

Sewage Wastewater Management under the RMA

November 2016 Two-Day Short Course
For the Local Government and Consultancy Professionals
By



*A Standalone New Course which does not Supplement any other Courses and
A Catalyst and Foundation to Build-up
Expert Sewage Treatment and Discharge Management Knowledge*



Why is this workshop critical? Under the RMA, sewage discharges require consents from the regional councils unless permitted by the regional plans. Increasing community expectation to improve water quality implicates the entire local government to make major changes to the way sewage wastewater is being managed in New Zealand. Under the circumstances, it is essential for the wastewater managers (district/city councils), regulators (e.g. regional councils) and consultants to possess sufficient knowledge in wastewater management under the RMA. With the above in mind, a short, but high quality 2-day technical course has been created by ENVIROKNOWLEDGE®. This course is new, unique and packed with a wide range of technical and legal information.

Topics not to be missed

- Science of NZ sewage treatment systems (including activated sludge, trickling filter, maturation ponds, sequencing batch reactors, packed bed reactors, membrane bioreactors and land treatment)
- Science of efficient and advanced overseas sewage treatment systems not yet used in NZ
- How to optimise any sewage treatment performance?
- Understanding and managing impacts of sewage contaminants (including pharmaceuticals and hormones) and assimilation in surface water, groundwater and land
- Understanding RMA requirements for sewage discharges and discharge quality limits



District/City Councils: Most wastewater/asset managers are familiar with the operation of their respective systems. However, understanding the science of operations will help optimise system performance. Moreover, sufficient knowledge in wide ranging treatment options is essential to advise council on upgrades or to require/negotiate tenders from wastewater system providers/designers. This short course will ensure easy uptake of the biochemical principles/rationales for a range of treatment *operations* and *systems* while introducing a range of advanced and more efficient overseas systems yet to be used in NZ. The course will also enable the knowledge in RMA requirements (consents and compliance) to manage sewage discharges to reduce impacts and satisfy the regional council consents and compliance requirements.

Regional Councils: This course is designed for staff specifically involved in sewage wastewater discharge (land and water) consents, consents monitoring and planning, offering an opportunity to learn the science of a range of wastewater treatment systems (including advanced technologies yet to be used in NZ) and wastewater treatment capabilities and limitations, contaminant assimilation in groundwater and surface water, discharge quality limit setting, all within just 2 days.

Consultants: The 2-day short course which deals exclusively with sewage wastewater discharges under the RMA will be very beneficial to engineers, hearing commissioners, scientists and planners who are engaged in wastewater discharge consents, compliance or planning. It deals with a wide range of treatments for water and land discharges including advanced and efficient overseas systems not yet introduced in NZ and the respective legal and technical aspects. Contaminants assimilation in groundwater and surface water and discharge limit setting will also be dealt with.

About ENVIROKNOWLEDGE®: An independent high quality NZ consultancy which specialises in training, research and advisory in RMA implementation, nitrogen in the environment, wastewater treatment technology and non-point and point source contamination management.

About the workshop provider: Dr Selva Selvarajah has 21 years of regional council experience (13 years as Director Resource Management). He has sound technical and legislative knowledge in soil, water and wastewater management (visit www.enviroknowledge.co.nz for reports and publications) and excellent presentation (6 keynote papers & presentations in NZ and overseas) and training (trained in excess of 100 regional council, consultancy and CRI professionals since 2015) skills. His workshops are of high quality, well researched and presented. Some examples are the well-attended "N in the Environment", "Effective Regional Council Consents Process" which were first workshops in NZ. His leadership in wastewater technical knowledge and collaboration/negotiation resulted in many significant upgrades in the Otago Region (e.g. <http://www.enviroknowledge.co.nz/assets/Uploads/Publications/Wastewater-Paper.pdf>).

Please register your interest with full name, position, name of your employer and location you wish to attend at sustain@enviroknowledge.co.nz. *Seats are limited to 20 per location.* You can request for any further information on the workshop using the above e-mail address or by calling on 03 4776111.

Registration of interest closing date:

21 October 2016

¹Workshop fee/person:

\$1175 (Excluding GST)

Hamilton Aaron Court Motor Inn	Palmerston North Shadzz Motel	Christchurch Quality Hotel Elms	Dunedin Edgar Centre
7-8 Nov 2016	14-15 Nov 2016	17-18 Nov 2016	21-22 Nov 2016
9.00 am to 5.00 pm	9.00 am to 5.00 pm	9.00 am to 5.00 pm	9.00 am to 5.00 pm

¹Workshop fee Includes lunch, tea/coffee, hard copy manual and 3-month technical support on workshop contents.



**SEWAGE WASTEWATER MANAGEMENT UNDER THE RMA
ENVIROKNOWLEDGE® NOVEMBER 2016 WORKSHOP FOR THE
LOCAL GOVERNMENT AND CONSULTANCY PROFESSIONALS**

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1. Introduction
2. Sewage wastewater characteristics (onsite and reticulated)
3. Impacts of sewage discharges and contaminant assimilation
 - a. Understanding contaminants
 - i. Nutrients
 - ii. BOD
 - iii. Suspended solids
 - iv. Faecal bacteria
 - v. Heavy metals
 - vi. Pharmaceuticals
 - vii. Endocrine disruptors
 - b. Surface water
 - c. Land and groundwater
4. The science of
 - a. Treating contaminants (i.e. nutrients, BOD, SS, faecal bacteria, heavy metals, pharmaceuticals and endocrine disruptors)
 - b. Digestion (aerobic and anaerobic – mineralisation)
 - c. Aeration (oxidation including nitrification)
 - d. Wastewater mixing (including denitrification and immobilisation)
 - e. Settling and clarification (partial denitrification)
 - f. Biofilm (e.g. trickling filters and packed bed reactors)
 - g. Land treatment
 - h. Worm treatments
 - i. Disinfection
 - j. Constructed wetlands
5. Common NZ sewage treatment systems, how they work and optimising performance
 - a. Maturation or oxidation ponds
 - b. Activated sludge
 - c. Sequencing batch reactor
 - d. Trickling filters
 - e. Packed bed reactors
 - f. Membrane bioreactors
 - g. Septic tanks
6. RMA requirements on discharges
 - a. Water
 - b. Land (and groundwater)
 - c. NES for source of human drinking water regulations



- d. NPS Freshwater management
 - e. Regional rules
- 7. Surface water mixing zones
- 8. Setting consent discharge quality standards
 - a. Surface water
 - b. Land
- 9. Water, wastewater and soil quality data interpretation
- 10. Non-compliance management
- 11. Consents reviews, variation, expiry and upgrade management
- 12. Advancements and efficiencies in sewage wastewater treatments
 - a. Advanced P removal systems
 - b. Ammonia stripping
 - c. Bio-augmentation
 - d. De-ammonification (a method that saves substantial aeration cost while reducing nitrate (NO₃) levels and greenhouse gas (N₂O) emissions)
 - e. Biofuel production from sewage
 - f. Advanced membrane technologies
 - g. Advanced disinfection technologies

