Stream Sediment and Water Geochemistry of the Howard's Pass (XY) Zn-Pb Deposit and Nor Zn-Pb-Ba Occurrence Selwyn Basin, Yukon and Northwest Territories

by

Wayne D. Goodfellow

Geological Survey of Canada

OPEN FILE

GSC Open File 845

GEOLOGICAL SURVEY
OTTAWA

INTRODUCTION

During the summers of 1979 and 1980, a detailed surficial geochemical study was carried out at Howard's Pass (NTS 105I/06), Yukon, as part of the Nahanni Integrated Multidisciplinary Pilot Project (NIMPP). The objective of this investigation was to better understand the processes affecting the dissolution, transportation and fixation of elements in streams draining stratabound Zn-Pb deposits from the Selwyn Basin. The results of this study influenced sampling design and choice of analytical methods that were used later in a regional geochemical survey of the Nahanni map-area (Goodfellow, 1982a).

The data presented here represent a compilation of all field and analytical information for streams draining the XY and Nor Zn-Pb stratabound deposits. Stream sediments were determined for Zn, Cu, Pb, Ni, Co, Ag, Mn, Fe, Mo, V, U, As, Hg, Sb, Cd and Ba; stream and spring water was analysed for U, F, Cu, Pb, Zn, Mn, Fe, Cl, As, V, Cd, SO_4, HCO_3, Ca, Mg, Na, K and pH. Element contents are plotted on a 1:50,000 scale geology base (Gordey, 1980) for the following elements measured in stream sediments: Pb, Zn, Cu, Ca, Ni, Fe, Mn, Mo, Sb, Cd, Hg, U, V, Ba and Ag; and in steam water: Zn, Pb, As, HCO_3 and F (refer to accompanying maps). The location of samples is shown on a separate map.

TECTONO-STRATIGRAPHIC SETTING

The Selwyn Basin (Fig. 1) has been described as an epicratonic marine basin or aulacogen (Tempelman-Kluit, 1981; Goodfellow, 1981) that developed due to subsidence accompanying rifting of the western continental margin of North America in Early Paleozoic time. In the Yukon and Northwest

Territories, the Selwyn Basin is bounded by the Mackenzie Carbonate Platform to the north and east; interpretation of the western margin is complicated by later collisional events and transform faulting (Tempelman-Kluit, 1979).

The Selwyn Basin developed in Early Paleozoic by subsidence along major extensional faults that now define basin margins. Following the deposition of a deep-water basinal limestone in Late Cambrian to Early Ordovician time, organic-rich mudstone and chert dominated sediment deposition during the remainder of the Ordovician and Early Silurian. The Howard's Pass (XY) stratabound Zn-Pb deposit was formed in Lower Silurian during a period of anaerobic sedimentation. This environment was interrupted in Middle to Late Silurian by aerobic sedimentation and accompanying bioturbation before returning to euxinic conditions throughout Late Silurian to Middle Devonian. Although the Nor Zn-Pb-Ba occurrence has not been dated precisely, stratigraphic correlations indicate that it most likely formed during Middle to Upper Devonian.

From Middle Devonian to Mississippian, the Selwyn Basin was infilled with coarse- and fine-grained clastics of the Earn Group (Gordey et al., 1982) shed from areas uplifted during block faulting.

SAMPLE PREPARATION AND COLLECTION PROCEDURES

Sediment (or precipitates) and water were collected when possible from streams and springs at Howard's Pass and adjacent areas. Where possible, sediment samples were collected in active streams from fine silt trapped under or behind boulders, in living moss or near stream banks. Bank soil was avoided in all cases. Water was collected in 250 ml polyethylene bottles at each site.

For the purposes of sampling, preparation and analytical control, sample numbers were divided into blocks of 20 with each block consisting of 17 routine samples, one field duplicate, one blind duplicate, and one control reference standard. The field and blind duplicates were used to give a statistical measure of sampling and preparation variance, respectively, whereas the control reference gave a measure of analytical accuracy and precision.

At the Geological Survey of Canada (GSC) laboratories, field-dried sediment samples were air-dried, sieved to minus-80 mesh (177 microns) and ball milled to minus-150 mesh (105 microns) in a ceramic mill. Control reference and blind duplicate sample positions were filled during sample preparation. Control references were obtained from internal GSC control references. In the case of stream waters, the control reference positions were filled in the field with one of three natural water samples collected in the Howard's Pass area. The blind duplicate positions for stream water were left blank because of low sample variability recorded in previous stream water surveys. To remove all suspended matter, water samples were filtered through 0.45 μm membrane filter paper before analyses.

Stream water

Uranium was determined by laser-induced fluorescence using a Scintrex UA-3. A 5 ml sample was pipetted into a quartz cell and sodium metaphosphate-phosphate solution (500 μl) added. The fluorescence of the uranyl phosphate formed and excited by the laser was measured. The method of standard additions was used.

Fluoride was measured using a specific ion electrode and an Orion meter. A 5 ml aliquot of TISAB (total ionic strength adjustment buffer) was added to 5 ml of the sample, the solution stirred for five minutes and the mV reading obtained compared against known standards. Alkalinity and pH were determined simultaneously using a Radiometer TTT81 digital titrator and pH meter, respectively.

Sulphate and Cl were measured using the Dionex Model 12 ion chromatograph. A 100 µl sample was separated on an anion exchange resin and the resulting solution passed through a high capacity cation exchange resin to a conductivity cell. The eluent used was 0.003 M Na_2CO_3/0.0024 M $NaHCO_3$.

The major cations Na, K, Ca and Mg, and minor cations Mn and Fe were determined by direct aspiration using a Perkin-Elmer 5000 atomic absorption spectrophotometer (AAS) with an air-acetylene flame. A 2000 ppm K solution was used as an ionization buffer for Na determination; 2000 ppm Na solution for K determination; and 2000 ppm lanthanum solution was used as a releasing agent for Ca determination. The trace elements Pb, Cu, Cd and Zn were also determined by AAS after concentrating via solvent extraction using the APDC/MIBK system. Background correction was employed for Pb and Cd. Vanadium was determined directly by AAS with a graphite furnace attachment. Hydride generation AAS was the analytical method employed for As determination; KI and $NaBH_4$ were used as reducing agents and the AsH_3 formed swept into a heated quartz cell where measurements were made.

Stream Sediment

Zn, Cu, Pb, Ni, Co, Ag, Cd, Mn, Fe, Ba, Mo and V were determined by AAS. A 1 g sample was leached with 3 ml HNO_3 overnight, brought to 90°C for 30 minutes, and reacted with 1 ml of HCL for an additional 90 minutes at 90°C.

After digesting the sample, the volume was made up to 20 ml with water. Ba, Mo and V were determined with a nitrous oxide-acetylene flame rather than an air-acetylene flame, and background correction was used for Pb, Ni, Co and Ag. A 1000 ppm Al solution was added as a releasing agent in determining Mo and V, and a 2000 ppm Na solution was used as an ionization buffer for Ba. This acid attack was also used for determining U by fluorescence after preparation of a solid disc with a mixture of $Na_2CO_3/K_2CO_3/NaF$.

Hg was determined, after a hot aqua regia leach, by reduction to the elemental vapour state using $SnCl_2$ and injection into an AAS. For the 1979 sample suite (105I 793002-793053), As and Sb were also measured after this attack via hydride generation-AAS. For the 1980 sample suite, As was measured by the Ag DDC colorimetric method after fusion with KOH; Sb was determined by the Brilliant Green colorimetric method after a hot 6 M HCl attack.

SURFICIAL GEOCHEMISTRY

The geographical distributions of most elements are shown on accompanying element-value maps and are discussed below for areas of economic interest.

Howard's Pass (XY) Zn-Pb Deposit

The Howard's Pass (XY) stratabound Zn-Pb deposit (Fig. 1) is situated in the Nahanni map-area (NTS 105I) which straddles the Yukon and Northwest Territories border. The mineralized zone has been dated precisely as Llandovery (Lower Silurian) with conodonts extracted from calcareous units (M. Orchard, personal communications). The sulphide minerals, sphalerite, galena and pyrite, occur either as fine inter-laminations with chert, cherty mudstone and limestone, or remobilized into a soft sediment 'cleavage'

(Morganti, 1979; Goodfellow et al., 1983). The sphalerite is enriched in Cd and Hg whereas the galena contains negligible Ag contents. The pyrite in rock units hosting the XY deposit contains up to 5000 ppm Cu and Ni compared to less than 1000 ppm in rocks located several km from mineralization (Goodfellow et al., 1983). In addition to the primary sulphide mineralization, a secondary zone composed mostly of simthsonite, hemimorphite and wurtzite is developed above the XY deposit (Jonasson et al., in press).

Of the elements measured, Zn, Pb, Cd and Ba increase markedly in the minus-80 (177 microns) mesh fraction of streams draining the XY deposit whereas Ni, Sb, Hg, Mo, Ag and V display a weak to moderate increase (Table 1). Of the elements measured in stream waters, only Zn displays a strong positive increase to mineralization; F reflects mineralization only weakly. It should be pointed out that F and Ba are not enriched in the sulphide zone at the XY deposit but are bound instead in fluorapatite and barite or Ba-feldspar, respectively, which occur in rocks hosting the mineralization. Vanadium is likewise enriched not in the sulphide zone but in the footwall carbonaceous mudstone.

The length of elemental dispersion trains from the XY deposit is highly variable due to a number of factors, the most important of which are solution chemistry, specific gravity of host minerals, and the slope and therefore velocity of the stream. Elements that form stable aqueous complexes (e.g. Zn and Cd) are dispersed at least 4 km downstream whereas most of the remaining elements are more restricted (Fig. 2).

Nor Zn-Pb-Ba Occurrence

The Nor Zn-Pb-Ba stratabound occurrence, which is located 10 km southeast of the XY deposit (located on accompanying maps), consists of sphalerite, galena, pyrite and barite inter-laminated with weakly calcareous, cherty and carbonaceous mudstone, and chert. Although the paucity of fossils has prevented dating this mineralization precisely, stratigraphic correlation with other dated sections in the Nahanni map-area indicates it is most likely Devonian in age.

Unlike the XY deposit, sediments from streams draining the Nor occurrence are enriched in Cu, Hg and Ag in addition to Zn, Pb, Cd and Ba when compared to sediments from streams draining similar rocks located elsewhere in the Nahanni map-area (Goodfellow, 1982a). Water samples from streams intersecting the Nor occurrence are anomalous in Pb as well as Zn (Fig. 2 and Table 1). Of the elements measured, Co, Ni, Fe, Mn and Mo respond weakly to moderately in stream sediments whereas As shows a moderate increase in stream water. No discernable increase was recorded for U and V in sediment, or F in water. The low response for V and F is expected considering that rocks hosting Devonian stratabound Zn-Pb-Ba deposits in the Selwyn Basin (e.g. Tom deposit) are characteristically low in these elements.

The length of elemental dispersion trains in streams varies considerably for different elements. Most elements that are concentrated in this occurrence are dispersed between 3 and 4 km downstream. One notable exception is Pb which decreases rapidly to background levels within one km after intersecting mineralization.

DISCUSSION

The element abundance recorded in sediment and water from streams draining the XY and Nor Zn-Pb mineralization are due to:- (1) the chemical and mineralogical composition of the mineralized zone and host rocks; (2) the aqueous chemistry of given elements; and (3) the physical behavior of mineralization exposed to stream erosion and clastic dispersion.

In terms of primary compositions, both the XY deposit and Nor occurrence are enriched in Zn, Pb, Cd, Ni, Sb and Mo. The XY deposit contains, in addition to these elements, high contents of F (fluorapatite), Ba (barite and Ba-feldspar) and V in rocks hosting the laminated sulphides (Goodfellow, 1982b). The Nor occurrence contains elevated levels of Cu, Ba, Co, Fe, Mn and As in addition to those mentioned previously. Therefore differences in the geochemical response measured in stream sediment and water reflect in part the variation in primary composition of the XY and Nor mineralization.

The role of solution chemistry can be assessed for Pb and Zn since these elements were measured in both stream sediment and water. Although the Nor occurrence and XY deposit both contain sphalerite and galena, only streams draining the Nor occurrence are anomalously high in Pb (Fig. 2). The higher solubility of Pb in waters draining the Nor compared with the XY deposit can be explained by differences in the water chemistry between the two areas.

At the XY deposit, stream water is buffered at a high pH (7.8 - 8.2) due to the high carbonate content of the host rocks and the lack of significant contents of pyrite necessary to generate acidic waters by oxidation processes. Under conditions of high alkalinity, such as those measured in streams draining the XY deposit (Fig. 2), Zn is transported in solution as a stable aqueous complex (e.g. $Zn(OH)_2^0$ and $ZnCO_3^0$) (Fig. 3) (Mann and Deutscher, 1980). At a pH of 8.0, zinc sulphate and chloride complexes (e.g. $ZnSO_4^0$, $ZnCl^+$, $ZnCL_2^0$) are relatively insignificant due to the low $SO_4^=$ and Cl^- activities. Lead under these conditions is only sparingly soluble since it forms a very stable carbonate, i.e. cerussite. As a result, Pb is at the analytical detection limit in water from most streams and springs draining the XY deposit.

At the Nor occurrence, the low carbonate content of the host rocks combined with the higher pyrite content of the mineralization have generated acid stream waters that are low in $CO_3^=$ (Fig. 2). Lead, which was insoluble under highly alkaline conditions is stable in weakly acid carbonate-poor solutions as a divalent ion. Therefore waters from streams draining the Nor occurrence carry anomalous levels of both Pb and Zn in solution.

IMPLICATIONS TO EXPLORATION

Exploration companies have in the past evaluated the economic significance of Pb and Zn stream sediment anomalies on the basis of whether or not they were coincident. This approach has been very effective and led to the discovery of several stratabound Pb-Zn deposits that are exposed at the surface, including Howard's Pass (XY), Anniv, OP, Nor, Hug and Pab (Morganti, 1979). In areas where the mineralization is not exposed to physical erosion by stream action, however, such as in recessive terranes or where the mineralization is buried at depth, elements are dispersed only by hydromorphic processes. In the absence of clastic dispersion, the conditions under which Pb and Zn are soluble in deeply penetrating ground waters become very important in interpreting the surficial geochemistry.

Under highly alkaline conditions, such as those measured in streams draining the XY deposit, Zn is separated from Pb in the secondary environment due to their relative solubilities. If for example instead of outcropping, the XY deposit was buried below the surface, ground waters percolating through the mineralized zone and discharging at the break in slope would be expected to contain high levels of Zn but little or no Pb. Sediment samples collected from nearby streams would then be characterized by high-Zn and low-Pb anomalies.

The results of these finds demonstrate the fallacy of estimating the potential for Zn-Pb mineralization on the basis of coincident Zn-Pb anomalies. High-Zn and low-Pb sediment anomalies may not simply reflect Zn-rich shales of no economic importance, but may instead be derived from buried Zn-Pb mineralization hosted in calcareous rocks. The NW-SE belt situated just west of the Howard's Pass - Anniv "zinc-corridor" and outlined by high-Zn (>5000 ppm) and low-Pb sediment anomalies (Goodfellow, 1982a) is one area where the potential for "blind" deposits deserves further evaluation.

Acknowledgements

Dr. I.R. Jonasson, Dr. J.M. Morganti and geologists from companies active in the Selwyn Basin are thanked for their many helpful suggestions during the course of this project. In addition, the following individuals are thanked for their help in the preparation of this report: Ms. G.E.M. Hall for coordinating analytical services; Dr. Y.T. Maurice for reviewing; and Ms. J.C. Daniel for typing the manuscript.

References

Cecile, M.P., 1982. The Lower Paleozoic Misty Creek Embayment, Selwyn Basin, Yukon and Northwest Territories; Geological Survey of Canada, Bulletin 335, 78 p.

Goodfellow, W.D., 1981. Geochemistry of shales and cherts hosting stratabound Zn-Pb deposits, Selwyn Basin, Yukon Territory; In Program with Abstracts, Geological Society of America, V. 13, No. 7, p. 461.

Goodfellow, W.D., 1982a. Regional stream sediment and water geochemistry of the Nahanni map-area (NTS 105I), Yukon and Northwest Territories (National Geochemical Map NGR 51-1981); Geological Survey of Canada, Open File 868.

Goodfellow, W.D., 1982b. Geochemistry of sediment-hosted stratabound Zn-Pb deposits, Selwyn Basin, Yukon Territory, Canada; Collected Abstracts, VI IAGOD Symposium, Tbilisi, U.S.S.R., p. 22-23.

Goodfellow, W.D., Jonasson, I.R. and Morganti, J.M., 1983. Lateral and stratigraphical zonation of chalcophile elements about the Howard's Pass (XY) stratabound Zn-Pb deposit, Selwyn Basin, Yukon; Journal of Geochemical Exploration, in press.

Gordey, S.P., 1980. Geology of Nahanni (105I) map area, Yukon Territory and District of Mackenzie; Geological Survey of Canada, Open File 689.

Gordey, S.P., Wood, D. and Anderson, R.G., 1981. Stratigraphic framework of southeastern Selwyn Basin, Nahanni map-area, Yukon Territory and District of Mackenzie; in Current Research, Part A, Geological Survey of Canada, Paper 82-1A, p. 395-398.

Jonasson, I.R., Jackson, L.E. and Sangster, D.F., 1983. A Holocene zinc orebody formed by replacement of moss; Journal of Geochemical Exploration, in press.

Mann, A.W. and Deutscher, R.L., 1980. Solution geochemistry of lead and zinc in water containing carbonate, sulphate and chloride ions; Chemical Geology, V. 29, p. 293-311.

Morganti, J.M., 1979. The geology and ore deposits of the Howard's Pass area, Yukon and Northwest Territories: the origin of basinal sedimentary stratiform sulphide deposits; unpublished Ph.D. Thesis, University of British Columbia, 317 p.

Tempelman-Kluit, D.J., 1979. Transported cataclasite, ophiolite and granodiorite in Yukon: evidence for arc-continent collision; Geological Survey of Canada, Paper 79-14, 26 p.

Tempelman-Kluit, D.J., 1981. Geology and mineral deposits of Southern Yukon. Yukon Geology and Exploration 1979-80; Department of Indian Affairs and Northern Development, p. 1-31.

Figure Captions

Figure 1 Persistent tectonic elements controlling lower Paleozoic facies distribution in the northern Cordillera allowing for 450 km strike-slip motion on the Tintina Fault. Nahanni map-area (NTS 105I) and Howard's Pass deposits outlined by a square and dot, respectively. Modified from Cecile (1982).

Figure 2 Element content in the minus -80 mesh fraction of sediment and in water collected from streams draining the Howard's Pass (XY) Zn-Pb deposits and Nor Zn-Pb-Ba occurrence. Outcrop of mineralization in streams located with parallel lines.

Figure 3 Stability fields for Zn aqueous and mineral species calculated for stream waters draining the Howard's Pass (XY) Zn-Pb deposit. Zinc sulphate and chloride complexes are not important in this area due to the low activities of $SO_4^{=}$ and Cl^- in stream waters. Thermodynamic data is from Mann and Deutscher (1980).

Table 1

Relative Geochemical Response in Sediment (-80 mesh) and water from Streams Draining the XY Deposit and Nor Zn-Pb Occurrence

Geochemical Response	XY		Nor	
	Sediment	Water	Sediment	Water
Large increase	Zn, Pb, Cd, Ba	Zn	Zn, Pb, Cd, Cu, Ag, Ba, Hg	Zn, Pb
Moderate to weak increase	Ni, Sb, Hg, Mo, Ag, V	F	Co, Ni, Fe, Mn, Mo, Sb	As
No Discernable Response	Co, Cu, U, Mn, Fe	Pb, As	U, V	F

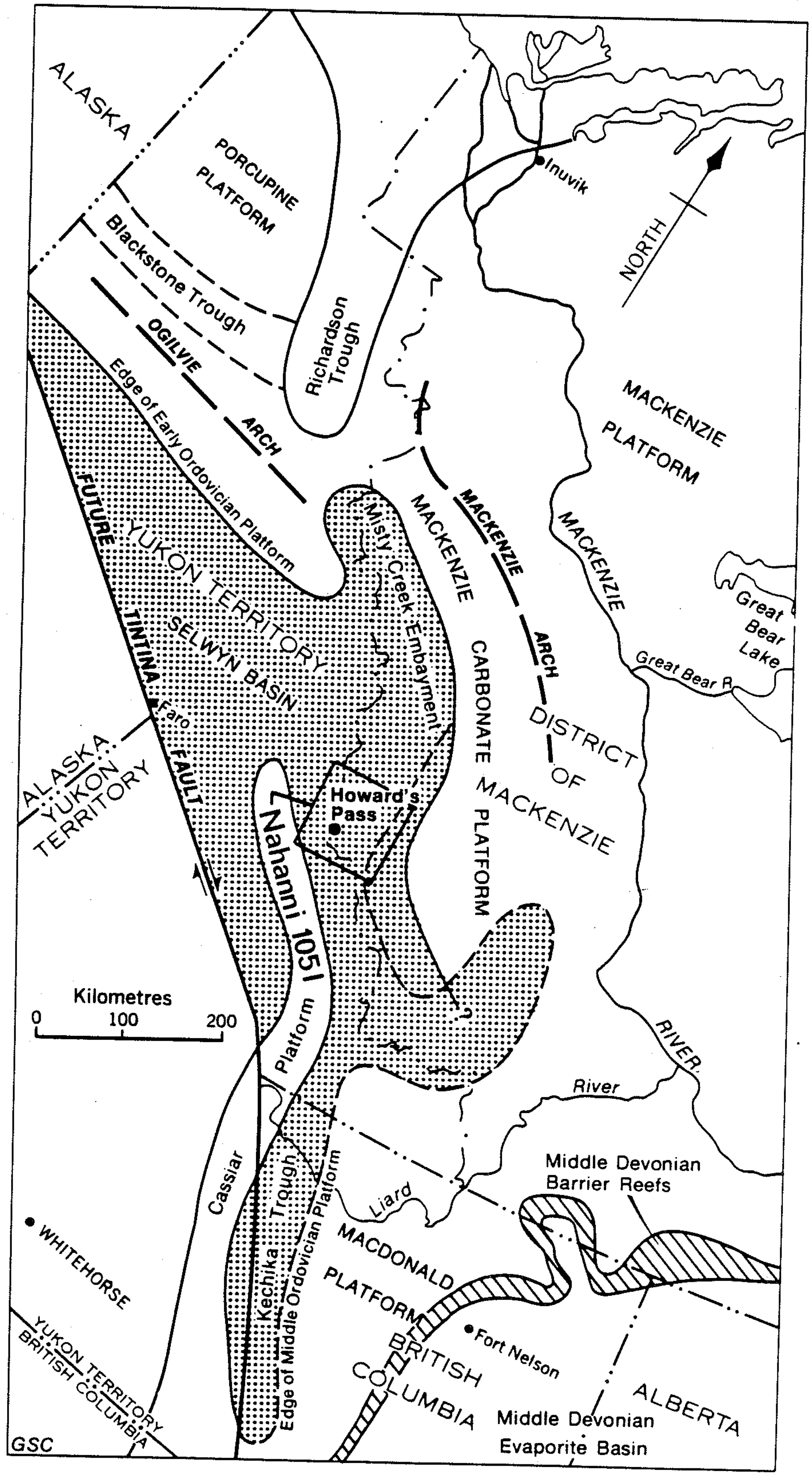
ALASKA
PORCUPINE PLATFORM
Blackstone Trough
Richardson Trough
OGILVIE ARCH
Edge of Early Ordovician Platform
Inuvik
NORTH
MACKENZIE PLATFORM
MACKENZIE
Great Bear Lake
Great Bear R.
MACKENZIE ARCH
MACKENZIE CARBONATE PLATFORM
Misty Creek Embayment
DISTRICT OF MACKENZIE
YUKON TERRITORY
SELWYN BASIN
FUTURE TINTINA FAULT
Faro
ALASKA
YUKON TERRITORY
Howard's Pass
Nahanni 105I
Platform
Kilometres
0
100
200
RIVER
River
Cassiar
Kechika Trough
Edge of Middle Ordovician Platform
Liard
Middle Devonian Barrier Reefs
WHITEHORSE
MACDONALD PLATFORM
Fort Nelson
BRITISH COLUMBIA
ALBERTA
Middle Devonian Evaporite Basin
YUKON TERRITORY
BRITISH COLUMBIA
GSC

Fig. 1

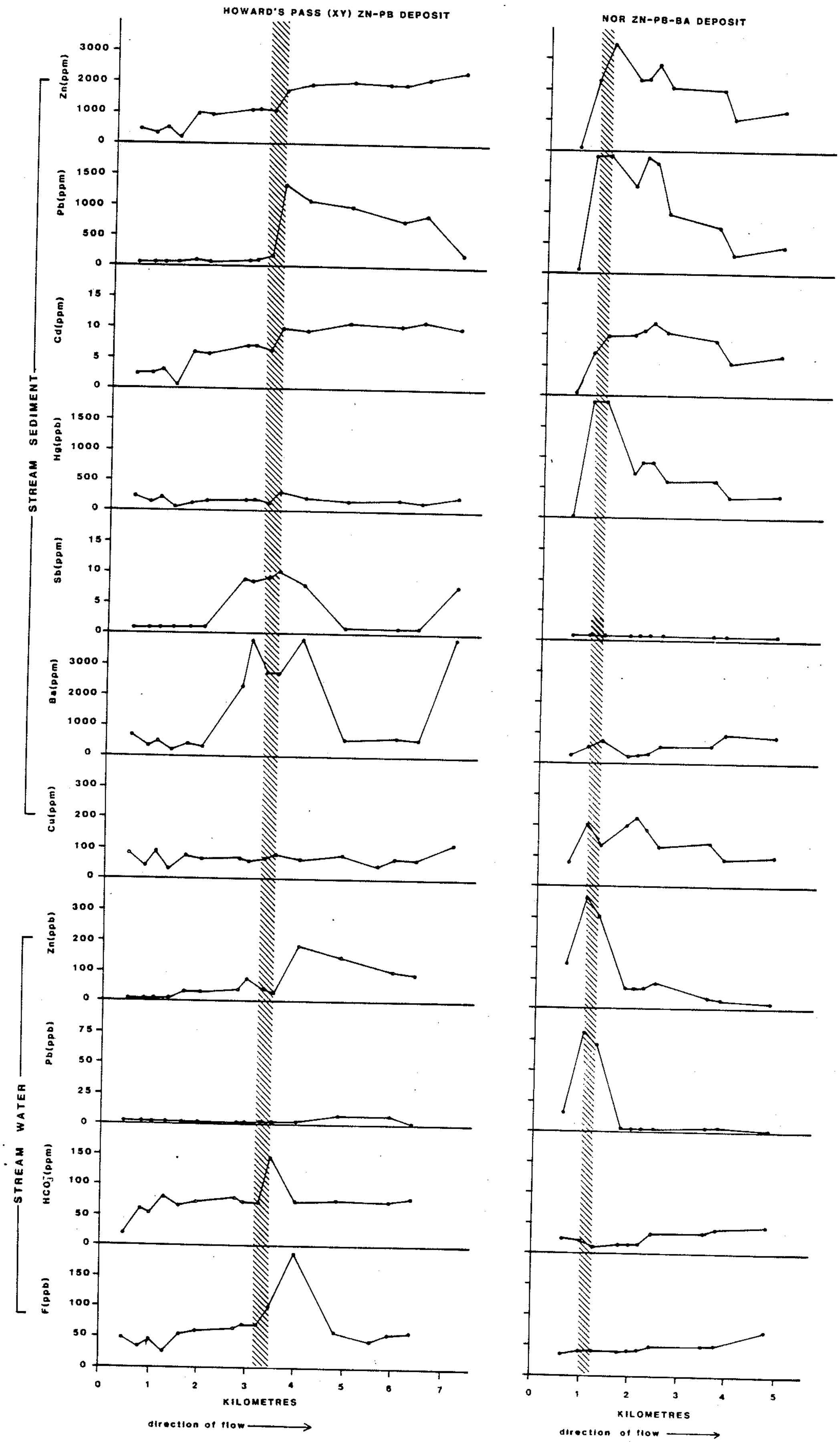
HOWARD'S PASS (XY) ZN-PB DEPOSIT
NOR ZN-PB-BA DEPOSIT
STREAM SEDIMENT
STREAM WATER
Zn(ppm)
Pb(ppm)
Cd(ppm)
Hg(ppb)
Sb(ppm)
Ba(ppm)
Cu(ppm)
Zn(ppb)
Pb(ppb)
HCO_3^-(ppm)
F(ppb)
KILOMETRES
direction of flow
KILOMETRES
direction of flow

Fig 2

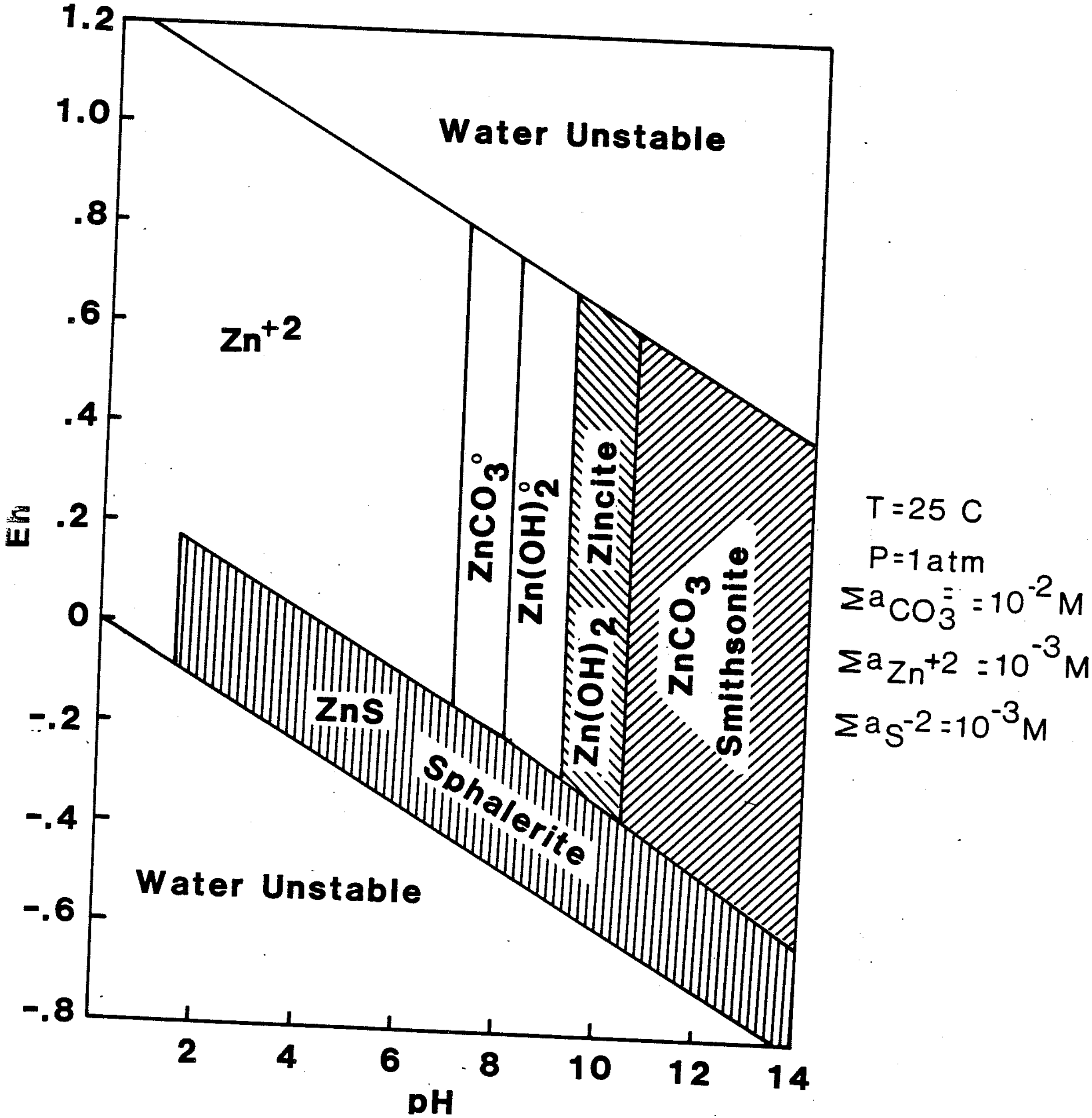
1.2
1.0
.8
.6
.4
.2
0
-.2
-.4
-.6
-.8
Eh
2
4
6
8
10
12
14
pH
Water Unstable
Zn+2
ZnCO3°
Zn(OH)°2
Zincite
Zn(OH)2
ZnCO3
Smithsonite
ZnS
Sphalerite
Water Unstable
T=25 C
P=1atm
Σa CO3= =10-2M
Σa Zn+2 =10-3M
Σa S-2 =10-3M

Fig 3

APPENDIX

GSC Open File 845

Detection and Less Than Detection Limits for Analytical Results

Element	Detection Limit	Less than Detection Limit
Water		
U (ppb)	0.10	0.05
F (ppb)	25	12
As (ppb)	0.2	0.1
Zn (ppb)	5	2
Mn (ppb)	20	10
Fe (ppb)	40	20
Cl (ppm)	1.0	0.5
Ca (ppm)	2.0	1.0
Mg (ppm)	1.0	0.5
Na (ppm)	0.2	0.1
K (ppm)	0.2	0.1
SO_4 (ppm)	0.5	0.2
HCO_3 (ppm)	2.0	1.0
V (ppb)	0.5	0.2
Cd (ppb)	2.0	1.0
Sediment		
Zn (ppm)	2	1
Cu (ppm)	2	1
Pb (ppm)	2	1
Ni (ppm)	2	1
Co (ppm)	2	1
Ag (ppm)	0.2	0.1
Mn (ppm)	2	1
Fe (pct)	0.2	0.1
Mo (ppm)	2	1
Ba (ppm)	100	50
V (ppm)	0.2	0.1
U (ppm)	2.0	1.0
As (ppm)	0.4	0.2
Hg (ppb)	30	15
Sb (ppm)	0.4	0.2
Cd (ppm)	1.0	0.5

Data List Legend

MAP - National Topographic System (NTS) - lettered quadrangle (scale 1:250,000) part of sample number

SAMPLE - Remainder of sample number - year (2), field crew (1), sample sequence number (3)

UTM COORDINATES - Universal Transverse Mercator (UTM) coordinate system - sample coordinates

ZN - Zone

EAST - Easting (meters)

NORTH - Northing (meters)

ROCK TYPE - Major rock type of catchment area

AGE - Stratigraphic age of rock type

WD - Width of stream (feet) at the sample site

DT - Depth of stream sampled to nearest tenth of foot

SCLS - Type of material sampled

RP ST - Replicate status - relationship of sample with respect to others within the survey

CONT - Contamination

BANK - Bank type

WCOL - Water colour and suspended load

RATE - Water flow rate

SCOL - Predominant sediment colour

SMP CMP - Sample composition - bulk mechanical composition of sand, fines, organics respectively

PRPS - Precipitate or stain on sediments at sample site

PRPB - Distinctive precipitates, stains, weathering, blooms on rocks in the immediate catchment area

PHYS - General physiography

PATT - Drainage pattern

TYPE - Stream type

CLSS - Stream Class

SRCE - Source of Water

ROCK TYPE:
- GLCM - Glacial and alluvial deposits
- LMSN - limestone
- SHLE - shale
- MDSN - mudstone
- CHRT - chert

AGE:
- 07 - Hadrynian
- 08 - Proterozoic - Cambrian
- 10 - Cambrian
- 11 - Cambrian Lower
- 12 - Cambrian Middle
- 13 - Cambrian Upper
- 14 - Cambrian - Ordovician
- 19 - Ordovician - Silurian
- 24 - Silurian - Devonian
- 25 - Devonian
- 26 - Devonian Lower
- 27 - Devonian Middle
- 29 - Devonian - Carboneferous
- 30 - Carboniferous
- 42 - Triassic
- 52 - Cretaceous
- 64 - Quaternary

SAMP:
- 1 - Stream bed sediment
- 4 - Stream water
- 6 - Simultaneous stream water and sediment

RP ST:
- 00 - Routine sample
- 10 - First of field duplicate
- 20 - Second of field duplicate

CONT:
- 0 - None
- 1 - Possible
- 4 - Mining activity including pitting, trenching

BANK:
- 0 - Undefined
- 1 - Alluvial
- 2 - Colluvial
- 3 - Glacial till
- 4 - Glacial outwash, moraine
- 5 - Bare rock
- 6 - Talus, scree
- 7 - Organic Predomenant

WCOL:
- 0 - Clear
- 1 - Brown transparent
- 2 - White cloudy
- 3 - Brown cloudy

RATE:
- 0 - Zero
- 1 - Slow
- 2 - Moderate
- 3 - Fast
- 4 - Torrential

SCOL:
- 1 - Red, Brown
- 2 - White, buff
- 3 - Black
- 4 - Yellow
- 6 - Grey, blue-grey
- 7 - Pink
- 8 - Brown

SMP CMP:
- 0 - Absent
- 1 - Minor <33%
- 2 - Medium 33-67%
- 3 - Major >67%

PRPS:
- 0 - None
- 1 - Red, brown
- 2 - White
- 3 - Black
- 4 - Yellow

PRPB:
- 0 - Featureless
- 1 - Red, brown
- 2 - White, buff
- 3 - Black

PHYS:
- 1 - Muskeg, swampland
- 2 - Peneplain, plateau
- 3 - Hilly, undulating
- 4 - Mountainous, mature
- 5 - Mountainous youthful

PATT:
- 0 - Poorly defined haphazard
- 1 - Dendritic
- 3 - Herring bond

TYPE:
- 0 - Undefined
- 1 - Permanent, continuous
- 2 - Intermittent, seasonal
- 3 - Re-emergent, discontinuous

CLSS:
- 0 - Undefined
- 1 - Primary
- 2 - Secondary
- 3 - Tertiary

SRCE:
- 0 - Unknown
- 1 - Groundwater
- 2 - Snow melt or spring run-of
- 4 - Ice-cap or glacier melt wa

CODED FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT
HOWARDS PASS AREA,NAHANNI MAP-AREA(NTS 105I),SELWYN BASIN, YUKON TERRITORY

NTS	SAMPLE NUMBER	UTM COORDINATES ZN	EAST	NORTH	ROCK TYPE	AGE	SCLS	WD	DT	RP ST	CBWRS DACAC NNDTO TKLEL	SMP CMP	PPPPTCS RRHAYLR PPYTPSC SBSTESE	ZN (PPM)	CU (PPM)	PB (PPM)	NI (PPM)	CO (PPM)	AG (PPM)	MN (PPM)	FE (PCT)	MO (PPM)	V (PPM)	U (PPM)	AS (PPM)	HG (PPB)	SB (PPM)	CD (PPM)	BA (PPM)
105I	793002	9	488478	6927084	CHRT	27	1	05	08	00	45236	220	2051212	1550	70	174	72	12	0.4	315	2.80	10	93	16	32	259	7.4	7.9	10700
105I	793003	9	488250	6926859	SHLE	19	1	06	07	00	46038	112	0051212	1250	215	230	104	10	2.4	135	5.75	17	157	22	46	282	13.0	6.3	5926
105I	793004	9	487979	6926686	LMSN	14	1	06	10	00	42036	220	0051212	2200	164	160	140	18	0.8	395	3.25	11	143	22	34	224	8.7	9.5	8241
105I	793005	9	487651	6926479	LMSN	14	1	06	10	00	42036	120	0051222	1500	78	220	132	18	0.4	465	3.00	17	207	8	28	259	9.2	7.4	2761
105I	793007	9	487450	6926750	LMSN	14	1	06	08	00	42036	210	0051212	2300	142	192	146	16	0.6	325	3.10	12	143	20	33	235	8.1	10.0	8241
105I	793008	9	494720	6916410	SHLE	29	1	04	05	00	12031	112	0051212	195	180	42	62	28	5.0	230	2.00	2	29	8	7	157	1.2	.5	515
105I	793009	9	487668	6926586	SHLE	29	1	04	07	00	12038	012	0051212	320	132	48	80	16	0.6	125	4.15	2	21	2	16	114	2.0	.5	110
105I	793010	9	495130	6916720	SHLE	29	1	05	06	00	45038	112	0051212	320	168	485	50	10	1.6	70	4.35	5	43	3	29	1412	6.3	.5	1958
105I	793011	9	495890	6917100	SHLE	29	1	05	08	00	42038	112	0051212	1000	230	370	162	60	2.2	545	6.00	16	57	12	53	693	9.2	4.2	2948
105I	793012	9	489496	6927530	LMSN	14	1	03	04	00	12036	211	0051212	2000	88	4600	108	26	1.0	400	4.45	2	36	5	26	1000	4.7	7.4	8241
105I	793013	9	495710	6917410	LMSN	14	1	02	03	00	12021	112	0051212	2400	114	7700	110	28	1.8	595	4.15	6	50	7	27	2133	4.7	9.5	8241
105I	793014	9	495800	6917440	LMSN	14	1	02	02	00	12028	112	0051212	545	62	300	58	18	0.6	315	3.85	1	29	2	37	493	4.6	3.2	8241
105I	793015	9	493880	6919310	LMSN	14	1	02	04	00	42031	012	0051212	460	148	1100	50	8	10.2	85	6.40	42	200	24	41	507	7.9	1.0	263
105I	793016	9	489001	6927685	CHRT	27	6	02	03	00	15028	210	0051212	1950	116	88	160	34	1.0	595	4.70	13	114	12	42	212	10.0	15.4	5694
105I	793019	9	489224	6927585	CHRT	27	6	01	02	00	12028	121	0051212	850	52	98	98	6	0.4	35	3.00	10	86	5	36	259	8.7	8.9	8241
105I	793020	9	489351	6927506	CHRT	27	6	02	04	00	12026	210	0051212	510	54	58	54	6	0.6	80	3.00	6	100	5	40	259	9.4	4.2	6157
105I	793022	9	489582	6927361	CHRT	27	6	04	06	00	12028	310	0051222	1100	66	104	94	12	0.8	215	3.00	9	143	8	29	186	8.7	6.1	4813
105I	793025	9	489400	6927470	CHRT	27	6	02	04	00	15026	220	0051212	445	82	66	48	10	0.8	120	2.85	5	129	3	35	224	9.3	1.9	8241
105I	793026	9	489676	6927427	CHRT	27	6	01	02	00	12018	211	0051212	600	62	34	94	8	0.6	200	2.75	9	227	5	22	224	7.2	4.7	2761
105I	793027	9	489660	6927329	CHRT	27	6	05	09	00	15038	220	0051222	1050	70	82	92	12	0.8	205	2.95	9	171	8	28	157	8.7	6.3	5463
105I	793028	9	489661	6927263	CHRT	27	6	02	04	00	15028	121	0051212	550	70	70	64	12	0.8	145	2.70	12	171	5	47	157	8.9	4.2	6852
105I	793029	9	489736	6927170	CHRT	27	6	01	03	00	12028	121	0051212	1800	54	62	122	8	0.6	60	2.30	14	336	12	27	235	12.8	18.6	16100
105I	793030	9	489849	6927235	CHRT	27	6	03	06	00	15038	121	0051212	1050	42	56	98	8	0.6	185	2.65	3	143	9	17	186	4.0	7.4	1333
105I	793031	9	489890	6927008	CHRT	27	6	06	10	00	15028	130	0051222	1100	70	84	98	12	0.8	225	2.90	12	143	8	27	186	8.7	7.2	2375
105I	793032	9	489870	6926821	CHRT	27	6	10	07	00	15028	210	0051222	1100	62	80	96	10	0.8	200	2.65	10	143	8	27	186	8.5	7.2	3881
105I	793033	9	489783	6926501	CHRT	27	6	06	10	00	45038	210	0051222	1050	66	154	94	10	0.6	180	2.60	10	157	8	26	129	9.1	6.3	2761
105I	793034	9	489867	6926437	CHRT	27	6	03	05	00	42023	210	0051212	1950	74	1150	96	8	1.0	90	2.00	12	100	10	26	235	7.5	10.5	708
105I	793035	9	490087	6926263	CHRT	27	6	02	04	00	42023	220	0051212	1700	66	855	84	10	1.0	145	2.15	10	93	8	21	212	6.1	6.3	333
105I	793036	9	490257	6926322	CHRT	27	6	02	04	00	42023	210	0051212	1050	72	156	114	14	0.8	210	2.95	16	157	8	28	171	10.1	8.9	1542
105I	793037	9	490275	6926422	CHRT	27	6	02	02	00	42228	210	2051212	2150	118	90	160	16	0.8	285	2.70	22	384	28	46	186	19.4	14.8	5926
105I	793038	9	489659	6926341	CHRT	27	6	01	03	00	42028	310	0051212	1750	82	1300	124	14	0.6	225	3.00	19	171	10	29	306	10.1	9.7	2761
105I	793040	9	489737	6926122	CHRT	27	6	02	03	00	42023	220	0051212	2700	74	2100	19	6	0.6	35	1.55	13	86	10	20	186	5.4	7.9	170
105I	793042	9	489573	6925857	SHLE	19	6	07	06	00	42023	210	0051222	1850	66	1050	86	8	0.4	130	2.45	13	100	10	27	200	8.1	9.5	4067
105I	793043	9	489581	6925775	SHLE	19	6	01	05	00	42028	211	0051212	2450	82	2800	104	12	0.6	165	3.00	14	174	4	24	306	5.8	8.9	1125
105I	793044	9	489516	6925653	SHLE	19	6	07	06	00	45023	220	0051222	1700	68	695	98	10	0.4	175	2.60	13	143	9	27	235	8.5	9.5	3134
105I	793045	9	487030	6925130	SHLE	29	6	09	03	00	12023	220	0051212	350	80	28	94	24	0.2	530	3.15	2	29	1	11	129	2.2	1.9	118
105I	793046	9	486961	6925182	SHLE	29	6	02	02	00	12028	121	0051212	100	94	14	16	6	3.0	30	3.00	2	29	2	38	100	3.6	.5	103
105I	793047	9	487190	6925510	SHLE	29	6	04	08	00	12038	310	0051212	255	114	22	58	28	0.1	525	3.75	2	21	1	23	114	3.6	.5	100
105I	793048	9	487427	6925740	SHLE	19	6	04	06	00	12038	210	0051212	270	120	26	66	30	0.2	520	3.75	1	21	1	22	114	3.4	.5	118
105I	793049	9	487694	6925866	SHLE	19	6	04	05	00	12028	310	0051212	230	116	26	50	26	0.2	270	3.50	2	29	1	23	129	4.3	.5	125
105I	793050	9	487598	6925896	SHLE	19	6	04	10	00	12038	310	0051212	360	132	26	78	30	0.1	625	3.90	3	14	1	30	114	3.5	.5	100
105I	793051	9	487632	6926163	LMSN	14	6	01	02	00	12023	220	0051212	1150	72	14	315	34	0.2	890	2.35	26	114	20	35	353	12.9	4.7	302
105I	793053	9	487709	6926082	LMSN	14	6	03	10	00	12038	121	0051212	350	114	22	88	32	0.4	625	3.55	2	29	4	28	129	5.4	1.6	155

CHEMICAL ANALYSES OF STREAM WATER

HOWARDS PASS AREA, NAHANNI MAP-AREA(NTS 105I), SELWYN BASIN, YUKON

	SAMPLE	UTM COORDINATES			STREAM WATER --PPB--												--PPM--					
NTS	NUMBER	ZN	EAST	NORTH	U	F	CU	PB	ZN	MN	FE	CL	AS	V	CD	PH	SO4	HCO3	CA	MG	NA	K
105I	793002	9	488478	6927084																		
105I	793003	9	488250	6926859																		
105I	793004	9	487979	6926686																		
105I	793005	9	487651	6926479																		
105I	793007	9	487450	6926750																		
105I	793008	9	494720	6916410																		
105I	793009	9	487668	6926586																		
105I	793010	9	495130	6916720																		
105I	793011	9	495890	6917100																		
105I	793012	9	489496	6927530																		
105I	793013	9	495710	6917410																		
105I	793014	9	495800	6917440																		
105I	793015	9	493880	6919310																		
105I	793016	9	489001	6927685	0.26	130	1	2	142	10	20	0.5	0.1	1.2	2	8.33	31	38	13	3.1	0.1	0.3
105I	793019	9	489224	6927585	0.05	76	1	2	27	10	20	0.5	0.1	0.2	1	7.54	14	30	9	2.1	0.1	0.3
105I	793020	9	489351	6927506	0.18	61	1	2	2	10	20	0.5	0.1	1.2	1	7.39	11	17	5	1.4	0.1	0.3
105I	793022	9	489582	6927361	1.10	84	1	2	48	10	20	0.5	0.1	1.3	11	7.65	36	73	23	6.0	0.1	0.3
105I	793025	9	489400	6927470	0.05	73	1	2	80	10	20	0.5	0.1	0.2	1	6.60	12	2	3	1.0	0.1	0.3
105I	793026	9	489676	6927427	0.48	64	1	2	2	10	114	0.5	0.2	0.2	1	7.54	14	84	21	4.4	0.1	0.1
105I	793027	9	489660	6927329	0.86	67	1	2	41	10	40	0.5	0.1	0.2	1	7.85	36	72	23	5.2	0.1	0.3
105I	793028	9	489661	6927263	0.14	52	1	2	26	10	20	0.5	0.1	0.2	1	6.62	21	1	2	0.5	0.1	0.2
105I	793029	9	489736	6927170	0.30	50	1	2	80	10	20	0.5	0.1	0.2	2	7.53	12	26	8	1.7	0.1	0.2
105I	793030	9	489849	6927235	0.80	50	1	2	23	10	58	0.5	0.1	0.2	1	8.08	16	94	26	5.5	0.1	0.2
105I	793031	9	489890	6927008	0.84	56	1	2	38	10	20	0.5	0.1	0.2	1	7.91	29	76	22	5.1	0.1	0.3
105I	793032	9	489870	6926821	1.24	59	2	2	78	10	20	0.5	0.2	0.2	1	7.84	27	72	23	5.3	0.1	0.3
105I	793033	9	489783	6926501	1.22	61	1	2	39	10	400	0.5	0.2	0.8	1	7.75	30	69	24	5.2	0.1	0.4
105I	793034	9	489867	6926437	1.20	150	1	2	375	10	20	0.5	0.2	1.3	3	8.05	49	79	33	6.5	0.1	0.4
105I	793035	9	490087	6926263	1.52	122	2	2	523	10	20	0.5	0.3	1.2	2	7.74	65	104	42	7.9	0.1	0.5
105I	793036	9	490257	6926322	1.42	140	1	2	45	10	20	0.5	0.2	1.0	1	7.91	52	85	36	8.3	0.1	0.3
105I	793037	9	490275	6926422	0.42	140	1	2	1105	10	20	0.5	0.1	1.7	11	7.49	42	31	19	2.5	0.2	0.5
105I	793038	9	489659	6926341	2.80	100	1	2	28	10	20	0.5	0.2	1.2	1	8.15	28	147	42	11.6	0.2	0.3
105I	793040	9	489737	6926122	1.90	245	1	14	1815	10	70	0.5	0.2	2.5	5	7.63	70	120	66	1.4	0.1	1.0
105I	793042	9	489573	6925857	1.40	198	1	2	187	10	75	0.5	0.2	0.7	1	7.77	30	72	27	5.1	0.1	0.3
105I	793043	9	489581	6925775	0.56	170	1	2	327	10	90	0.5	0.1	0.2	1	7.51	20	78	25	3.7	0.1	0.4
105I	793044	9	489516	6925653	1.58	70	1	2	180	10	20	0.5	0.2	0.7	1	7.91	32	77	27	5.3	0.1	0.3
105I	793045	9	487030	6925130	0.12	118	1	2	4	10	20	0.5	0.1	0.2	1	6.85	12	2	2	1.1	0.6	0.1
105I	793046	9	486961	6925182	0.05	70	6	2	14	10	20	0.5	0.1	0.2	1	5.31	12		1	0.7	0.1	0.2
105I	793047	9	487190	6925510	0.05	70	1	2	9	10	20	0.5	0.1	0.2	1	8.54	14	6	2	1.1	0.3	0.1
105I	793048	9	487427	6925740	0.20	67	1	2	2	10	20	0.5	0.1	0.2	1	6.12	16		2	1.2	0.1	0.1
105I	793049	9	487694	6925866	0.05	80	1	2	3	10	20	0.5	0.1	1.5	1	6.37	26	6	5	3.1	0.1	0.2
105I	793050	9	487598	6925896	0.05	40	1	2	5	10	20	0.5	0.1	0.2	1	5.88	14		2	1.2	0.1	0.1
105I	793051	9	487632	6926163	0.16	40	1	2	27	10	20	0.5	0.3	0.2	1	6.56	17	12	7	2.4	0.1	0.2
105I	793053	9	487709	6926082	0.05	52	1	2	2	10	20	0.5	0.1	0.2	1	5.44	18	2	2	1.6	0.2	0.1

CODED FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT
HOWARDS PASS AREA,NAHANNI MAP-AREA(NTS 105I),SELWYN BASIN, YUKON TERRITORY

NTS	SAMPLE NUMBER	UTM COORDINATES ZN	EAST	NORTH	ROCK TYPE	AGE	SCLS	WD	DT	RP ST	CBWRS DACAC NNOTO TKLEL	SMP CMP	PPPPTCS RRHAYLR PPYTPSC SBSTESE	ZN (PPM)	CU (PPM)	PB (PPM)	NI (PPM)	CO (PPM)	AG (PPM)	MN (PPM)	FE (PCT)	MO (PPM)	V (PPM)	U (PPM)	AS (PPM)	HG (PPB)	SB (PPM)	CD (PPM)	BA (PPM)
105I	805002	9	494700	6917800	SHLE	29	4	03	03	00	0201		051212	75	80	70	64	8	1.4	345	1.50	3	19	2	27	55	1	0.5	315
105I	805003	9	494900	6917560	SHLE	29	6	06	05	00	02021	022	0051112	2300	210	19000	158	13	2.2	1400	4.00	27	33	34	19	1910	1	7.0	600
105I	805004	9	495150	6917410	SHLE	29	6	06	06	00	02021	021	0051112	3500	135	14400	143	22	2.2	1200	4.60	11	32	5	24	2390	1	9.8	820
105I	805005	9	495260	6917440	SHLE	29	6	02	02	00	02011	121	0051212	525	63	280	154	18	0.7	450	4.10	9	19	0	38	495	1	3.0	1440
105I	805006	9	495060	6917060	SHLE	29	4	02	10	00	0504		051112	70	75	80	65	9	0.8	350	1.55	4	21	2	25	50	1	0.5	360
105I	805007	9	495250	6917220	SHLE	29	6	06	10	00	05041	121	0051112	1050	265	570	152	54	2.5	1000	7.00	30	34	4	44	1055	1	6.7	125
105I	805008	9	495670	6917370	SHLE	19	6	08	08	00	05041	220	0051122	2500	200	1400	194	66	1.5	1050	5.75	17	26	5	39	705	1	10.0	280
105I	805009	9	495800	6917270	SHLE	19	6	06	09	00	06041	121	0051122	2650	230	2300	200	72	1.5	1300	5.70	14	26	5	34	970	1	10.4	325
105I	805010	9	495900	6917150	SHLE	19	6	07	10	00	06041	121	0051122	2800	190	1800	228	70	1.3	1200	4.90	12	27	5	33	925	1	11.7	390
105I	805011	9	496030	6916970	SHLE	19	6	07	10	00	02031	121	0051122	2000	135	980	178	54	0.9	1200	5.00	10	20	2	42	660	1	10.2	640
105I	805012	9	496440	6916660	SHLE	19	6	03	04	00	06021	121	0051112	1125	850	26	511	305	2.4	2400	1.45	14	21	62	13	125	1	10.0	185
105I	805014	9	497000	6916540	GLCM	64	6	08	12	00	02041	121	0051122	2000	148	790	185	56	1.2	820	5.05	12	42	1	41	675	1	9.5	610
105I	805015	9	497200	6916500	GLCM	64	6	08	12	00	02041	121	0051122	1000	93	310	139	34	0.5	545	4.30	6	28	1	41	360	1	5.7	1040
105I	805016	9	498060	6916030	GLCM	64	6	08	12	00	02031	121	0051122	1350	105	470	166	54	0.6	1050	4.40	9	31	1	39	400	1	7.3	900
105I	805017	9	489660	6924550	SHLE	29	6	02	04	00	02011	130	0041211	650	55	460	65	9	0.6	390	2.50	15	78	2	30	195	1	4.0	300
105I	805018	9	489840	6924360	LMSN	14	6	04	05	00	02011	220	0041211	700	60	440	68	9	0.8	440	2.75	20	83	2	34	135	1	4.2	350
105I	805019	9	490100	6924150	LMSN	14	6	03	04	00	02011	121	0041111	640	48	460	57	10	0.5	580	2.70	13	72	1	26	135	1	4.2	370
105I	805020	9	490350	6923930	LMSN	14	6	02	04	00	02011	121	0041111	575	50	450	54	10	0.5	380	2.65	11	85	1	25	135	3	3.8	370
105I	805022	9	490420	6923840	LMSN	14	6	06	02	00	02011	220	0041211	170	14	14	15	5	0.1	720	2.85	2	54	0	10	105	1	2.0	340
105I	805023	9	490660	6923850	LMSN	14	6	03	05	00	02011	121	0041211	900	25	20	50	6	0.2	190	2.35	4	94	2	11	115	1	5.5	400
105I	805024	9	490720	6923780	LMSN	14	6	04	05	00	02021	130	0041111	425	32	290	39	7	0.3	410	2.50	7	82	0	20	100	1	2.8	420
105I	805025	9	491000	6923780	LMSN	14	6	04	08	00	02011	040	0051121	495	33	260	40	7	0.4	380	2.45	7	86	1	18	115	1	3.0	420
105I	805027	9	490980	6923900	LMSN	14	1			00	02 1	040	0051212	4150	88	2800	135	16	1.1	630	3.05	31	92	4	52	340	7	16.5	320
105I	805028	9	491150	6923660	LMSN	14	6	06	07	00	02011	220	0051111	725	19	16	29	4	0.2	45	1.25	2	42	1	4	150	1	2.2	180
105I	805029	9	491420	6923550	LMSN	14	6	06	02	00	02016	121	0051211	1700	48	800	72	10	0.5	425	2.70	14	66	1	25	155	1	5.6	310
105I	805030	9	491630	6923100	LMSN	14	6	07	08	00	02011	111	0051121	1980	53	760	66	12	0.8	450	2.60	15	90	2	30	210	5	6.5	400
105I	805031	9	491960	6922280	LMSN	14	6	04	02	00	02013	022	0051211	220	24	25	26	6	0.2	250	1.75	4	69	0	7	140	1	2.5	250
105I	805032	9	491970	6922500	LMSN	14	6	08	07	00	02021	310	0051121	1600	38	650	58	11	0.4	440	2.20	10	64	1	24	135	1	4.8	290
105I	805033	9	492140	6922220	LMSN	14	6	02	04	00	02021	111	0051111	550	47	20	66	10	0.2	680	2.65	4	98	0	13	175	1	16.8	240
105I	805034	9	492030	6922030	LMSN	14	6	07	08	00	02021	111	0051121	2100	160	890	188	60	1.3	900	5.40	12	33	1	43	790	1	9.7	380
105I	805035	9	491940	6922020	LMSN	14	6	12	12	00	02026	112	0051131	2800	115	25	275	39	1.0	1650	3.15	33	300	16	29	325	6	25.5	480
105I	805036	9	492080	6921830	LMSN	14	6	02	03	00	02011	022	0051211	400	40	21	45	10	0.4	370	2.80	6	76	0	16	145	1	3.3	160
105I	805037	9	492280	6921090	LMSN	14	6	02	04	00	02021	121	0051211	290	24	16	32	8	0.2	535	2.70	3	55	0	15	95	1	2.7	210
105I	805038	9	492410	6920880	LMSN	14	6	02	03	00	02011	130	0051211	360	32	28	47	11	0.3	630	3.25	5	76	0	11	120	1	2.7	245
105I	805039	9	492410	6920670	LMSN	14	6	12	16	00	02031	111	0051131	3000	96	75	260	36	0.9	1300	3.20	22	250	7	28	275	6	21.0	520
105I	805040	9	492970	6920000	LMSN	14	6	06	08	00	02031	111	0051121	125	18	11	20	8	0.1	370	2.30	3	28	0	11	65	1	0.8	150
105I	805042	9	493160	6919270	LMSN	14	6	03	08	00	02036	022	0051121	1350	40	125	177	14	0.3	450	2.80	5	33	0	15	220	1	6.5	1880
105I	805043	9	489800	6929170	SHLE	19	6	02	03	00	02038	111	1051122	430	88	62	97	16	1.4	570	4.25	11	141	10	17	235	1	2.5	700
105I	805044	9	490000	6929000	SHLE	19	6	01	02	00	02028	111	0051022	280	45	44	48	11	0.6	330	3.05	9	40	7	18	145	1	2.0	420
105I	805045	9	489890	6928800	SHLE	19	6	01	02	00	02028	111	0051122	325	38	69	50	10	0.6	240	2.70	9	32	4	19	160	1	2.5	330
105I	805046	9	489730	6928650	SHLE	19	6	02	02	00	12038	112	4051121	575	85	57	98	14	1.0	500	4.00	11	96	8	22	215	1	3.0	560
105I	805047	9	489600	6928360	SHLE	19	6	02	03	00	42028	130	0051121	180	29	56	30	5	0.2	240	2.20	10	47	0	16	70	1	0.6	200
105I	805048	9	489640	6928040	SHLE	19	6	04	03	00	02038	220	4051121	1050	75	68	98	12	0.6	440	3.75	18	82	4	17	125	1	5.7	400
105I	805049	9	489620	6927690	SHLE	29	6	02	03	00	42038	220	4051121	980	68	66	98	12	0.8	350	3.30	15	78	6	22	170	1	5.2	350
105I	805050	9	489530	6927450	SHLE	29	6	02	03	00	42038	121	4051121	970	74	82	92	12	0.7	375	3.60	16	111	4	22	145	1	5.5	520
105I	805051	9	489000	6925350	LMSN	14	6	03	04	00	02033	220	0051121	2050	78	985	84	10	0.8	320	3.30	23	120	4	24	175	1	11.0	640
105I	805052	9	488730	6925500	LMSN	14	6	01	03	00	02033	220	0051121	2150	78	775	94	10	0.7	380	3.30	22	97	4	28	180	3	10.7	620
105I	805054	9	488480	6925840	LMSN	14	6	04	06	00	02033	220	0051121	550	46	81	58	10	0.3	510	2.60	8	68	2	25	75	2	3.9	370
105I	805055	9	488180	6925920	LMSN	14	6	04	08	00	22033	130	0051121	1900	72	765	86	10	0.6	370	3.00	19	111	4	28	200	1	9.2	660

CHEMICAL ANALYSES OF STREAM WATER
HOWARDS PASS AREA, NAHANNI MAP-AREA(NTS 105I), SELWYN BASIN, YUKON

	SAMPLE	UTM COORDINATES			STREAM WATER PPB												PPM					
NTS	NUMBER	ZN	EAST	NORTH	U	F	CU	PB	ZN	MN	FE	CL	AS	V	CD	PH	SO4	HCO3	CA	MG	NA	K
105I	805002	9	494700	6917800	0.10	35	1	17	146	21	25	0.5	0.2		0.5	7.3		25	10	2.6	0.5	0.4
105I	805003	9	494900	6917560	0.15	42	1	83	373	10	25	0.5	0.1		0.5	7.5		20	15	7.4	0.7	0.2
105I	805004	9	495150	6917410	0.25	40	1	71	304	10	25	0.5	0.1		0.5	9.1		10	16	6.7	0.6	0.2
105I	805005	9	495260	6917440	0.20	27	1	2	5	10	25	0.5	0.2		0.5	8.4		84	25	6.1	0.2	0.1
105I	805006	9	495060	6917000	0.05	35	5	2	40	10	25	0.5	0.1		0.5	5.1		0	6	3.0	0.2	0.1
105I	805007	9	495250	6917220	0.05	39	5	2	70	21	70	0.5	0.1		0.5	5.7		0	7	3.5	0.2	0.1
105I	805008	9	495670	6917370	0.05	39	1	2	69	44	50	0.5	0.2		0.5	7.2		14	12	5.1	0.4	0.2
105I	805009	9	495800	6917270	0.10	40	1	2	73	10	25	0.5	0.1		0.5	7.2		15	12	5.0	0.5	0.3
105I	805010	9	495900	6917150	0.10	40	1	2	71	10	25	0.5	0.1		0.5	7.3		15	12	5.1	0.4	0.2
105I	805011	9	496030	6916970	0.18	40	1	2	95	10	25	0.5	0.2		0.5	7.8		34	15	5.5	0.4	0.1
105I	805012	9	496440	6916660	0.18	65	1	2	70	10	25	0.5	0.2		0.5	7.4		10	7	4.3	0.6	0.1
105I	805014	9	497000	6916540	0.16	48	1	7	42	10	25	0.5	0.1		1.0	7.7		34	13	4.8	0.4	0.1
105I	805015	9	497200	6916500	0.20	48	1	7	30	10	25	0.5	0.1		0.5	7.8		40	16	5.6	0.4	0.1
105I	805016	9	498060	6916030	0.20	74	1	2	18	10	25	0.5	0.2		0.5	8.0		44	18	6.1	0.4	0.1
105I	805017	9	489660	6924550	0.82	33	1	5	3	10	25	0.5	0.2		0.5	8.2		106	34	3.1	0.1	0.2
105I	805018	9	489840	6924360	0.62	26	1	5	2	10	25	0.5	0.2		0.5	8.2		106	33	2.8	0.1	0.1
105I	805019	9	490100	6924150	0.56	39	1	6	1	10	25	0.5	0.2		0.5	8.4		109	32	3.0	0.2	0.1
105I	805020	9	490350	6923930	0.30	29	1	2	2	10	25	0.5	0.2		0.5	8.3		123	34	3.3	0.2	0.1
105I	805022	9	490420	6923840	0.22	26	1	2	5	10	25	0.5	0.2		0.5	8.3		136	39	2.7	0.2	0.1
105I	805023	9	490660	6923850	2.20	32	1	2	12	10	25	0.5	0.2		0.5	8.1		162	40	5.2	0.4	0.2
105I	805024	9	490720	6923780	0.45	25	1	2	5	10	25	0.5	0.3		0.5	8.5		126	36	3.4	0.2	0.1
105I	805025	9	491000	6923780	0.42	24	1	2	3	10	25	0.5	0.3		0.5	8.1		139	37	3.6	0.2	0.1
105I	805027	9	490980	6923900																		
105I	805028	9	491150	6923660	0.85	25	1	2	33	10	25	0.5	0.2		0.5	8.3		144	38	4.5	0.2	0.2
105I	805029	9	491420	6923550	0.45	25	1	2	6	10	25	0.5	0.2		0.5	7.7		163	41	5.0	0.3	0.2
105I	805030	9	491630	6923100	0.80	25	1	2	32	10	25	0.5	0.2		0.5	8.2		150	39	4.6	0.2	0.2
105I	805031	9	491960	6922280	0.28	21	1	2	3	10	25	0.5	0.2		0.5	8.2		175	42	5.8	0.2	0.1
105I	805032	9	491970	6922500	0.70	23	1	2	26	10	25	0.5	0.3		0.5	8.2		152	38	4.7	0.2	0.2
105I	805033	9	492140	6922220	0.40	10	1	2	2	10	70	0.5	0.3		0.5	8.1		155	34	19.2	0.3	0.1
105I	805034	9	492030	6922030	0.60	20	1	2	19	10	25	0.5	0.3		0.5	8.2		155	39	5.6	0.2	0.2
105I	805035	9	491940	6922020	2.20	36	1	5	107	10	25	0.5	0.1		1.0	7.7		34	15	5.7	0.2	0.2
105I	805036	9	492080	6921830	0.30	20	1	5	2	10	25	0.5	0.2		0.5	8.4		175	38	7.0	0.2	0.2
105I	805037	9	492280	6921090	0.32	20	1	2	2	10	25	0.5	0.2		0.5	8.3		178	39	7.7	0.3	0.1
105I	805038	9	492410	6920880	0.38	10	1	2	2	10	25	0.5	0.2		0.5	8.3		202	44	8.8	0.2	0.1
105I	805039	9	492410	6920670	1.50	36	1	2	63	10	25	0.5	0.2		0.5	7.8		51	18	5.6	0.2	0.1
105I	805040	9	492970	6920000	0.30	22	1	6	3	10	25	0.5	0.2		0.5	8.3		136	32	7.3	0.3	0.1
105I	805042	9	493160	6919270	0.26	44	1	7	39	10	25	0.5	0.2		0.5	7.9		85	23	7.2	0.2	0.1
105I	805043	9	489800	6929170	0.24	50	1	2	6	10	25	0.5	0.1		0.5	7.0		19	6	1.7	0.1	0.3
105I	805044	9	490000	6929000	0.56	24	1	2	3	10	25	0.5	0.2		0.5	7.1		54	12	4.7	0.1	0.1
105I	805045	9	489890	6928800	0.94	33	1	2	3	10	25	0.5	0.2		0.5	7.6		61	16	6.0	0.1	0.2
105I	805046	9	489730	6928650	0.90	44	1	2	3	10	25	0.5	0.1		0.5	7.9		50	13	4.0	0.1	0.3
105I	805047	9	489600	6928360	1.30	26	1	2	5	10	25	0.5	0.2		0.5	7.7		82	21	6.7	0.1	0.2
105I	805048	9	489640	6928040	1.22	44	1	2	36	10	25	0.5	0.2		0.5	7.4		65	20	4.8	0.2	0.5
105I	805049	9	489620	6927690	1.05	48	1	2	31	10	25	0.5	0.2		0.5	7.5		70	20	5.0	0.1	0.3
105I	805050	9	489530	6927450	1.14	52	1	2	29	10	25	0.5	0.2		0.5	7.4		66	20	5.2	0.1	0.3
105I	805051	9	489000	6925350	1.60	60	1	7	146	10	25	0.5	0.2		0.5	7.5		75	25	5.4	0.1	0.4
105I	805052	9	488730	6925500	1.58	62	1	2	148	10	25	0.5	0.2		0.5	7.8		80	25	5.2	0.1	0.5
105I	805054	9	488480	6925840	0.30	36	1	2	35	10	25	0.5	0.2		0.5	7.4		52	15	2.2	0.1	0.2
105I	805055	9	488180	6925920	1.45	57	1	6	105	10	25	0.5	0.2		0.5	7.6		71	24	4.9	0.1	0.3

CODED FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT
HOWARDS PASS AREA, NAHANNI MAP-AREA (NTS 105I), SELWYN BASIN, YUKON TERRITORY

NTS	SAMPLE NUMBER	UTM COORDINATES ZN	EAST	NORTH	ROCK TYPE	AGE	SCLS	WD	DT	RP ST	CBWRS OACAC NNOTO TKLEL	SMP CMP	PPPPTCS RRHAYLR PPYTPSC SBSTESE	STREAM SEDIMENT PPM ZN	CU	PB	NI	CO	AG	MN	PCT FE	PPM MO	PPM V	U	AS	PPB HG	PPM SB	CD	BA
105I	805056	9	487800	6926160	LMSN	14	6	04	06	00	72043	310	0051121	2100	70	840	91	9	0.6	365	3.00	20	110	4	26	16C	1	11.0	600
105I	805057	9	486850	6923000	SHLE	29	6	04	01	00	05011	220	0051212	140	28	15	20	3	0.2	75	2.30	2	25	0	6	65	2	0.7	130
105I	805058	9	486890	6923200	SHLE	29	6	03	04	00	05026	210	0051212	1025	110	24	150	18	1.0	570	3.80	25	410	16	27	280	8	12.0	270
105I	805059	9	486900	6923260	SHLE	29	6	02	06	00	05031	120	0051212	575	125	34	94	68	0.4	2200	4.60	6	58	1	16	160	1	5.5	130
105I	805060	9	487240	6923120	SHLE	29	6	05	05	00	05021	220	0051112	700	105	25	114	24	0.6	800	3.65	22	310	11	21	215	1	7.0	150
105I	805062	9	487490	6923360	SHLE	29	6	03	02	00	05021	021	0051212	175	23	10	36	16	0.3	535	1.10	2	24	1	4	145	1	1.5	150
105I	805063	9	487640	6923130	SHLE	29	6	08	04	00	05011	031	0051212	210	47	10	39	9	0.6	155	1.10	3	23	1	3	115	1	1.3	120
105I	805064	9	487450	6923070	SHLE	29	6	08	06	00	05021	121	0051112	625	98	24	114	21	0.6	770	3.75	19	290	7	22	215	4	5.8	170
105I	805065	9	487840	6923030	SHLE	29	6	07	05	00	05026	210	0051112	625	108	25	116	24	0.4	1050	3.95	16	180	7	21	155	4	5.8	160
105I	805066	9	487600	6922780	SHLE	29	6	05	04	00	02021	111	0051112	1100	125	24	142	26	0.7	1050	4.40	30	182	9	25	335	3	9.5	370
105I	805067	9	487670	6922650	SHLE	29	6	02	03	00	02026	111	0051212	1600	122	20	190	28	0.7	915	3.20	49	230	11	28	430	6	24.5	410
105I	805068	9	487930	6922680	SHLE	29	6	06	04	00	02023	121	0051112	1450	115	24	156	22	0.8	460	3.55	23	189	14	26	415	8	14.0	460
105I	805069	9	488000	6922640	SHLE	29	6	07	06	00	05023	211	0051112	1300	90	30	168	26	1.0	860	2.40	32	135	7	21	440	4	13.5	370
105I	805070	9	488160	6922820	SHLE	29	6	06	06	00	02021	121	0051122	775	95	26	122	24	0.8	980	4.10	21	280	8	17	300	1	0.9	180
105I	805071	9	488290	6922600	SHLE	29	6	02	02	00	05036	310	0 51212	1400	110	21	166	12	1.1	370	2.60	42	300	5	35	425	14	15.5	210
105I	805072	9	488610	6922570	LMSN	27	6	16	08	00	05026	121	0051122	1600	120	23	200	23	1.1	980	2.85	40	310	10	31	440	11	16.0	270
105I	805073	9	489440	6922700	LMSN	27	6	10	09	00	05026	220	0051122	1900	108	24	206	39	0.9	1600	2.70	32	270	14	28	440	7	17.7	450
105I	805074	9	490200	6922680	LMSN	22	6	16	08	00	02026	130	0051132	1700	105	24	194	32	1.0	1300	2.90	35	265	11	26	420	7	16.0	420
105I	805075	9	490880	6922270	SHLE	19	6	04	10	00	05036	310	0051122	1700	85	18	164	20	1.0	600	2.35	23	360	5	22	330	9	16.3	400
105I	805076	9	490830	6922400	SHLE	19	6	08	12	C0	05026	111	0051132	2100	100	23	225	31	0.9	1400	2.85	32	285	14	23	420	12	20.0	480
105I	805077	9	491300	6922180	LMSN	14	6	12	12	00	03026	121	0051132	1800	93	20	184	25	0.8	1000	2.70	26	285	10	25	330	11	17.2	400
105I	805079	9	490510	6927900	SHLE	19	6	02	02	00	02028	210	0051111	850	80	30	80	11	1.2	370	3.70	35	74	3	22	200	1	5.2	320
105I	805080	9	490400	6927620	SHLE	19	6	02	03	00	02028	210	0051112	1800	85	59	150	20	1.0	630	3.90	36	94	4	24	170	5	10.7	330
105I	805082	9	490380	6927370	SHLE	19	6	01	04	00	02038	120	0051111	2400	85	80	168	18	1.2	560	3.80	30	88	4	21	165	4	11.5	280
105I	805083	9	490450	6927140	MDSN	27	6	02	04	00	02028	120	0051111	2260	80	82	176	22	1.0	665	3.80	28	84	4	25	180	1	13.0	300
105I	805084	9	490660	6927040	MDSN	27	6	03	02	00	02028	130	0051111	575	36	65	52	4	0.6	135	2.50	24	62	1	18	205	1	2.8	980
105I	805085	9	490920	6926970	MDSN	27	6	05	02	00	42020	031	0051111	725	45	42	64	5	0.7	160	2.15	18	74	2	18	185	1	3.5	1160
105I	805086	9	491140	6926950	SHLE	19	6	04	06	00	12020	121	0051111	950	58	35	98	8	0.7	260	2.80	21	118	3	16	240	1	6.4	1260
105I	805087	9	491390	6926870	SHLE	19	6	01	01	00	02020	121	0051121	950	72	32	100	7	0.8	230	2.90	18	275	5	20	30C	1	8.7	1360
105I	805088	9	491640	6927030	SHLE	19	6	01	02	00	02020	120	0051121	3500	58	36	192	8	0.7	300	3.40	5	60	3	7	180	1	9.2	420
105I	805089	9	491770	6926950	SHLE	19	6	08	03	00	02020	121	0051111	950	60	36	86	8	0.5	190	2.80	16	162	4	19	200	1	6.0	1260
105I	805090	9	491840	6926850	SHLE	19	6	01	02	00	02020	111	0051121	1250	80	174	200	13	0.6	540	3.25	6	100	4	9	260	1	4.5	660
105I	805091	9	492000	6926630	SHLE	19	6	02	02	00	02020	111	0051121	5500	85	18756	160	9	1.3	335	3.10	42	425	4	30	1555	1	19.5	840
105I	805092	9	492360	6926710	SHLE	19	6	04	08	00	02020	111	0051111	2200	75	660	126	9	0.7	300	2.80	23	195	5	21	230	1	13.0	760
105I	805094	9	492000	6926500	SHLE	19	6	03	04	00	12038	111	0051131	2850	65	238	184	11	0.8	275	3.40	12	107	4	11	210	1	17.5	460
105I	805095	9	492180	6926780	SHLE	19	6	02	03	00	12028	111	0051121	520	69	96	82	12	0.8	520	3.45	12	84	2	16	220	1	4.0	740
105I	805096	9	492060	6926630	SHLE	19	6	03	04	00	12028	111	0051111	2600	85	750	108	10	0.7	335	3.20	25	125	6	22	420	1	12.0	500
105I	805097	9	491660	6926260	MDSN	27	6	04	03	00	42138	121	0051122	2200	95	118	200	12	0.9	385	3.10	35	181	5	26	290	10	19.7	440
105I	805098	9	491740	6925070	SHLE	19	6	01	02	00	42028	121	0051112	4250	65	275	120	8	0.7	185	2.65	11	21	3	27	110	1	14.0	200
105I	805099	9	492130	6925250	SHLE	19	6	01	03	00	42 38	111	005111	10000	93	1132	188	12	1.1	535	3.35	20	52	2	28	245	1	34.0	220
105I	805100	9	491950	6925500	SHLE	1	6	01	03	00	42038	211	005112	6750	80	3250	116	7	1.0	250	2.35	28	76	4	19	440	8	25.0	110
105I	805103	9	492480	6925620	SHLE	1	6	02	05	00	02028	121	0051111	9250	80	3220	120	8	1.1	250	2.70	31	60	4	21	545	7	32.5	140
105I	805104	9	492960	6925220	LMSN	14	6	05	04	00	02038	031	0051111	5500	73	2350	108	8	1.0	275	2.45	27	88	5	17	290	7	16.5	160
105I	805105	9	493200	6924530	LMSN	1	6	03	08	00	02030	211	0051111	6750	73	2450	120	8	1.0	270	2.60	28	76	4	18	335	4	19.5	180
105I	805106	9	493900	6924310	LMSN	1	6	02	03	00	12028	111	0051121	70	78	63	64	7	0.8	355	1.60	3	23	2	28	45	1	0.5	320
105I	805107	9	493570	6924300	LMSN	1	6	01	3	00	42028	121	0051121	300	34	23	39	9	0.3	370	2.80	3	70	0	11	90	1	2.5	250

CHEMICAL ANALYSES OF STREAM WATER
HOWARDS PASS AREA, NAHANNI MAP-AREA(NTS 105I), SELWYN BASIN, YUKON

STREAM WATER

NTS	SAMPLE NUMBER	UTM COORDINATES 7N	EAST	NORTH	U (PPB)	F (PPB)	CU (PPB)	PB (PPB)	ZN (PPB)	MN (PPB)	FE (PPB)	CL (PPB)	AS (PPB)	V (PPB)	CD (PPB)	PH	SO4 (PPM)	HCO3 (PPM)	CA (PPM)	MG (PPM)	NA (PPM)	K (PPM)
105I	805056	9	487800	6926160	1.40	60	1	2	91	10	25	0.5	0.2		0.5	7.9		79	24	5.1	0.2	0.4
105I	805057	9	486850	6923000	0.14	30	1	2	17	10	25	0.5	0.1		0.5	6.6		7	3	2.9	0.2	0.1
105I	805058	9	486890	6923200	0.40	26	1	2	9	10	25	0.5	0.2		0.5	7.4		18	6	3.5	0.2	0.1
105I	805059	9	486900	6923260	0.12	24	1	2	14	10	25	0.5	0.1		0.5	4.7		0	1	0.8	0.1	0.1
105I	805060	9	487240	6923120	0.20	24	1	2	9	10	25	0.5	0.1		0.5	6.8		10	4	2.3	0.2	0.1
105I	805062	9	487490	6923360	0.10	30	1	2	9	10	25	0.5	0.1		0.5	6.7		5	2	1.1	0.3	0.1
105I	805063	9	487640	6923130	0.14	25	1	2	5	10	25	0.5	0.1		0.5	5.7		6	2	1.0	0.3	0.1
105I	805064	9	487450	6923070	0.14	28	1	2	7	10	25	0.5	0.1		0.5	6.9		7	3	1.9	0.2	0.1
105I	805065	9	487840	6923030	0.22	26	1	5	7	10	25	0.5	0.1		0.5	6.5		7	3	1.6	0.2	0.1
105I	805066	9	487600	6922780	0.14	29	1	6	24	10	25	0.5	0.1		0.5	6.9		8	4	2.2	0.2	0.1
105I	805067	9	487670	6922650	0.05	31	1	6	61	10	25	0.5	0.1		0.5	6.9		8	4	2.2	0.2	0.1
105I	805068	9	487930	6922680																		
105I	805069	9	488000	6922640	0.42	46	1	6	99	71	25	0.5	0.1		0.5	7.3		10	12	5.4	0.1	0.3
105I	805070	9	488160	6922820	0.05	24	1	7	20	10	25	0.5	0.1		0.5	7.1		9	2	1.6	0.2	0.1
105I	805071	9	488290	6922600	4.80	95	1	6	169	10	25	0.5	0.5		1.2	8.0		72	33	10.3	0.1	0.2
105I	805072	9	488610	6922570	0.48	48	1	6	75	42	25	0.5	0.2		0.5	7.2		19	12	5.1	0.2	0.2
105I	805073	9	489440	6922700	0.66	44	1	2	136	45	25	0.5	0.1		1.3	7.4		18	13	5.3	0.2	0.2
105I	805074	9	490200	6922680	1.45	44	1	2	162	29	25	0.5	0.2		1.4	7.7		27	15	5.9	0.2	0.2
105I	805075	9	490880	6922270	2.90	39	1	2	56	10	25	0.5	0.2		0.5	7.5		50	18	8.3	0.1	0.2
105I	805076	9	490830	6922400	1.48	44	2	2	189	20	25	0.5	0.2		1.7	7.1		29	16	5.8	0.2	0.3
105I	805077	9	491300	6922180	2.20	42	1	6	95	10	25	0.5	0.2		1.3	7.5		34	16	6.4	0.2	0.2
105I	805079	9	490510	6927900	9.40	26	1	2	45	10	25	0.5	0.2		0.5	7.7		133	39	20.0	0.1	0.4
105I	805080	9	490400	6927620	7.60	90	1	2	255	10	25	0.5	0.4		1.3	7.9		169	55	19.2	0.1	0.7
105I	805082	9	490380	6927370	7.10	103	2	2	245	10	25	0.5	0.4		1.5	8.0		168	56	10.0	0.1	0.7
105I	805083	9	490450	6927140	4.90	100	1	2	123	10	25	0.5	0.3		0.5	8.0		138	45	7.8	0.1	0.6
105I	805084	9	490660	6927040	3.40	90	1	2	93	10	25	0.5	0.2		0.5	7.9		130	38	7.1	0.1	0.5
105I	805085	9	490920	6926970	3.20	77	1	2	33	10	25	0.5	0.2		0.5	8.0		120	36	7.2	0.2	0.4
105I	805086	9	491140	6926950	3.20	62	1	2	52	10	25	0.5	0.2		0.5	7.7		113	34	7.7	0.1	0.4
105I	805087	9	491390	6926870	3.20	36	1	2	8	10	25	0.5	0.4		0.5	7.8		133	41	20.0	0.2	0.3
105I	805088	9	491640	6927030	0.62	84	1	5	150	10	25	0.5	0.2		0.5	7.8		98	36	1.4	0.1	0.2
105I	805089	9	491770	6926950	3.00	52	1	6	23	10	25	0.5	0.2		0.5	7.8		103	35	9.6	0.2	0.3
105I	805090	9	491840	6926850	0.30	70	1	5	13	10	25	0.5	0.2		0.5	7.8		62	21	3.5	0.1	0.4
105I	805091	9	492000	6926630	1.65	55	1	5	33	10	25	0.5	0.4		0.5	7.9		113	32	7.7	0.1	0.3
105I	805092	9	492360	6926710	3.60	60	1	2	83	10	25	0.5	0.2		0.5	7.7		105	35	7.7	0.2	0.4
105I	805094	9	492000	6926500	5.50	74	1	2	134	10	25	0.5	0.2		0.5	8.0		117	46	19.4	0.1	0.4
105I	805095	9	492180	6926780	1.02	30	1	2	8	10	25	0.5	0.1		0.5	7.8		100	27	4.9	0.1	0.2
105I	805096	9	492060	6926630	3.75	60	1	2	66	10	25	0.5	0.2		0.5	8.3		110	37	8.6	0.2	0.4
105I	805097	9	491660	6926260	6.00	74	1	2	194	10	25	0.5	0.2		2.7	7.8		83	31	6.7	0.2	0.4
105I	805098	9	491740	6925070	4.00	300	1	2	522	10	25	0.5	0.6		3.2	8.1		212	77	4.5	0.1	0.6
105I	805099	9	492130	6925250	5.90	300	1	2	723	10	25	0.5	0.4		3.5	8.2	1	221	103	3.3	0.1	0.6
105I	805100	9	491950	6925500	2.00	77	1	9	165	10	25	0.5	0.2		1.0	7.8		81	26	5.5	0.1	0.4
105I	805103	9	492480	6925620	5.20	185	1	12	1108	10	25	0.5	0.2		3.7	8.0		159	81	3.2	0.1	0.6
105I	805104	9	492960	6925220	3.90	120	1	10	500	10	25	0.5	0.2		2.1	7.9		158	60	3.4	0.1	0.4
105I	805105	9	493200	6924530	2.80	95	1	8	346	10	25	0.5	0.2		1.4	8.1		163	54	4.0	0.2	0.4
105I	805106	9	493900	6924310	0.75	36	1	2	9	10	25	0.5	0.2		0.5	8.0		152	37	5.4	0.2	0.1
105I	805107	9	493570	6924300	0.60	24	1	2	6	10	25	0.5	0.2		0.5	8.0		160	39	6.2	0.3	0.2