column must add up to 3 or 4 or 5: Size fractions are divided as follows: Column 1 >0.125 mm (sand) Column 2 <0.125 mm (fines – organic silt, clay) Column 3 organic material Amount of size fraction: sum of amounts = 3 4 5 Absent 0 0 0 Minor <33% 25% 20% Medium 33-67% 50% 40% Major >67% 75% 60%	0 1 2 3
BOTTOM PCPT	Precipitate or stain; the presence of any coatings on pebbles, boulders or stream bottoms: None Red-brown White or buff Black..... Yellow Green..... Grey Pink Buff to brown	Rd-Bn Wh-Bf Black Yellow Green Grey Pink Bf-Bn

FIELD RECORD	DEFINITION	TEXT CODE
BANK PCPT	Distinctive precipitate, stains or weathering on rocks in immediate area of catchment basin or stream bank: None Red, brown (eg., Fe) White, buff (eg., Co ₃ , Zn) Black (e.g., Fe, Mn, sulphides) Yellow (e.g., Pb, U, Fe, Mo, REE)..... Green (Cu, Ni, U, Mo, As, Fe) Bluish (Zn, P) Pink (Co, As)	- Rd-Bn Wh-Bf Black Yellow Green Blue Pink
STREAM PHYSIOG	General physiography of the drainage basin: Plain Muskeg, swampland..... Penplain, plateau Hilly, undulating Mountainous, mature Mountainous, youthful (precipitous)	Plain Swamp Penpln Hill Moun/M Moun/Y
STREAM DRAINAGE	Drainage pattern: Poorly defined, haphazard..... Dendritic..... Herringbone..... Rectangular Trellis..... Discontinuous shield type (chains of lakes) Basinal Others.....	Poor Dendrc Herrbn Rectln Trellis Discnt Closed Other
STREAM TYPE	Stream type: Undefined Permanent, continuous..... Intermittent, seasonal..... Re-emergent, discontinuous.....	Undfnd Permnt Intermit Re-emerg
STREAM CLASS	Classification based on proximity to source: Undefined Primary Secondary Tertiary Quaternary	Undfnd Pri'ary Sec'ary Ter'ary Qua'ary
STREAM SOURCE	Source of water: Unknown Groundwater Snow melt or spring run-off Recent precipitation Ice-cap or glacial meltwater	Unknown Ground Sp'gMelt RecRain Glacier
Miscellaneous	Missing data in any field.....	*

ADDENDUM**ADDITIONAL GOLD DATA: Open File 2176**

Repeat analysis on a second subsample is carried out on all sediment samples having gold values that are statistically above approximately the 90th percentile of the total data set, provided sufficient material is left over from the initial analysis. Following are additional gold repeat data, not available at the time of production, for Open File 2176. Please note that these results do not appear on the 1:250 000 scale gold value map.

Mapsheets	Sample ID	Au1 (ppb)	Au1/Wt (gm)
116A	775357	<2	0.51
116A	775369	8	29.22
116A	775375	12	6.32
116A	775411	4	29.17
116A	775422	<2	12.83
116A	775432	8	24.64
116A	775435	7	23.52
116A	775436	15	20.06
116A	775440	14	7.26
116A	775446	9	14.51
116A	775447	9	27.31
116A	775450	7	28.85
116A	775456	10	14.67
116A	775477	12	0.79
116A	775479	9	23.72
116A	775484	4	24.45
116A	775487	5	25.38
116A	775489	<2	27.07
116A	775490	2	29.25
116A	775502	<2	30.52
116A	775505	4	27.03
116A	775506	110	25.01
116A	775507	180	26.97
116A	775508	26	11.09

Mapsheet	Sample ID	Au1 (ppb)	Au1/Wt (gm)
116A	775509	47	15.76
116A	775510	5	14.18
116A	775513	4	22.09
116A	775514	2	23.57
116A	775519	9	19.65
116A	775523	4	23.33
116A	775540	7	8.21
116A	775543	6	24.34
116A	775547	<2	24.56
116A	775549	5	13.45
116A	775571	3	13.74
116A	775573	<2	13.60
116A	775589	81	0.16
116A	775590	3	7.99
116A	775591	4	4.80
116A	775606	8	23.63
116A	775608	4	27.30
116A	775609	4	20.39
116A	775618	28	26.39
116A	775619	35	25.30
116A	775620	56	26.01
116A	775622	140	0.73
116A	775623	299	24.57
116A	775624	16	23.19
116A	775625	10	24.98
116A	775630	6	28.15
116A	775633	4	21.65
116A	775634	36	26.45
116A	775635	32	22.29
116A	775642	6	16.24

Mapsheet	Sample ID	Au1 (ppb)	Au1/Wt (gm)
116A	775648	3	26.01
116A	775649	5	23.73
116A	775650	5	22.89
116A	775652	<2	26.59
116A	775659	9	31.42
116A	775660	17	25.03
116A	775665	15	29.74
116A	775669	3	24.33
116A	775670	12	31.41
116A	775674	11	29.63
116A	775679	5	28.05
116A	775686	9	29.75
116A	775689	3	28.12
116A	775694	8	31.31
116A	775698	14	30.17
116A	775702	17	25.67
116A	775703	7	28.68
116A	775705	10	26.16
116A	775706	22	26.92
116A	775707	8	30.20