
Joint Ashbridges Bay Treatment Plant Neighbourhood Liaison Committee (NLC) and Implementation, Compliance & Monitoring Committee (ICMC)

Meeting 2017

Date: Wednesday, June 21, 2017, 6:30 - 8:00 p.m.

Location: Mennonite New Life Centre, 1774 Queen Street East (east of Kingston Road)

Participants:

Toronto Water (Frank Quarisa, Scott Wilton and Vlad Petran), and Engineering and Construction Services (Justyna Teper),

Public Consultation (Mae Lee and Helena Najm - Note Taker),

Hatch/CH2M (Gary Kramer), AECOM (Jean Yves Urbain and Alan Winter),

Chairs (Karen Buck, Karen Shinn), Lake Ontario Water Keepers (Matt Flowers), Bob Kortright

1. Welcome and Introductions

Mae Lee introduced the event and the facilities, emergency exits, and the meeting agenda. She then introduced the Chairs of the committee.

Everyone in attendance introduced themselves.

Justyna Teper delivered a presentation to recap the current state of UV Disinfection and Outfall projects at the Ashbridges Bay Treatment Plant (ABTP), and to bring up information from past committee meetings.

2. Information of Disinfection project status

- AECOM

Jean Yves Urbain presented AECOM's approach to build the ABTP UV Disinfection Facility while implementing Federal, provincial and City regulations, guidelines and recommendations.

The proposed changes are both aesthetic and structural, taking green space and exterior design into account while introducing UV disinfection equipment, which will inactivate harmful pathogens such as E.coli. There will also be measures taken to ensure that the facility is more energy efficient, such as heat recovery and VFDs for fans and pumps (to replace flat-out power).

One major consideration raised was that of the plant's size - it will be the second largest in the world, which requires the input of companies that are experienced in building equipment for

facilities of this scale. This led to the pre-selection of Trojan UV, which was determined to be suitable for this application and was the most energy-efficient of the considered equipment.

With regards to the timeline, the detailed design is complete and the tender will begin in the following months, so the project is on schedule.

Bob Kortright asked why the process would bypass after two hours, and **Jean Yves** responded that passing too much water would flush the secondary treatment tanks, pushing all the biomass to the lake. This is not a limitation of the UV system, rather a hydraulic capacity related issue.

Bob Kortright then asked about the 3,200 MLD flow, which **Frank Quarisa** confirmed was the maximum that would pass through the treatment plant.

Karen Buck asked about the regulations that **Jean Yves Urbain** mentioned, which he clarified was based on a federally-regulated provision for de-chlorination, which is now mandated. The environmental certificate of approval needs to be issued by respecting those guidelines.

Karen Shinn requested more clarification about the de-chlorination process, and **Frank Quarisa** specified that the UV system pilots from the 2000s concluded that chlorination and de-chlorination systems need to be implemented as a two-step backup process to support the UV system.

Karen Shinn then required further clarification about the status of the plant as a secondary treatment system beyond the 818 MLD threshold for dry weather flow, which **Frank Quarisa** responded that this is still the rated capacity of the plant and there is no need for expansion.

Karen Shinn was concerned about the entire plant's capacity, but **Frank Quarisa** specified that the plant currently receives 550 MLD per day on average and is built to process an average daily flow of 818 MLD. Once the incoming flow increases over 2,000 MLD/2 hour rate, the bypass of the secondary treatment process is initiated. What gets discharged to the lake during wet weather events is a mix of UV disinfected secondary effluent and chlorinated/dechlorinated primary treated effluent.

Karen Buck mentioned other plants with UV treatment of primary treatment effluent. She asked whether cost concerns were responsible for the choice of a chlorination/de-chlorination system as opposed to the primarily UV system, which **Frank Quarisa** assured would do a reliable job on secondary effluent flows, but not on primary or bypass flows. He also confirmed that no chlorine would end up in the lake, because of the de-chlorination that the bypass flows undergo.

Karen Shinn's next concern was whether sewer separation could be possible, since sewage and rainwater are mixed in at capacity, but **Frank Quarisa** pointed out the cost and structural limitations imposed by the City's aging infrastructure. The combined sewer system cannot be replaced without significant costs, however the City is considering such separation when replacing the combined sewers is warranted.

Karen Shinn evoke the City's expanding nature, both in surface sprawl and underground. She wanted the sewage pathways to mimic the vast amount of construction that is happening underground, since there is an opportunity to expand underground storm water facilities. **Mae**

Lee assured **Karen Shinn** that while her concern was valid, Toronto Water has budgetary and structural limitations.

Karen Buck asked about the status of the satellite treatment project, which **Frank Quarisa** explained that will be a standalone facility that will be built south of the ABTP on a Landform, which will be built in conjunction with TRCA. The satellite treatment process is high-rate and will be operated independently of the ABTP during wet weather events. It is estimated that the satellite treatment plant will be completed in approximately 10 years.

Karen Buck asked whether the effluent created by the satellite could accommodate UV purification, but **Frank Quarisa** answered that the high-rate treatment facility design did not start, and that consultants will be selected to work on those questions.

3. Information of Outfall project status
 - Hatch/CH2M

Gary Kramer presented a progress report on the outfall project. The current outfall pipe has insufficient capacity and does not meet regulatory standards. The recommended alternative builds upon the 1986 concept, which has 3 internal tunnels, and will optimize it for the new facility. To meet new provincial water quality guidelines, the discharge location is now much further from the shore and the diffuser is redesigned. The system is gravity-fed as opposed to power-dependent, making it more reliable. The proposed shaft is sized to accommodate the construction process, which uses a tunnel boring machine (similar to the subway-building process).

Karen Buck asked about the effluent leaving the plant meeting the ECA guidelines for effluent quality, and if at the edge of the mixing zone meets the Provincial Water Quality Objectives. **Frank Quarisa** assured that the Ashbridges Bay TP meets the Environmental Compliance Approval discharge criteria (<25 mg/L TSS and BOD5) and averaging around 10, and the new outfall will ensure compliance with the Provincial Water Quality Objective at the edge of the mixing zone.

Bob Kortright asked for clarification on the size of the tunnel – are the 3.5 km including the diffusers? - and the drilling process. **Gary Kramer** presented the tunnel construction sequence (the tunnel will not be constructed before the risers are drilled). To avoid sedimentation, the diameter of the tunnel and risers have been optimized for the best dispersion/dilution and to minimize solids sedimentation.

Frank Quarisa and **Vlad Petran** discussed the approval process for the TRCA Landform project, and responded that they wanted the TRCA to be ready when this project nears construction.

Karen Shinn asked about the possibility of putting a turbine in the tunnel, but **Gary** clarified that there is not enough drop at the top of the shaft to accommodate that *and* achieve hydraulic capacity.

Karen Buck brought up how a Chicago plant is no longer using ferrous chloride to remove phosphorus, and that phosphorus is retained as pure phosphate that can be sold as a fertilizer. She

inquired if Toronto was interested in the same process, which **Frank Quarisa** answered was not related to this project's design. However, there is a process roadmap that is being done for Ashbridges Bay that takes Lake Ontario's future phosphorus concerns into account, and recognizes that alternative phosphorus removal processes may need to be considered. The City plans to continue using its current phosphorus removal process for the near future, since it is cheapest and most reliable from an operational standpoint, and is approved by the Ministry of the Environment. Once the current 1950's infrastructure is updated, the City will then look out to innovate further.

Karen Buck noted that many plants decide to incorporate the new process anyway, and wondered whether adding a waste product is a better option than preserving and selling that purified product. **Frank Quarisa** wanted to consider the fact that biosolids are more valuable than phosphorus for farmers at the moment, but if the value changes then the benefit of collecting phosphorus can be studied again.

Karen Buck asked whether the building would be susceptible to flooding from Lake Ontario's rising water levels, which **Frank Quarisa** responded that the design factors in the worst-case hydraulics scenarios, including the current year's record water levels. The flows are consistently up as a result, but the CSOs on the lake are set at a certain elevation and the greater flows have not generated any process upsets.

Karen Shinn's final question was about the process, and **Gary Kramer** advised that there may be another meeting after tender was completed.

4. Adjournment

Mae Lee let everyone know that she would be in touch with the chairs to schedule a future meeting to see a final design and tender outcomes.