

### 5.38 Pelly Crossing - Eliza van Bibber School Water Supply System

Eliza van Bibber School is located in Pelly Crossing, Yukon on the North Klondike Highway. Pelly Crossing is where the North Klondike Highway crosses the Pelly River and is located about midway between Dawson and Whitehorse. The school water system has water supplied the SFN water system and the summary included here is for information purposes only.

#### 5.38.1 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.

#### 5.38.2 Hydrogeology

The Pelly Crossing area is situated inside the bend of the Pelly River, and most wells in the Village area obtain water from an unconfined aquifer consisting of floodplain alluvial sand and gravel deposits. The relatively shallow depth of the aquifer combined with the absence of a confining material leaves this aquifer vulnerable to surface sources of contamination. The Eliza van Bibber School well is completed at a depth of about 15.2 m bgs in a sand and gravel aquifer and this is consistent with other well logs in the area that no fine-grained soils were observed overlying the aquifer. The static water level in the well was approximately 6.7 m bgs at the time of well completion in 1982. The expected groundwater flow direction in the vicinity of the well is north to northwest (Tetra Tech 2004).

#### 5.38.3 Well Summary

The log for Eliza van Bibber School well is included in the GIS map and database portion of this project. The following table summarizes available data for the water well.

Table 5-99: Eliza van Bibber School, Well 5676 Summary		
Well Construction Parameters	Details	Source
Date of construction	The well was completed by Midnight Sun Drilling Co. Ltd. in August 1982	Well Log
Total well depth	15.2 m bgs	
Casing	6" (152 mm) ID Steel Casing	
Casing depth	14.0 m bgs	
Well screen	1.2 m 15 slot (0.38 mm) well screen from 14.0 m to 15.2 m bgs	
Static water level	6.7 m bgs (August 1982)	
Sanitary seal	Likely no surface seal	Tetra Tech 2006
Wellhead completion	Split gasket cap, located in school mechanical room	
Wellhead stickup	Unknown	

Well Construction Parameters	Details	Source
Well rated capacity	2.2 L/s (29 IGPM) (estimated by the driller)	Well Log
Well GUDI status	Potentially GUDI	Based on well construction
Well Construction Comments:	Well was not constructed to meet the Canadian Groundwater Association Well Construction Guidelines.	

### 5.38.4 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 groundwater source is calcium-bicarbonate type water, has a pH of approximately 8.1 and is considered very hard with a measured hardness of 177 mg/L to 191 mg/L (as CaCO<sub>3</sub>);
- Turbidity in the samples reviewed was as high as 1.0 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;
- The total iron concentration in the samples reviewed ranged from 0.198 mg/L to 0.35 mg/L, which is below or slightly above the GCDWQ AO of 0.3 mg/L;
- The manganese concentration measured ranged from 0.535 mg/L to 0.611 mg/L and is significantly in exceedance of the GCDWQ AO of 0.05 mg/L;
- The water met all other GCDWQ health-based and aesthetic objectives for the parameters tested;
- EPH and PAH were below the laboratory detection limits indicating that the well has not been impacted by hydrocarbons; and
- Review of chloride, nitrate and nitrite showed all three concentrations to be low and within the normal background ranges, suggesting that the aquifer was not under the influence of anthropogenic surface sources of nutrients or anions such as septic wastes at the time of sampling.

### 5.38.5 Water Treatment and Distribution

Item	Details	Source
Owner/Operator	Government of Yukon	Tetra Tech 2006
Water source	Groundwater	p.c. Nick Barnett 2017

<b>Table 5-100: Eliza van Bibber School Water Treatment and Distribution Details</b>		
<b>Item</b>	<b>Details</b>	<b>Source</b>
Wells serving the system	Eliza van Bibber school well	
Treatment type	N/A	
Water users	Not in use**	
Delivery method	Not in use**	
Age of system/last known update	Unknown	

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

### 5.38.6 Source Water Protection Planning

There is no source water protection planning in place for the Eliza van Bibber School Well 5676 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.

### 5.38.7 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 identified the following data gaps Tetra Tech has not identified any data gaps.