

# Parker Road Well Monitoring Update

August 8, 2019

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# Agenda

- Background information
- Analysis of Hydrogeological Data
- Operating Guidelines for RDN Parker Road Well
- Well Monitoring Program
- Discussion

# Objective of Well Monitoring & Analysis

1. Develop operating guidelines to ensure sustainable operation of RDN well on Parker Road.
2. Monitor performance of representative wells in the area to ensure objective is met.

# Background Review

1. Parker Road Well drilled in 2005, transferred to RDN in 2015.
2. RDN (with hydrogeologist lead) instituted a monitoring program in 2015, prior to bringing the well into operation in 2017, The program included 9 bedrock wells, 7 overburden wells, and 3 surface water sources.
3. One year report completed by hydrogeologist in 2016, indicating an acceptable safe yield of 75 usgallon/minute.
4. Well brought into operation in 2017, and again in 2018. Well taken out of operation in July 2018 pending further hydrogeologist review of the monitoring program and the creation of an “operating guideline” for sustainable operation of the well.

# Latest Monitoring Data



Adobe Acrobat  
Document





# Analysis of Hydrogeological Data

Detailed hydrogeological analysis of data from area wells indicates:

- No hydraulic connection between the bedrock and the overburden aquifers
- Within the bedrock aquifer, there is obvious hydraulic connection among Wells B2, B3, B4, B7, B9 and Parker Road Well. Wells B2 and B3 are Parker Road's closest neighbours. Wells B7 and B9 are downstream and closer to the ocean. Well B5 does not appear hydraulically connected to this group of wells.
- Very low water levels in **any** of the connected wells could promote saltwater intrusion into the aquifer.



# Operating Guidelines for Parker Road Well

To mitigate the potential for saltwater intrusion into the aquifer, hydrogeologist analysis of the data relative to the operation of the Parker Road Well suggests that:

- The Parker Road Well not be operated with a well level below a certain point or “Minimum Pumping Level” (MPL).
- It is suggested that the MPL be initially established at -5m. This number was calculated based on the provincial standard for Safe Available Drawdown (SAD) and considered all the neighbouring wells.

# Operating Guidelines for Parker Road Well

This will require a change in operating procedures for the Parker Road Well.

Current operating procedure:

Pump switched ON or OFF based on reservoir level, with constant flow rate while pumping. This is the normal procedure for most wells.

New operating procedure:

Pump ON continuously, with flow variable based on well level. As the well level decreases, the flow will be decreased to avoid going below the MPL. The maximum flow will be initially be set to 50% of the long-term capacity rating for the well or 38 usgallon/minute. (0.162 m<sup>3</sup>/minute)

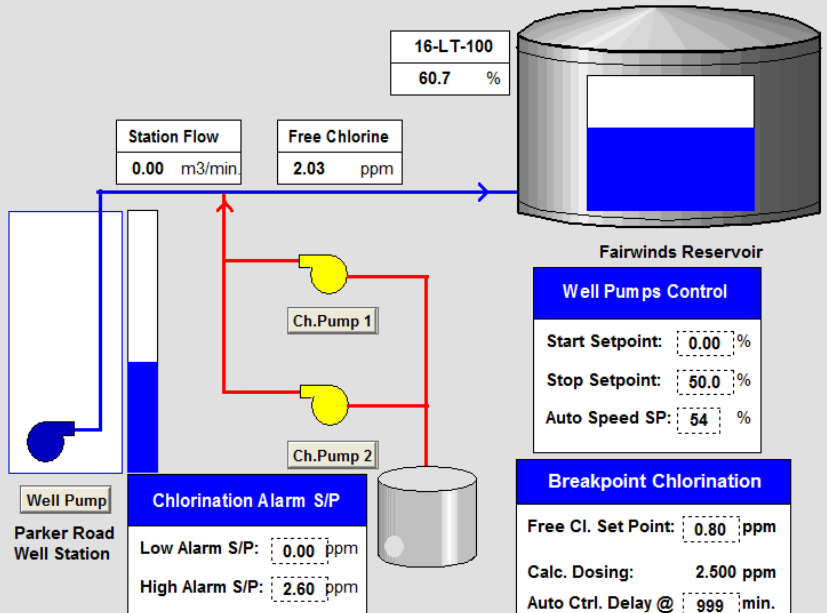


# Parker Road Well Station Water Supply System

Login    Logout

User: HDORKEN

Home



### Well Pumps Control

Start Setpoint:  %  
 Stop Setpoint:  %  
 Auto Speed SP:  %

### Breakpoint Chlorination

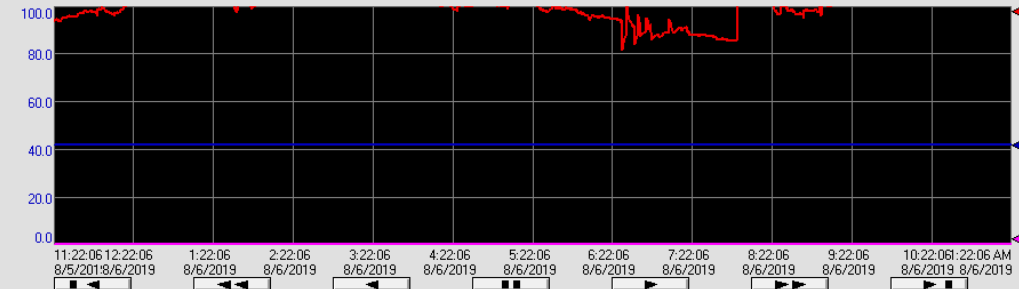
Free Cl. Set Point:  ppm  
 Calc. Dosing:  ppm  
 Auto Ctrl. Delay @ Startup:  min.  
 Ctrl. Scan Time:  min.

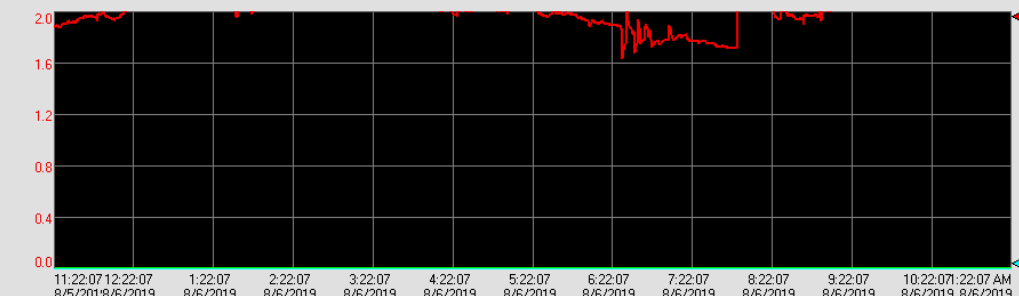
Manual Dosing:  ppm

Description	Running Hours	Number of Starts
Well Pump	4335	942
Chlorination Pump #1	2446	892
Chlorination Pump #2	892	2250

Description	Current (m3/min.)	Total (m3)	Period (m3)
Station Out-Flow	0.00	446686	446686



Caption	11:22:06 AM	Min	Max	Units
Well Level	42.3	0.0	100.0	%
Station Out Flow	0.0	0.0	1.0	
Residual Chlorine Value	2.0	0.0	2.0	mg/L
Well Pump Speed Feedback	0.0	0.0	100.0	%



Caption	11:22:07 AM	Min	Max	Units
Residual Chlorine Value	2.0	0.0	2.0	mg/L
Station Out Flow	0.0	0.0	1.0	
Chlorination Pump 1 Speed Feedback	0.0	0.0	100.0	%
Chlorination Pump 2 Speed Feedback	0.0	0.0	100.0	%

Alarms: 7/24/2019 8:01:32 AM Nano... Alarm\_Alarm\_Sys1\_Alarm\_02 TRIP 11-XS-111: Fairwinds Well #1 Pump F.

**11:22:07 AM  
Tuesday, August 6, 2019**

# Monitoring Program for Parker Road Well

The monitoring program will continue to ensure this approach is working effectively, and to trigger adjustments to the MPL and/or maximum flow at the Parker Road well. The ongoing monitoring program will include the following private wells:

1. Monthly monitoring of levels and Electrical Conductivity (EC) in Wells B2, B3, B7, and B9 from May to September (dry season).
2. Quarterly monitoring of parameters in 1. from October to April (wet season)
3. Semi-annual monitoring of levels and EC in Well B4.
4. No further monitoring in Well B5, or Wells O1, O2, O4, O5, O6.
5. Semi-annual monitoring of Well O3. (Adjacent well in underlying overburden aquifer)
6. Semi-annual monitoring of Well O7. (Part of area-wide baseline monitoring, not Parker Road specific)

# Discussion

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