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PROPOSED NATIONAL ENVIRONMENTAL STANDARD FOR ON- SITE WASTEWATER SYSTEMS

**Submission to the Ministry for the Environment
26 September 2008**

BACKGROUND TO IPENZ

The Institution of Professional Engineers New Zealand (IPENZ) is the lead national professional body representing the engineering profession in New Zealand. It has approximately 10,000 Members, including a cross-section from engineering students to practicing engineers to senior Members in positions of responsibility in business. IPENZ is non-aligned and seeks to contribute to the community in matters of national interest giving a learned view on important issues, independent of any commercial interest.

BACKGROUND TO INGENIUM

Ingenium is an incorporated society that exists primarily to uphold and improve the status of engineering and management of public assets in New Zealand. Membership is open to persons in the service of or, having served local government, or provided public asset engineering and/or management services in New Zealand. Ingenium has 895 members as at 31 August 2008.

EXECUTIVE SUMMARY

There is general agreement that there is a problem in many areas of New Zealand, and that the issues need to be regulated in some form. A licensing and re-inspection regime seems to be the most appropriate means of doing this.

However IPENZ and Ingenium raise questions of where should the functions reside – with the regional council or the territorial authority? In the interests of the system owner (customer), IPENZ and Ingenium believe that the operational regulatory function should be with the territorial authority. There is also a question of what is the most effective regulatory mechanism: an NPS under the RMA; a bylaw under the Local Government Act; or a building consent under the Building Act. This issue should be revisited.

The regulation of on-site systems needs to cater for a wide variety of circumstances – this will require a degree of flexibility on the inspection interval, pump-out requirements, checklists and requirements for levels of treatment.

Compliance costs for the regulators and the regulated were a major concern for our members and it will be important that the regulatory mechanism chosen takes this into account.

SUBMISSION

The following are our responses to the specific questions contained in the discussion paper.

PROBLEM STATEMENTS

1. HAVE THE PROBLEMS BEEN DEFINED CORRECTLY?

1.1 A LARGE NUMBER OF ON-SITE SYSTEMS IN NEW ZEALAND ARE NOT PERFORMING IN A WAY THAT PROVIDES ACCEPTABLE LEVELS OF TREATMENT

It is agreed that there are a large number of on-site systems that are not performing. In NZ we have large areas of poor soils for on-site systems and high rainfall areas which often coincide with high deprivation index (DI) communities. Areas of concern for on-site can be anywhere in NZ, but Far North, Eastern BOP and East Coast are of significant concern. We have been advised that the Ministry of Health, through its Health protection officers, gets reports of on-site problems virtually NZ wide.

1.2 FAILING ON-SITE SYSTEMS ARE CAUSING ADVERSE EFFECTS ON THE ENVIRONMENT AND CREATING RISKS TO HUMAN HEALTH.

There are problems with on-site systems impacting on the environment, related to nutrient discharge to surface waters, such as lakes, and also in coastal areas. However, the greatest concern with on-site systems is the public health risk. Each failing tank / system has potential to expose the residents (and possibly neighbours) to direct contact with untreated sewage effluent. On-site systems also contribute to effects on ground water quality in areas such as Canterbury, on alluvial soils with important unconfined aquifers.

1.3 THE CURRENT REGIME IS FAILING TO RECOGNISE OR ADDRESS THE PROBLEM AND REGIONAL COUNCILS LACK THE TOOLS TO PROACTIVELY SEEK TO MINIMISE ADVERSE EFFECTS FROM FAILING ON-SITE SYSTEMS.

Regional Councils have been obliged to accept the existence of on-site systems and the most process efficient mechanism at their disposal was by making on-site systems a permitted activity and exempt from requiring a discharge consent. However, the more significant problems are the planning consents and building consents issued by the territorial authorities. It is the sub-division consent and then the building consent process which has allowed on-site systems where they shouldn't have been, often with the building consent issued and checked by people who are not suitably qualified in on-site systems. Once built they are rarely ever checked by territorial authorities again in their life. This NES could be seen partly as a result of territorial authorities not carrying out these functions effectively.

Inadequate management is the primary cause of the high number of failing systems in New Zealand closely followed by inappropriate systems being installed in marginal soils which have difficulty in absorbing the effluent.

Failures are often related to the lack of knowledge of new owners of what they have, how to look after it, how to use it, operation and maintenance requirements, poor construction, councils not requiring designers to do construction inspections, poor site assessment, cheap systems not up to the task, active treatment systems being used in intermittent occupancy situations, changes in design occupancy, and high groundwater conditions. Councils that have chosen to consent complex systems have contributed to these problems.

2. ARE THERE OTHER PROBLEMS YOU CAN THINK OF?

Other problems include:

- Inappropriate subdivision consents allowing on-site systems where reticulation should be required.
- Approvals for on-site systems with inappropriate design for the soil conditions
- Systems not built to specification but approved by the council who often don't have appropriate staff for inspecting on-site systems.
- Councils not knowing where the on-site systems they have approved are, or what special approvals they have given – such as secondary systems, or where they have allowed re-use of grey-water.

Also it is well known that modern mechanised systems are often not performing well due to their sensitivity to operation and maintenance conditions and poor owner knowledge. The poor performance of on-site systems is often not an environmental problem as such. Many problems are due to poor design / construction / operation / maintenance and this is irrespective of the location.

3. WHAT IS THE MAGNITUDE OF THESE PROBLEMS?

This is covered above in 1.1. Surveys carried out over the years (especially for secondary systems) often follow the 1/3, 1/3, 1/3 rule. That is approximately one third of on-site systems are performing OK, one third with minor problems and a third with significant problems, e.g. Hawkes Bay and the EBOP regions.

It has to be acknowledged that in some areas there is not a major problem. Depending of soil characteristics, and water table levels, often landowners will not tolerate having an overflowing stinking wastewater discharge and will get something done about it. Systems that are overloaded for short periods at peak holiday times also recover in between. Councils know what areas are bad - generally very high intensity development and/or high water table conditions.

THE OPTIONS

4. DO YOU AGREE WITH THE POLICY OBJECTIVE?

We agree with the policy objective however, in our view, the policy objective is stated the wrong way around. The objective is to minimise risk to people and the environment from the cumulative effects, etc. The mechanism to do this is to “improve the management” – this is not the objective.

5. IS THERE AN ALTERNATIVE APPROACH THAT HAS NOT BEEN CONSIDERED?

We suggest that an additional feature of the system could be to engage contractors to undertake the inspectorate function and when servicing the on-site wastewater system, report on its condition and efficacy. It was always envisaged that this would be a natural progression for the WasteTRACK system. This is discussed further under Implementation - Question 15.

6. DO YOU AGREE WITH THE ANALYSIS PROVIDED IN THIS SECTION?

We do agree with the overall analysis. The lack of monitoring of the operation and maintenance of on-site systems, and territorial authorities not requiring this to be carried out, was considered by the AS/NZS 1547 committee, to be a major reason for failures. AS/NZS 1547 has promoted the concept of regular 'warrants of fitness' since 2000 but has been little taken up by local authorities.

THE PROPOSED STANDARD

7. DO YOU HAVE ANY GENERAL COMMENTS ABOUT THE PROPOSED STANDARD FOR THE INSPECTION AND MAINTENANCE OF ON-SITE WASTEWATER SYSTEMS?

WHO SHOULD ADMINISTER?

In order to decide whether the standard should be administered by regional councils or territorial authorities, the Ministry for the Environment need to reflect on the original principles of the allocation of functions under the RMA. In essence, water (catchment related) issues are region related, and land use issues are local in nature – hence the allocation of functions. There is also the subsidiarity principal – functions should be devolved to the lowest level possible to achieve the best outcomes. On-site wastewater systems are related to both water impacts and land use, so there can be a case for assigning this function to a region or a territorial authority. The issue then becomes one of administrative simplicity – and here the needs of the regulated (the customer) need to be considered. We note that the discussion document points out the ability to transfer powers to territorial authorities under Section 33 of the RMA.

To expand on this issue and highlight the mix of roles, currently for a building consent the territorial authority has a responsibility to know that wastewater is going to be discharged properly. It has to determine if the wastewater is going to be discharged to a reticulated system or to an on-site system. If it is an on-site system the applicant needs to demonstrate that it meets the discharge requirements set by the Regional Council i.e. it is a permitted activity or it has some specific design that has been consented. The responsibility for the monitoring of this installation falls to the Regional council. The territorial authority has carried out its Building Act requirements by ensuring that the wastewater is being disposed in an approved manner. Currently the role of a territorial authority under the Building Act does not cover management of discharges.

In terms of land use the territorial authority will consent a subdivision and it has to determine if the wastewater is going to be discharged to a reticulated system or to an on-site system. The reticulated system is likely to be vested in the council and the on-site systems will need to be installed and owned by the property owner. Again, the on-

site system will be discharging and the property owner will need to meet the Regional Council requirements.

If an NPS mechanism is finally chosen (and we are not convinced this is the appropriate mechanism – see below) regional plans should contain an outcome statement and policies on this issue and these should require the territorial authorities to administer the on-site systems to achieve the outcome ensure compliance with the standards. The administration should be undertaken by territorial authorities. They issue land use planning consents, and building consents, so it is consistent and efficient for them to also administer the NES provisions. For regions to administer the NES places an additional compliance burden on applicants.

The territorial authorities could have four key roles:

- The approval of the on-site treatment and disposal system at the time of construction and occupancy of a new dwelling (or commercial complex). Occupancy should not be permitted until the on-site system has been inspected and certified as functional (amongst other requirements of the Code Compliance procedures).
- They should have a requirement to ensure that the on-site system is inspected and certified at the inspection interval. (are able to sub-contract this)
- They should maintain a register of all on-site systems and ensure that the tanks are desludged at regular intervals.
- They also have a responsibility to ensure that there is a convenient facility or facilities within their district for receiving and treating the sludge (septage) that is sucked from the on-site treatment systems. They cannot take the approach that the disposal of the septage is the responsibility of the septic tank servicing company. They should insist that all septic tanker operators in their district are members of WasteTrack.

We note the discussion document does not canvas this issue of who should administer the NES.

WHAT IS THE APPROPRIATE REGULATORY MECHANISM?

Also, we find the discussion on the option of using the bylaw making powers unconvincing. Of course government can require a mandatory by-law –and Standards NZ produce model by-laws to achieve consistency. There is also merit in considering using the Building Act and Building Code provisions. Consideration of both these mechanisms needs further consideration.

8. SHOULD THE PROPOSED STANDARD APPLY TO PRIVATE DWELLINGS ONLY, OR SHOULD IT APPLY TO ALL ON-SITE SYSTEMS (INCLUDING CONSENTED SYSTEMS) THAT TREAT DOMESTIC WASTEWATER, INCLUDING HOTELS, MOTELS, CAMPING GROUNDS, RESTAURANTS, SCHOOLS AND MARAE?

It should apply to all on-site wastewater management systems, in order to provide national consistency. Some of the facilities mentioned in the question are the worst performers.

However there may be a case for considering a different approach for larger systems serving hotels, motels, camping grounds, etc. This may be the inspection interval, the inspection checklist, and the qualifications of the inspector. We suggest this needs further evaluation.

9. DO YOU AGREE WITH THE INSPECTION INTERVAL OF THREE YEARS?

This inspection interval assumes that the maintenance is only for sludge build up and three-yearly would cover this, but this is just one thing the inspection should be looking for. The state of the disposal field is of utmost importance and once this fails, the pump-out does little except provide temporary relief. Secondary treatment units such as AWTS have amongst the highest rate of failure and provide the greatest risk, as the improved effluent quality is being relied upon.

In addition, there is a case for a shorter inspection period for systems installed in water catchments identified as sensitive, or adjacent to sensitive water bodies.

There may be also a case for shorter inspection intervals for components of the system – particularly the soakage disposal field. This may be warranted in soils with poor soakage characteristics.

For holiday homes, there could be a case for a longer inspection interval, but the compliance system would need to monitor the usage.

Also a longer interval could be argued for remote locations in the interests of cost and practicality.

We suggest:

- Three yearly for basic on-site systems in suitable soils and no major problems
- Yearly for basic on-site systems where there are significant problems
- Annually for all secondary treatment systems such as AWTS
- Annually for all systems in sensitive catchments or for systems installed adjacent to sensitive water bodies.
- Annually in soils with poor soakage characteristics
- Longer intervals for holiday homes.

10. SHOULD ALL INSPECTIONS BE COUPLED WITH AN IMMEDIATE PUMP-OUT?

Without pump-out the tank is not able to be checked for cracks / leaks etc. Surveys in BOP actually found many tanks with no bottoms. For three-yearly inspections, as a general rule we consider a pump-out be required. A standard tank with normal residential loading will need a pump-out about every three and a half years. However if the inspection indicates that the sludge levels are low after the first three years, then the inspector should have the discretion to require a pump-out after a longer period – e.g. six-yearly. This is because a pump-out is a disruption to the anaerobic process.

For shorter inspection intervals as suggested above, and where there are no sign of problems, a pump-out should not be required. However pump-outs should be required to be undertaken as a minimum, when the sludge depth exceeds half the tank depth - which could be checked annually and reported by the system owners.

However for holiday home tanks, a pump-out can be much less frequent as the tanks can often go over 10 years between, as they process the waste more in the time between occupancies.

11. DO YOU AGREE WITH THE PROPOSED CRITICAL COMPONENTS FOR THE CHECKLIST?

A checklist is required and should include catch-all provisions so that the inspection is not limited. To achieve this, there should be mandatory elements and discretionary elements to enable the list to be tailored for local conditions and types of systems. There is no reference in the check list to the soakage disposal field – one of the most critical aspects for on-site systems.

Discretionary elements could be used to manage, for example, holiday home systems such as in the Marlborough Sounds. These receive a short period of intense use in the middle of summer and older systems usually cope with this.

Systems that do not use septic tank type storage as part of their treatment regime (e.g. systems that separate grey and black water and use alternative means of treating solids in black water) are not catered for in the proposed checklist regime and need to be provided for.

12. SHOULD THE PROPOSED STANDARD PRESCRIBE A MINIMUM LEVEL OF TREATMENT?

This would not be wise, as there are many different soil types, topography and dwelling uses that could apply and these need to be considered on a site by site basis. The main treatment is done by the soil, and the effluent quality needs to be compatible with what the soil can accept. On-site systems vary tremendously in the quality of the effluent they are able to produce and different systems suit different situations. The checklist item of the “summary assessment of performance” is a better mechanism for considering the appropriateness of the level of treatment.

IMPLEMENTATION OF THE PROPOSED STANDARD

13. SHOULD THE PROPOSED STANDARD BE LIMITED TO TARGETTED AREAS OR APPLIED NATIONALLY?

It should be applied nationally. We can no longer allow nationally inconsistent standards to prevail in the environment. The exception is to have higher standards in sensitive catchments or adjacent to sensitive water bodies, as discussed above.

We note the proposal does suggest that a risk based approach is undertaken to ensure it would have the greatest benefit. Using the risk assessment, councils would identify the specific areas it would be applied. This is supported.

14. DO YOU AGREE WITH THE RISK ASSESSMENT METHODOLOGY AND THE PROPOSED CRITERIA FOR IDENTIFYING TARGETTED AREAS?

There needs to be care taken with the term “potential” risk to the environment and perceived risk. It needs to be clear that there is a real risk to the environment.

The parameters are not exhaustive. Other parameters could be:

- Does the territorial authority allow garbage grinders to be fitted to houses on septic tanks?

- Is it an area where overcrowding is common putting more load on the system? It is common in some areas to find 10 + people in houses of three bedrooms, a garage and a sleep-out.

15. DO YOU SEE ANY PROBLEMS WITH THE IMPLEMENTATION AND ADMINISTRATION OF THE PROPOSED STANDARD?

15.1 TIMELINESS

As discussed above – using the RMA and regional and district plans means it will take many years to implement as councils undertake the lengthy process to introduce variations to their plans. This is much less of a problem with a by-law mechanism.

15.2 SYSTEM FAILURES

A further significant implementation issue is with complete system failures – i.e. when an inspection identifies that a replacement of the system is required due to clogging disposal fields or any of a number of other irreparable deficiencies. The question of how this should be addressed will have wide ranging answers and the solutions, in some cases, might not be economic to the property owner. Will this mean the house is not habitable? What will be the regulatory response to this? The Building Act mechanisms might be more applicable than RMA mechanisms.

15.3 COMPLIANCE COSTS

Also, those who are regulated (customers), have additional compliance costs as they need to get planning and building consents from the territorial authority, and this consent from a regional council. It is our view that many regional councils will not devolve this responsibility to the territorial authority.

15.4 SUB – CONTRACTING OF THE FUNCTION

In addition it may be efficient and effective in some cases for the existing contracting force to deliver an inspectorate function for the councils. This could be held on a National Register, which we note already exists in the form of WasteTRACK. Those contractors who are found not to be reporting appropriately can be policed through the process of auditors that has already been established through WasteTRACK. If they do not perform their inspectorate role, their ability to operate WasteTRACK can be restricted.

There will also need to be changes to and expansion of WasteTRACK and consequential training of inspectors to cover on site soakage and geotechnical / hydrological skills.

The inspectorate function being undertaken by contractors is not universally supported by IPENZ members, and it is clear that any conflicts of interest between the delegated regulatory function and the maintenance function are managed. Private service stations provide vehicle warrants of fitness and seem to manage this potential conflict of interest. Advice on this issue could be sought from the NZ Transport Agency.

15.5 COSTS OF ADMINISTERING THE NES

Also, many of the members of both organisations are concerned about the costs of administration of this NES. This includes costs to the regional and district councils, and the system owners. IPENZ is not convinced that the implementation has not been thought through enough in order to ensure the maximum gain in environmental and health benefits is achieved for the minimum cost to all parties.

15.6 WHO PAYS?

There needs to be some consideration of who pays, in accordance with Section 101 of the Local Government Act 2002. IPENZ and Ingenium support the polluter pays principal, but irrespective of the regulatory mechanism chosen, there will be split responsibilities between the regional councils and territorial authorities, and some costs will be incurred by the councils. There will need to be agreement between the two on where the costs should fall.

15.7 NEW DEVELOPMENTS

An additional issue is to consider how these provisions will relate to new developments and subdivisions. While there is a significant problem on existing properties reliant on on-site systems, the situation is not helped by sub-division of marginal properties and creation of small sections with little hope of meeting appropriate on site disposal requirements.

Developers should be required to investigate the suitability of all proposed lots within a subdivision, and be required to identify and nominate disposal sites on each lot, sized for the likely occupancy / building intended for the development. That site must be included on the title as reserved for on-site disposal.

Our concern is that the location and size of disposal sites is vital to the suitability of the property development, and yet it is obviously not taken into account until very late in the house design stage and is then located inappropriately. Adjacent property owners or the community should not have to deal with this situation.

16. WHAT WOULD BE AN APPROPRIATE TRAINING LEVEL FOR INSPECTORS / CERTIFIERS?

Over the years there has not been sufficient commitment by central or local government to the training and qualification of inspectors. There are a number of on-site systems on the market nowadays and this means that formal training of both the company representatives, contractors and the local authority inspectors is required.

Training will need to go beyond the level of technician – they must have enough theoretical training to be able to make judgement calls.

The training that should be undertake is the unit standard for on-site wastewater management.

COSTS AND BENEFITS OF THE PROPOSED STANDARD

17. HAVE THE COSTS AND BENEFITS BEEN ACCURATELY REFLECTED IN THE PROPOSAL?

See the answer to question 15.0.

18. ARE THERE ANY COSTS AND BENEFITS THAT HAVE BEEN OVERLOOKED?

See 15 above.

The biggest problem with assessing the benefits is estimating the health costs. New Zealand has the highest rate of three notified waterborne diseases in OECD. Failing on-site systems form an exposure route for these diseases (along with many others) but for the reasons set out in the document, they are very hard to quantify. Any estimate of health costs is likely to be a severe underestimate. This may also impact on our tourism industry – particularly at tourist accommodation, but again difficult to assess.

Costs that do not seem to be included are:

- The costs of informing, educating and training the system owners on the new system. It might be possible to include a small charge in the approval process to provide for system owner training. Training of new owners of properties with existing systems is more difficult.
- The costs of making changes to WasteTrack.

19. IS THERE ANY OTHER INFORMATION THAT SHOULD BE INCLUDED IN THE COST-BENEFIT ANALYSIS?

See above.

20. ARE THE ESTIMATES OF COSTS AND BENEFITS ACCURATE?

We accept that in many cases they are difficult to assess and to justify the NES on this basis. Nevertheless there is a widely held opinion among IPENZ and Ingenium members that regulation is required.

21. DO YOU HAVE INFORMATION ON COSTS AND BENEFITS THAT COULD ASSIST IN THE SECOND STAGE OF THE MINISTRY'S ASSESSMENT?

No comment.

22. DO YOU HAVE ANY INFORMATION ON COSTS AND BENEFITS THAT THE MINISTRY HAVE NOT BEEN ABLE TO QUANTIFY?

No comment.

OTHER COMMENTS:

CONCLUSION

IPENZ and Ingenium would like to thank the Ministry for the Environment for the opportunity to make this submission. If we can be of any further assistance please feel free to contact us.