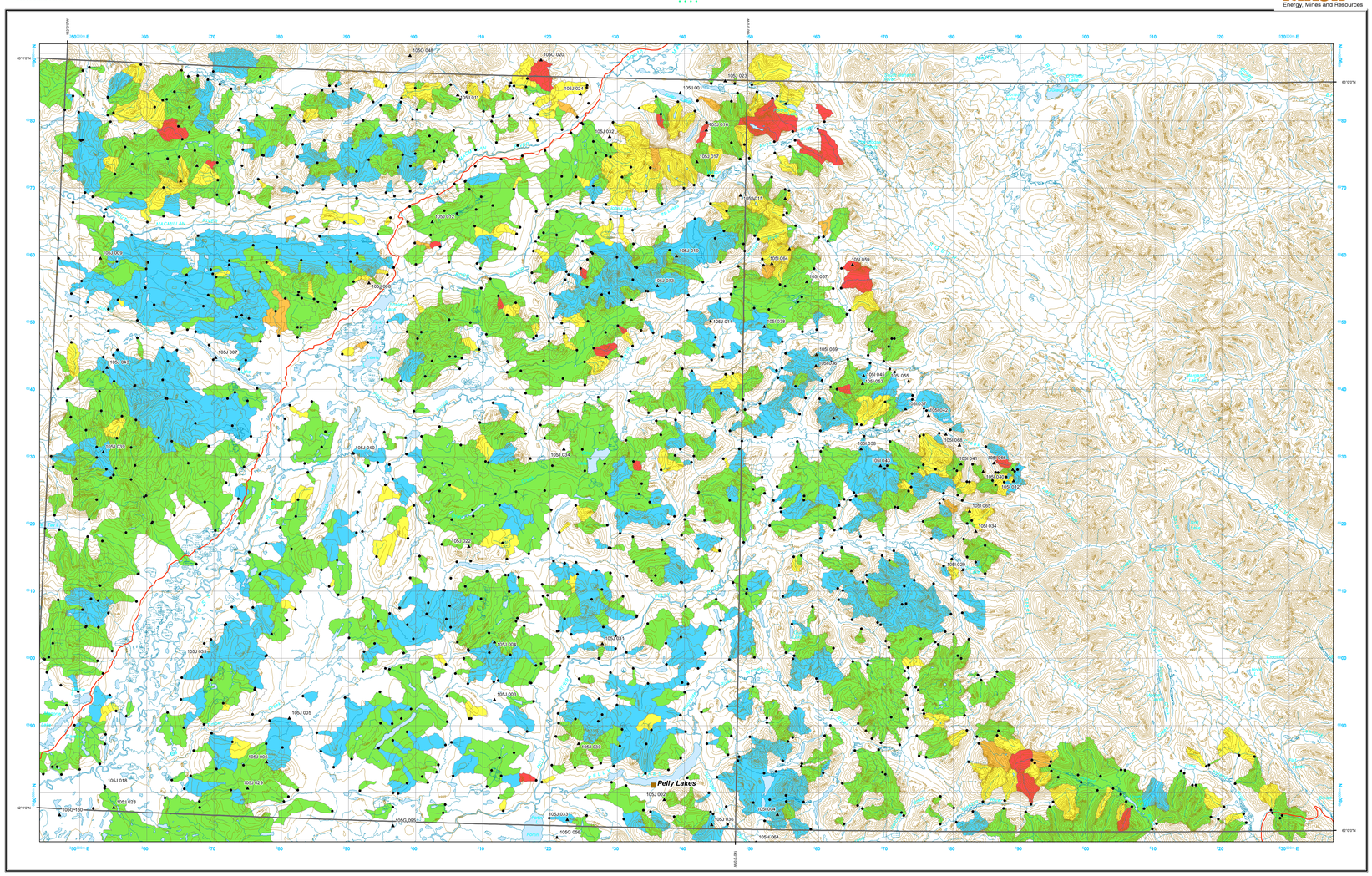

INTRODUCTION

New geochemical data from re-analysis of archived stream sediment samples have been assessed using catchment basin analysis and weighted sums modeling (WSM) 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 Little Nahanni River (105I) and Sheldon Lake (105J) map areas were collected and analyzed in several stages. The Little Nahanni River map area (105I) was sampled at reconnaissance-scale in 1981 (Goodfellow, 1982). Field descriptions and initial geochemical data, including stream water pH, for 984 sites were released by in Geological Survey of Canada ("GSC") Open File 868. Archived sample materials from this survey were re-analyzed in two subsequent projects as outlined by Friske *et al*., (1999) and McCurdy *et al*., (2009). Only samples located within Yukon are included the current assessment. The Sheldon Lake map area (105J) was sampled in 1989 (Hornbrook *et al*., 1990). Field descriptions and initial geochemical data, including stream water pH, for 886 samples were released in GSC Open File 2173. The re-analysis of archive sample materials is described by Friske *et al*., (2008) in GSC Open File 5694 and Yukon Geological Survey ("YGS") Open File 2008-4. The reader is referred to these open files for detailed descriptions of sampling techniques, analytical procedures and quality control measures.

MINERAL OCCURRENCES

A variety of base and precious-metal mineralization deposit types are known to occur in the region as shown in Table 1 (Yukon MINFILE, 2015). Five main deposit types occur within the study area including sedimentary exhalative Pb-Zn (Howards Pass and Anniv deposits), Pb-Zn skarn (Riddell, Hench and Nar prospects), W skarn (Dragon and Clea prospects), Polymetallic Ag-Pb-Zn veins (Norken and Nom prospects), and Cu-Ag veins (Pike Deposit). The Tom and Jason Pb-Zn SEDEX and Mactung W skarn deposits occur in the adjacent map area to the north, further supporting the prospectivity of the region for these types of deposits.

STREAM WATER pH

Comparison of pH data from the two surveys revealed a clear shift in median values indicating the two datasets are not directly comparable. To correct for this apparent background shift the data were levelled using a robust z-score method. The resultant z-score values were then re-scaled to approximate the original range in pH. As shown in Figure 1 the vast majority of the streams samples have water with mildly alkaline compositions (median = 7.8). Sample catchments containing sulphide-rich mineral deposits are not notably acidic suggesting any response related to the oxidation of near-surface sulphide mineralization has been diluted or neutralized. Several streams, some forming geographic clusters, have moderately acidic water (pH <5) which could be related to sulphide mineralization or local increases in hydrolysis reactions associated with weathering of felsic intrusive rocks.

Figure 1: Histogram of stream water pH (survey levelled and scaled)

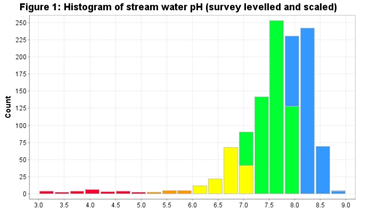

Table 1: List of Mineral Occurrences for NTS map sheet 105I and 105J (Yukon MINFILE, 2015)

Number	Names	Type	Status	Commodities
105I 004	NAR	Skarn Pb-Zn	Drilled Prospect	Copper, Silver, Tungsten
105I 006	CLEA	Skarn W	Drilled Prospect	Copper, Tungsten
105I 007	BIRIN	Skarn Cu	Showing	Barite, Copper
105I 008	NOM	Vein Polymetallic Ag-Pb-ZnsAu	Drilled Prospect	Copper, Silver, Gold
105I 012	XY DEPOSITS	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Deposit	Zinc, Lead
105I 029	SUMMIT	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Anomaly	Lead
105I 032	HP DEPOSIT	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Deposit	Zinc, Lead, Silver, Vanadium, Copper, Cadmium, Nickel
105I 037	ANNIV DEPOSITS	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Deposit	Lead, Zinc, Silver
105I 038	ABBEY	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Drilled Prospect	Lead, Zinc
105I 040	WINKIE	Unknown	Drilled Prospect	Lead, Zinc
105I 041	NESS	Unknown	Anomaly	Lead, Zinc, Nickel
105I 042	GULL	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Anomaly	Copper, Zinc, Lead
105I 043	DIANNE	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Showing	Barite, Copper, Zinc
105I 044	TAM	Sediment hosted Shale-Hosted Ni-Zn-Mo-PGE (NiZn)	Anomaly	Copper, Nickel, Silver, Zinc
105I 053	OP ZONES	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Deposit	Zinc, Lead
105I 064	RICOH	Skarn W	Showing	Copper, Tungsten, Zinc
105J 002	BILL	Vein Polymetallic Ag-Pb-ZnsAu	Showing	Copper, Lead, Zinc, Silver
105J 003	PIKE	Vein Cu±Ag Quartz	Deposit	Silver, Copper, Zinc, Gold, Lead
105J 004	NORKEN	Vein Polymetallic Ag-Pb-ZnsAu	Drilled Prospect	Copper, Zinc, Lead, Silver
105J 006	TAC	Porphyry Mo (Low F-Type)	Anomaly	Copper, Molybdenum
105J 007	DRAGON	Skarn W	Drilled Prospect	Arsenic, Copper, Tungsten, Lead, Silver, Gold
105J 008	MT SHELDON	Unknown	Showing	Arsenic, Gold, Silver, Tungsten, Tin, Tellurium, Bismuth, Copper
105J 009	RIDDELL	Skarn Pb-Zn	Drilled Prospect	Copper, Gold, Silver, Zinc, Lead
105J 010	SPEARHEAD	Vein Polymetallic Ag-Pb-ZnsAu	Showing	Copper, Gold
105J 011	NOR	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Prospect	Copper, Gold, Silver, Zinc
105J 012	ROG	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Drilled Prospect	Zinc
105J 013	CLYDE	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Prospect	Copper, Zinc, Tungsten, Lead
105J 014	PREVOST	Skarn W	Prospect	Tungsten
105J 015	GUN	Skarn Pb-Zn	Showing	Barite, Zinc, Copper
105J 016	ITSI	Manto & Stockwork Sn	Drilled Prospect	Copper, Lead, Tin, Tungsten, Zinc, Silver, Gold
105J 017	COSTIN	Vein Polymetallic Ag-Pb-ZnsAu	Showing	Gold, Zinc, Lead, Silver
105J 018	CAROLYN	Coal	Unknown	Coal
105J 019	VANSCOTE	Skarn Cu	Showing	Copper
105J 022	RICH	Unknown	Anomaly	Barite, Zinc, Copper, Lead
105J 023	PETE	Sediment hosted Stratiform Barite	Drilled Prospect	Barite, Lead, Zinc
105J 024	COCO	Sediment hosted Stratiform Barite	Showing	Barite
105J 025	ST GODARD	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Showing	Barite
105J 029	HENCH	Skarn Pb-Zn	Drilled Prospect	Copper, Silver, Zinc, Lead
105J 030	MARYLOU	Skarn Pb-Zn	Prospect	Copper, Silver, Tungsten, Zinc, Lead, Molybdenum
105J 033	FORTIN	Unknown	Unknown	Gold
105J 035	SASK	Skarn Mo	Showing	Copper, Gold, Lead, Molybdenum, Silver, Zinc
105J 036	GULF	Skarn W	Showing	Copper, Tungsten
105J 038	FLOOD	Epithermal Au-Ag: Low Sulphidation	Anomaly	Gold, Silver
105J 039	WENDY	Vein Au-Quartz	Showing	Arsenic, Gold, Silver
105J 040	NARL	Skarn Pb-Zn	Showing	Copper, Lead, Zinc
105J 043	VG	Vein Au-Quartz	Showing	Gold, Silver
105I 058	RITZ	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Drilled Prospect	
105I 001	FULLER	Unknown	Anomaly	
105I 055	MIKOO	Unknown	Unknown	
105J 034	DYAK	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Anomaly	
105I 002	CANOL	Unknown	Anomaly	
105I 065	CANDY	Unknown	Anomaly	
105I 057	PIMA	Unknown	Unknown	
105I 066	BRODIEL	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Deposit	Zinc, Lead
105I 067	HC DEPOSITS	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Deposit	Zinc, Lead
105I 068	DON DEPOSITS	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Deposit	Zinc, Lead
105I 069	PELLY NORTH	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Deposit	Zinc, Lead
105I 036	ORO	Sediment hosted Stratiform Barite	Drilled Prospect	Barite, Zinc, Lead
105I 045	DORITA	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Anomaly	Copper, Zinc, Lead
105J 031	GREGGIE	Unknown	Anomaly	
105I 035	TULLY	Unknown	Unknown	
105I 005	BIG TIMBER	Unknown	Anomaly	
105J 020	MACRAE	Unknown	Anomaly	
105J 028	ROJO	Unknown	Anomaly	
105I 059	PHEASCO	Skarn W	Anomaly	
105I 034	BLACK GIANT	Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Anomaly	

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RECOMMENDED CITATION

MACKIE, R., ARNE, D. AND PENNIMPEDE, C., 2015. Stream water pH. In: Enhanced interpretation of stream sediment geochemical data for NTS map sheet 105I and 105J. Yukon Geological Survey, Open File 2015-31, scale 1:250 000, sheet 17 of 17.

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.

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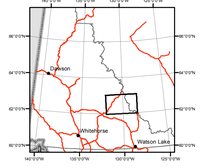
Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon

Open File 2015-31

Stream Water pH (NTS 105I & 105J)
Sheet 17 of 17

by

Rob Mackie, Dennis Arne,
and Chris Pennimpede



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

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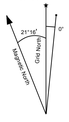
ONE THOUSAND METRE GRID
Universal Transverse Mercator Projection
North American Datum 1983
Zone 9

CONTOUR INTERVAL 100 FEET
Elevations in metres above Mean Sea Level

Stream Water pH
Sheet 17 of 17

SCALE 1:250 000

0 1 2 3 4 5
kilometres



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

105N LANSING RANGE	105O NIDDERY LAKE	105P SEKWI MOUNTAIN
105K TAY RIVER	105J **THIS MAP**	105I **THIS MAP**
105F QUIET LAKE	105G FINLAYSON LAKE	105H FRANCES LAKE