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Date:	February 24, 2015	**File:**	20132344.00.A.04.01
Time:	Noon	**Page:**	1 of 7
Project:	Stage 2 LWMP		
Subject:	WAC Meeting #7		
Client:	City of Port Alberni		
Location:	City Hall		
Present:	Guy Cicon (GC) - City of Port Alberni Ken Watson (KW) - City of Port Alberni Tom Robinson (TR) – Associated Engineering (AE) Quinn Crosina (QC) - AE Dean Shiskowski (DS) - AE Hugh Hamilton (HH) - AE Michal Simhon (MS) - AE Chris Alemany – City Councillor Sharie Minions – City Councillor Ron Paulson – City Councillor Jack McLeman – City Councillor Rick Avis – Somass Estuary Management Committee Scott Smith – City of Port Alberni Brian Mousley – City of Port Alberni Brad West – McGill Engineering Larry Cross – Catalyst Paper Margaret Wright – Department of Fisheries and Oceans (DFO) Phil Edgell – Alberni Valley Enhancement Association (AVEA) Randy Fraser - Alberni-Clayoquot Regional District Andy Olson – Fisheries Manager , Tseshaht First Nations		
Distribution:	Those Present Other members of the Wastewater Advisory Committee Kirsten White – Ministry of Environment Jason Clarke – GreatPacific Consulting		

RECORD OF MEETING

This Record of Meeting is considered to be complete and correct. Please advise the writer within one week of any errors or omissions, otherwise this Record of Meeting will be considered to be an accurate record of the discussions.

Action by: **Discussion:**

1 INTRODUCTION

Introductions were made around the room.

Action by: **Discussion:**

2 LWMP FRAMEWORK

QC provided a summary of the Liquid Waste Management Plan (LWMP) framework, including an overview of the three separate stages that comprise the overall LWMP, noting that the City is currently nearing the end of Stage 2. In addition, she explained the purpose of the concurrent Environmental Impact Study (EIS).

3 RECAP OF WAC MEETING #6

MS summarized Scenarios 1 through 6 which were presented to the Wastewater Advisory Committee (WAC) in the last meeting. She also summarized the results of the Triple Bottom Line (TBL) Analysis that was carried out, based on the consensus reached on weightings of quantifiable attributes.

4 PROGRESS SINCE WAC MEETING #6

TR introduced the WAC to Scenario #7, which was developed to respond to the discussions at the previous WAC meeting, specifically, to mitigate reductions in dissolved oxygen (DO) levels in the lower (saline) layer of the Inlet, which may in turn impact salmon. Scenario #7 is comprised of the following:

- Final treated effluent pumped through a single pipe to an engineered diffuser at a depth of 3 m at low tide (i.e. elevation of -3 m chart datum), 5 m at mean tide, and 7 m at high tide.
- Dilution ratio varies from 48:1 to 190:1.
- 36” pipe approximately 1300 m in length.

QC added that the depth and approximate location of Scenario #7 was a result of aiming to find the shallowest location where the minimum dilution requirements set by the Municipal Wastewater Regulation (MWR) could be met without triggering a need for a higher level of treatment.

HH provided a brief summary of the technical meeting that was held on January 15, 2015 with personnel from the Ministry of the Environment (MOE) and the Department of Fisheries and Oceans (DFO). Scenario #7 was presented to the attendees. The key outcome from the meeting was that MOE personnel indicated they would consider a substitution to the 10m depth requirement, as set in the MWR, due to the sensitive and unique nature of the Alberni Estuary.

TR pointed out to the WAC that the aim of the MWR is to protect public health, through outfall depth requirements, disinfection requirements, dilution requirements, and setback distances from

Action by: **Discussion:**

recreational and shellfish harvesting areas. In addition, the MWR prescribes the need for inclusion of back-up power and redundancy in the process design to mitigate system failures.

TR relayed to the WAC the MOE's suggestion to investigate a longer and deeper outfall, extending further out into the Inlet. However, it was the opinion of Don Hodgins (of subconsultant firm Seaconsult), who has extensive experience modeling conditions in the Alberni Inlet, including recent work specific to this project, that such a scenario would offer no substantial benefit for the higher capital costs. Further, the expected degree of plume trapping in the lower layer would be prolonged, maintaining undesirable conditions for the fish that reside for extended periods in the lower layer.

5 COMPARATIVE EVALUATION

MS presented the Triple-Bottom-Line (TBL) analysis, updated to include Scenario #7. Using the weighting that was achieved by consensus during WAC Meeting #6, the results were presented, illustrating Scenarios #5, #6, and #7 scored the highest. MS explained those three scenarios were then short-listed, with the remainder of the scenarios eliminated from further analysis.

A summary of the scenarios is as follows:

- Scenario 5: 32" in diameter, 1500 m long pipe; pumped flow; outfall at a depth of >10 m.
- Scenario 6: 24" in diameter, 1500 m long pipe; pumped flow; outfall at a depth of >10 m.
- Scenario 7: 36" in diameter, 1500 m long pipe; pumped flow; outfall at a depth of 3 m at low tide, 5 m at mean tide, and 7 m at high tide.

MS explained that to adequately compare the short-listed scenarios, attributes with quantified values within 10% of each other were eliminated from the analysis as they did not help distinguish the scenarios from one another. As a result, the following attributes were removed from the next step of comparison:

- Natural Habitat Restoration Area (Environmental Category)
- Capital Cost (Economic Category)
- Life Cycle Cost (Economic Category)

TR reminded the WAC of the level of accuracy of the cost estimates (approximately +/- 20%).

The TBL model was re-run, with Scenario #7 scoring at the top. Nevertheless, the difference between the scenarios remained close with Scenario #7 having a total score of 0.539, Scenario #5

Action by: **Discussion:**

having a total score of 0.500, and Scenario #6 having a total score of 0.472. Note that the maximum possible score is 1.000.

MS continued to explain the fecal coliform concentration achieved in all of the scenarios is anticipated to be two orders of magnitude below the requirements set in the MWR. As a result, the Recreational Water Use attribute (Social Category) was eliminated from the analysis. The TBL model was re-run, with Scenario #7 once again at the top. However, the difference in the scores between Scenario #7 compared to Scenarios #5 and #6 has increased substantially.

DS presented the need to include risk in a TBL + Risk analysis to ensure the Scenarios are evaluated in a comprehensive manner. A risk consequence score is the product of the probability of occurrence and the severity of impact. DS presented a matrix illustrating the possible range of consequence scores, from negligible risk to tolerable, critical, and unacceptable risk.

The following risk factors (RF) that have been developed for this project in order to capture the key concerns were presented. Rationale for the value judgements were provided and vetted through the group. For both Risk Factors, the Severity of Impact judgements are based on effluent modeling work done to-date for each scenario. The results for the three shortlisted scenarios were as follows:

- RF 1: Receiving water dissolved oxygen levels
- Scenarios #5 and #6 exhibited high risk
- Scenario #7 exhibited tolerable risk
- RF 2: Receiving water fecal coliform levels
- Scenarios #5 and #6 exhibited negligible risk
- Scenario #7 exhibited tolerable risk

Margaret Wright suggested that factors other than dissolved oxygen be included in RF 1. For instance, temperature and salinity. Hugh explained that RF 1 is based on the baseline (i.e. what is currently typical in the estuary), and the judgements for this risk factor aim to account for additional impact beyond current baseline conditions. He pointed out that a worse case baseline condition would result in a greater Severity of Impact judgement. The judgements are relative, aiming to compare ‘apples to apples’. If baseline conditions and impacts were compared for multiple parameters the separation between Scenarios would be more pronounced (i.e. higher consequence values would result), but the pattern would be the same. So although Margaret’s point is important to consider, it would not change the outcome of the Risk evaluation.

KW asked whether it would be more appropriate to develop RF 2 as a comparison of the expected effluent conditions to the health regulations. DS responded that the US EPA guidelines are based

Action by: **Discussion:**

on very low fecal coliform levels, and look at potential exposure for a swimmer, not other recreational users (such as a paddler) who would experience less direct contact with the water; therefore the US EPA guidelines are not as relevant to the scenario in the Inlet. It was also noted that some level of human health risk assessment will be incorporated into the EIS work.

KW asked about the need to include a risk factor addressing regulatory approval. DS responded that such a risk factor could be added to the analysis. However, in the case of Port Alberni's LWMP, the MOE personnel have been engaged, and have indicated they will allow a substitution to the MWR (for the 10m depth requirement). HH added that the other piece to consider is the need for continuous monitoring as part of the EIS. If the monitoring shows that conditions are favourable, it is unlikely that the Ministry would take issue with it. However, if monitoring shows unfavourable conditions, it would be a mechanism for looping back and reworking the design and/or operation of the outfall.

Phil Edgell expressed concern that Scenario #7 does not sufficiently address the concern around the oxygen depletion (specifically at mean and high tide, when the depth of the outfall is 5 m and 7 m, respectively). He also indicated his desire to see additional modeling.

HH responded that the current aim is to select a preferred solution, not a perfect one. He stated that work to-date indicates that Scenario 7 represents a lower probability of effects than Scenarios 5 and 6, but it's not a zero probability of effects. Once a preferred scenario is selected, part of the EIS would provide the additional modelling results that will look at multiple factors over the course of the year, approaching worst case conditions. Hugh added that it would be expensive and time consuming to conduct an EIS on numerous options; however, because the modeling work will be predictive, it will feed back into the diffuser design, providing an opportunity to make modifications.

Phil Edgell inquired as to the potential relaxation of other regulatory requirements (i.e. ammonia levels) that would lower the dilution requirements and might allow for an even shallower discharge point. Margaret Wright added that ammonia is less of a concern in a marine environment than in freshwater. She also noted DFO's preference for Scenario 7 over scenarios where the discharge would be located below the halocline.

Margaret Wright indicated that she, along with Kim Hyatt and Ian Birtwell, have made a case to senior management at DFO to support a decision in favour of relaxing of the MWR requirement with respect to the 10 m outfall depth requirement. She commented that monitoring will be important. She stated that it won't be possible to 'engineer out' the dissolved oxygen issue in the Inlet, but could address some of the other regulatory concerns with engineering.

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Discussion:

MS incorporated the total risk severity scores into the TBL model for the short-listed scenarios. Weighting the Risk Category at the same level as the Environmental Category (100%), the model was re-run.

Once again, Scenario #7 scored at the top, further expanding the gap between it and the other scenarios.

Quinn stated that the team is looking for clear direction from this group on one Scenario to develop further.

Andy Olson indicated that operation of the wastewater system could be designed to have pumping coincide with a falling tide to mitigate effects. TR added that a number of engineering strategies may be available to manage discharge timing and flows because of the volume capacity available at the lagoon for storage.

Larry Cross asked if he was correct in thinking that there will also be vertical velocity when flow comes out of the diffusers. Quinn responded that, yes, this is correct, as well as buoyancy effects within the halocline. Scott Smith asked if you could increase velocity through pumping. Dean responded that this was also possible, to some extent.

TR stated that he would like to go around the table to confirm that no one had any objections to proceeding with Scenario #7 as the preferred scenario. He asked all members to indicate if they are comfortable with the direction we're going, that is to say, proceeding with Scenario 7. The following responses were received:

Andy Olson: Yes. (Andy indicated that is not the official Tseshaht Government acceptance, only his technical perspective.)
Margaret Wright: Yes.
Larry Cross: Yes.
Jack McLeman: Yes.
Brad West: Yes.
Bryan Mousley: Yes.
Scott Smith: Yes.
Ron Paulson: Yes.
Chris Alemany: Yes.
Phil Edgell: Yes, with some fine tuning.
Guy Cicon: Yes. He also discussed some of the steps the City would take next, including further consultation with local First Nations and the general public.
Ken Watson: Yes. He also indicated he would like to see the next steps proceed quickly.

Action by: **Discussion:**

6 NEXT STEPS

Tom discussed the public consultation component of the LWMP.

QC reiterated the next steps for the LWMP, including the following:

- Public consultation
- First Nation consultation
- Archaeological investigations
- Completion of the Stage 2 LWMP report and the EIS Part 2 report
- She indicated that the draft documents would be circulated to the WAC members.

The meeting was adjourned.

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MS/TR/QC/lp