



Implementation Compliance and Monitoring Committee (ICMC) Steering Committee Meeting #11

Thursday, March 5, 2015
Metro Hall, Room 313A
6:00 pm – 7:15 pm

Attendees:

Karen Buck	Citizens for a Safe Environment
Jim Neff	
Michael Rosenberg	Economics of Technology Working Group
Karey Shinn	Safe Sewage Committee
Dalton Shipway	Watersheds United

Regrets:

David Done	Safe Sewage Committee
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City of Toronto:

Nancy Fleming	Senior Engineer, Toronto Water
Mae Lee	Public Consultation Unit

CH2MHILL:

Matthew Elliot
Daniel Olson
Carolyn Lee

1. Welcome and Introductions

Mae Lee called the meeting to order at 6:00pm, and all present introduced themselves. She stated that she is the new public consultation unit representative responsible for ICMC meetings in 2015.

Matthew Elliott of CH2M HILL gave an overview of the project which is to determine a preferred approach for replacing the existing outfall. The team has looked at the performance needs of the outfall in relation to impacts to water intakes, and aquatic environment, as well as different approaches to building the outfall. The recommendation is to build a 3.5km long outfall by tunnel along the previously determined alignment. This work is in line with the previous work completed in the Environmental Assessment (EA) but more optimized to reflect current standards and modelling tools.

2. CH2MHILL Presentation

Dan Olsen of CH2M HILL presented on the conceptual outfall design. *Note: See attached presentation.* He provided a recap of the project history and background. He reviewed the success factors established at the beginning of the project. **Matthew Elliott** of CH2M HILL mentioned that the project team has met with the Ministry of the Environment (MOE) and received positive feedback.

Karey Shinn asked when the team met with MOE. **Dan Olsen** responded that regulatory agencies were consulted around the time of ICMC Meeting #2. **Carolyn Lee** of CH2M HILL followed up later in the meeting stating that the meeting with MOE was in September 2013.

Karen Buck asked who attended the MOE meeting. **Dan Olsen** responded that technical MOE staff who are experts in surface water modelling and receiving water assessments, Toronto Water staff, and consultants attended the meeting. **Nancy Fleming** indicated that the City can provide information on the MOE branches that attended.

A representative from the MOECC Central Region Technical Support Section Water Resources Unit and a representative from the Air, Pesticides and Environmental Planning Branch were at the meeting.

Dan Olsen presented the three outfall construction methods considered and discussed the pros and cons of each alternative.

Jim Neff asked if lake currents flow from the wastewater plant flow to the Harris Plant. **Dan Olsen** replied that nearshore lake currents can switch both ways from west to east and east to west.

Dalton Shipway requested a hardcopy of the EA conditions presented on slide 23 as he would like time to review them. **Mae Lee** mentioned that a copy of the presentation will be appended to the minutes.

Dalton Shipway circulated to ICMC members a MOECC Notice of Approval for the Don Mouth Naturalization and Flood Protection Project.

Jim Neff asked how much dredging would be needed for the open cut option. **Dan Olsen** answered that a trench more than 7m wide along the entire 3.5km length would need to be dredged. **Matthew Elliott** explained that this, however, is not the preferred option because of the environmental impacts to the lake bed.

Jim Neff asked about wet weather flows going to the plant. **Nancy Fleming** answered that CSO tunnel projects under the Wet Weather Flow Master Plan, and the integrated pump station will attenuate wet weather flows coming into the plant for treatment.

Jim Neff inquired about the capacity of the new outfall and the integrated pump station. **Nancy Fleming** replied that the new outfall will have a capacity of 3900 million litres per day (MLD) and the pumping station will have a capacity of 600 MLD. She explained that the facilities can withstand the 100 year storm. **Matthew Elliott** clarified that the new outfall will be 4 times the current size.

Michael Rosenberg asked if the mixing zone is the distance from the outfall where the Provincial Water Quality Objectives are met. **Matthew Elliott** answered that it is a regulatory requirement that is defined by the Ministry based on a Receiving Water Assessment and that the size is meant to be reasonably minimized. **Michael Rosenberg** requested the formal definition of the size of the mixing zone. Matthew Elliott explained the mixing zone does not have exact dimensions and that the Ministry sets guidelines for the mixing zones. **Nancy Fleming** stated that a link to the mixing zone guidelines will be provided.

Please see Section 3.4 of WATER MANAGEMENT - POLICIES, GUIDELINES, PROVINCIAL WATER QUALITY OBJECTIVES OF THE MINISTRY OF ENVIRONMENT AND ENERGY

http://agrienvarchive.ca/download/water_qual_object94.pdf

Michael Rosenberg asked why tunnelling costs less relative to dredging. **Nancy Fleming** explained that lake bed dredging can only happen during seasonal timing windows as there are fish considerations. **Matthew Elliott** pointed out that a tunnel can effectively provide more capacity than laying one pipe in the lake bed. He further explained that since you cannot easily install a 7m diameter trench by dredging, you would likely need to install more pipes for the open cut options.

Jim Neff commented that environmentally, tunnelling is safer since you are not disturbing the lake bed. **Nancy Fleming** added that tunnelling will be in shale bedrock.

Karey Shinn asked about the scale for the drawing on slide 18, and the depth of the drop shaft. **Dan Olsen** answered that the shaft will be approximately 50m deep. **Karey Shinn** compared this design to the Boston Harbour Deer Island Treatment Plant where there is a turbine in the drop shaft to generate energy. **Matthew Elliott** explained that hydraulic conditions in the Boston Harbour are different from those at Ashbridges Bay, because they flow to the ocean. At Ashbridges Bay, it is not feasible to provide a high hydraulic gradient/drop between the plant and the lake.

Karey Shinn inquired if the bedrock will be used as a tunnel. **Matthew Elliott** answered that the tunnel will be lined from the inside. **Karey Shinn** mentioned that she previously saw a design with a number of pipes. **Matthew Elliott** indicated that this was an outfall alternative that was considered but was not determined as the preferred option.

Karey Shinn asked if all effluent will be combined prior to discharge. **Nancy Fleming** answered that all flows, from the UV disinfection facility and the chlorination/dechlorination facility, will go to the outfall pipe. **Dan Olsen** clarified that there is a series of channels that bring effluent to the outfall.

Karey Shinn inquired if there is an opportunity to add tertiary treatment in the future. **Nancy Fleming** answered that they are not looking at tertiary treatment. It wasn't this consultant's mandate to include tertiary treatment. **Matthew Elliott** responded that this outfall design does not preclude future plant improvements.

Karey Shinn asked if the new outfall capacity is sufficient in light of the recent 2012 and 2013 storms. She also wanted to know what the overflow mechanism is. The consultant said that there is no overflow. **Nancy Fleming** emphasized that wet weather flow projects help hold the flows before they get to the plant and that all flows will go through the outfall pipe.

Michael Rosenberg said that the issue of sewer infiltration was mentioned at a public consultation session that he attended. He commented that infiltration from wet weather events is one of the reasons why sewers get a high volume of flow which ends up at the plant. **Nancy Fleming** said that the City will be decommissioning the seawall gates. She said that the new outfall is designed for the highest wet weather flow capacity of 3900 MLD. She directed ICMC members to the Don Trunk EA for wet weather flow information, which includes information about sewer infiltration. She pointed out that Toronto Water is implementing conveyance control projects outlined in the Wet Weather Flow Master Plan to reduce inflow and infiltration. **Mae Lee** added that there is one more public meeting for the Don Trunk EA, and that the ICMC members are on the mailing list. **Karey Shinn** said that she has signed up on the computer for notifications but she is not sure it always works. **Mae Lee** said that she could check that.

Karen Buck was interested in knowing what the City, as the proponent, asked the MOE to approve as the mixing zone. She also wanted to know what Provincial Water Quality Objectives (PWQOs) the City has to meet at the edge of the mixing zone. **Matthew Elliott** said that all PWQO have to be met but the main ones of concern are phosphorus, ammonia and *E. coli*. **Karen Buck** observed that the PWQO are stated in micrograms per litre but plant ECAs use milligrams per litre, and she asked for clarification. **Matthew Elliott** explained that the PWQO are for the water at the edge of mixing zones, and they are consistently applied across the province. He said that plant ECAs specify the required effluent quality at the point of discharge, which is higher than the PWQO because it is before the mixing takes place.

Karen Buck commented that it is interesting that the Ministry can approve effluent concentrations that are 1000 times higher than the PWQO concentrations at the edge of the mixing zone. **Matthew Elliott** said that the Ministry governs the quality of effluent to discharge and the how it is discharged based on the review of a Receiving Water Assessment for a particular water body. He explained that the plant ECA is governed, in milligrams per litre, at the point of discharge prior to any mixing (as the sampling point is before the diffuser), and when effluent is discharged into the lake, it is mixed and the concentrations lower to micrograms per litre.

Karen Buck asked if it was correct that the mixing ratio of the old outfall is 20:1 (20 parts lake water to 1 part effluent). **Dan Olsen** said that the existing outfall has a ratio of 6:1 and the new outfall will far exceed the performance of the existing outfall. He described the standard of determining mixing performance relative to lake currents. For example, he said that you have to look at 25% of lake currents that are slowest and calculate the mixing ratio. In the case of the new outfall, the ratio is close to 80:1, but under average current conditions the mixing ratio is closer to 100:1. The new outfall is of a scale that dwarfs the existing outfall and so will vastly outperform the existing one.

Karen Buck stated that she wants to make sure that the effluent is the best quality for the lake. She is satisfied to hear that the seawall gates will be decommissioned, that the tunnel will be farther from the bay and that the mixing ratio is much improved. However, she is disappointed that effluent blending is still needed. **Nancy Fleming** said that the secondary bypass will be chlorinated and dechlorinated and blended with the final effluent. **Karen Buck** said she understood that but she is

disappointed in that. **Nancy Fleming** said she can appreciate that but that is the final solution.

Karen Buck wondered about using the slow current. **Dan Olsen** said that the current can be thought of as a wall of water with which the discharge is being mixed. They use the slow one because that is more conservative.

Dalton Shipway brought an article relating to the long term waste strategy for Kate Kusiak, the previous Public Consultation Coordinator. **Mae Lee** said Kate Kusiak is now with City Planning, and she would hand it to Robyn Shyllit who has replaced Kate as the new Senior Public Consultation Coordinator for the long term waste strategy. (Note: The item brought up was not related to Toronto Water projects/meeting agenda.)

Jim Neff asked if there has been a decision on the old outfall. **Nancy Fleming** replied that no decision has been made.

Jim Neff expressed a concern regarding lowering water levels. He shared that in Chicago and Mississippi Rivers have experienced record low water levels. He also said the City of Chicago is planting different tree species to adapt to a drier climate. **Mae Lee** asked if assessing lake levels was part of this project. **Matthew Elliott** responded that lake levels in Lake Ontario were considered in the project and that the project team was not aware of any projections for lowering lake levels.

Karen Buck asked what the Ministry does about the loading to the lake and whether total loading is modelled as well. **Matthew Elliott** answered that the Ministry does not look at total lake loadings, but to a certain extent, lake modelling is done on a macro scale to establish a lake-wide context (in terms of current regimes and background concentrations) for project-specific water quality modelling.

Michael Rosenberg asked if a decision has been made on the disinfection method for the stormwater coming out of the CSO facility. **Nancy Fleming** responded that there is still no decision on the disinfection method for this project, which is 10 years out.

Michael Rosenberg pointed out that the 100 year storm is occurring more frequently and that these storms no longer occurs once in a 100 years. He asked if the definition of the 100 year storm will be updated. **Nancy Fleming** indicated that the 100 year storm is the standard being used and there are currently no plans to change this standard. **Michael Rosenberg** said that if the City is building to accommodate 100 year storms, then this should be to accommodate a much bigger storm than the type of storm that is right now considered a 100 year storm. He commented that there is a large emphasis on meeting current regulatory requirements. He noted that there have been cases where the City has made decisions to meet current needs and regulatory requirements but also took into consideration that current standards or regulations will change so as to minimize the cost of meeting future requirements. He said he hoped this is being done to some extent here.

Matthew Elliott said that the outfall does not provide treatment and that it provides dilution and mixing. He explained that future regulations will likely affect the actual treatment at the plant and that the outfall is somewhat immune to these regulations as it is meant to introduce effluent into the lake.

Karey Shinn asked if it would be possible to pump water through the outfall at a higher rate if much larger storms occurred. **Matthew Elliott** responded that larger storms will generate higher flows for a

longer duration but will not likely be a strong factor in flow peaks because of the wet weather flow infrastructure that attenuates the flows before they reach the plant. The new 600 MLD integrated pump station is planned to accommodate large storm events.

Dalton Shipway commented that the outfall does not treat effluent but dilutes it. He quoted Prof. Gere of the University of Toronto that dilution is not the solution to pollution and that we have to use this principle as a guide to push the envelope for treatment while looking ahead 30 to 50 years.

Matthew Elliott reiterated that an outfall is not a surrogate for treatment and that it only provides a mixing function. He stated that every plant needs an effective outfall to introduce effluent to receiver because treated effluent is much different than lake water.

Karen Buck expressed concern about the effectiveness of the outfall under situations of unprecedented stormwater flows and whether wet weather flow infrastructure can handle these flows upstream of the plant. **Karey Shinn** stated that the outfall design is fine in her opinion but she was also concerned that the outfall may not be big enough.

Jim Neff inquired if the plant has to meet New York State standards since Lake Ontario is an international water body. **Dan Olsen** replied that the plant only has to follow Ontario and Canadian regulations.

3. Review and Approval of ICMC SC Minutes

Karey Shinn said that the year noted in the meeting minutes should be December 2014 and not December 2013.

The minutes were approved with this change.

4. Adjournment

Nancy Fleming thanked Dan Olsen and Matthew Elliott for giving the presentation and the ICMC members for attending.

The meeting was adjourned at 7:15 pm.