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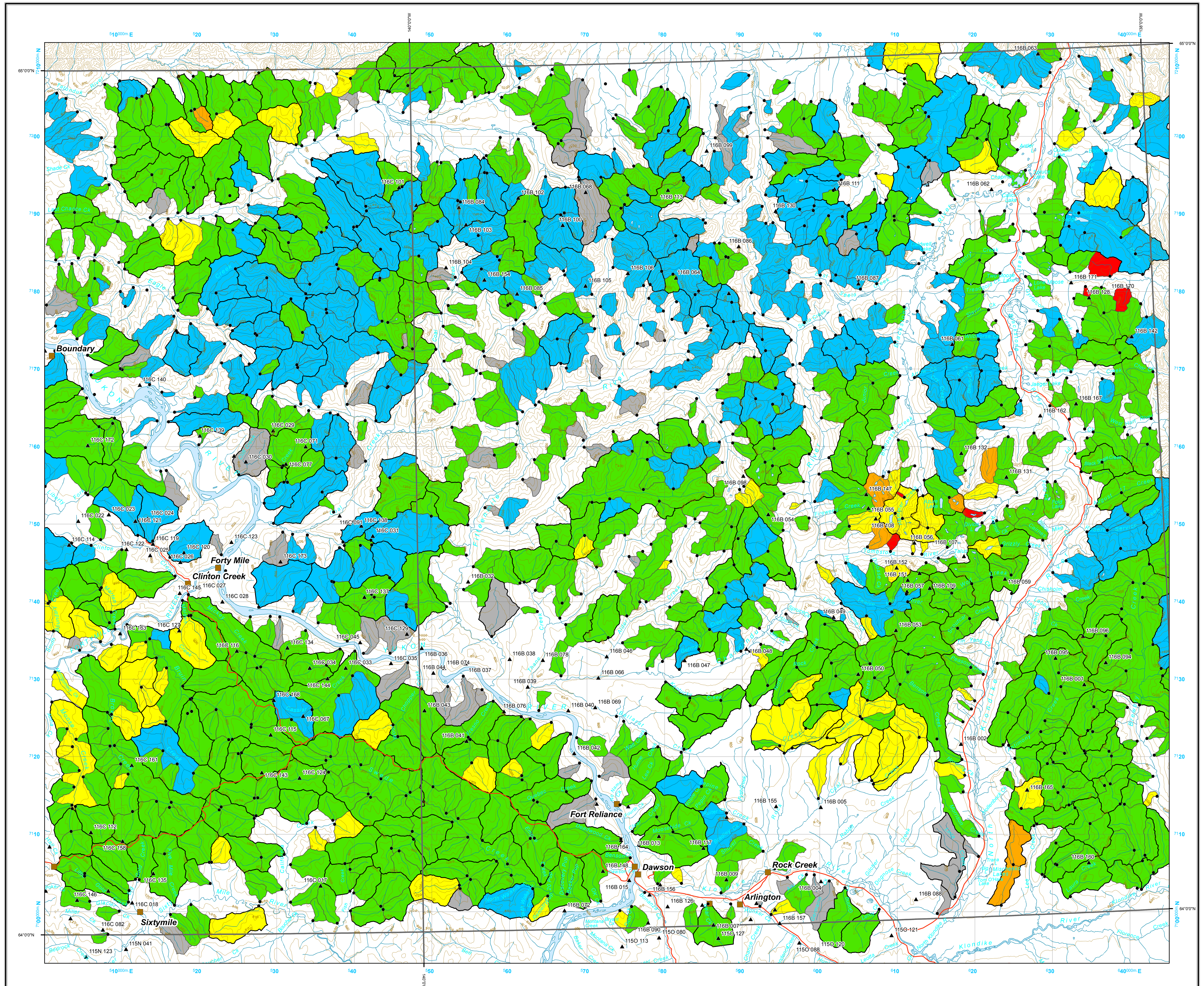


INTRODUCTION

New geochemical data from re-analysis of archived stream sediment samples have been assessed using weighted sums modeling (WSM) and catchment basin analysis as described in the methodology report that accompanies this map (Mackie *et al*., 2015). In addition to a series of maps displaying WSM results, a catchment map of stream water pH has also been constructed.

SAMPILNG AND ANALYSIS PROGRAMS

Stream sediment and water samples from the Dawson Area (NTS 116B and part of 116C) were collected at a reconnaissance scale in 1976 as part of the Federal Uranium Reconnaissance Program (Geological Survey of Canada, 1977). Field descriptions and initial geochemical data for 1129 sites were originally released in Geological Survey of Canada (GSC) Open File 520. Archived sample material was re-analyzed in two subsequent projects and the results were released in GSC Open File 2365 and Yukon Geological Survey Open File 2012-6 (Friske *et al*., 1991; Jackaman, 2012). The reader is referred to these reports for detailed descriptions of sampling techniques, analytical procedures and quality control measures.

MINERAL OCCURRENCES

Various types of base and precious-metal mineralization have been identified in the Dawson area as listed in Table 1 (Yukon MINFILE, 2015). The most significant deposits are classed as intrusion-related Au (Brewery Creek deposit), Au skarn (Marn deposit), Mississippi Valley-type Pb-Zn-Ag (Og and Tart prospects), iron oxide copper-gold (Lala and Wizard prospects) and polymetallic Ag-Pb-Zn±Cu (Spotted Fawn, Blackstone, Silvercity and Index prospects). Other deposit types within the area include sediment-hosted Ni-Zn-Mo (Graps and Taiga prospects), Pb-Zn volcanogenic massive sulphide (Fresno and Top of the world prospects) and quartz-vein Au (Vigrin and Ben Levy prospects). Numerous quartz-vein Au prospects occur in the adjacent NTS map area to the south, including the Lone Star deposit, supporting the prospectivity of the region for this type of deposit.

STREAM WATER pH

As indicated in Figure 1, the vast majority of streams sampled are slightly alkaline (median = 7.8). Regional trends in pH are evident with more alkaline streams corresponding to areas mapped as dolomite. Streams with lower pH values correspond to various map units including felsic intrusions and clastic sediments. Several streams are notably acidic (pH <5). Some of these appear to be related to sediment-hosted Ni-Zn-Mo occurrences, while others correspond to sample catchments containing dominantly felsic igneous rocks and potentially Au or Cu-skarn mineralization. Aside from these examples, pH values from streams with mineral occurrences in the corresponding catchments are indistinguishable from background suggesting any response from oxidation of near-surface sulphides related to these occurrences has been diluted or neutralized.

Figure 1: Stream Water pH

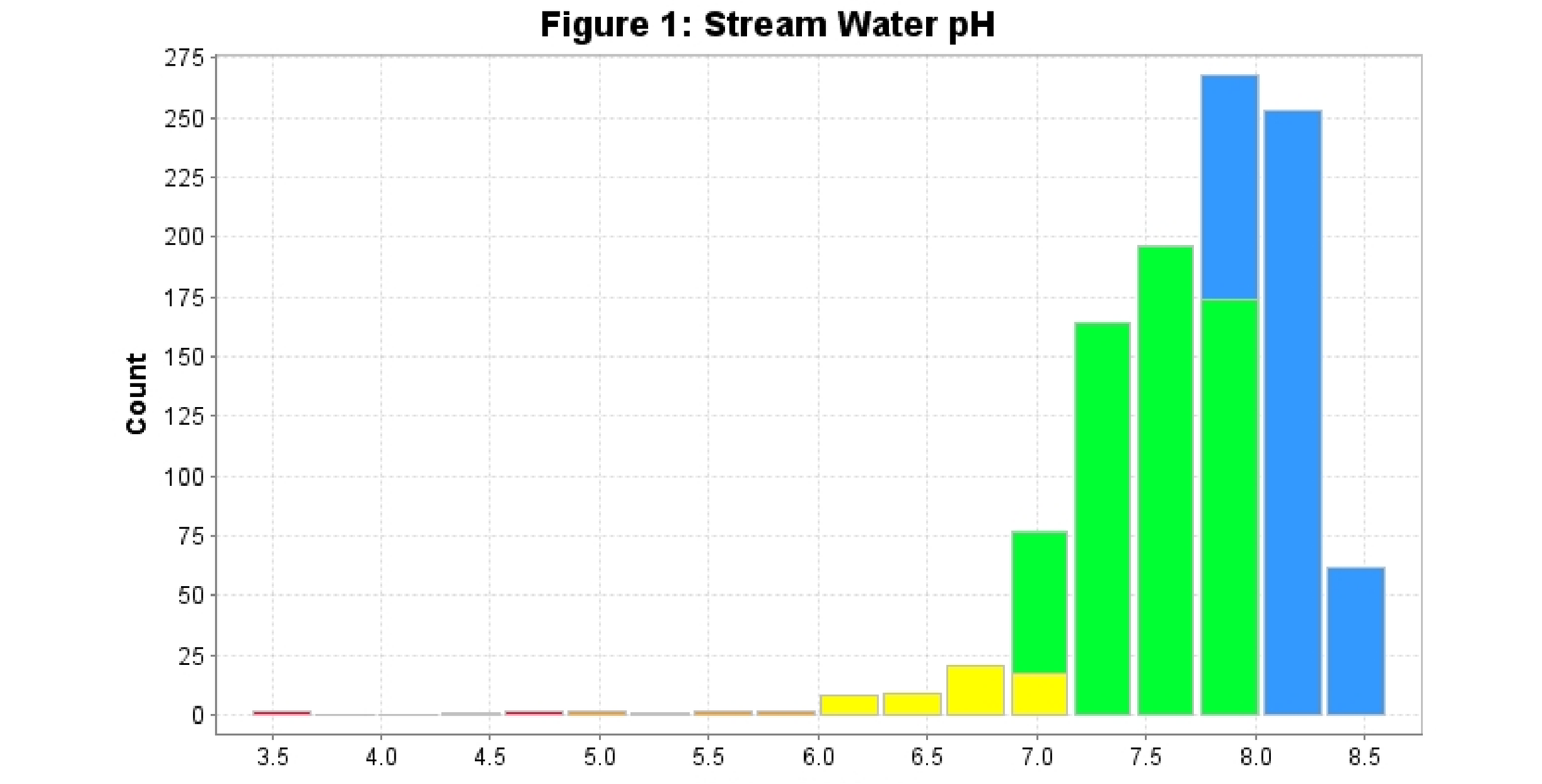


Table 1: List of Mineral Occurrences for NTS map sheet 116B & 116C (Yukon MINFILE, 2015)

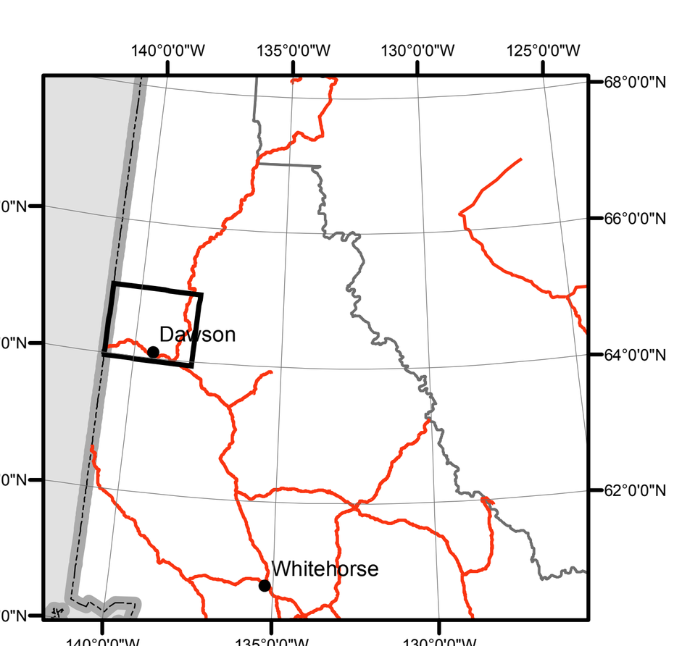
Number	Name	Type	Status	Commodities
116B 002	BENSON	Unknown	Anomaly	Molybdenum
116B 004	GERMAINE	Porphyry Sn	Drilled Prospect	Gold
116B 005	COLLIERY	Coal	Past Producer	Coal
116B 007	VIRGIN	Vein Au-Quartz	Past Producer	Copper, Silver, Mercury, Gold, Lead
116B 008	MACLEAN	Vein Au-Quartz	Drilled Prospect	Gold
116B 010	LEPINE	Vein Au-Quartz	Prospect	Gold
116B 011	FIBRE	Ultramafic-hosted asbestos	Showing	Asbestos
116B 012	MIDNIGHT DOME	Ultramafic-hosted asbestos	Drilled Prospect	Asbestos
116B 015	WEST DAWSON	Skarn Cu	Prospect	Copper, Lead, Silver
116B 032	FIF	Coal	Showing	Coal
116B 036	ROAL	Skarn Pb-Zn	Prospect	Copper, Zinc, Tungsten, Silver, Lead
116B 037	SILVERCITY	Vein Au-Quartz	Past Producer	Silver
116B 041	FRESNO	Volcanogenic Massive Sulphide (VMS) Besshi Cu-Zn	Showing	Barium, Copper, Lead, Manganese, Zinc
116B 044	WOODCHOPPER	Ultramafic-hosted asbestos	Showing	Asbestos
116B 047	STYX	Unknown	Drilled Prospect	Gold
116B 048	RICKARD	Vein Au-Quartz	Unknown	Gold
116B 049	HAY MEADOW	Unknown	Anomaly	Copper, Zinc
116B 050	JECKELL	Plutonic Related Au	Anomaly	Copper, Zinc
116B 056	TRIX	Skarn Cu	Showing	Antimony, Uranium, Molybdenum, Lead, Copper
116B 057	SPOTTED FAWN	Vein Polymetallic Ag-Pb-Zn±Au	Drilled Prospect	Lead, Silver
116B 058	SUBTRACT	Uranium	Showing	Thorium, Uranium
116B 059	ROBERT SERVICE	Vein Polymetallic Ag-Pb-Zn±Au	Anomaly	Lead
116C 033	CALEY	Ultramafic-hosted asbestos	Past Producer	Asbestos
116C 035	SUBMARINE	Skarn Pb-Zn	Showing	Lead, Silver
116C 045	ETHELDA	Skarn Cu	Showing	Copper, Lead
116C 070	PAULA	Volcanogenic Sulphide - type not determined	Showing	Copper
116C 077	LEDUC	Coal	Unknown	Coal
116C 082	YAREMICO	Vein Au-Quartz	Anomaly	Arsenic, Tungsten, Barite, Gold, Mercury
116C 091	CHAIN	Coal	Showing	Coal
116C 093	JEPHSON	Coal	Unknown	Coal
116C 101	UGLY	Sediment hosted Mississippi Valley-Type Pb-Zn (MVT)	Showing	Lead, Zinc
116C 112	PUB	Volcanogenic Massive Sulphide (VMS) Kuroko Cu-Pb-Zn	Showing	Copper, Silver, Lead, Zinc
116C 114	TIPP	Ultramafic Mafic Jade (Nephrite)	Anomaly	Jade/Nephrite
116C 115	CLIP	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Prospect	Barite, Lead, Copper, Silver, Zinc
116C 116	MICKEY	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Drilled Prospect	Lead, Zinc
116C 118	FORTYMILE	Vein Polymetallic Ag-Pb-Zn±Au	Prospect	Copper, Zinc, Gold, Lead, Silver
116C 119	SMITHERINGALE	Ultramafic-hosted asbestos	Drilled Prospect	Asbestos
116C 120	JUDY	Ultramafic-hosted asbestos	Showing	Asbestos
116C 121	KAVANAUGH	Ultramafic-hosted asbestos	Showing	Asbestos
116C 122	JOHNNY	Ultramafic-hosted asbestos	Showing	Asbestos
116C 123	CHUDY	Ultramafic-hosted asbestos	Showing	Asbestos
116C 124	TOP OF THE WORLD	Volcanogenic Massive Sulphide (VMS) Kuroko Cu-Pb-Zn	Prospect	Lead, Zinc, Silver
116C 129	TJOP	Ultramafic-hosted asbestos	Showing	Asbestos
116C 133	BALDY	Volcanogenic Massive Sulphide (VMS) Besshi Cu-Zn	Showing	Copper, Lead, Zinc, Silver, Gold
116C 134	PLUTO	Porphyry Mo (Low F-Type)	Drilled Prospect	Molybdenum
116C 135	CHOLACH	Vein Polymetallic Ag-Pb-Zn±Au	Showing	Lead, Silver
116C 137	TRACK	Skarn W	Drilled Prospect	Beryllium, Silver, Zinc, Tungsten, Lead, Bismuth, Gold
116C 138	LONG	Coal	Showing	Coal
116C 139	CAPE	Coal	Prospect	Fixed Carbon
116C 140	ST. PAUL	Coal	Showing	Coal
116C 141	CRIPPLE	Ultramafic-hosted asbestos	Anomaly	Asbestos
116C 143	SWEDE	Porphyry Mo (Low F-Type)	Unknown	Molybdenum
116C 144	TIZA	Ultramafic-hosted asbestos	Prospect	Asbestos
116C 145	SIKANNI	Ultramafic-hosted asbestos	Showing	Asbestos
116C 146	CEDAR	Vein Au-Quartz	Anomaly	Arsenic, Gold, Copper, Lead, Tungsten
116C 153	GLASMACHER	Vein Au-Quartz	Showing	Gold
116C 163	KINK	Vein Au-Quartz	Prospect	Gold
116C 166	LITTLE GOLD	Vein Au-Quartz	Prospect	Copper, Lead, Gold
116C 168	MORT	Volcanogenic Massive Sulphide (VMS) Kuroko Cu-Pb-Zn	Showing	Lead, Zinc
116B 060	MULTIPLY	Skarn Cu	Showing	Copper, Molybdenum
116B 061	CRAWFORD	Unknown	Anomaly	Copper
116B 062	THORNBACK	Coal	Showing	Coal
116B 063	CHAPMAN	Vein Polymetallic Ag-Pb-Zn±Au	Showing	Lead, Zinc
116B 064	FIFTEEN MILE	Vein Cu±Ag Quartz	Showing	Copper, Zinc, Silver, Lead
116B 066	CHANDINDU	Coal	Prospect	Fixed Carbon
116B 068	SHAND	Iron Oxide Breccias & Veins (Wernecke Breccias)	Showing	Copper
116B 069	JEROME	Coal	Unknown	Coal
116B 072	MASTODON	Vein Au-Quartz	Showing	Copper, Zinc, Gold, Lead, Silver
116B 076	LAWRENCE	Vein & Disseminations Stibnite	Unknown	Antimony
116B 078	BARETTE	Coal	Unknown	Coal
116B 081	HATTIE	Vein Au-Quartz	Unknown	Copper, Gold
116B 083	OG	Sediment hosted Mississippi Valley-Type Pb-Zn (MVT)	Drilled Prospect	Copper, Silver, Lead, Zinc
116B 084	TART	Sediment hosted Mississippi Valley-Type Pb-Zn (MVT)	Drilled Prospect	Zinc
116B 085	OZ	Sediment hosted Mississippi Valley-Type Pb-Zn (MVT)	Showing	Copper, Zinc, Lead, Silver
116B 086	SEELA	Sediment hosted Mississippi Valley-Type Pb-Zn (MVT)	Showing	Lead, Zinc
116B 087	KIWI	Sediment hosted Mississippi Valley-Type Pb-Zn (MVT)	Drilled Prospect	Copper, Zinc, Lead, Silver
116B 092	HALE	Vein Au-Quartz	Unknown	Copper, Silver, Lead
116B 094	ANTIMONY MOUNTAIN	Vein Cu±Ag Quartz	Drilled Prospect	Arsenic, Bismuth, Copper, Gold, Silver
116B 095	SANDOW	Plutonic Related Au	Drilled Prospect	Arsenic, Zinc, Copper, Gold, Silver, Lead, Bismuth
116B 096	BREWERY	Uranium	Anomaly	Uranium
116B 098	COMBINATION	Uranium	Drilled Prospect	Thorium, Uranium, Zinc
116B 099	LALA	Iron Oxide Breccias & Veins (Wernecke Breccias)	Drilled Prospect	Copper
116B 100	MINIERE	Sediment hosted Mississippi Valley-Type Pb-Zn (MVT)	Drilled Prospect	Lead, Zinc
116B 102	WIZARD	Iron Oxide Breccias & Veins (Wernecke Breccias)	Drilled Prospect	Cobalt, Copper, Zinc, Silver, Lead, Gold
116B 103	DASH	Iron Oxide Breccias & Veins (Wernecke Breccias)	Prospect	Cobalt, Gold, Lead, Zinc, Silver, Copper
116B 106	TOUR	Iron Oxide Breccias & Veins (Wernecke Breccias)	Anomaly	Copper, Gold
116B 107	SUMTING	Skarn Au	Drilled Prospect	Gold, Uranium
116B 108	NEBULOUS	Uranium	Prospect	Gold, Uranium
116B 109	TING	Uranium	Drilled Prospect	Uranium
116B 110	RAYNER	Sediment hosted Mississippi Valley-Type Pb-Zn (MVT)	Anomaly	Zinc
116B 113	PETTET	Iron Oxide Breccias & Veins (Wernecke Breccias)	Showing	Copper, Gold, Uranium
116B 117	SHAROL	Ultramafic-hosted asbestos	Showing	Asbestos
116B 126	QUIGLEY	Plutonic Related Au	Drilled Prospect	Arsenic, Mercury, Lead, Gold, Copper
116B 128	REIN	Sediment hosted Mississippi Valley-Type Pb-Zn (MVT)	Drilled Prospect	Barite, Copper, Lead, Zinc, Barium
116B 130	TOLBERT	Sediment hosted Mississippi Valley-Type Pb-Zn (MVT)	Showing	Copper, Silver, Zinc, Lead
116B 132	BLACKSTONE	Vein Polymetallic Ag-Pb-Zn±Au	Drilled Prospect	Antimony, Copper, Silver, Lead, Gold
116B 142	GRAPS	Sediment hosted Shale-Hosted Ni-Zn-Mo-PGE (Nick)	Showing	Barium, Lead, Nickel, Zinc
116B 147	MARN	Skarn Au	Deposit	Copper, Tungsten, Silver, Gold
116B 150	HESTER	Vein Cu±Ag Quartz	Showing	Gold, Silver, Zinc
116B 151	TOMBSTONE	Uranium	Drilled Prospect	Uranium
116B 152	TETA	Uranium	Drilled Prospect	Uranium
116B 154	DEM	Volcanogenic Sulphide - type not determined	Showing	Copper, Zinc, Lead
116B 155	GIBSON	Coal	Unknown	Coal, Gold
116B 156	TYNDALL	Vein Polymetallic Ag-Pb-Zn±Au	Drilled Prospect	Copper, Lead, Silver, Gold
116B 157	BEN LEVY	Vein Au-Quartz	Drilled Prospect	Gold, Silver
116B 159	STUTTER	Plutonic Related Au	Anomaly	Antimony, Gold, Barite, Arsenic
116B 160	BREWERY CREEK	Plutonic Related Au	Past Producer	Gold
116B 164	KEENAN	Vein Au-Quartz	Unknown	Gold
116B 170	TAIGA	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Drilled Prospect	Molybdenum, Nickel, Zinc
116B 171	TOM BELL	Sediment hosted Shale-Hosted Ni-Zn-Mo-PGE (Nick)	Drilled Prospect	Molybdenum, Zinc, Nickel
116C 018	HUNGRY	Coal	Drilled Prospect	Coal, Gold
116C 019	MILLER	Vein Polymetallic Ag-Pb-Zn±Au	Showing	Lead, Zinc, Silver
116C 025	CLINTON CREEK	Ultramafic-hosted asbestos	Past Producer	Asbestos, Gold, Platinum
116C 026	ACHERON	Ultramafic-hosted asbestos	Drilled Prospect	Asbestos
116C 027	CONE HILL	Unknown	Unknown	Gold
116C 029	SHELL CREEK	Iron Formation	Drilled Prospect	Copper, Iron, Gold
116C 030	CLIFF CREEK MINE	Coal	Past Producer	Coal
116C 031	SOURDOUGH MINE	Coal	Past Producer	Coal
116C 024	FOXY	Ultramafic-hosted asbestos	Drilled Prospect	
116C 161	IMPAIRED	Unknown	Unknown	
116B 105	DIDDLE	Unknown	Anomaly	
116B 104	DIZZY	Unknown	Anomaly	
116C 127	TEQUILA	Unknown	Unknown	
116C 022	SPHERE	Ultramafic-hosted asbestos	Showing	
116B 001	INDEX	Vein Polymetallic Ag-Pb-Zn±Au	Drilled Prospect	Antimony, Lead, Zinc, Silver, Gold, Arsenic, Copper, Bismuth
116C 020	ALASKA	Plutonic Related Au	Anomaly	Arsenic, Gold, Silver
116C 071	KRAUSE	Iron Formation	Showing	Copper, Gold, Iron
116C 023	BUDINSKI	Ultramafic-hosted asbestos	Showing	
116B 014	RELIANCE	Vein Au-Quartz	Unknown	
116B 006	UNEXPECTED	Plutonic Related Au	Prospect	Fluorite, Silver, Gold, Uranium
116B 162	EASTBLACK	Unknown	Withdrawn From Staking	
116B 040	KEYSTONE	Unknown	Unknown	
116B 009	BOYLE	Unknown	Anomaly	
116B 088	MORRISON	Coal	Showing	
116C 028	CONSTATINE	Ultramafic-hosted asbestos	Unknown	
116B 111	DAWG	Sediment hosted Mississippi Valley-Type Pb-Zn (MVT)	Anomaly	
116B 148	MERI	Unknown	Unknown	
116B 046	BUCKBRUSH	Paleoplacer	Unknown	
116B 054	LIGHTHOUSE	Unknown	Anomaly	
116B 042	CHARLIEMAGNE	Vein Au-Quartz	Unknown	
116B 074	WINAGE	Unknown	Drilled Prospect	
116B 131	RIKI	Unknown	Anomaly	
116B 090	HALIFAX	Vein Au-Quartz	Unknown	
116C 173	COAL CREEK	Unknown	Anomaly	
116C 034	JOLLY	Vein Polymetallic Ag-Pb-Zn±Au	Showing	
116C 172	FANNING	Unknown	Anomaly	
116C 158	CHELS	Unknown	Unknown	
116B 013	MOOSEHIDE	Vein Au-Quartz	Unknown	
116C 067	HAMMER	Unknown	Anomaly	
116B 039	OGILVIE	Unknown	Unknown	
116B 043	ASS	Ultramafic-hosted asbestos	Showing	
116B 055	FIREWEED	Porphyry Mo (Low F-Type)	Anomaly	
116B 167	TRAPPER	Unknown	Withdrawn From Staking	
116B 053	CABLE	Unknown	Unknown	
116B 038	FITCH	Unknown	Anomaly	
116B 165	RIDGWAY	Unknown	Anomaly	
116C 017	ANACORTES	Vein Au-Quartz	Unknown	

LEGEND

- Town
- Mineral Occurrence
- Road
- Contour
- River
- NTS map sheet
- Water Body
- Wetland
- Sample Location
- Catchment >16 km²

Stream water pH

- No pH data
- 0.01 - 5.00
- 5.01 - 6.00
- 6.01 - 7.00
- 7.01 - 8.00
- 8.01 - 9.00
- 9.01 - 10.00



1:250 000-scale topographic base data produced by CENTRE FOR TOPOGRAPHIC INFORMATION, NATURAL RESOURCES CANADA

ONE THOUSAND METRE GRID
Universal Transverse Mercator Projection
North American Datum 1983
Zone 7

CONTOUR INTERVAL 100 FEET
Elevations in metres above Mean Sea Level

Stream Water pH
Sheet 15 of 15

SCALE 1:250 000

0 1 2 3 4 5
kilometres

True North
20°48'
1°48'
Magnetic North
Grid North

Use diagram only to obtain numerical values
APPROXIMATE MEAN DECLINATION 2015
FOR CENTRE OF MAP

116F PART OF 116G	116G OGILVIE RIVER	116H HART RIVER
116C THIS MAP	116B THIS MAP	116A LARSEN CREEK
115N PART OF 115O	115O STEWART RIVER	115P MCQUESTEN

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RECOMMENDED CITATION

MACKIE, R., ARNE, D. AND PENNIMPEDE, C., 2016. Stream water pH. In: Enhanced interpretation of stream sediment geochemical data for NTS map sheet 116B & 116C. Yukon Geological Survey, Open File 2016-32, scale 1:250 000, sheet 15 of 15.

Catchment basin polygons generated by the Yukon Geological Survey (J. O. Bruce).

Any revisions or additional geological information known to the user would be welcomed by the Yukon Geological Survey.

Paper copies of this map and the accompanying report may be obtained from the Yukon Geological Survey, Energy, Mines and Resources, Government of Yukon, Room 102-300 Main St., Whitehorse, Yukon, Y1A 2B5. Ph. 867-667-3201, Email geology@gov.yk.ca.

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Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon

Open File 2016-32

Stream Water pH (NTS 116B & 116C)
Sheet 15 of 15

by

Rob Mackie, Dennis Arne,
and Chris Pennimpede