Ministry for the Environment
Manatū Mō Te Taiao

Interim Review of the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

SUMMARY REPORT

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Executive summary

Development or use of contaminated land can increase the risk of exposing people to contaminants in soil. The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) applies to assessing and managing the actual or potential adverse effects of contaminants in soil on human health from five activities: subdivision, land-use change, soil disturbance, soil sampling, and removing fuel storage systems. The NESCS only applies to land on which an activity or industry on the Hazardous Activities and Industries List (HAIL) is, has been, or is more likely than not to have been undertaken.

The NESCS came into effect on 1 January 2012. Following this, feedback from local authorities and other stakeholders indicated there were implementation difficulties and inconsistencies. The Ministry for the Environment conducted an interim review of the NESCS after a short period of implementation, to understand the extent to which it is working as intended. This report summarises the findings of the interim review.

Data gathering was undertaken from July to December 2014, with data analysis conducted from January to May 2015. The key findings of the review are:

- How the HAIL is applied by councils varies considerably, resulting in different sites in each region being identified as needing to be listed on the HAIL. This creates costs and delays for landowners during development.
- The area of HAIL land in New Zealand is extensive. Significantly more land than originally anticipated is being identified as HAIL and is subject to the provisions of the NESCS. The known area of HAIL land will continue to increase, as more regional councils undertake a process of identifying HAIL sites in their region. This is expected to magnify variation in the application of the HAIL as the number of identified HAIL sites increases.
- A substantial proportion of HAIL sites are found to be below the soil contaminant standards after testing. This means a considerable percentage of land captured by the NESCS is later found not to pose a risk to human health.
- The NESCS requires landowners to obtain resource consent in circumstances where the risk to human health could be managed in other ways. In most cases landowners are able to obtain resource consent for their preferred approach to managing contamination on a site. Many are opting for on-site management, rather than remediation. However, in some instances landowners are required to remediate their property when obtaining NESCS consent. This can result in significant costs for landowners.
- How the NESCS planning controls are being applied by councils and practitioners varies across the country. This means there are differences between districts in which activities need resource consent. In particular, determining whether a proposal is permitted can be a cumbersome process for some landowners. This delays projects, increases costs and inefficiencies for landowners, and sometimes results in consents being obtained when not required by the NESCS.

Nationwide, the scale of the impact of the NESCS is greater than originally anticipated. This is partly a result of more properties being identified as HAIL than expected. There are also questions about the actual level of health protection being achieved by the NESCS. In addition, there have been a number of implementation difficulties, which are resulting in costs, delays and uncertainty for landowners.

1. Introduction

1.1 What is the NESCS?

The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) came into effect on 1 January 2012. It is a national environmental standard, under the Resource Management Act 1991. The NESCS provides controls for the development and use of land to protect human health. The policy objective was to provide a comprehensive framework to ensure that land affected by contaminants in soil is appropriately identified and assessed at the time of being developed and, if necessary, the land is remediated or exposure to contaminants managed to make the land safe for human use (www.mfe.govt.nz).

The framework has four parts shown in figure 1.

Figure 1: The four parts of the NESCS framework

The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS)

1. Hazardous Activities and Industries List (HAIL)	HAIL identifies industries that have historically been associated with hazardous substances. The NESCS targets sites that pose a potential risk by applying only to land on which an activity or industry on the HAIL is currently taking place, has taken place, or is more likely than not to have taken place.
2. Nationwide set of planning controls	The NESCS sets out rules that apply when a person wants to undertake an activity (eg, disturbing soil, subdividing land, or removing a fuel storage system) on land that has the potential for soil contamination.
3. Requirements for undertaking and assessing site investigations and reports	A consistent approach to investigating and reporting on contaminated sites is required.
4. Nationwide set of soil contamination standards for 12 priority contaminants	A nationwide set of soil contaminant standards for 12 priority contaminants and a method for developing standards for other contaminants was developed to ensure the same level of health protection for people around the country. Soil contaminant standards set a level at which contamination is considered acceptable.

The NESCS applies when a person wants to undertake an activity (eg, disturbing the soil, subdividing the land, or removing a fuel storage system) on land that has the potential for soil contamination. The NESCS targets sites that pose a potential risk by applying only to land on which an activity or industry on the Hazardous Activities and Industries List (HAIL) is currently taking place, has taken place, or is more likely than not to have taken place. The HAIL identifies seven broad categories, with 51 activities and industries that have historically been associated with hazardous substances. There are also two additional 'catch all' categories to cover accidental release of hazardous substances and migration from neighbouring properties.[1]

More information on the NESCS can be found in on the Ministry's website or in the *Users' Guide* (MfE, 2012).

[1] HAIL is also used outside of the NESCS framework for identifying sites that could pose risks to the environment. The majority of regional councils use HAIL as a starting point for identifying and monitoring contaminated land, in accordance with their functions under section 30 of the Resource Management Act 1991 (RMA).

1.1.1 Council roles for implementing the NESCS

Under section 31 of the Resource Management Act 1991 (RMA), territorial authorities (district, city and unitary councils) are responsible for controlling the adverse effects of the development, subdivision, or use of contaminated land.[2] The NESCS specifically states that the regulation deals with territorial authority functions under the RMA; it does not deal with regional council functions. The NESCS provides a nationwide set of planning controls for territorial authorities to carry out this function,[3] and all territorial authorities are required to give effect to and enforce the requirements of the NESCS.

In practice, regional councils also play an important role in implementing the NESCS. One of the RMA functions of regional councils is *the investigation of land for the purposes of identifying and monitoring contaminated land* under the RMA. To fulfil this function, most regional councils identify potentially contaminated sites (including sites with current or former uses on the HAIL), and maintain a contaminated sites register (in line with their duty under section 35 of the RMA to gather information, monitor and keep records). Consequently, in practice the information held in regional councils' listed land-use databases is often the primary source used by territorial authorities when identifying potential HAIL sites to determine whether the NESCS applies to a property or proposal.

1.2 Drivers for developing a national environmental standard

In 2005, regional councils' and territorial authorities' functions in sections 30 and 31 of the RMA were changed, introducing new requirements for managing contaminated land. A 2007 review by the Ministry found that the process for dealing with contaminated land across the country was *ad hoc*, and varied between local authorities. The review found that only 14 council plans of the 73 reviewed had contaminated land rules relating to council functions under section 31 of the RMA.

Table 1 shows the number of district plans that did not contain objectives and policies, rules, or rules in relation to the contaminated land function of section 31 of the RMA in 2007 (outlined in the *Proposed National Environmental Standard for Assessing and Managing Contaminants in Soil: Discussion Document* (MfE, 2010)).

Table 1: Number of district plans that have no contaminated land-specific provisions

Contaminated land specific provisions	Number of district plans
No objectives/policies	27
No rules	55
No rules for section 31 functions	59

The 2007 review concluded it was highly likely that contamination was not being identified at the time land was developed, and potential risks were being passed on to subsequent purchasers. More information on the context for developing a national standard on contaminants in soil is provided in the *Proposed National Environmental Standard for Assessing and Managing Contaminants in Soil: Discussion Document* (MfE, 2010).

[2] Section 31(1)(b)(iia).

[3] The NESCS only relates to human health. Territorial authorities may develop rules to control other effects of the development, subdivision or use of contaminated land.

1.3 Interim review of the NESCS

In July 2013, feedback provided to the Ministry through the Resource Management Act Survey of Local Authorities 2012/13 showed that councils were not implementing the NESCS consistently.

- There were numerous interpretations of key terms within the NESCS.
- Several territorial authorities identified capability issues as a major hindrance. Many felt they did not have sufficient resources to meet the requirements of the NESCS and as a result were struggling to fulfil their responsibilities.
- There was limited understanding of local authorities' responsibilities under the NESCS, with resulting difficulties in enforcing the NESCS.

Following the earthquakes in Christchurch, local agencies recognised that the requirements of the NESCS would be widely applicable to the rebuild, as soil disturbance was required for a significant proportion of repair works. To facilitate the rebuild and remove delays associated with the NESCS, Environment Canterbury undertook large scale identification of HAIL land in greater Christchurch. This process identified a further 11,000 properties as HAIL, in addition to the 8000 previously identified in the Canterbury region.

In this context, the Ministry decided to conduct an interim review to improve our understanding of how the NESCS was working in practice, and to identify the specific obstacles to effective implementation of the NESCS. Evidence gathering for the review took place from July to December 2014.

1.3.1 Scope of the interim review

The interim review focused on three areas:

- How is the Hazardous Activities and Industries List (HAIL) framework working within the NESCS?
- How is the NECS being applied, particularly for:
  - soil disturbance and removal of soil
  - subdivision
  - change in land use?
- Are sites obtaining NESCS consent being remediated, or are contaminants being managed on site? What factors are driving the approaches used?

The interim review did not look at whether the NESCS had achieved its intended outcomes. A full evaluation of the NESCS outcomes will be carried out after the NESCS has been in place for at least five years.

2. Methodology

The evidence-gathering phase of the review ran from July to December 2014. The Ministry used a mixed methods approach to data collection. Quantitative and qualitative measures were used to provide a rounded understanding of the implementation of the NESCS.

Quantitative data methods were used to identify trends in the number and types of activities obtaining consents, and the types of HAIL sites being identified. This included:

- A consent review, which collated data from 144 NESCS consent reports and site investigations. The consents and site investigations were from nine territorial authorities around the country, received between July 2013 and July 2014 (referred to as the Consent Review in this report).
- The numbers of NESCS consents, and the types of activities obtaining NESCS consent, were monitored in Christchurch over a six-month period, to understand the impact of the NESCS on the rebuild and the effectiveness of agencies' measures to streamline NESCS consenting processes.
- The results of the *Resource Management Act: Two-yearly Survey of Local Authorities 2012/13* (MfE, 2014) were reviewed.

Qualitative data methods were used to understand trends in how the NESCS was working and the drivers of trends. The intent was to gain the perspectives of a wide range of stakeholders:

- Five focus groups were held with representatives from territorial authorities, regional councils and contaminated land practitioners. The groups had a range of representatives, from large and small organisations.
- A survey targeting the private sector was undertaken in September 2014, which gathered information on the experiences of the private sector such as the types of consents being obtained and sources of inconsistencies in the NESCS process.
- Meetings were held with industry representatives.
- Correspondence and reports received by the Ministry following implementation of the NESCS were reviewed.

This report summarises the key findings of the interim review. It is based on a synthesis of the best available sources of quantitative and qualitative information at the time.

2.1 Structure of this report

This report presents the findings of the interim review in three sections:

- HAIL and the NESCS
- management approaches for sites obtaining NESCS consents
- how the NESCS is applied.

Key conclusions from the review are outlined in section 6.

3. Hazardous Activities and Industries List (HAIL) and the NESCS

The NESCS only applies to the piece of land on which an activity or industry on the HAIL is, has been, or is more likely than not to have been undertaken. Referencing the HAIL was intended to target the NESCS to land where there was a risk to human health, by identifying land uses that are more likely to have used or stored hazardous substances, and therefore have a greater probability of site contamination. The efficient functioning of the NESCS is therefore dependent on the identification of HAIL sites.

In practice, identification of HAIL sites is largely undertaken by regional councils. Most territorial authorities do not hold their own HAIL database and so are reliant on the information held by their regional council when implementing the NESCS (see section 1.1.1). Sources of information such as aerial photos, telephone books, complaints and previous planning files are used to identify the location of historical activities and industries. Councils will generally notify landowners once they have two pieces of evidence that a HAIL activity took place on their site, in accordance with *Contaminated Land Management Guideline 4* (MfE, 2006). A landowner will then usually have the opportunity to provide alternative information, or challenge the information, before the council records their property as a verified HAIL site.

3.1 Scale of HAIL land in New Zealand

During the development of the NESCS, it was unclear how much land would be identified as HAIL, and so potentially subject to the NESCS requirements. It is now apparent that the scale of HAIL land in New Zealand is significant. The inclusion of 'use' in the descriptions of a number of categories in the HAIL is one of the reasons large areas of land, such as former orchards, are being identified.

It is uncertain exactly how many sites in New Zealand are affected or potentially affected by contaminants. The *Resource Management Act: Two-yearly Survey of Local Authorities 2012/13* (MfE, 2014) reported a total of 19,568 sites nationwide that had been identified as HAIL land. Since then, many regional councils have continued to identify HAIL sites. However, it is widely accepted that a significant proportion of HAIL sites remain unidentified. Many regional councils estimated that up to three times as many HAIL sites could be identified in their regions.

There is significant variation in the number of HAIL sites identified between regions. While this is to be expected to some extent, given historic differences in dominant industry types, the variation is partially the result of regional councils taking different approaches to identifying and recording HAIL information. Before the NESCS came into effect, most regional councils were passive and reactive in identifying potentially contaminated sites. Since the introduction of the NESCS, there is an increasing focus on HAIL identification amongst regional councils. During the review most regional councils indicated that they have started a proactive HAIL identification process or that they intended to start a proactive process. On a national scale this suggests that numbers of identified HAIL sites will continue to track upwards.

Table 2: Number of identified HAIL sites by region, reported by focus group attendees in October 2014

Regional council	Number of HAIL sites
Otago	618
Tasman	1,133
Bay of Plenty	1,547
Taranaki	1,836
Wellington	2,087
Canterbury	5,500
Waikato	6,250

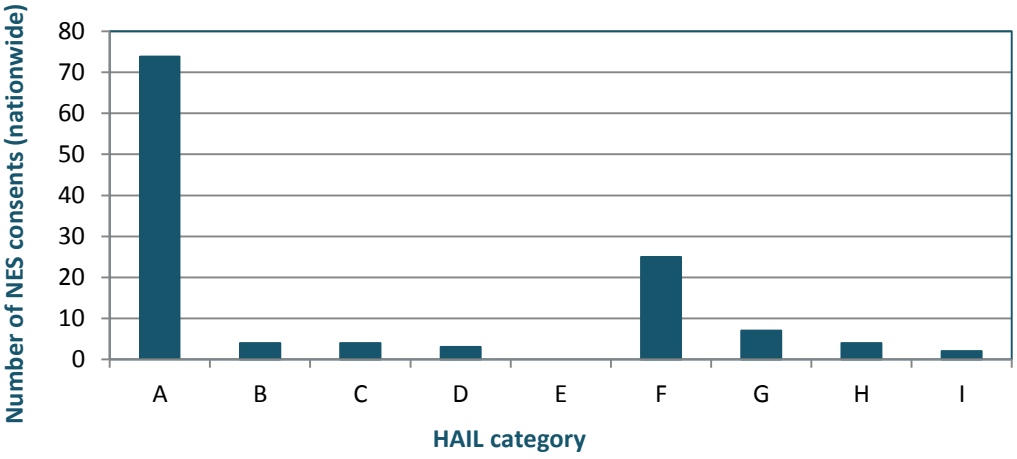
3.1.1 Types of HAIL sites being identified

The HAIL is comprised of seven broad categories (labelled A to I), which are broken down into 51 subcategories, each relating to specific industries and activities. Category A of the HAIL – Chemical manufacture, application and bulk storage – is the most commonly identified HAIL category. Sixty per cent of the 144 NESCS consents in the consent review were on HAIL category A sites.

Category A is broken down into 18 subcategories. Of these subcategories, Category A10 refers to persistent pesticide bulk storage or use, including sports turfs, market gardens, orchards, glass houses, or spray sheds. This is the mostly commonly identified HAIL subcategory. Category A10 sites made up 25 per cent of all the consents or site investigations looked at in the consent review, and comprised 42 per cent of the HAIL parcels identified by Environment Canterbury within greater Christchurch.

Category F was the second most commonly identified HAIL category, covering Vehicle refuelling, service and repair. Council staff commented that sites that are well known and easily identifiable are the ones that are more likely to have been added to registers, so activities in Category F such as petrol stations and storage tanks are commonly identified in council registers, whereas activities such as sheep dips and P-labs are more difficult to identify and therefore less likely to have been added. This likely explains why Category F is the second most commonly recorded HAIL category, and may not reflect a real predominance of those types of past uses in New Zealand.

Figure 1: HAIL categories of sites obtaining NESCS consent in the consent review



3.2 Status of HAIL sites following testing

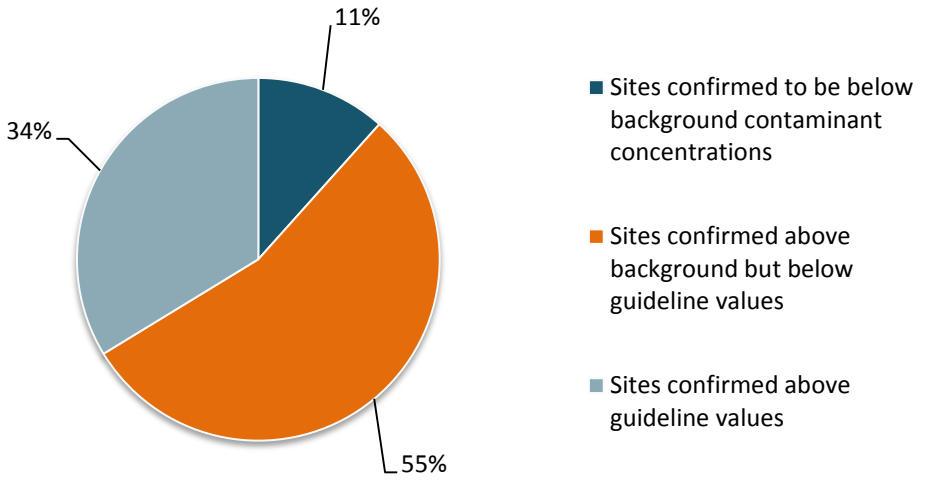
Before the HAIL was incorporated into the NESCS it was unclear how often activities on the HAIL would result in soil contamination to levels that posed a risk to health. Identifying potentially contaminated land is essential for the NESCS to work. Identifying potentially contaminated sites based on past use will always mean that a proportion of properties are later found to be free from contaminants after testing. However, there is some evidence that a significant proportion of HAIL sites investigated for the purposes of the NESCS are found to be below guideline values. Anecdotal reports also suggest that a substantial proportion of sites only slightly exceed the guideline values.

For example, more than 60 per cent of the 83 detailed site investigations (DSIs) provided to Christchurch City Council during the six-month monitoring period found site contamination levels to be below guideline values.

There are varied reports among stakeholders regarding which, if any, HAIL categories are consistently found to be below guideline values. For example, approximately half of the councils at the focus groups reported that in their region, sites in HAIL Category A10 consistently exceed guideline values, while the other half considered that A10 sites are consistently below them. This contradictory evidence makes it difficult to draw a conclusion on whether any specific categories of HAIL are consistently below guideline values following site investigations.

Consequently, the relationship between being identified as HAIL, and a site actually being contaminated is unclear. However, there is widespread concern among landowners that being listed in council HAIL databases will impact on property values, due to assumptions that being identified on a council's listed land-use register means that a site is contaminated.

Figure 2: Findings of detailed site investigations provided with resource consent applications in Christchurch between July and December 2014



3.2.1 Inconsistencies in interpretation of HAIL categories

The wording of many of the HAIL categories is broad, leading to inconsistency in stakeholders' interpretation and application of these categories. For example, HAIL refers to 'bulk storage and use' in a number of places. Councils use a range of interpretations for the size, duration, scale and volumes that equate to bulk storage or use.

Another category refers to 'storing wool or leather products'. A literal interpretation of this could result in a saddlery or carpet warehouses being listed as HAIL, when it is reasonable to assume that these uses won't pose a risk to health. There is a possibility that variable interpretation and application of the HAIL list is increasing the number of HAIL sites that are later found not to exceed guideline values. More evidence would be required before a conclusion could be drawn on this.

3.3 Summary

The key findings of the interim review about the role of the HAIL are:

- The scale of HAIL land in New Zealand is significant, and the known area of HAIL land will continue to increase as councils progress work to identify HAIL sites in their region.
- A significant proportion of HAIL sites are found to be below the soil contaminant standards after testing.
- Interpretation and application of the HAIL is inconsistent.

4. Management approaches for sites obtaining NESCS consent

The NESCS uses soil contaminant standards and guideline values to determine whether management or mitigation of risks is required. If a site exceeds the soil contaminant standards, and an activity does not meet the permitted activity requirements, the landowner will be required to obtain NESCS resource consent. Risks to human health from contamination in soil can be managed in a variety of ways, which can broadly be split into remediation or on-site management.[4] The NESCS does not dictate how a site should be managed, to provide flexibility for the variable characteristics of contaminated sites. Councils have discretion to determine whether a proposal will adequately manage the risks to human health.

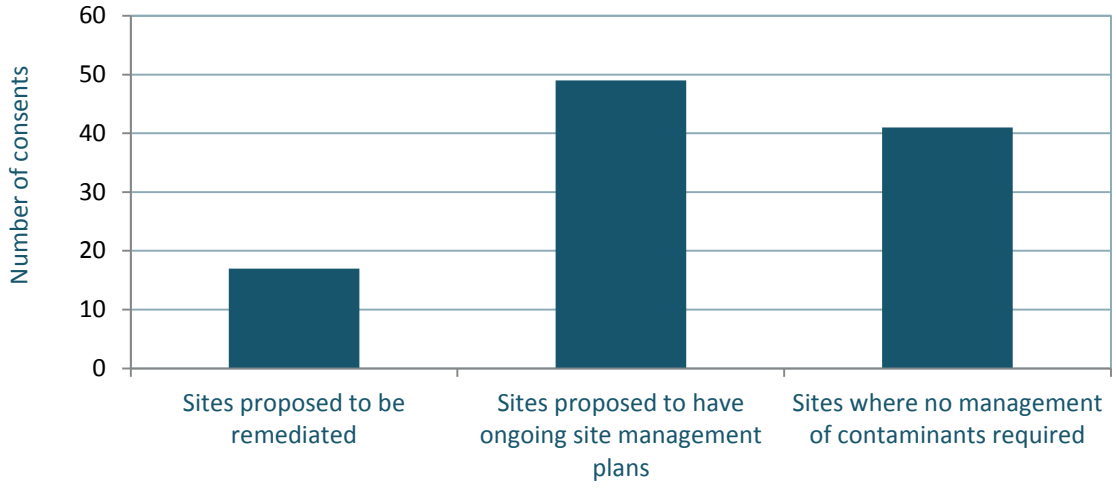
4.1 Types of management approaches used on sites with an NESCS consent

The *Resource Management Act: Two-yearly Survey of Local Authorities 2012/13* (MfE, 2014) asked councils how many sites required remediation or management to comply with the NESCS. Councils reported 171 sites had some form of management or remediation during 2012/13, but did not provide detail on what approach was used.

The interim review investigated the types of management approaches occurring on sites triggering the NESCS. Data collected from the nationwide consent review and from Christchurch City Council consents indicate that the majority of consents that require some form of mitigation are being granted for on-site management of contaminants. However, landowners will often use a combination of both techniques on their site, partially cleaning up contaminants where it is cost effective or feasible, and using on-site management for the remaining contamination. Many sites obtaining NESCS consent do not require any form of management, as they are found to be below guideline values.

[4] For the purposes of the interim review, remediation means a reduction of the mass of contaminants on site to achieve concentrations of soil contaminants below guideline values. On-site management means no change in the mass of contaminants.

Figure 3: Proposed management approaches for NESCS consents issued by Christchurch City Council between July and December 2014



4.2 Drivers of approaches to managing contaminated sites

Stakeholders consistently reported that in the vast majority of cases, landowners propose the approach they will use to manage contamination on a site, and if it is sufficient to mitigate the risks, councils will generally accept the proposal. However, there are reports that some councils are unwilling to grant resource consent for proposals that do not remove the contaminated soil, due to concerns that other approaches will not sufficiently address the risks.

Cost was identified as the most significant factor in determining the management approach preferred by a landowner. Another major factor is individual landowner motivations and interests, which vary depending on who they are. For example, commercial premises often have their own standards, which require sites to be remediated to a certain level. Many landowners also prefer to have contaminants removed from their site, due to perceptions of potential hazard, and concerns about future liability and property values.

Other important factors for landowners include the proposed use of the site, and the type and extent of contaminants. In the case of fuel storage systems, oil industry representatives commented that by allowing 30 cubic metres of soil to be disposed of as a permitted activity, the NESCS is in effect encouraging sites to be cleaned up at the time of a fuel tank removal or replacement.

4.3 Costs of disposing of contaminated soil

Costs for disposing of soil with contaminant levels above background concentrations can be high. This is particularly an issue in areas that do not have a managed fill site. Many managed fills accept soil with low levels of contamination, so if a managed fill is not available, or contamination is present above managed fill levels, contaminated soil will generally need to be disposed of to a landfill. This can pose a significant cost. For example, there have been reports of costs of $40,000–$50,000 to dispose of the contaminated topsoil layer from a 700 square

metre residential site. As a result many landowners opt for on-site management of contaminants, rather than remediation through soil disposal.

In some instances, due to the location or type of contaminant, or the proposed use of the site, removal of contaminated soil may be the only practical option to effectively address risks to human health. In these circumstances, landowners may not be able to choose how their site will be managed, and the costs can be significant. There are also anecdotal reports that some contaminated land practitioners recommend 'dig and dump' of contaminated soil as a default, and do not consider alternative options. For landowners obtaining advice from these practitioners, this can have significant cost implications, when there may have been other options for addressing the risk at a lower cost. In particular, for sites where contamination is present at levels that only slightly exceed the soil contaminants standards, the relationship between costs of removing soil and the potential benefits to human health are unclear.

4.4 Ongoing maintenance of on-site management plans

A significant proportion of landowners are opting to use site management plans to manage exposure pathways and protect human health. Site management plans can provide cost-effective solutions for managing risks on some sites. For example, a site management plan for a residential property could require that grass in kept longer than 5 cm, and no vegetables are to be grown on the site, which for some sites will be sufficient to manage risks to health to an acceptable level. Such an approach may be appropriate for a rural residential property where cadmium in the soil slightly exceeds the soil contaminant standards. One of the main exposure pathways for cadmium is through consumption of root vegetables, so by removing the pathway, and minimising exposure by keeping the grass long, the risks may be sufficiently managed.

Site management plans usually have ongoing compliance requirements to remain effective. There is currently no consistency in the way councils record site management plans against the property file. If a site management plan is part of a subdivision consent, it is sometimes recorded on the title as a consent notice. Some councils will record in their contaminated land database that there is a site management plan, and others will place the information on the LIM. Councils and contaminated land practitioners commented that as a result of these inconsistencies, site management plans may not be well communicated to potential future owners of the land. There are questions about whether future landowners will be aware of the on-site management measures needed to mitigate risks to human health, which could result in them exposing themselves to contaminants in the soil.

4.5 Summary

The interim review's key findings about management approaches are:

- In most cases councils will grant consent for a landowner's proposed approach to manage contamination. This is resulting in many landowners opting for on-site management of contamination, rather than remediation, as the costs are often lower.
- In some instances landowners are required to remediate, due to the nature of a site or council expectations. This can result in significant costs for landowners.

5. How the NECS is applied

The NESCS applies to five specified activities:

- removing or replacing all, or part of, a fuel storage system
- sampling the soil
- disturbing the soil
- subdividing the land
- changing the land use.

These activities can all be carried out as permitted activities if certain criteria are met. The criteria vary, depending on the activity[5]. The intent of the NESCS is that activities considered to have a low potential for significant adverse effects on human health are permitted, provided the activities meet the requirements set in the regulations. Where activities cannot meet the permitted activity requirements, resource consent is required in one of three categories (controlled, restricted discretionary, and discretionary), based on the risk posed to human health on the site.

Table 3: Types of resource consent under the NESCS and relationship to risk

Types of NESCS consents	Risk to human health
Controlled	A detailed site investigation has found that the contaminants present on site are below human health guideline values but above background concentrations.
Restricted discretionary	A detailed site investigation has found that contaminant concentrations on site exceed guideline values.
Discretionary	A detailed site investigation has not been undertaken, and as such the risks to human health on the site have not been established.

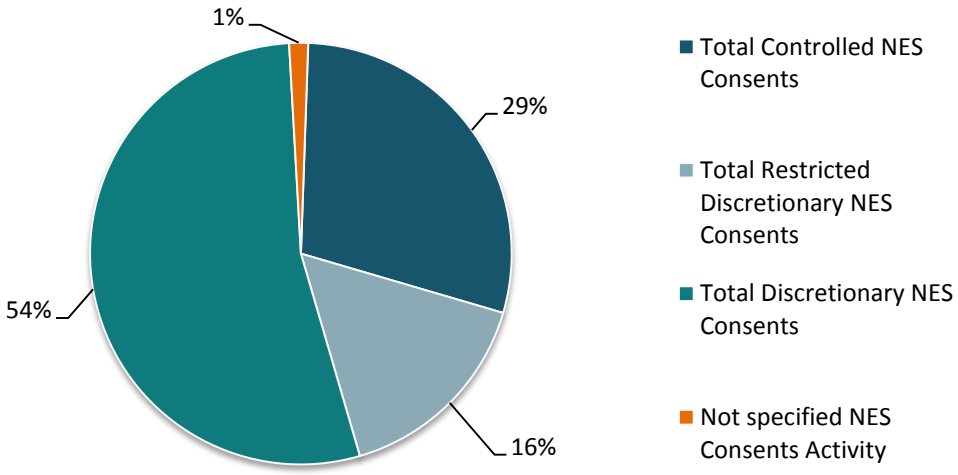
5.1 Types and numbers of NESCS consents being issued

In most districts the NESCS is largely triggered around urban fringes, as existing subdivisions are built on, lifestyle blocks are consented, and orchards and pasture land are converted to residential or rural residential use. The same property may require multiple NESCS consents if a project is carried out in stages over time, unless a detailed site investigation shows contamination on the site is at or below background concentrations, in which case the NESCS will not apply. For example, a site may be subdivided, then later a house will be built (often considered a change of use), followed by the construction of an in-ground swimming pool several years later (soil disturbance).The NESCS is also regularly triggered on existing land uses, where landowners undertake soil disturbance or boundary adjustments.

There is no data available on a national scale on the number of NESCS consents issued. The majority of council systems do not currently record or identify consents issued under national environmental standards, and therefore it is difficult to report on numbers of NESCS consents retrospectively. The National Monitoring System will allow for this sort of information to be reported in the future. The consent review was undertaken to compile data from around the country on the volume and type of consents being obtained (see section 2 for details).

[5] Refer to regulation 8 of the NESCS.

Figure 4: Types of NESCS consents identified in the consent review



The consent review found that discretionary consents make up a little over half of all NESCS resource consents obtained, meaning landowners chose not to undertake a detailed site investigation (DSI) before applying for consent. As there is no DSI, it is not possible to establish from the consent documents the risks to human health posed on the sites. Of the sites that were tested, just over a third were found to have contamination above guideline values. These sites would likely have been required to undertake measures to protect human health as part of obtaining resource consent.

Territorial authority staff estimated that at least 50 per cent of resource consent and building consent applications reviewed to establish compliance with the NESCS will meet the permitted activity criteria, or will be determined to have not had a HAIL use following further investigation. However, the actual numbers of permitted activities are unknown as they are not recorded and landowners are not always required to notify the council.

5.1.1 NESCS consents for sites below guideline values

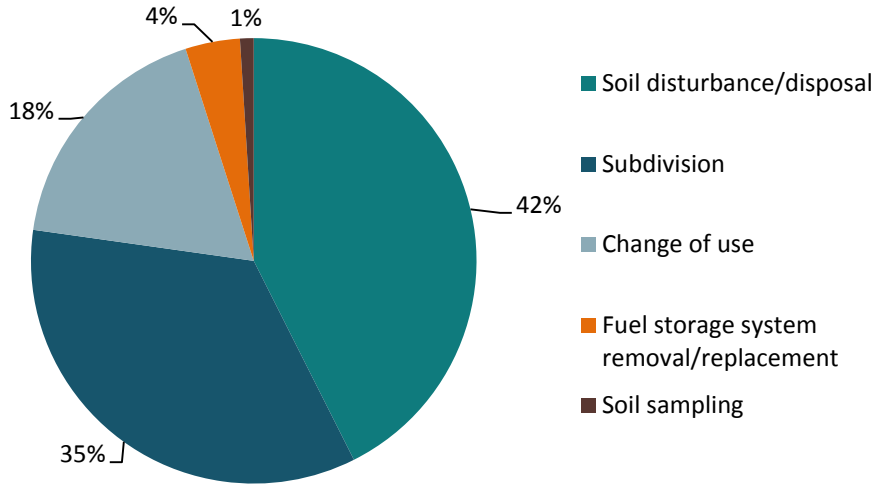
Controlled resource consent is required when a DSI has found that the contaminants present on site are below human health guideline values but above background concentrations. Controlled consents comprised almost 30 per cent of all consents in the consent review, and more than 60 per cent of the consents that had provided a DSI. Consent requirements for sites below guideline values were included in the NESCS to allow councils to thoroughly review site investigations, and recover costs for doing so. Data from Christchurch and the nationwide consent review has identified that the second most common type of NESCS consent is for controlled activities.

It is not entirely clear why there are significant numbers of controlled resource consents. In part it is due to a lack of data on background concentrations of contaminants in soil around the country. Background concentrations of contaminants will vary locally, but most regional councils have a lack of data on background concentrations in their region. Because many councils do not hold information on background concentrations, sites are often considered to be above background, even with very low concentrations of contaminants, and will therefore be required to obtain NESCS consent.

5.2 Activities obtaining NESCS consent

Of the activities covered by the NESCS, the review indicated that soil disturbance and disposal is the most common activity requiring resource consent, followed by subdivision and change of use. Very low numbers of consents are being obtained for soil sampling or removing/replacing fuel storage systems. These trends were reflected across all data sources in the review.

Figure 5: Activities obtaining NESCS consent identified in the consent review



5.2.1 Soil disturbance

Nearly half of all NESCS consents are for soil disturbance. Consents for soil disturbance are obtained for a wide range of projects – from installing a swimming pool on a residential property to resurfacing a soccer field. The NESCS allows for up to 25 cubic metres of soil disturbance per 500 square metres and up to 5 cubic metres of soil per 500 square metres can be disposed of as a permitted activity on HAIL land. The consent review found that the average volume of soil disturbance obtaining NESCS consent was 1780 cubic metres, with a median volume of 600 cubic metres.

Global consents for soil disturbance

Large operators, such as utility organisations, regularly undertake earthworks and often exceed the permitted activity standards of the NESCS. Global consents can cover resource consent requirements for multiple properties or multiple activities within the area of a territorial authority. As such, the potential to obtain a global consent represents an opportunity to make significant cost and time savings on resource consent processes for large operators. Nationwide, several global consents have been issued under the NESCS.

For example:

- Chorus has a global consent allowing them to install broadband cables across the Auckland region without obtaining numerous consents.
- An insurer in Christchurch has obtained a global consent, which is expected to cover resource consent requirements for up to 2500 properties as part of the rebuild.

The use of global consents is not consistent, with the majority of councils indicating that they are unsure whether global consents can be issued under the NESCS. As a result, operators are unwilling to invest the time and money in developing an application, as there is a significant risk that the council will not accept their proposal. This may explain why only a small number of global consents have been issued to date.

5.2.2 Subdivision and change of use

Subdivision and change of use collectively make up the majority of the remaining activities obtaining NESCS consent. The NESCS requirements for subdivisions and changes of use are very similar. Both are permitted activities if a preliminary site investigation (PSI) has been undertaken that certifies that it is highly unlikely that the activity will pose a risk to human health. The NESCS only applies to changes of use that are 'reasonably likely' to harm human health, but applies to all types of subdivision.

Change of use consents are obtained for a variety of reasons, including changes from industrial to residential, orchard land to lifestyle blocks, and recreational land to an education facility. Of the 69 subdivision consents received in the consent review, 58 were for the creation of new lots. However, because the NESCS applies to all types of subdivision, consents were obtained for a range of different types of subdivision, including cross-lease to freehold updates and boundary adjustments, where there were no changes in activity on the site.

5.3 Variation in application of NESCS permitted activity criteria

The NESCS provides for a range of permitted activities, as long as certain criteria are met. There are a number of key terms within the NESCS that are inconsistently interpreted and applied. These terms determine whether a subdivision, change of use, or soil disturbance is permitted or requires consent. The inconsistency makes it difficult to know whether an activity will be considered permitted, so landowners have to spend time and money to find out if the council requires them to obtain consent. Guidance on interpreting the NESCS is provided in the *Users' Guide* (MfE, 2012). However, the guidance is not always followed and does not cover all scenarios.

Determining whether soil disturbance is permitted

There are three key terms, which are critical for determining whether a soil disturbance proposal will be permitted, that have varied interpretation and application:

- piece of land
- soil disturbance ratio
- year.

As a result of the varied interpretation of these terms, soil disturbances on HAIL sites are affected by uncertain regulatory requirements. In a broad sense, the different interpretations

mean a landowner could carry out the same activity across different districts – in some districts the council would consider it to be a permitted activity, while in others it would require consent.

Piece of land

The NESCS only applies to the area identified as the 'piece of land'. The NESCS defines a piece of land as an area where a HAIL activity or industry has, had been, or more likely than not had been, undertaken. Depending on the HAIL activity, this could cover a small area of a single site (eg, a sheep dip), or it could cover multiple site parcels where each site is held in different ownership (eg, a former orchard). The permitted activity volume is linked to the size of the piece of land, so different interpretations of the piece of land can have significant implications for the volume of disturbance permitted. It is particularly significant if the HAIL activity extended beyond the current site boundaries, as is often the case for former horticultural land.

Councils and contaminated land practitioners use at least three different approaches to define what the 'piece of land' is, when the former HAIL activity extends beyond the property boundary. These are the:

- area where the HAIL activity and the area of soil disturbance intersect
- applicant's property boundary
- area of the entire former HAIL activity.

The different interpretations allow for vastly different volumes to be considered permitted in different districts around the country.

EXAMPLE

Impact of different interpretations of the 'piece of land'

A landowner owns a 2000 square metres property on a former orchard – the orchard was 10,000 square metres. They want to undertake soil disturbance over a 500 square metre area, to create a building platform.

If the council considers that the piece of land is the area where the former HAIL activity and soil disturbance intersect (500 square metres), the landowner will be able to undertake up to 25 cubic metres of soil disturbance before requiring consent.

If the piece of land is based on the boundary of the property (2000 square metres), up to 100 cubic metres will be permitted.

If it is based on the area of the former orchard (10,000 square metres), up to 500 cubic metres of soil disturbance could be undertaken before NESCS consent was required.

Soil disturbance ratio

The NESCS allows for 25 cubic metres per 500 square metres of soil to be disturbed as a permitted activity. In practice, at least two different approaches are commonly used by councils to calculate how much soil can be disturbed as a permitted activity:

- a 'pro-rata' approach, with the permitted volume calculated in a ratio relative to the size of the piece of land

- permitted volume allocated in ‘blocks’ – for each 500 square metre block or part thereof, 25 cubic metres is permitted.

The different interpretations can result in significant differences in the volumes considered permitted between districts, depending on the approach the local council takes.

EXAMPLE

Different approaches to calculate permitted activity volumes of soil disturbance

A landowner wants to carry out 25 cubic metres of soil disturbance on their 400 square metre site, to put in a new swimming pool.

In districts where the council uses a ‘block approach’ the landowner would not require consent, as these councils interpret the permitted activity ratio as 25 cubic metres for any piece of land up to 500 square metres.

In districts that interpret the ratio on a pro rata basis the landowner could undertake up to 20 cubic metres of soil disturbance on their 400 square metre site as a permitted activity. The landowner would require consent for the further 5 cubic metres of disturbance needed for the pool’s construction.

A year

The term ‘year’ is also interpreted differently across the country, causing difficulties for landowners trying to establish whether their activity is permitted. The NESCS allows for up to 5 cubic metres of soil to be disposed of from a HAIL site ‘per year’ as a permitted activity. Year is not defined, and as a result, some consider it to be once per calendar year, while others consider it to be once per 365 days. The latter interpretation allows someone to carry out disposal of soil on two consecutive days, by claiming that one day is the end of one year, and the following day as the start of a new year.

Inconsistent practice amongst council officers and contaminated land practitioners

Under the provisions of the NESCS, subdivisions and changes of use certified as ‘highly unlikely’ to pose a risk to human health are able to proceed as a permitted activity. The NESCS also only applies to changes of use that are ‘reasonably likely’ to harm human health. The ‘reasonably likely’ and ‘highly unlikely’ tests require councils and suitably qualified and experienced practitioners (SQEPs) to make judgement calls about the relationship between an activity and the likelihood of harm to human health.

However, stakeholders consistently commented that they cannot predict before talking to the council whether a change of use or subdivision will be considered permitted or will be required to address the NESCS. This was highlighted in the survey responses, with only 41 per cent of respondents considering it is clear which change of use types will be covered by the NESCS before an application is made to council.

If a council officer or SQEP does not have a good understanding of the potential risks from contaminated land, they tend to take a conservative approach to interpreting whether a proposal poses a risk (either ‘reasonably likely’ or ‘highly unlikely’). This results in activities obtaining NESCS consent, where a more experienced practitioner or council officer could have determined that the relationship between the proposal and the risks to health met the criteria to allow it to proceed as a permitted activity.

5.3.1 Resource consent requirements

Contaminated land practitioners consistently commented that the effects controlled through NESCS consents vary considerably. The consent conditions in NESCS consents for soil disturbance demonstrate this point well. Some councils are issuing consents for soil disturbance with broad requirements, such as site remedial planning and health and safety management plans, while other councils are issuing consents with few to no requirements beyond standard consent conditions for earthworks. A number of council officers reported that they are uncertain of the effects associated with soil disturbance on contaminated land, which may explain the variation, and in some instances conservatism, of NESCS consent conditions.

5.4 Site investigations

Two types of site investigations can be provided under the NESCS, both of which must be certified by a SQEP:

- **Preliminary site investigation (PSI)**: Primarily a desktop study in accordance with *Contaminated Land Management Guideline No.1.* A PSI determines whether a landowner needs to obtain NESCS consent. A PSI can be used to establish that a HAIL use has not occurred, which would mean that the NESCS does not apply to the property; or for a SQEP to certify that the proposed subdivision or change of use is highly unlikely to harm human health, making the proposed subdivision or change of use permitted.
- **Detailed site investigation (DSI)**: Involves soil testing in accordance with CLMG1 and CLMG5. A DSI is used to establish the concentration of contaminants. The findings of a DSI determine whether a landowner requires NESCS consent, and if so, the type of resource consent required.

The territorial authority determines whether a site investigation meets the criteria in the NESCS.

5.4.1 Types and numbers of site investigations

Councils reported in the *Resource Management Act: Two-yearly Survey of Local Authorities 2012/13* (MfE, 2014) that 131 PSIs and 284 DSIs were carried out to comply with the NESCS. The consent review also found that DSIs were more common than PSIs, but the split was more even, with 43 PSIs and 50 DSIs. In most cases consent applications provided for the consent review had either a PSI or DSI, but 18 of the 144 applications had both a PSI and a DSI undertaken.[6]

As mentioned in section 5.1, the consent review found that 54 per cent of consents were for discretionary activities, meaning the majority of landowners were opting to apply for NESCS consent before undertaking a site investigation. There are likely to be a range of factors driving this, including:

- Applicants may prefer the certainty of obtaining consent before spending money on a DSI.
- Costs of site investigations. The costs of PSIs and DSIs are highly variable, depending on the SQEP, type of site, and type of contaminants being tested for. PSIs usually cost

[6] A DSI usually covers off the requirements of a PSI (site history etc), which is why applications usually have either a PSI or a DSI, depending on the purpose of the site investigation in the consent application.

upwards of $2,000, while DSIs can be upwards of $5,000. A common estimate from stakeholders is $10,000 for a DSI on a standard residential property.

- In some circumstances it is impractical to obtain a site investigation before works have begun. This is particularly an issue for fuel storage systems – most of the contamination is likely to be concentrated below the fuel tanks, making it difficult to sample the most contaminated soil before exposing the tank. Industry representatives commented that this can become an issue when a tank removal cannot be undertaken as a permitted activity, as they are then required to apply for a discretionary consent, which is a less certain consenting process.

5.4.2 Capability and site investigations

Stakeholders provided consistent feedback that the quality of site investigations being undertaken for the NESCS is highly variable. This is largely because of the varied capability among SQEPs and councils. The NESCS requires that preliminary and detailed site investigations are certified by a SQEP. SQEP is not defined within the NESCS, and until recently there were no accreditation schemes for contaminated land practitioners in New Zealand. Because there are no fixed qualifications or requirements for a SQEP, people may wrongly assume that they are appropriately qualified. Consequently, a wide range of practitioners are carrying out preliminary and detailed site investigations, from planners and surveyors to contaminated soil experts, many of whom would not meet the suggested level of experience in the NESCS *Users' Guide* (2012).[7] This results in a high degree of variability in the quality of site investigations.

Limited experience or expertise in some councils in interpreting and understanding site investigations increases the impact of variable capability in those acting as SQEPs. This is a significant issue, particularly for smaller councils. Many larger authorities have officers with a scientific background, whose role is dedicated to contaminated land. However, in smaller councils decisions on the NESCS are often made by council planners, who may not have contaminated land expertise.

Council expectations and requirements for site investigations vary considerably. Council officers without a strong understanding of the specific risks posed by a proposal can either require unwarranted investigation or management of a site, or accept inadequate site investigations and proposals, which may not sufficiently protect human health. For example, councils have varying expectations for the extent of investigation needed to determine whether the soil contaminant standards are exceeded; in some districts sites may be under-investigated, while in others a large area might be extensively investigated at high cost, out of proportion to the risks.

5.4.3 Risk and site investigations

The NESCS requires that site investigations be carried out in accordance with Contaminated Land Management Guidelines 1 and 5. However, in practice site investigations are more often carried out in general accordance with the requirements set out in the guidelines. Participants in the review commented that the site investigation requirements in CLMG 1 and CLMG 5 often seem overly onerous for the level of risk, and it is not always necessary to undertake a full PSI or DSI, as the findings/result may be obvious and a full investigation and report would be excessive. However, stakeholders commented that a minority of councils are unwilling in

[7] The *Users' Guide* states that the person certifying a site investigation report should have at least 10 years contaminated land experience and be able to testify in court.

any circumstance to accept site investigations that do not address all of the criteria. This can result in expensive investigations and reports that are not justified by the risk.

5.5 Summary

The interim review's key findings on application of the NESCS are:

- There are significant inconsistencies in how the NESCS is being interpreted and applied. For instance, the quality of site investigations is highly variable.
- Variable application of the NESCS delays projects, increases costs, and sometimes results in consents being obtained when not required by the NESCS.

6. Conclusions

The NESCS was implemented in 2012, with the aim of providing a nationally consistent set of planning controls and soil contaminant standards. The NESCS was intended to ensure land affected by contaminants was appropriately identified, assessed and managed at the time of being developed. Evidence gathering for the interim review took place from July to December 2014 in response to feedback on implementation issues, to assess how the NESCS was being implemented and the scale of any issues occurring.

The interim review drew information from councils, suitably qualified and experienced practitioners, industry representatives, and correspondence from landowners. The findings highlighted that while the NESCS increased awareness of contamination issues, and resulted in more land having risks to health addressed at the time of development, there is potential to improve how the NESCS applies in practice. The major findings of the review have been:

- How the HAIL is applied by councils varies considerably, resulting in different sites in each region being identified as needing to be listed on the HAIL. This creates costs and delays for landowners during development.
- The area of HAIL land in New Zealand is extensive. Significantly more land than originally anticipated is being identified as HAIL and is subject to the provisions of the NESCS. The known area of HAIL land will continue to increase, as more regional councils undertake a process of identifying HAIL sites in their region. This is expected to magnify variation in the application of the HAIL as the number of identified HAIL sites increases
- A substantial proportion of HAIL sites are found to be below the soil contaminant standards after testing. This means a considerable percentage of land captured by the NESCS is later found not to pose a risk to human health.
- The NESCS is requiring landowners to obtain resource consent in circumstances where the risk to human health could be managed in other ways. In most cases landowners are able to obtain resource consent for their preferred approach to managing contamination on a site. Many are opting for on-site management, rather than remediation. However, in some instances landowners are required to remediate their property when obtaining NESCS consent. This can result in significant costs for landowners.
- How the NESCS planning controls are being applied by councils and practitioners varies across the country. This means there are differences between districts in which activities need resource consent. In particular, determining whether a proposal is permitted can be a cumbersome process for some landowners. This delays projects, increases costs and inefficiencies for landowners, and sometimes results in consents being obtained when not required by the NESCS.

The findings and evidence from the interim review will inform the Ministry's future work programme on contaminated land management. Nationwide, the scale of the impact of the NESCS is greater than originally anticipated. This is partly a result of more properties being identified as HAIL than expected. There are also questions about the actual level of health protection being achieved by the NESCS. In addition, there have been a number of implementation difficulties, which are resulting in costs, delays and uncertainty for landowners.

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