

## 5.41 Pelly Crossing - Firehall Water Supply System

Pelly Crossing is where the North Klondike Highway crosses the Pelly River and is located about midway between Dawson and Whitehorse. The Pelly Crossing Firehall has water supplied the SFN community water system and the summary included here is for information purposes only.

### 5.41.1 Data Compilation Methodology

Tetra Tech approached stakeholders including water system operators and owners to let them know the project was in progress and to request their assistance in compiling the most complete data set possible. Through the process of compiling the data, Tetra Tech has had communication with YG PMD regarding all water systems they operate and/or maintain. YG PMD has provided review comments review comments and data for the compilation.

### 5.41.2 Hydrogeology

Most wells in the Pelly Crossing Village area obtain their water from an unconfined aquifer consisting of floodplain alluvial sand and gravel deposits (Tetra Tech 2006). The log for the Firehall Well 5678 indicates that the well is completed at a depth of 13.7 m within an unconfined sand and gravel aquifer. A thin silt horizon is shown to exist from ground surface to 2.1 m below grade. The well log shows the static water level to be 10.4 m below ground.

The relatively shallow depth of the aquifer combined with the limited presence of fine-grained material leaves this aquifer vulnerable to surficial sources of contamination (Tetra Tech 2006).

The expected direction of groundwater flow is northerly parallel to the Pelly River (Tetra Tech 2006).

### 5.41.3 Well Summary

The well log for Well 5678 included in the GIS map and database portion of this project. The following table summarizes the completion characteristics of the well.

Table 5-105: Pelly Crossing Firehall, Well 5678 Summary		
Well Construction Parameters	Details	Source
Date of construction	The well was constructed by Midnight Sun Drilling Co. Ltd. in September 1988	Well log
Total well depth	13.7 m bgs	
Casing	6" (152 mm) OD Steel Well Casing	
Casing depth	12.5 m bgs	
Well screen	1.2 m 15 slot (0.38 mm) well screen from 12.5 m bgs to 13.7 m bgs	
Static water level	Approximately 10.4 m bgs (September 1988)	
Sanitary seal	No record of sanitary seal installation	Well log and Tetra Tech 2006
Wellhead completion	The wellhead is located in a pit below grade approximately 2.5 m east of the Firehall building	Tetra Tech 2006
Wellhead stickup	0.92 m bgs (measured on August 23, 2005)	
Well rated capacity	0.32 L/s (4.2 IGPM) (estimated by the driller)	Well log
Well GUDI status	Potentially GUDI	Based on well construction and shallow completion
Well Construction Comments:	Well was not constructed to meet Canadian Groundwater Association Well Construction Guidelines.	

#### 5.41.4 Source Water Quality

As part of the SPDWSA review conducted in 2005, Tetra Tech reviewed available groundwater chemistry data and collected an additional sample to test for identified parameters of concern. The observations made in 2005 are summarized below:

- The water quality results indicated that the water from Well 5678 is a calcium-bicarbonate type water with a pH of approximately 8.2;
- The water is considered very hard, with a hardness ranging from 189 mg/L to 209 mg/L;
- The turbidity of the water from Well 5678 ranges from 1.39 NTU to 4.94 NTU. Health Canada recommends that groundwater sources provide water with turbidity less than 1.0 NTU and that water from GUDI sources have appropriate filtration and disinfection. Filtration is expected to achieve a turbidity level of 1.0 NTU for slow sand or diatomaceous earth filtration, 0.3 NTU for conventional direct filtration and 0.1 NTU for membrane filtration in 95% of samples between filter changes or per month with no measurements exceeding 3.0 NTU; and
- The water quality results indicated that the water from Well 5678 meets the GCDWQ for all the parameters analyzed with the exception of total iron and turbidity. The reported total iron concentrations, ranged from

0.3 mg/L to 1.51 mg/L, which are either at or above the GCDWQ AO of 0.3 mg/L. However, the reported dissolved iron concentration was below the laboratory detection limit of 0.030 mg/L, indicating that elevated iron can be attributed to elevated turbidity.

### 5.41.5 Water Treatment and Distribution

**Table 5-106: Pelly Crossing Firehall Water Treatment and Distribution Details**

Item	Details	Source
Owner/Operator	Government of Yukon	Tetra Tech 2006 p.c. Nick Barnett 2017
Water source	Groundwater	
Number of wells serving the system	One (Well 5678)	
Treatment type	None	
Water users	Not in use**	
Delivery method	Not in use**	
Age of system/last known update	Unknown	

\*\*Note: The Firehall now has a connection to the SFN water treatment system, and the water well has been decommissioned (p.c. Michael Fraser 2017).

### 5.41.6 Source Water Protection Planning

There is no source water protection planning in place for the Pelly Crossing Firehall well 5678 and Tetra Tech was not able to obtain any record of a GUDI assessment for this well however, as this system is no longer in use, SWPP or GUDI assessment here would not be warranted.

### 5.41.7 Water Supply Information Data Gaps

YG PMD has reviewed this summary and provided comments. To our knowledge, this system is accurate and up to date as of March 2017. Tetra Tech has not identified any data gaps.