C. Whittier

Within the CRD there appears to be inadequate resources and information relating to tertiary treatment technology.

How will the TOP ensure that the consultants and the CRD have sufficient access to relevant data and up to date information to deliver comprehensive, accurate and detailed final option sets ?

On November 4th the CALWMC voted in favour of analyzing an entirely tertiary based option for Rock Bay In it's November 17th Status Report the TOP advised the CALWMC that option 4 would be best advanced with a separate study to determine the optimal distributed solid and liquid waste reuse options that could be negotiated for the region.

Will the TOP advance a recommendation to the CALWMC that the separate study for option 4 be be entirely tertiary based.

From: Ehren Lee <elee@urbansystems.ca>
Subject: **RE: Emerging Contaminants in Wastewater**
Date: November 10, 2015 7:25:13 AM PST
To: Carole Witter <witter@pacificcoast.net>
Cc: Lisa Helps <lhelps@victoria.ca>
▶ 1 Attachment, 29.4 KB

Hi Carole - Thanks again for this email. Research into micro-constituents continues, so environmental organizations continue to learn how to best study, report, direct or regulate them. The MoE provides some guidelines, and the USEPA provides literature but neither has not developed new policy/regulations (yet). This hasn't prevented other organizations, including local governments, from monitoring their influent and effluent to determine how well their systems remove key micro-constituents. Many contaminants are removed quite well under conventional technologies. While some progress is being made to better measure the concentrations (so many are at a very low concentration), there isn't an industry wide understanding of what safe acceptable limits are in the environment. This is something that will improve over the years to allow wastewater utilities to improve effluent quality to known targets. Effective (including cost-effective) removal and treatment design can be best done when those targets are known.

It's been good to have access to CRD's data. I've asked CRD staff why the datasets are different between the Ganges and Saanich plants. I'll follow up with that information soon. Until then, consider this sample table (attached) made of data extracted from the Saanich and Ganges table. Also note that although the Ganges plant is listed as advanced secondary with disinfection, it is an MBR plant which can be operated to achieve tertiary quality effluent. The technologies employed at CRD plants are actually similar to the representative design approach for Phase 2. This means the information is conveniently there for us to see. I've also included a link (below) to US EPA for research in this field. I hope this helps! Ehren

(search this title in google) "Literature Review of Contaminants in Livestock and Poultry Manure and Implications for Water Quality (PDF) (137 pp, 1.5MB) (July 2013)" This report is part of EPA's ongoing efforts to better understand the environmental occurrence and potential effects related to contaminants of emerging concern. The report summarizes technical information on pathogens and contaminants of emerging concern such as antimicrobials and hormones that may affect water quality. The report makes no policy implications or recommendations for the addition of contaminants to any list of contaminants that may require regulation (such as the drinking water Contaminant Candidate List). It does identify information gaps that may help define research needs for EPA and its federal, state and local partners to better understand these issues.

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-----Original Message-----
From: Carole Witter [mailto:witter@pacificcoast.net]
Sent: November-06-15 3:32 PM
To: Ehren Lee
Cc: Lisa Helps
Subject: Emerging Contaminants in Wastewater

Hi Ehren,

Any idea when the Emerging Contaminants in Wastewater Table for a tertiary plant will be ready for viewing?

Also, can you explain why the list for Saanich Peninsula and the list for Ganges are not based on the same contaminants? Is it because one level of treatment removes more (or different) contaminants than the other.

Thanks,

Carole.

removal rate...ocx (29.4 KB)

Sample Parameter	Sample No.1 Influent Concentration (mg/L)	Secondary Effluent Removal %	Sample No. 2 Influent Concentration (mg/L)	Tertiary* Effluent Removal %
Acetaminophen	64.1	98%	n/a	n/a
Caffeine	48.6	97%	n/a	n/a
Ibuprofen	14.1	97%	17.2	99%
Triclosan	4.84	73%	0.096	Up to 100%
Aluminum	0.21	83%	0.272	91%
Total LMW -PAHs	0.00121	80%	0.000015	Up to 100%
1,4-Dichlorobenzene	248	86%	0.0656	90%
PBDE	Range	Many >95%	Range	Many >95%
Total phenols	0.689	87%	0.097	94%
Faecal coliforms	14,691,666	99%	14,000,000	Up to 100%