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**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, DECEMBER 9, 2015**

SUBJECT Technical Oversight Panel (TOP) Report #6

ISSUE

TOP summary of recent period to December 1, 2015

BACKGROUND

Technical Memo #2R2 was issued to the Core Area Liquid Waste Management Committee (CALWMC) by the consultants previously. TOP has a series of notes that are to be addressed for the official record. The consultant advises that they will be submitting these notes as a document attached to their submission of TM#3.

Draft Technical Memo #3R1 is issued to the CALWMC by the consultants December 4, 2015. TOP has completed a detailed review of items that are to be addressed in TM#3R1 and incorporated into the final TM#3 when it is submitted January 12, 2015. TOP has discussed draft TM#3 comments with the consultants and the consultants have agreed to changes to be included in TM#3R1. Subject to these TOP recommended changes being reflected by the consultants in TM#3R1, TOP recommends acceptance of draft TM#3R1 by the CALWMC to be used as a basis for public consultation beginning December 9, 2015.

Draft Technical Memo #4 will be issued to the CALWMC by the consultants February 10, 2015. TOP has recommended, and the CALWMC has passed a motion to require, the provision of the details of the preferred TM#4 content requirements to support funding requirements. At this time, the information is not clear and the consultants and TOP need to agree with CRD on the final table of content requirements and metrics for TM#4.

The critical path schedule has been developed by the team for the planning phase. The CALWMC passed a motion November 25, 2015 for the CRD to develop a schedule for the project out to 2020. Work should begin on this in the new-year with TOP support.

The organization chart for the team has not been resolved and an overarching project delivery organization chart is needed. The CALWMC passed a motion November 25, 2015 for the CRD to develop this organization chart out to 2020. Work should begin on this in the new-year with TOP support.

TOP arranged to meet with an additional 8 private vendors November 23, 2015. **Organica** presented a 'living machine' type of system now common in Europe and Asia. Sechelt is a working example of their technology. **Kore** presented their resource recovery solution to biosolids management. Kore finances, designs, builds, owns and operates the facility under long-term performance-based contracts. **Ostara** presented a phosphorous recovery for fertilizer pellet type of system now common worldwide. Ostara is a UBC tech with 8 working and 8 pending facilities. **IWS** did not present, no reason given. **Catawater** presented a bio-bacteria process of a type now common worldwide, with no examples, yet, in Canada of their product. **Noram** presented a unique, proprietary deep shaft system with a vertical treatment plant taking the place of a horizontal layout, vastly reducing the area and impact of the plant on the site. Burnaby Chevron is an example of a local deep shaft facility (7MLD). **Matrix** presented a proprietary pyrolysis

system with a \$4M feasibility study cost up front and no details on technology and no working examples at a comparative scale. **Shewla** presented again but continued to have technology issues with the presentation out of Brazil. They propose off shore barge treatment with no working examples at a comparative scale. Generic versions of the Ostara and Catawater products, and the Organica and Kore systems may be incorporated into some of the option sets as appropriate. Matrix and Shewla are proprietary treatment systems (not generic types) with no track record at the scale required for CRD and will not be reflected in the options. Noram is a proprietary deep shaft small footprint WWTP tertiary system that *might* possibly solve alternative site issues (saving hundreds of millions of dollars and eliminating kilometers of infrastructure now in the proposed options). TOP and consultant team will visit the existing deep shaft Chevron site in Vancouver to gain a better understanding of the performance and appearance. TOP team believes it is worth TOP further investigating the viability of a small footprint WWTP solution with Noram to determine if this should become an additional option to be addressed later in the implementation phase. This dialogue will not require the consultants in the initial stages and accordingly will not delay either TM#3 or #4.

The bid process is not defined and the funding parameters are not defined. As work progresses on the technical memos, it is becoming apparent that the WWTP side is traditional and the bio-solid treatment side is innovative. Current funding is structured for traditional bio-solid treatment. Once the details of the TM#3R1 cost charts are finalized, discussions should be held with TOP support to resolve the bid process and the funding application parameters to support innovation on the bio-solid treatment side as appropriate.

TOP arranged to meet with various Citizen Groups to begin to address some of their very technical concerns with the project. Presentations were made by Brian Grover, Bryan Gilbert, Soren Henrich, Carole Witter, John Farquharson and Oscar Regier. Bryan Gilbert addressed process issues including the clarification of objectives and the establishment of a viable delivery team structure with appropriate capacity, and the establishment of financial QA protocols. TOP is aware of these protocols and is diligently working with the consultant team and the CALWMC and the CRD to ensure these protocols are established. Soren Henrich reported on concerns raised in draft TM#2 regarding biochar and biosolids treatment and lifting the ban on land application of sewage sludge. John Farquharson explained how TOP's role as outlined in its terms of reference and the Phase 2 project charter was expanded based on input provided by various citizen groups. Mr. Farquharson suggested new federal government direction has eliminated the PPP Canada (P3) screening requirement for federally funded infrastructure projects, which provides an opportunity for TOP to request a timeline extension. Carole Witter addressed issues around contaminants of concern and making sure there is room in the option sets for real distributed options with resource recovery and the tertiary treatment of effluent. TOP shares these concerns and is working with the consultant team to address these issues. Brian Grover and Oscar Regier identified specific cost saving options. Mr. Grover asked for TOP's help to achieve the desirable outcome at the lowest possible cost, and addressed six points of concerns (i.e., project preparation process, public participation, cost estimates, roles for consultants and contractors, managing project implementation, and timing of next steps). Mr. Regier spoke in favour of distributed tertiary treatment using membrane reactor technology with optimized resource recovery and existing conveyance infrastructure, and using site specific information to make costing decisions. Oscar reviewed capacity, flow data and redundancy of existing trunk mains, outfalls, inflow and infiltration, and overflow points. Mr. Regier provided diagrams which the consultant team agreed to review and respond to. This response is from the consultant team and TOP is pending.

TOP also met with Amanda Gibbs to begin to understand the format of the public engagement process scheduled for December. It became apparent that she did not have content for the initial proposed public engagement eastside start date of December 2, 2015, and that the timing of the review of TM#3 would not allow the vetting of the financial info before the public materials were scheduled to be issued. For this reason, the TOP previously requested a one week delay in the public process to December 9, 2015 to align with the delivery of TOP's first review of TM#3 to facilitate better financial information for the public process. TOP understands from Amanda that the Eastside and Westside public outreach efforts will be coordinated and that all communities will receive the same survey content to respond to

ALTERNATIVES

That TOP recommends that:

Alternative 1

That the Core Area Liquid Waste Management Committee receive this document for information and accept the recommendations.

Alternative 2

That the Core Area Liquid Waste Management Committee receive this document for information, and revise and accept the recommendations.

Alternative 3

That the Core Area Liquid Waste Management Committee receive this document for information and not accept the recommendations.

IMPLICATIONS

SOCIAL IMPLICATIONS

Draft TM#3R1 will form the basis of the public consultation process to begin in December 2015 and to complete in January 2016.

Some private vendor innovations support social desire for resource recovery and distributed plants and their involvement will improve the project outcomes.

Options as developed in TM#2R2 and TM3#R1 support social desire for resource recovery and distributed plants.

ENVIRONMENTAL IMPLICATIONS

Some of TOP's comments on the draft TM#3R1 relate to environmental impact.

Most private vendor innovations support higher environmental performance in terms of lower energy, reduced carbon, and improved effluent quality and reduced contaminants of concern. Options as developed in TM3#R1 support higher environmental performance in terms of lower energy, reduced carbon, and improved effluent quality and reduced contaminants of concern.

ECONOMIC IMPLICATIONS

Some of TOP's comments on the draft TM#3R1 relate to cost issues. TOP and the consultant team are evaluating costs in TM#3R1. The costs now have a wide margin of error on the capital side. Examining the life cycle cost is important for decision making.

Some private vendor innovations save costs and should be examined further.

INTERGOVERNMENTAL IMPLICATIONS

Some of TOP's comments on the draft TM#3R1 relate to funding issues.

It may be more appropriate to fund the WWTP through P3 Canada and to fund the bio-solid

treatment through agencies that support innovative technologies. The cost sensitivity charts in TM#3R1 are being developed to confirm the best route to take. TM#4 will support the intergovernmental funding applications and will need to be structured accordingly.

GROWTH MANAGEMENT IMPLICATIONS

Some of TOP’s comments on the draft TM#3R1 relate to growth assumptions. Some private vendor innovations address incremental growth. Options as developed in TM#3R1 address incremental growth.

CONCLUSION

Notes referring to TOP comments on TM#2 are required as part of TM#3 and are being provided by the consultants. Revisions to TM#3 are required and are ongoing by the consultants. TM#4 content parameters are required and should be discussed at the meeting in January with CRD. Private vendors should continue to be encouraged to come forward with ideas, and the team should develop methods to encourage innovation in treatment options in the bids. TOP should follow up with Noram to determine if their technology is viable as small footprint WWTP(s) close to the outfall(s). TOP supports the community involvement at this technical level and is aligned with the apparent goals of the eastside community. Amanda Gibbs’ work will be supported by the revised schedule.

RECOMMENDATION

That TOP recommends:

1. That the Core Area Liquid Waste Management Committee receive the draft TM#3R1 for information and for use in the public consultation process.
2. That the Core Area Liquid Waste Management Committee direct TOP to work with Noram to determine the potential viability of the deep shaft small footprint solution at the existing outfall(s).

Submitted by:	Teresa Coady, Chair, Technical Oversight Panel
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TC:ll