



# REGIONAL DISTRICT NORTH OKANAGAN

## Silver Star Water (SSW) Water Quality Report for December 2022

The following is the water quality summary for the Silver Star Water (SSW) Utility.

### 1. Sources

Not all of Silver Star's water sources are utilized year round; the system is constructed so that the sources can be brought on line based on demand. As Silver Star is primarily a winter resort, the highest water demands occur from November to March. SSW has nine water sources used for domestic use: Well 1, Well 2, Well 3, Well 4, Well 5, Well 10, Well 12, Paradise Reservoir and Vance Reservoir.

The surface water sources, Paradise and Vance Reservoirs, are metered in the Mid T water treatment plant as one volume; it is not possible to separate the volumes of each reservoir. Vance Reservoir was brought online on November 7, 2022.

Table 1 summarizes the results of the raw water entering the treatment process. This is a blend of sources depending on demands in the system. This results in data variation throughout the year. Table 2 summarizes the results for the untreated water of the wells. Table 3 summarizes the results for the untreated water from Vance Reservoir. Wells 4 and 10 have not been used this season. Well 12 was brought online July 7, 2022. Well 5 was brought online on November 8, 2022.

**Table 1 Mid T Raw Water Monitoring**

Parameter	Laboratory		# of Samples	# of Deviations <sup>1</sup>	Min	Max	Average
E.coli	Caro	MPN/100 mL	4	-----	<1	<1	<1
Total Coliform	Caro	MPN/100 mL	4	-----	<1	<1	<1
Turbidity	Grab sample	NTU	21	-----	0.19	0.52	0.31
Turbidity	SCADA <sup>2</sup> Daily Average	NTU	31	-----	0.14	0.34	0.18

<sup>1</sup>SSW WQ Deviation Response Plan – Free Chlorine <0.20 mg/L Turbidity >1.0 NTU

<sup>2</sup>SCADA: Supervisory Control and Data Acquisition.

**Table 2 Mid T Raw Water Monitoring – Wells**

Parameter	Laboratory		# of Samples	# of Deviations <sup>1</sup>	Min	Max	Average
Turbidity	SCADA <sup>2</sup> Daily Average	NTU	31	-----	0.32	1.35	0.59

<sup>1</sup>SSW WQ Deviation Response Plan – Free Chlorine <0.20 mg/L Turbidity >1.0 NTU

<sup>2</sup>SCADA: Supervisory Control and Data Acquisition.

**Table 3 Mid T Raw Water Monitoring – Surface Sources**

Parameter	Laboratory		# of Samples	# of Deviations <sup>1</sup>	Min	Max	Average
E.coli	Caro	MPN/100 mL	4	-----	<1	<1	<1
Total Coliform	Caro	MPN/100 mL	4	-----	<1	<1	<1
Turbidity	Grab sample	NTU	4	-----	0.30	0.44	0.39
Turbidity	SCADA <sup>2</sup> Daily Average	NTU	31	-----	0.14	0.34	0.26
UVT - Unfiltered	RDNO Lab	%	4	-----	96.4	100	97.55

<sup>1</sup>SSW WQ Deviation Response Plan – Free Chlorine <0.20 mg/L Turbidity >1.0 NTU

<sup>2</sup>SCADA: Supervisory Control and Data Acquisition.

## 2. Treatment Plant

SSW has a treatment plant, the Mid T Water Treatment Plant (MTWTP). The MTWTP uses a dual disinfection process of Ultra-violet (UV) disinfection and chlorine. Chlorine is added after UV treatment to ensure contact time for the removal of viruses. Tables 4, 5 and 6 summarize the results for chlorine, bacterial, turbidity, calculated contact time, and UV transmittance (UVT).

**Table 4 Mid T Water Treatment Plant**

Parameter	Laboratory		# of Samples	# of Deviations <sup>1</sup>	Min	Max	Average
Free Chlorine	SCADA <sup>2</sup> Daily Average	mg/L	31	-----	1.49	1.66	1.56
Free Chlorine	Grab sample	mg/L	8	-----	1.51	1.84	1.64
Total Chlorine	Grab sample	mg/L	8	-----	1.60	1.93	1.72
E.coli	Caro	CFU/100 mL	7	-----	<1	<1	<1
Total Coliform	Caro	CFU/100 mL	7	-----	<1	<1	<1
Turbidity	SCADA <sup>2</sup> Daily Average	NTU	31	-----	0.15	0.19	0.17
Turbidity	Grab sample	NTU	8	-----	0.17	0.37	0.26

<sup>1</sup>SSW WQ Deviation Response Plan – Free Chlorine <0.20 mg/L Turbidity >1.0 NTU

<sup>2</sup>SCADA: Supervisory Control and Data Acquisition.

**Table 5 Contact Time (CT)**

Parameter	Days Monitored	Min	Max	Average
Days 99.9% achieved	22	100%	100%	100%

99.9% is 3-log removal for Giardia

**Table 6 Ultra-violet (UV) Disinfection**

Parameter	Laboratory	Days Monitored	Min	Max	Average
UVT	SCADA <sup>1</sup> Daily Average	31	91%	98%	97%

<sup>1</sup>SCADA: Supervisory Control and Data Acquisition.

### 3. Distribution

Table 7 summarizes the results for chlorine, turbidity and bacterial for the distribution system from the following sites: Pinnacles, Grandview, Firehall, and Maintenance Building. The monthly water volume used at Silver Star was 16,044 m<sup>3</sup>.

**Table 7 Distribution**

Parameter	Laboratory		# of Samples	# of Deviations <sup>1</sup>	Min	Max	Average
Free Chlorine	Grab sample	mg/L	52	-----	0.64	1.58	1.41
Total Chlorine	Grab sample	mg/L	52	-----	0.71	1.69	1.49
E.coli	Caro	CFU/100 mL	16 <sup>2</sup>	-----	<1	<1	<1
Total Coliform	Caro	CFU/100 mL	16 <sup>2</sup>	-----	<1	<1	<1
Turbidity	Grab sample	NTU	52	-----	0.11	0.55	0.24

<sup>1</sup>SSW WQ Deviation Response Plan – Free Chlorine <0.20 mg/L Turbidity >1.0 NTU

<sup>2</sup>Treatment Plant bacterial samples are included in the required monthly bacterial sampling amounts as per Drinking Water Protection Regulations Schedule B.

### 4. Customer Calls and Notifications

Customer calls within the Silver Star Water Utility service area are tracked and recorded. There were no customer calls this month.

**5. Operational or Maintenance Activity**

Operational activities within the Silver Star Water service area are tracked and recorded. There were no distribution operational activities this month.