Huber Technology Inc.
Q-Press 280 Pilot Test

Scarborough WWTP
415 Black Point Rd
Scarborough, ME 04074

Test Date: October 19, 2020 - October 23, 2020

Attendants	Position	Association
Nick Hall	Technician	Huber Technology, Inc.

HUBER Technology, Inc.
1009 Airlie Parkway, Denver, NC 28037
(704) 949-1010 - Fax (704) 949-1020 - huber@hhusa.net
www.huber-technology.com
A member of the HUBER Group

1. Facility Specifications and Requirements

Table 1 Facility Details

Scarborough WWTP	
Sludge Type	Blended Primary/Secondary
Waste Sludge Flow	12,000 gpd, 5 day/wk
Solid Content	1.03 - 3.81

2. Pilot Test Results

Table 2 represents the schedule which was followed throughout the testing period.

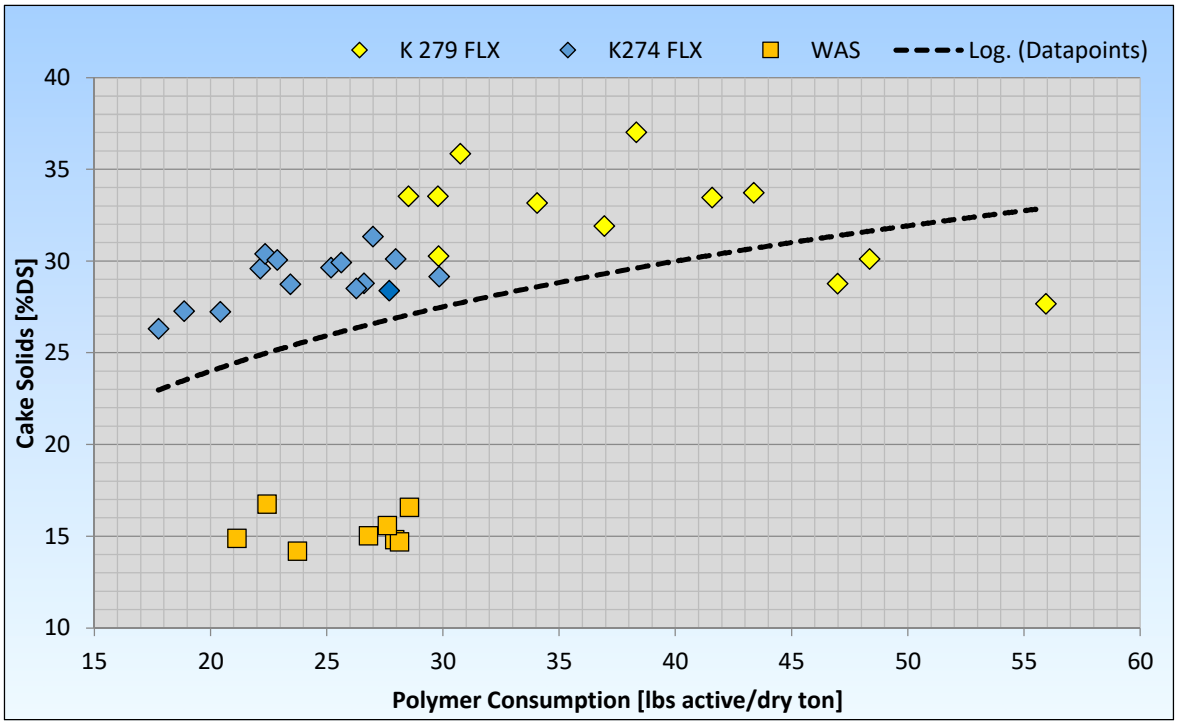
Table 2 Pilot Test Schedule

Day	Test Runs	Sludge Type	Polymers Used
Monday	Arrival/Setup	N/A	N/A
Tuesday	1 to 12	Blended Primary/Secondary	K 279 FLX
Wednesday	13 to 27	Blended Primary/Secondary	K274 FLX
Thursday	28 to 35	Waste Activated Sludge	K274 FLX
Friday	Cleanup/Departure	N/A	N/A

2.1 Polymer Dosing Effect on Cake Solids

The screw press was operated with one polymer and multiple dosing rates ranging from 18-56 lbs active/dry ton. Figure 1 illustrates the effect that the polymer dosing had on the cake solids.

Figure 1 Polymer Dosing Effect on Cake Solids



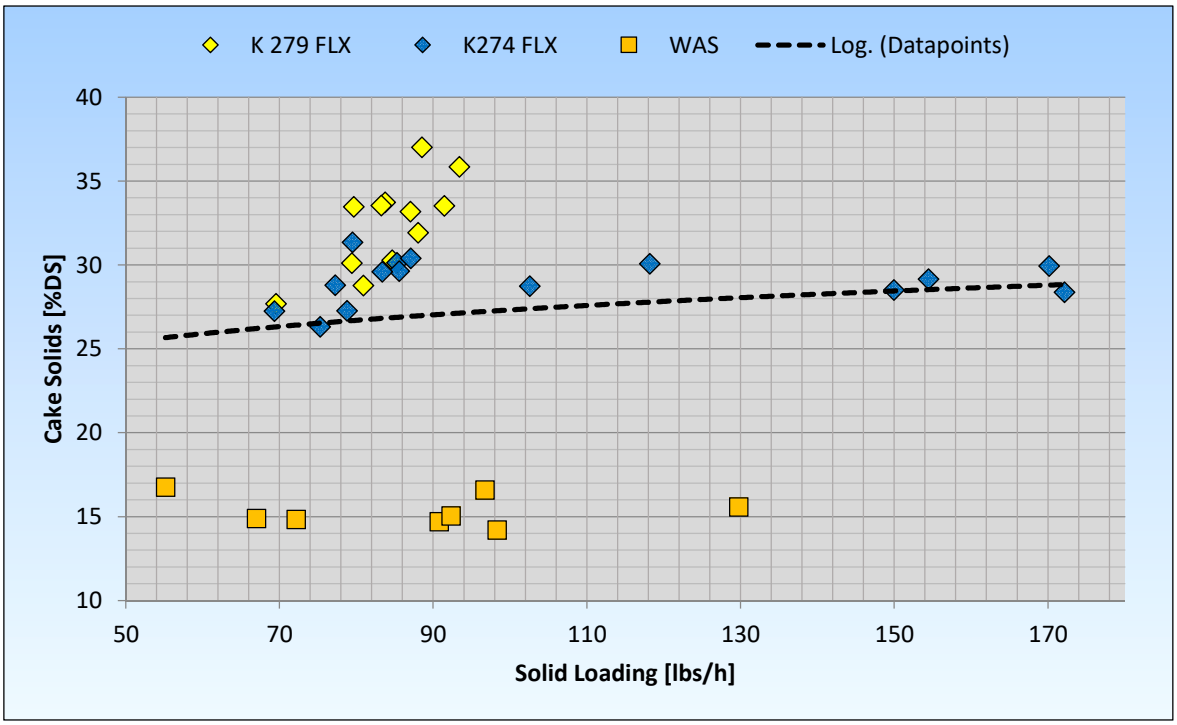
The cake solids were consistent between 14.2% to 37% when using a polymer consumption of 18-56 lbs active/dry ton. The dry solid content is increasing with the increase of polymer consumption.

2.2 Solid and Hydraulic Loading Effect on Cake Solids

The screw press was operated using sludge with an inlet solid content of 1.0% and 3.8% DS. The sludge flow rate was set between 4.1 and 20.1 GPM resulting in a maximum solid loading of 172 lbs/hr.

The solid loading certainly affects the performance of the screw press and there is always an optimum loading for a certain set of parameters. Figure 2 shows that the median cake solids achievable with these parameters was 29.2 % DS.

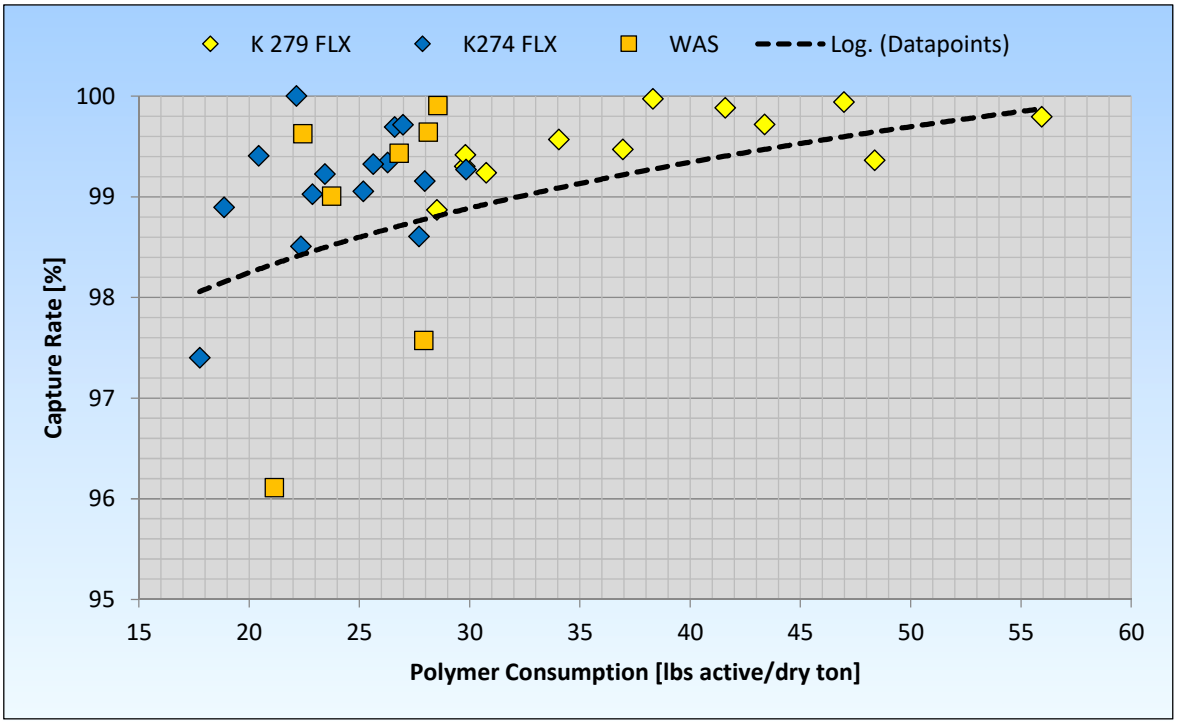
Figure 2 Solid Loading Effect on Cake Solids



2.3 Capture Rate

The median capture rate was 99.3% throughout the pilot demonstration. The capture rate is influenced heavily by the polymer consumption which may be seen in the figure below.

Figure 3 Polymer Consumption and Capture Rate



As shown in Figure 3, the capture rate stayed consistent with increasing polymer consumption. The first few data points show a lower capture rate which is typical during the initial press setup. Once the optimal settings are determined, consistently high results can be expected.

3. Conclusion

The pilot test proved the capability of the Huber screw press to dewater the sludge at the Scarborough WWTP. The screw press is able to handle the sludge and produce cake with up to 37.0% DS.

Table 3 Sludge Test Conclusion

Sludge Parameters	Best Result (Blended Sludge)	Best Result (Waste Activated Sludge)
Flow Rate (GPM)	4.7	17.9
Solid Loading (lbs/hr) at % Feed Solid	87 at 3.70%	97 at 1.08%
Polymer Consumption (lbs. active / dry ton	34.0	28.6
Polymer	K 279 FLX	K274 FLX
Cake Produced (% DS)	33.2%	16.6%
Capture Rate (%)	99.6%	99.9%

For the Blended Primary/Secondary sludge, cake can be expected in the range of 28.8%-32.5% with a filtrate which is clear and almost without any solids during dewatering mode when using between 24.3 and 35.5 lbs. active / dry ton of the K274 FLX polymer. The median capture rate was 99.3% throughout the blended sludge portion of the pilot demonstration.

For the waste activated sludge, cake can be expected in the range of 14.8%-15.8% with a filtrate which is clear and almost without any solids during dewatering mode when using between 23.4 and 28 lbs. active / dry ton of the K274 FLX polymer. The median capture rate was 99.2% throughout the waste activated sludge portion of the pilot demonstration.

We here at Huber Technology would like to extend our gratitude to everyone who participated in the safe and successful Q-Press 280 pilot tests this week at the wastewater treatment plant in Scarborough, ME. We enjoyed the opportunity to present Huber Technology's capabilities of helping your facility operate at a more sustainable and efficient level of dewatering. Huber Technology looks forward to providing your facility highly reliable products in the future.

Appendices

Appendix A – Q-Press 280 Pilot Test Photos

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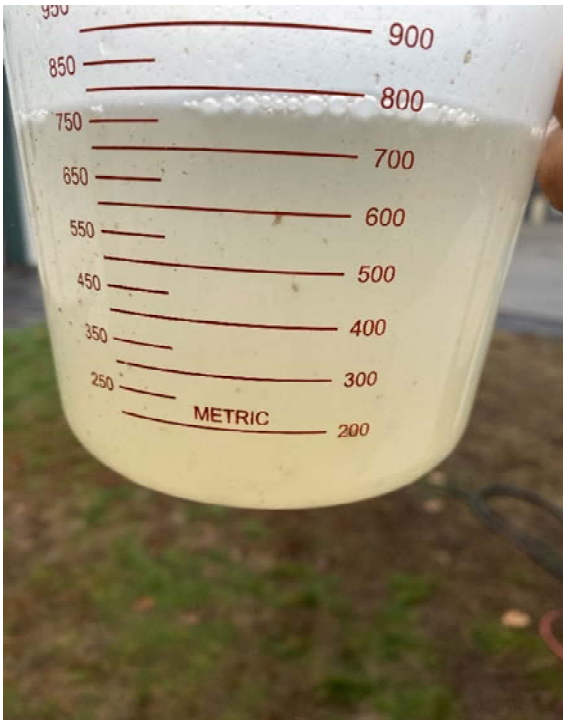
Pilot Cake



Pilot Filtrate

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