

5.12 Burwash Landing Air Terminal Building Water Supply System

The community of Burwash Landing is located on the Alaska Highway at km 1700, approximately 285 km northwest of Whitehorse, in an area known as the Shakwak trench between Kluane Lake and the steep slopes of the Kluane Range mountains. Burwash Landing Air Terminal Building (ATB) is served by a water supply well, Well 3201-C, located about 30 m from the building. The well was completed in November 2006. Water from the Burwash Landing ATB water supply well is used for potable water for the building and is regulated under the *Public Health Act*, General Regulations Sections 18 and 19 (YG *Public Health Act*, 1958/079), which requires safety measures and inspection for water and water sources for systems that provide for human consumption.

5.12.1 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.

5.12.2 Hydrogeology

Burwash Landing is underlain mostly by glaciofluvial sediments with a thin overlying veneer of silt (Rampton 1977). Water wells in the area are typically completed at depths ranging from 45 m bgs to 60 m bgs in a deep sand and gravel aquifer below the permafrost unit.

Based on a review of the well log and well drilling observations, it appears that Well 3201-C is completed in a confined sand a gravel aquifer. Subsurface materials encountered above the aquifer included silt and sand till with trace to some gravel.

5.12.3 Well Summary

A copy of the well log for this well is included in the attached GIS map and database portion of this project and the well completion details are summarized in the following table.

Well Construction Parameters	Details	Source
Date of construction	The well was completed by Double D Drilling Ltd. in November 2005	Tetra Tech 2006b
Total well depth	34.9 m bgs	
Casing	6" (152 mm) ID Steel Well Casing	
Casing depth	33.7 m bgs	
Well screen	1.2 m 60 slot (1.52 mm) stainless steel well screen from 33.7 m bgs to 34.9 m bgs	
Static water level	Flowing artesian (3 IGPM upon completion)	
Sanitary seal	Bentonite surface seal to 6 m bgs	

Well Construction Parameters	Details	Source
Wellhead completion	Well was likely connected in general accordance with the Well Connection Standards for Typical YG Small Public Drinking Water Systems (FSC & Tetra Tech, 2008) except rather than a pitless unit it has a pitless adapter.	
Wellhead stickup	Well was completed with a stick-up of 0.65 m ags, but subsequent well connection work likely resulted in changes to this.	Tetra Tech 2006b
Well rated capacity	1.6 L/s (21 IGPM)	
Well GUDI status	Not assessed	
Well Construction Comments:	Well was constructed to meet the Canadian Groundwater Association Well Construction Guidelines.	

5.12.4 Source Water Quality

As part of the well completion, Tetra Tech collected a water sample near the end of the pumping test and reviewed the water chemistry results and noted the following:

- Water quality met the GCDWQ MAC for health-based parameters analyzed on the date sampled;
- Total manganese was measured at 0.149 mg/L, which exceeded the GCDWQ AO of 0.05 mg/L; and
- From the 2005 water quality results, the water was calcium-bicarbonate type and was considered to be hard to very hard with a measured hardness of 179 mg/L (as CaCO₃).

5.12.5 Water Treatment and Distribution

Item	Details	Source
Owner/Operator	Government of Yukon	
Water source	Groundwater	
Wells serving the system (s)	Well 3201-C	Tetra Tech 2006a p.c. Nick Barnett 2017 p.c. Martin Eckervogt 2017
Treatment type	Sediment filtration on potable water supply	
Water users	Airport workers, flight crews and passengers	
Delivery method	Direct connection to building	Tetra Tech 2006b

Table 5-31: Burwash Landing Air Terminal Building Water Treatment and Distribution Details		
Item	Details	Source
Age of system/last known update	New well was completed in 2006. Well connection completion planning and decommissioning of well 3201-B was completed in spring 2006.	

5.12.6 Source Water Protection Planning

No SWPP is in place for the Burwash Landing ATB well. Potential sources of contamination to the Burwash Landing ATB Well 3201-C have not been identified. Potential sources of contamination were identified in the vicinity of Well 3201-A during the site review in 2005 and the new well was located to minimize potential for contamination from these sources.

5.12.7 Water Supply Information Data Gaps

YG PMD has reviewed this summary and provided comments. To our knowledge, this system summary includes all available data and is accurate and up to date as of March 2017. Tetra Tech identified the following data gaps:

- There is no source water protection planning for this groundwater resource; and
- YG PMD did not provide a record or confirmation of the decommissioning of Well 3201-A, and Tetra Tech understands as of March 2016 this well had not yet been decommissioned.