SWANS-SIG – Small Wastewater and Natural Systems Special Interest Group

NEWSLETTER No. 16 – MARCH 2013

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EDITORIAL

Water NZ has recently overhauled its web-site which has resulted in changes to the web-link addresses for SWANS-SIG and the OSET NTP (On-site Effluent Treatment National Testing Programme). Although these can be accessed through the main website at www.waternz.org.nz if you want direct access go to:

- SWANS-SIG at www.waternz.org.nz/Category?Action=View&Category_id=96; and
- OSET NTP at www.waternz.org.nz/Category?Action=View&Category_id=132

It may be useful to place these sites in your "favorites" listing within your web explorer.

One link that was a feature of the old web-site was the Web Forum. At the moment it appears this link is still to be added, but meanwhile the forum can be accessed directly at http://forum.waternz.org.nz. The forum provides a means for each Special Interest Group (SIG) to interact with its members and others (including members of the public). The SIG forum additional to SWANS-SIG include 3 Waters, Stormwater, Modelling, Backflow, Trade Waste and Small Water Systems.

Activity on the SWANS-SIG forum has gone quiet during 2012 with only two topics entered for discussion, the latest in May. Overall the most viewed and responded to topics were:

- Antibiotics and septic tanks [July 2011], with seven responses and 4449 views to date.
- On-site domestic wastewater treatment units [January 2010], with 5 responses and 6643 views to date.

The topic re "on-site wastewater treatment units" was initiated as a precursor to the development of a "Directory of Manufacturers/Suppliers" for NZ. This directory is now published and updated regularly through the SWANS-SIG web-pages accessed as above, with the latest edition being November 2012.

The antibiotics topic elicited seven responses of which three recommended dosing with bacterial enzyme products to assist restoration of treatment performance following upset from antibiotic impacts. Two of these responses mentioned one specific NZ product. Although it is clear antibiotics can be detrimental to septic systems (as well as domestic aeration treatment units), usually the impact has occurred before homeowners become aware of problems with their treatment unit and soakage fields. A 2010 fact sheet from the University of Minnesota suggests that once the problem is identified and the impacts remedied, ongoing operation of a septic tank and soakage field in conjunction with antibiotic use can continue if the septic tank is pumped out more frequently, and an effluent filter is installed (with an alarm system to indicate poor solids settling) to protect the soakage field.

So, the SWANS-SIG web forum provides a means of seeking and sharing information and opinions on topical issues – over to you to make use of it.

Ian Gunn, Editor
[ian.gunn@xtra.co.nz]

NOTES from the CHAIR

Time for Reflection Two Years On

For us dealing in on-site systems and small community wastewater, grinder, STEP/STEG and Vacuum systems are part of our language. They are flexible, resilient, they can be above the water table, they do not need manholes and gradient is not an issue. They are also usually very cost effective. Following the Christchurch earthquake, they are now becoming part of the rebuild infrastructure for NZ's second largest city and look here to stay. So SWAN members have been leading the way in this regard. Now all we need to do is convince the larger cities to decentralise. We see this occurring in larger cities around the world where the cost of upgrading conveyance infrastructure to a central plant becomes so prohibitive, they build new plants on the city outskirts. This means in times of crisis, not all your eggs are in one basket. If CHCH had a plant on the western part of town where most of the growth is, not only would it have been out of liquefaction zones but it is close to where there is a demand for the water. Roll on another summer and we are into a drought with some farms reaching their annual irrigation water allocation at the end of February. A high quality wastewater would be snapped up, although it really can only go to non-dairy farms (in theory it can go to dairy farms but the risk as to what may change in the future is high) but more importantly, it can be used to recharge the aquifers in winter that would allow further allocation of the soil/gravel filtered water in summer. Sorry but that was my annual moan about the waste of a good resource which we do not see in water-short countries.

So what can we do? Keep canvassing for decentralisation. Keep canvassing for water reuse, particularly on the eastern side of NZ. Keep canvassing for combined discharge systems if land treatment is too expensive, i.e. combined land and water systems (CLAWD) and combined land treatment and land disposal (CLATAD).

Water NZ Annual Conference

We need to ensure that we receive a number of papers with the SWANS theme or there is a possibility we will lose the separate SWANS stream which has featured in past conferences. So with the call for abstracts deadline quick approaching (Wednesday 7 April), please submit a paper and put on it for SWANS. As a group of SWANS members we have great experiences we should share, and these can help to enlighten the more traditional focused advisors amongst us. We are dealing with novel and innovative ideas which need sharing, especially if we have our client's best interest at stake, being the development of long term sustainable wastewater solutions.

Regional Meetings

If you have any regional issues or feel inclined to organise or host a Regional Meeting then please let us know and we with the help of Water NZ will help organise with guest speakers, invitation circulation, etc.

Rob Potts
Lowe Environmental Impact Ltd

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NZ LAND TREATMENT COLLECTIVE ANNUAL CONFERENCE, 2013

This meeting takes place over three days Wednesday 10 to Friday 12 April at the Marlborough Convention Centre in Blenheim. The conference flyer outlines the theme and purposes of this meeting as follows:

<u>Theme:</u> Water – What is it worth?

The 2013 NZLTC annual conference will explore the issues associated with increasing water demand and decreasing water quality in New Zealand. Speakers will outline advances in research and technology that will improve understanding of water use and reuse in our environment.

While land application of wastewaters has been advocated by most regional councils as the preferred method of treatment and final discharge, there are ongoing impacts on water quality, and in particular the aquaculture industry. This conference will focus on the growing move toward better utilisation of wastewater for both economic and environmental benefit.

Keynote speakers and their topics comprise:

(a) Brian Rogan, Ministry for Primary Industries	"Shellfish need clean growing waters"
(b) Colin Gray, Marlborough District Council	"Winery waste – issues and opportunities"
(c) Brent Clothier, Plant and Food	"Water Services: sustaining returns on investment into natural capital"

Conference sessions are:

- Water use and impacts from wastewater;
- Functional biosolids and environmental sustainability;
- International perspective – common issues, trends and new science;
- Small community and individual on-site wastewater treatment;
- On-site wastewater treatment update from 2012 workshop;
- Managing land treatment systems; and
- Behaviour change and social sustainability.

The Friday field trip will visit two wineries (viewing sustainable practices and wastewater treatment), the Blenheim wastewater treatment plant, and a project harvesting wild algae from municipal wastewater.

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<u>WATER NEW ZEALAND ANNUAL CONFERENCE & EXPO, 2013</u>

Venue is the Claudelands Event Centre, Hamilton, 16 to 18 October.

Timetable is as follows:

• Call for Abstracts close	Wednesday 7 April
• Authors notified of selection	Friday 14 June
• Registration open	Wednesday 26 June
• Poster Summaries close	Monday 19 August
• Final papers due	Thursday 22 August
• Earlybird Registration closes	Friday 23 August
• Presentations due	Friday 4 October

SWANS-SIG papers are required in topic areas associated with

(a) on-site wastewater management;
(b) small community wastewater treatment and servicing; and
(c) natural systems such as wetlands and land treatment in managing small wastewater flows.

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ON-SITE WASTEWATER WORKSHOP – a NZ LAND TREATMENT COLLECTIVE EVENT, November 2012

The following summary of this workshop was circulated to all attendees on 19 December 2012, and has subsequently been included as a feature item in the NZLTC February 2013 newsletter. The item has been reproduced here in full for information of SWANS-SIG members, with thanks to NZLTC.

On-site wastewater workshop – Do we need change?

Hamish Lowe[1] and Virginia Baker[2]

1 - Lowe Environmental Impact – Hamish@lei.co.nz
2 - ESR - Virginia.Baker@esr.cri.nz

On 14 November 102 people attended the New Zealand Land Treatment Collective one day workshop at Scion in Rotorua to discuss the status of onsite wastewater management in New Zealand. On-site wastewater management in New Zealand and internationally was presented, discussed and a series of issues that need further attention were identified. Participant breakdown was 27 % regulators, 40 % technical advisors and 32 % suppliers and installers.

National and International Status

Ian Gunn – On-Site NewZ: set the New Zealand scene and provided an overview of the OSET testing facility. Ian presented a forward view which requires the need to consider more than treatment plants, and highlighted the importance of training.

Sarah West – Victorian EPA: summarised the Australian testing facilities, including the duplication that is occurring as a result of individual state testing programmes. This is adding costs to manufacturers. A number of limitations with NZ/AS 1546 and the opportunity for adopting the European Standards (ES) were discussed. A comparison of the OSET, 1546 and ES evaluation systems was made.

Nick Noble – Orenco, USA: described the National Sanitary Foundation (NSF) testing processes for on-site wastewater systems. A key aspect of the US testing is systems get a pass or fail, with no grade being provided. Nick highlighted a key industry frustration was despite passing NSF testing there was also a need to have systems approved by individual states.

Issues of particular note from this plenary session included:

- There is currently duplication between councils (within NZ) and states (within both US and Australia) and there is scope for greater collaboration/coordination within the same country.
- The OSET facility has a programme which is comparable with other international programmes, including NSF and the ES, and in some cases is superior.
- New Zealand could look to adopt parts of existing standards to enhance the current testing facility in Rotorua
- There will be regional differences which may affect the validity of treatment site results, but this has to be accepted to avoid duplication of testing facilities.

Regional Status

Keith Peacock – Hawke's Bay Regional Council: described the history of the region's monitoring and investigation programme and how this has been refined, now leading to a system, designer and installer accreditation system.

Judith Robinson – Gisborne District Council: presented the view of a unitary council and highlighted the benefit of health protection officers being actively involved in consent processing and setting regional rules. Local collaboration and participation was seen by Judith as being essential in the development of new rules and on-going management requirements.

Trisha Simonson – Waikato Regional Council: the actual number of failing systems are not as high as initially thought, and corrective action is usually undertaken with health officers without the need for enforcement action. Despite this considerable effort is going into risk assessment work to identify risk areas for future management.

Key Issues

The participants were divided into groups of 10 and Virginia Baker facilitated a series of discussions to identify key issues of interest to the industry. A ranking process was used to identify critical issues, which are summarised below.

Issue	Priority rating	Priority count
Regular servicing	1	19%
Accreditation - systems/designers/inspectors/regulators	2	14%
System design - appropriate and complete	3	11%
Homeowner/customer education	4	11%
Training	5	10%
Robust testing	6	10%
Accreditation - installers/maintainers	7	7%
Place of low cost/simple systems	8	5%
Database	9	4%
Occupancy/Regulations	10	3%
Conflict of Interest	11	3%
Regulatory Collaboration	12	2%
Self-Governance	13	2%

The participants were also asked to identify the issues that they saw as being the easiest to address, being those that could be done easily, quickly and will minimal financial input.

Issue	Ease rating	Ease count
Regular servicing	1	21%
Accreditation - installers/maintainers	2	18%
System design - appropriate and complete	3	14%
Training	4	9%
Accreditation - systems/designers/inspectors/regulators	5	8%
Robust testing	6	7%
Homeowner/customer education	7	7%
Place of low cost/simple systems	8	5%
Self-Governance	9	4%
Database	10	3%
Regulatory Collaboration	11	2%
Conflict of interest	12	1%
Occupancy/Regulations	13	1%

The top 6 priority issues were examined in further detail with groups asked to identify solutions to a number of questions, including:

1. What is the change or improvement you are wanting? What different outcome do you want? Inputs/outputs?
2. Who is impacted? Who will benefit from the change? Who might be adversely impacted?
3. Who needs to be involved? Who do you need to work with to make the change?
4. Who owns this issue? Who has the power to block or undo the change you are seeking?
5. What sets of conditions need to exist or happen to make this change? What are your assumptions? What is your big picture?
6. What are the givens (i.e. regulations), the things that you need to work with or around? What are the constraints, uncertainties or unknowns?
7. Is money needed for the change, and if so how much and who is going to pay for it?
8. Who is best (person or group) to make the initial step for change?

A summary of the responses to questions for the top 5 issues is to be presented at the LTC Annual conference in Blenheim in April 2013.

The workshop exercise and how it was facilitated allowed a room of mixed opinions to be consolidated into common views. It was very clear that the views and priorities of regulators were different to the installers. Regulators wanted minimum designs and a clear demonstration of competence. Industry personal wanted a level playing field which was nationally consistent.

Amongst debating the priority issues there was interesting and constructive questions and answers. This allowed all to better understand the issues facing the industry. An example of a particular issue was the simple fact that while considerable effort is being placed on developing testing facilities and management of Advanced Wastewater Treatment (AWT) Systems, good old septic tanks were used in up to 75 % of installations in some regions. This highlighted the need to ensure that focus is not side-tracked by AWT systems, which while important and have their place despite only making up a very small portion of on-site systems used nationally.

Another example is the difference in management, approval and regulation being adopted by both district and regional councils throughout the country. While the regional variations often reflected the requirements of that region, there was a frustration that neighbouring regions had different approaches to the same issue. The potential for national standardisation on some issues was seen as a key aspect of coordinating the industry going forward.

Considerable debate stemmed from views on an integrated national database to track the location and performance of systems. There were strong views on this with the very clear message that such a database, despite some logistical setup and financial constraints, was seen as a positive step forward for the industry. However, in the prioritisation exercise a national database scored relatively low (9^{th}) on the list of priorities.

A forward process was identified to make the workshop more than a talk fest. This consisted of taking several critical issues and developing them further with the help of a steering group made up of people from the day. This group would seek to develop a plan and secure funding to assist with implementing any changes. The highest priority was a consistent national plan for regular servicing. Details of this plan are to be developed and feedback will be sought from the steering group before it is discussed further with regional councils, with an agreed to plan presented at the LTC Annual conference in Blenheim in April next year.

Marie Dennis the LTC Technical Manager coordinated the day, with Hamish Lowe (Lowe Environmental Impact) chairing, and Virginia Baker (ESR) facilitating the workshop sessions.

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RECENT ON-SITE WASTEWATER MANAGEMENT BLOG POSTINGS

The On-Site NewZ blog site at http://onsitenewz.wordpress.com has posted a number of items related to the following technical topic areas:

- Gravellless trenches and fabric/textile wrapped distribution pipes;
- Greywater management and water reuse;
- On-site wastewater systems – improving performance via remedial actions;
- Compost toilet guidelines; and
- Flooding and on-site wastewater systems – an update.

There are also several postings providing guidance/commentary on the use of the AS/NZS 1547:2012 "On-site domestic wastewater management" which replaced the 2000 version of this joint Australia/New Zealand standard in February 2012. These include:

- A set of expanded "contents" pages;
- A topic index;
- Changes and revisions from the 2000 version to the 2012 version;
- An editing and interpretation commentary;
- Provisions related to use of LPED irrigation systems (a new section within the Standard);
- Loading certificate (a new provision within the Standard); and
- Design reporting provisions within the Standard.

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