

Meeting with MEDEP via Zoom

March 18, 2021

MEDEP

Greg Wood
Cindy Dione
Angela Brewer
Rob Mohlar

KSD

Mike Bolduc
Ty Morin
Chris Gallant
Mark Allenwood
Valerie Giguere
Steve Clifton

MEDEP Analysis of the Mousam and KSD Discharge

In 2017, MEDEP conducted an instream sampling and analysis in the estuary portion of the Mousam River. Samples were collected using 4 Sonde units placed in various locations above and below the district's discharge.

- The discharge from the WWTP was about 20mg/l of Total Nitrogen (TN).
- The MEDEP's threshold value for TN in the river is 0.45mg/l TN
- Sampling done upstream of the discharge was at 0.44mg/l TN
- TN levels measured in stream at a location approximately 1.0 mile downstream were 0.7mg/l TN.
- There has been a discussion within MEDEP as to what is causing these elevated levels of TN.
- KSD is a contributing factor in the elevated levels but it is possible that it is caused by other, unknown activity in the river. It was noted that MEDEP has observed elevated levels of TN in other estuaries and the Royal River in Falmouth was sited.
- Without more studies and evaluation of the estuary, it is not possible to attribute naturally occurring or other nonpoint sources of TN from the known contribution from the WWTF.
- Applying a standard mathematical to the KSD discharge and the dilution factors in the Mousam to our licensed permit levels would yield a TN limit below 3.0mg/l. Limits of technology for TN removal is 3.0mg/l.

MEDEP Position

- According to Greg Wood, if the license needed to be established immediately based on known conditions, the limit for TN would be 3.0mg/l.

- MEDEP is not comfortable issuing a license that restrictive without more rounds of sampling to understand the dynamics of the estuary. The issue is that an expensive nitrogen removal WWTF may not significantly improve the TN levels in the river. They would be arguing for more studies over as much as two years.
- MEDEP is looking at a seasonal TN limit from April through October.

KSD's position

- The existing biological treatment units, Rotating Biological Contactors (RBCs), will not be able to remove TN to levels needed for the permit.
- The existing RBCs were installed in 1985. At the time, limits on TN were not an issue.
- The estimated life for the RBCs is 30 years placing the units at 6 years beyond their useful life expectancy.
- The media on the RBCs should be replaced. Cost estimates in 2017 were \$1.0 M for the media not including installation.
- Design and construction of new biological units are expected to take 4 years. If design were to begin at the end of 2021, the RBCs will be 40 years old at replacement.
- Modifications that will allow the RBCs to reach TN removal to 3.0mg/l or 8.0mg/l are not possible.

March 18, 2021 Kennebunk Nitrogen Mtg.

Attendees: Mike Bolduc, Chris Gallant, (another KSD employee I couldn't identify), Steve Clifton, Mark Allenwood, Gregg Wood, Angela Brewer, Rob Mohlar, Valerie Giguere, Cindy Dionne

Discussion of previous meeting details

2017 June to September sampling from approximately 1 mile downstream of Kennebunk facility (dilution equal to approximately 100:1) discharge showed elevated chlorophyll A levels as well as high suspended solids, and an average nitrogen concentration of 0.72 mg/L. The background nitrogen concentration at the Kennebunk discharge is 0.44 mg/L. The Kennebunk nitrogen concentration contribution is approximately 20 mg/L.

The Department presents information that shows the projected nitrogen contribution to the estuary system at different effluent concentrations based off of potential upgrades to the facility. Effect in the mid estuary is around the 0.45 nitrogen threshold for dissolved oxygen impacts if the facility discharge is 3 mg/L. However, chemical and biological responses in the mid estuary are undetermined at different effluent concentrations.

The Department has only one season of data and finds it challenging to make an assumption about the extent of treatment that is needed at this time. Gregg asks Steve if possible to engineer a "scaled" facility which can start treating to 8 mg/L and brought to 3 mg/L if necessary. Steve thinks it is possible. Discussion of grants from the DEP Engineering group that may be available in the coming months, but they would already need to be ready to go at that point.

Discussion of potential for more data collection by Kennebunk. Angie would like to see 4 sites in the estuary monitored from May-October for two years (sonde with DO, chlor A, TSS and grab nutrients) at each site. Mike Bolduc mentions need to begin engineering/planning for plant replacement/upgrade asap, two years is too long for them.

Discussion of potential for seasonal limits (May through October), the Department is open to discussing that, but not necessarily annual rolling average limits.

Mike puts forward a later meeting so that he can meet with his Board and discuss this meeting and the Department agrees to schedule an April meeting once Mike is ready.

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March 30, 2021

MEDEP

Gregg Wood
Cindy Dionne

KSD

Mike Bolduc
Ty Morin
Chris Gallant

MEDEP Analysis of the Mousam and KSD Discharge

Staff initiated the meeting to try to further understand what the position of the MEDEP. After this meeting, it is clear that the MEDEP will be looking at a license of 3.0mg/l TN for the discharge limit. Gregg Wood did suggest that a license limit of 3mg/l could be part of a consent agreement that would allow the District to build something in the interim, but a 3 limit will eventually be the result.

During the conversation, we were focusing trying to get to 8 in the near term and 3 down the road. I think MEDEP, but it would require a consent agreement. For instance, we could construct a process for 8 and monitor it post construction, it would likely show that it would not be enough and they would develop site specific license criteria to let us get to 3. It seems they don't have the authority to write a consent agreement beyond five years. So, it would be an 8 and monitor, followed by a timetable for a 3 in the next 5-year license.

The question then becomes is it cheaper to build a 3 now or 2 step construction to get to 8 then 3.

Meeting with MEDEP via Zoom

May 19, 2021

MEDEP

Gregg Wood
Cindy Dionne
Angela Brewer
Rob Mohlar

KSD

Mike Bolduc
Mark Allenwood
Ty Morin
Chris Gallant

MEDEP Analysis of the Mousam and KSD Discharge

Instream Sampling

Cindy Dionne had met with Angela Brewer and Rob Mohlar to review the receiving water sampling. MEDEP is asking the District to monitor and maintain the Sonde monitoring units Rob mentioned that he has secured sites with private docks that can be used for monitoring stations. The District would simply need to keep the units from fouling with sediment and algae growth. Sampling would begin in May – October of 2022 and would include discreet sampling to be done by the MEDEP on various tidal conditions. Angela also mentioned that they would be doing a limited amount of sampling this summer. They are also going to be sampling either the York or Kennebunk River as a comparison or benchmark. Angela was in hopes of using the Kennebunk River.



Sonde Instream Unit

Permitting

Cindy mentioned that the number of aquaculture permits have caused a delay on non-critical permits, like municipal permits, for as long as a year. The District and the MEDEP are agreeable to continued operation under the current permit provided the District provides a timely Permit application. Timely meaning prior to the expiration of the existing permit. This option seems to be the best for both the District and the MEDEP.

District's Improvement Plan

Cindy did inquire about the District's plans for upgrades. Mike said that the District is pursuing a three-part plan:

1. Replacing the failing RBCs as soon as practical
 - a. Construction of an activated sludge process that will be capable of future nitrogen removal
2. Finalizing the MEPDES permit process with the MEDEP and submitting an application
3. Modifying the District Charter to increase the debt limit

Mike agreed to share the schedule for these tasks with Cindy after approval from the KSD BOT.