

Regulatory Impact Statement

Proposed National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

Agency Disclosure Statement

This Regulatory Impact Statement has been prepared by the Ministry for the Environment. It provides an analysis of policy options to ensure that land affected by contaminants in soil is appropriately identified and assessed at the time of being developed and if necessary remediated, or the contaminants contained, to make the land safe for human use.

The types of costs and benefits that would arise from the National Environmental Standard (NES) can be readily identified. However, there is some uncertainty about the magnitude of these impacts. In particular, it is difficult to predict additional remediation costs and future public health benefits that may be generated by the NES. The estimates are sensitive to low certainty assumptions regarding the:

- amount of contaminated land affected by the NES
- reduction in risk to health from reduced exposure to contaminants
- resulting number of fatal illnesses subsequently avoided.

Consequently, the quantitative estimates produced by this analysis should be considered as indicative only.

It is also important to note, that many of the costs (i.e. remediation costs) are estimated for the 20 year period of the analysis until 2031. In contrast, because of a latency period of potentially 10 to 20 years between exposure and the onset of chronic illnesses such as cancer, the public health benefits would not be expected to arise until later, e.g. 20 to 40 years into the future. Due to the discounting of these future impacts any increase in the number of contaminated sites affected by the NES leads to a disproportionate increase in site investigation and remediation costs compared to the future public health benefits.

The NES may impose additional investigation and remediation costs on landowners and developers in those areas, where councils do not currently consider contamination issues when processing resource consent applications. The NES has the potential to restrict private property rights, where landowners want to change the land use, develop or subdivide land that is contaminated.

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Executive Summary

New Zealand has a legacy of soil contamination. Land affected by contaminants in soil needs to be identified, assessed and, if necessary, managed at the time of development¹ to ensure this land is safe for people to use. However, existing controls are either absent, inadequate or inconsistently applied. A National Environmental Standard (NES) is proposed that provides a suite of scientifically derived soil contaminant values that trigger an appropriate management action if exceeded. It also prescribes nationally consistent land-use and subdivision rules that ensure land is fit for its intended use. For example, if the land use history suggests that a sheep dip was operated on the land to be subdivided for residential use, then further investigations need to be carried out to delineate the contamination and, if necessary, to remediate the site before the resource consent application can be granted. Through these rules, the NES will enable economic use to be made of contaminated land while at the same time protecting the health of future residents. The impacts of the NES are expected to be greatest in those areas that have no explicit contaminated land rules or processes in place to address potential contamination and are unlikely to develop any in the near future.

Status quo and problem definition

Status quo: How is contaminated land managed in New Zealand?

The current framework for managing land contamination includes a mix of laws, guidelines and funding arrangements². Local government is responsible under the Resource Management Act 1991 (RMA)³ for controlling the effects of contaminated land. The Ministry for the Environment supports local government in this function through providing guidelines and making funding available for the assessment and remediation of high-risk sites. In the absence of a NES the Ministry will produce non regulatory guidance on planning controls and supporting soil contaminant values. This future guidance is also considered part of the status quo.

Problem: Legacy of soil contamination

The past use of chemicals (hazardous substances) in industry, agriculture and horticulture has left a legacy of soil contamination in New Zealand. A contaminant becomes a problem when it is at a concentration and in a place where it has an adverse effect on human health and the environment. However, not all contaminated sites pose a risk to people or the environment. An actual risk exists if a person, plant or animal could potentially be directly exposed to contaminants (e.g. skin contact, ingesting contaminated soil or produce, or inhaling contaminated dust particles). Therefore the contamination becomes more significant in places where food is grown, or in close proximity to buildings, people, water-bodies and important habitats.

¹ Development in this context includes subdivision, land disturbance and land-use change and excludes activities on production land.

² The full range of existing measures described in [Ministry for the Environment \(2007\). *Working Towards a Comprehensive Policy Framework for Managing Contaminated Land in New Zealand*](#).

³ Under section 31(b)(iia) of the RMA, territorial authorities are responsible for “the prevention or mitigation of any adverse effects of the development, subdivision, or use of contaminated land”.

It is uncertain exactly how many sites in New Zealand are affected by contaminants. Information collected by regional and unitary councils provides an indication of the number of sites identified so far. A recent survey⁴ of 11 regional councils identified 1895 sites confirmed as 'contaminated land' under the RMA. Of these sites:

- 669 sites have been remediated
- 754 sites are under management to ensure that the onsite contamination does not significantly affect the environment
- 472 sites remain to be cleaned up or managed.

Most timber treatment sites, gasworks and tailing dams are likely to be already identified and managed. However, there are many potentially contaminated sites that have been identified but not yet assessed. From information collected by regional and unitary councils⁵ the Ministry estimates that councils have identified approximately 20,000 potentially affected sites⁶.

There are also likely to be many sites that remain to be identified. For example, the Ministry estimates that there are thousands of sheep-dip sites distributed across New Zealand⁷. Their numbers, locations and how contaminated they are is largely unknown.

Problem: Inadequate planning controls for contaminated land

Development of contaminated land, especially earthworks and land-use change, can increase the risk of exposing people and the environment to contaminants. Planning controls are important, particularly at the time of development. A Ministry review⁸ of contaminated land provisions in district and city plans showed that the plans had widely variable controls and that most district plans do not yet reflect the amendments regarding the introduction of contaminated land functions made to the RMA in 2005.

This review of 73 district plan sets found that only 14 had rules that addressed their contaminated land function under the RMA⁹. Without specific rules, decisions on resource consent applications are more likely to be ad hoc and result in the inappropriate development of land that may:

- put people's health at risk
- provoke community concern and outrage
- initiate expensive post-development disputes and require remediation or containment to correct.

⁴ Survey conducted by Statistics NZ (2008). [*Measuring New Zealand's Progress Using a Sustainable Development Approach*](#).

⁵ Does not include Auckland Regional Council, which is likely to significantly increase this figure.

⁶ Potentially affected means those sites that have a history of a facility or activity that stored, used or disposed of hazardous substances.

⁷ Ministry for the Environment (2006). [*Identifying, Investigating and Managing Risks Associated with Former Sheep-dip Sites*](#).

⁸ Ministry for the Environment (2007), unpublished. "Contaminated Land" Review of District, Regional and Unitary Plans - available on request.

⁹ Under section 31(1)(b)(iia) of the RMA district councils have a function for: "the prevention or mitigation of any adverse effects of the development, subdivision, or use of contaminated land."

Experience from past incidences has also shown that the costs arising from inappropriate development and actual or potential exposure incidents can be high. Examples over the last 10 years include:

- response measures by central government to actual or potential exposure to dioxin at the former Ivon Watkins-Dow plant in New Plymouth with costs of around \$2 million generated over three years (including blood serum study)
- post-development costs for investigation and remediation of 12 properties on a former landfill site in Christchurch of close to \$900,000
- extensive community consultation about contaminated material exposed by earthworks at a closed landfill (now a recreational reserve) in Taranaki resulting in up to \$100,000 council costs in addition to direct site investigation costs
- legal disputes about residential development on ex-horticultural soils with varying levels of DDT, dieldrin, arsenic and lead in the Auckland region. According to Riskpool¹⁰ a typical claim imposes costs of around \$20,000 to \$60,000 to resolve, with total costs to society often in excess of \$100,000.

Problem: Soil contaminant values are inappropriate or inconsistently applied

The application of different soil contaminant values across various districts in New Zealand creates uncertainty for developers and industries and increases the potential for legal disputes between landowners and councils. Councils or contracted consultants often pick guideline values from international literature, which may not be entirely appropriate for New Zealand circumstances. Some councils have derived their own guideline values, that differ from each other.

Thirteen out of the 18 district plans that contain specific contaminated land rules still reference ANZECC 1992¹¹, which contains old and in many cases superseded guideline values. There are also some inconsistencies in the methodology of deriving guideline values between the different national guidelines due to their specific purpose. Many guideline values that were derived in the 1990s are not based on most recent scientific data anymore.

Objective and Assessment Criteria for Policy Intervention

The policy objective is to address the problems identified in the preceding section by:

Ensuring that land affected by contaminants in soil is appropriately identified and assessed at the time of being developed and if necessary remediated, or the contaminants contained, to make the land safe for human use¹².

The overall goal is not to instigate a search for all land that could be contaminated in New Zealand. Instead a targeted approach should apply, where at the time of development councils assess only land that is associated with a Hazardous Activities or Industries List (HAIL) activity or where information on their registers suggest that the land is contaminated or potentially contaminated. The priority is on protecting people as opposed to the wider

¹⁰ Riskpool is the mutual fund that indemnifies councils against liability claims.

¹¹ ANZECC (Australian and New Zealand Environment and Conservation Council). 1992. *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites*. ANZECC: Canberra, Australia.

¹² Objective is as stated in the section 2.3 of Ministry for the Environment. 2010 [Proposed National Environmental Standard for Assessing and Managing Contaminants in Soil. Discussion document](#).

environment. Some plants or animals are more sensitive to certain contaminants than humans. However, it is important to realise that the soil affected by contaminants has already been compromised, therefore, the imperative is not to restore the soil to its original condition but to ensure that it is at least safe for human use.

The following criteria are used to assess the suitability of each of the identified policy options.

- A. Provide certainty of policy content.** The solution should give councils certainty as to the detail of the policy content (e.g. providing specific plan rules and contaminant thresholds). This in turn should lead to fewer application and dispute costs for councils, landowners and industry with regard to the resource consent process.
- B. Create administrative efficiency.** The solution should be implemented with minimal administration and compliance costs and to avoid a lengthy and uncertain transition period. The solution should enable an efficient planning process. For example, the solution should avoid that every council has to develop and litigate its own planning controls relating to contaminated land.
- C. Promote national consistency.** The solution should promote the consistent identification, assessment and remediation of contaminated land across all territorial authorities in New Zealand. National consistency is particularly desirable for setting human health thresholds that apply equally to each New Zealander.

An assessment of each of the identified options against these three criteria is shown in Table 1.

Table 1 Assessment of policy options (summary)¹³

Policy Options	Criteria			Benefits, Costs, Risks and Opportunities
	A	B	C	
<p>Status quo</p> <p>Includes publishing overarching national guidelines that contains rules and soil contaminant values</p>	✓	✓	X	Provides a one-stop reference on deriving, selecting and use of soil contaminant values; descriptive; easy to update, but voluntary; may not be implemented by all councils due to lengthy and expensive plan change processes or no council priority; may not lead to national consistency. Risk persists that some councils don't identify contaminated land before development and may attract disputes, liability and remediation costs; health risks for people unknowingly living on contaminated land.
<p>Amend RMA</p> <p>Change contaminated land function (voluntary) to a duty (mandatory)</p>	X	X	X	Higher priority given to soil contamination is likely, but due to broad nature open to interpretation. Prescribing rules or methods would be an inappropriate level of detail and be inconsistent with the approach of the RMA. The lack of detail would lead to regulatory inconsistencies between councils.
<p>More specific requirements for assessing and managing soil contaminants</p>	✓	X	X	Would provide clear legal obligation, but inconsistent with the approach of the RMA and prescribe an inappropriate level of detail; would require significant amendments to RMA; revision of soil contaminant values would also require RMA amendment.
<p>Minister directed Plan change</p> <p>Directs councils to insert rules and soil contaminant values</p>	X	X	X	Advantage of requiring councils to specifically address the issue; high cost ¹⁴ of duplicating multiple plan changes, e.g. around 50 plans go through change process at same time including consultation, hearings and appeals; risk that capacity of available expertise and industry with national interest to submit on each plan is overstretched; likely that directions interpreted and drafted differently by each council (regulatory uncertainty).
<p>National policy statement</p> <p>Provides specific objectives and policies</p>	X	✓	X	Provisions could be inserted in all plans directly without plan change process, which saves costs and promotes national consistency in assessing contaminated land; content and choice of rules and technical methods still up to each council; which leads to uncertainty for industry and landowners.
<p>National environmental standard (NES)</p> <p>Provides specific rules and methods and soil contaminant values</p>	✓	✓	✓	Requirements legally binding; mandates immediate and consistent use, no direct plan change costs, prevents serial re-litigation of plans and resource consents; avoids lengthy uncertain transition associated with some other approaches.

¹³ A full description of each of the policy options is provided in chapter 3 of Ministry for the Environment (2009). [Proposed National Environmental Standard for Assessing and Managing Contaminants in Soil. Discussion Document.](#)

¹⁴ The Cost-Benefit Analysis estimates costs could be in the vicinity of \$15,000 - \$20,000 per council. If councils' Plan changes were appealed, the costs involved in this process may be much higher (\$50,000 - \$100,000),

Regulatory impact analysis of the preferred option: NES

The policy option best meeting all three objectives is the NES. The status quo is the non-regulatory guidance, where the contamination standards and planning controls contained within the NES would be published by the Ministry for the Environment as national guidelines. This is what is assumed to happen if the NES does not go ahead. The expected impacts of the NES are compared with this status quo.

This impact analysis¹⁵ suggests the total estimated costs of the NES are in the order of \$6 to 7 million over the next 20 years. The total estimated benefits are in the vicinity of \$4.5 to 10 million, noting that the majority of the benefits (e.g. chronic human health effects) occur in the future and have been significantly discounted. Comparing only the costs and benefits associated with assumptions of high certainty suggests that the net benefits of the NES, estimated at \$4 to 5 million, would outweigh the costs, estimated at \$0.5 to 1 million.

The estimated amount of contaminated land that would be affected by the NES would be around 100 hectares (housing around 1,200 dwellings). The amount of land affected is based on the following key assumptions:

- Based on the medium growth scenario population an estimated 5,500 hectares of land will be developed for residential purposes in areas without contaminated land rules and where land owners are unlikely to develop them
- 10 per cent of the 5,500 hectares (550 hectares) may give rise to potential contamination issues (based on council estimates of how much land triggers contaminated land rules)
- Approximately one third of these are likely to be granted with resource consent for development without any consideration of potential contamination issues. This amounts to 200 hectares of land, housing 2,300 dwellings (based on a low certainty Ministry assumption)
- Around half of the 200 hectares (100 hectares) may have levels of contamination that would present a danger to human health (based on study data and discussion with council officers).

By ensuring that contaminated soil is appropriately managed on this land, the NES could prevent an estimated 1,685 individuals¹⁶ from being exposed to harmful contamination over the next 20 years.

¹⁵ *Cost-Benefit Analysis of the Proposed NES for Assessing and Managing Contaminants in Soil to Protect Human Health*. Report prepared for the Ministry for the Environment by Covec. August 2010- available on request

¹⁶ Average number of people per dwelling is 2.7.

Table 2: Estimated costs and benefits¹⁷ of NES compared with the status quo

Certainty	Estimated Benefits	Estimated Costs
High	Avoided Plan change costs for councils • \$1 million ¹	Information systems upgrade • \$0.5 – 1 million ²
	Avoided Plan change submission costs • \$1.5 million ³	
	Reduced consent application costs (e.g. disputes regarding SGVs) • \$0.5 million ⁴	
	Avoided consent costs for tank pulls • \$1 - 2 million ⁵	
Low ⁶	Avoided contamination response costs for local and central government • \$0 – 2 million	Increased remediation costs • \$4.5 million
	Avoided public health costs • \$0 – 1.5 million	Increased consent application and investigation costs • \$1 million
	Avoided post-development remediation costs • \$0 – 0.5 million	Reduced property values • \$0 – 0.5 million
	Avoided post-development dispute costs • \$0.5 - 1 million	
	Potential environmental benefits • Unquantified	
Totals	Benefits (at least) • \$4.5 – 10 million	Costs • \$6 – 7 million

Notes:

1. Based on around 50 councils implementing their own rules over the next 5 to 10 years, with three councils implementing their own contaminant standards; also five councils have their proposed changes appealed to the Environment Court.
2. Based on average costs of around \$10,000 to \$20,000 per council for around 40 to 50 smaller councils with two or three larger councils incurring \$100,000 in costs; costs are spread over the next two years. Although an information systems upgrade per se is not a mandatory requirement of the NES, councils will need to assess how best to support NES implementation.
3. Assumptions that, without the NES, around 50 councils would amend the contaminated land provisions within their District Plans at their regular 10 year review; each proposed change would attract an average of 10 small (local) submitters and four large (national) submitters, with five proposed changes appealed to the Environment Court.
4. Assuming that the NES reduces minor disagreements regarding one or two consent applications per year this could avoid costs of around \$20,000 to \$40,000 per year (for both parties combined). Additionally, if over the next 20 years three application disputes that would otherwise be resolved in the Environment Court are also avoided, the total benefit could be in the order of \$400,000.
5. According to industry sources, there are around 200 fuel tank pulls per year, with around 10% currently requiring resource consent. The additional cost to applicants of obtaining resource consent is typically in the order of \$5,000 to \$10,000.
6. See full cost benefit for detail for assumptions with low certainty.

Distribution of impacts

The impacts of the NES would vary across the country. The NES would be expected to result in contamination rules and standards that are stricter in areas where councils currently have no such rules or standards and are unlikely to introduce any. In other areas (mostly metropolitan), where councils have already implemented contaminated land rules and standards¹⁸, the NES could result in planning controls and contaminant thresholds that are comparable or more lenient. Councils will not be able to set stricter controls under this NES.

¹⁷ These costs and benefits are given in present values over a 20 year period. Future impacts are discounted at 8%, therefore, figures in this table do not necessarily reconcile with individual examples of costs and benefits quoted elsewhere in this paper.

¹⁸ 18 councils with contaminated land rules plus 5 councils without rules but with effective processes in place.

Overall, a large proportion of the costs of the NES are expected to fall on landowners. The NES may be perceived to lead to more equitable outcomes, because landowners, who gain from developing their properties for residential use, would be more likely to face the full social costs of developing this land to a level that meets the required safety standards; some proportion of these costs may be passed onto any subsequent purchasers. The benefits of the NES are expected to accrue across the wider community, particularly the public health benefits of reduced risk of contamination-related illnesses. Fewer contamination incidents may also reduce response costs to central government, and ultimately taxpayers.

Costs of NES

The NES would impose the following costs on society:

- Additional administrative costs incurred by councils who would implement the new rules and standards, e.g. upgrading information systems¹⁹ (\$10,000 to \$20,000 for some smaller councils, up to \$100,000 for a few larger ones).
- Compliance costs incurred by landowners who would need to comply with new rules and standards, e.g. higher investigation and remediation costs (variable, from minor to up to \$200,000 per site).
- Reductions in value of affected land suffered by landowners for sites that are not subsequently developed because of an increase in remediation costs.

Benefits of NES

The NES would generate several benefits to society. These include:

- reduced administrative costs by avoiding the need for councils to make plan changes and introduce their own contaminated land rules and standards (\$15,000 to \$20,000 per council, up to \$125,000)
- avoided submission costs that would otherwise be incurred by those who would submit on councils' proposed plan changes (\$1,000 to 5,000 per submission, up to \$100,000)
- avoided compliance costs for industry as a result of allowing high frequency and low risk activities (petrol tank removals, subsurface sampling, and small scale and temporary disturbance) without the need for resource consent (\$5,000 to \$10,000 per site)
- fewer application and dispute costs relating to resource consent regarding the development of affected land because of greater certainty (\$20,000 to \$40,000 per year for minor disputes, up to \$100,000 for Environment Court cases)
- appropriately identifying, assessing and managing the risks from contaminated sites, leading to:
 - improved public health outcomes
 - avoided post-development disputes between landowners and councils
 - avoided contamination response measures by government agencies
 - avoided post-developmental remediation
 - potential environmental benefits.

¹⁹ No NES requirement, but likely that councils will give higher priority to developing or upgrading their database

Consultation

The NES was publicly notified on 6 February 2010. Fourteen consultation workshops were held in main centres during March 2010 to inform people about the proposed standard, and to encourage and assist people to prepare submissions on the proposal. Around 460 people attended the workshops. The Minister received a total of 106 submissions on the NES proposal. The majority of submissions were from local government (42) and industry (33).

Sixty-nine per cent of the submissions were supportive or conditionally supportive of the proposal. The most frequent reservation stated in the submissions was that the NES is not also protective of the wider environment. Regional councils can still impose stricter soil contaminant values to protect the environment if they deem necessary. However, it is expected that for most circumstances, such as residential development, the protection of human health is seen as the most relevant.

Some territorial and unitary authorities were concerned about the additional work load and costs associated with peer-reviewing reports. Lack of expertise was seen as another issue especially for small rural councils. The Ministry has responded by revising the NES and changing a permitted activity rule to a controlled activity, which means that councils can undertake a thorough review of investigation and remediation reports and are able to recover the costs from the applicant. This alternative option was described in the discussion document.

Some landowners or industries were worried about the additional compliance costs associated with the NES, e.g. detailed investigation reports as part of the resource consent application and high remediation standards. However, the NES applies only to the specific contaminated area not the entire land parcel. The NES adheres to the risk management principle to consider the intended use and focus the efforts on land that poses an actual risk.

Conclusions and recommendations

The preferred option is the NES as it provides important additional benefits over the other policy options including:

- immediate and consistent use by overwriting conflicting guidelines and local government plans (meeting policy objective, national consistency and efficiency)
- no lengthy and uncertain transition normally associated with the implementation of the alternative options (administrative efficiency)
- no serial re-litigation of plans and resource consents (administrative efficiency)
- effective implementation because requirements are legally binding on local government (meeting policy objective and national consistency).

Implementation

The NES is expected to come into force in 2011. It is crucial that territorial authorities as the key implementing agencies are brought up to speed with the new requirements and adjust their council processes to manage their contaminated land information adequately. To support territorial authorities in implementing the NES the Ministry plans a series of workshops and the release of implementation guidance contained within a national compliance strategy.

The NES will impact on existing regulation as far as it replaces district council plan rules related to assessing and managing contaminants in soil. Specifically, the NES will replace around 18 district planning controls and insert new controls into the remaining 55 district plans.

Monitoring, evaluation and review

The Ministry will develop a national compliance strategy for the NES for contaminated soil. Without precluding its overall design this is likely to specify the following monitoring, evaluation and review functions:

- Regular reviews of the soil contaminant values within the NES by the Ministry for the Environment and the toxicological advisory group (comprising toxicologists of key government departments) usually every 5 years. Alternatively, reviews may be undertaken in response to any important changes to the underlying science. The list of soil contaminant values is intended to be incorporated by reference, so that any revision does not trigger an amendment to the NES each time.
- Regular reviews by the Ministry or the Environmental Protection Authority of the NES (usually every 5 years). These reviews will evaluate how effective the NES has been at meeting its policy objective and determine if any revisions are necessary or if additional support is required. These reviews are likely to include:
 - audit of randomly selected councils against specific criteria including how they identify sites (i.e. presence and adequacy of their administration systems) and how they implement the NES planning controls
 - monitoring the frequency of post development disputes concerning contaminants.