

Contaminated land

Recommendations in response to submissions on the Proposed Regional Plan for Northland - Section 42A hearing report

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Purpose and format of the report

1. This report provides the hearing panel the rationale for the recommended changes to the Contaminated Land provisions in the Proposed Regional Plan for Northland (the Plan) in response to submissions. The recommended changes are set out in the document *Proposed Regional Plan for Northland – S42A recommended changes*.
2. The recommendations made in this report are the opinion of the author and are not binding on the hearing panel. It should not be assumed that the hearing panel will reach the same conclusions.
3. The authors recommendations may change as a result of presentations and evidence provided to the hearing panel. It's expected the hearing panel will ask authors to report any changes to their recommendations at the end of the hearing.
4. The recommendations focus on changes to the Plan provisions. If there is no recommendation, then it's to be assumed that the recommendation is to retain the wording as notified.
5. Generally, the specific recommended changes to the provisions are *not* set out word-for-word in this report. The specific changes (including scope for changes) are shown in the document *Proposed Regional Plan for Northland – S42A recommended changes*.
6. This report is structured with a focus on the key matters for the Contaminated Land provisions raised in submissions. The key matters are:
 - Discharges unable to meet the permitted activity standards
 - Per and Poly – Fluorinated Alkyl Substances
 - Activity status of remediation
 - Stormwater on contaminated land
 - Earthworks on contaminated and
 - Light and Dense non-aqueous phase liquids.
7. Matters covered by submissions that fall outside the key matters are addressed in the "Other matters" section in less detail.
8. The approach of addressing matters raised in submissions (rather than addressing submissions and/or and submission points individually) is consistent with Clause 10 of Schedule 1 to the RMA.

9. This report should be read in conjunction with section 11 *Hazardous substances, contaminated land and solid waste* in the Section 32 report.

Report author

10. My name is Michael James Payne and I have overall responsibility for this report. I work as a Policy Analyst for the Northland Regional Council (regional council). For further details about my qualifications and experience, refer to the s42 report: *General approach and procedural issues*.
11. The following council staff and consultants have assisted me with the preparation of this report:
- Stuart Savill, Consents Manager, Northland Regional Council
 - James Mitchell, Hazardous Substances Specialist, Northland Regional Council
 - Simon Hunt, Technical Director, EHS Support New Zealand Ltd.
12. Although this is a council hearing, I have read the Code of Conduct for Expert Witnesses contained in the Practice Note issued by the Environment Court December 2014. I have complied with that Code when preparing this report and I agree to comply with it when giving oral presentations.

About the Contaminated land provisions

13. The relevant provisions in the Proposed Regional Plan for Contaminated land addressed in this report are:

<p>Definitions</p> <ul style="list-style-type: none">• Bore• Earthworks• Passive discharge• Potentially contaminated land• Sensitive groundwater• Surface water
<p>Rules</p> <ul style="list-style-type: none">• C.6.8.1 Investigating contaminated land - permitted activity• C.6.8.2 Discharges from contaminated land - permitted activity• C.6.8.3 Contaminated land remediation - discretionary activity• C.6.8.4 Contaminated land - discretionary activity
<p>Policies</p> <ul style="list-style-type: none">• Policy – D.4.1 – Water quality standards for rivers• Policy – D.4.2 – Water quality standards for lakes• Policy – D.4.3 – Coastal water quality standards• Policy – D.4.4 – Coastal sediment quality standards• Policy – D.4.5 – Maintaining overall water quality• Policy – D.4.6 – Offsetting residual non-toxic contaminants• Policy – D.4.8 – Zone of reasonable mixing• Policy – D.4.9 – Transitional policy under the National Policy Statement for freshwater management<ul style="list-style-type: none">• Discharge of hazardous substances to land

14. The contaminated land section of the Proposed Regional Plan seeks to manage the discharge of contaminants from land that has been contaminated from past land uses. It does not seek to manage new discharges that could contaminate land. These activities are managed through various other sections of the plan including agrichemicals, air and other discharges.
15. There is also overlap between the solid waste provisions that seek to manage landfills and the contaminated land provisions. Landfills meet the definition of contaminated land. However, the Proposed Regional Plan includes rules targeted at managing landfills. These specific landfill rules take precedence over the generic contaminated land rules.

Resource Management (National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011

16. Regional Councils and district councils have a role to play in managing contaminated land. The key pieces of legislation setting out the respective roles for regional and district councils are sections 30 and 31 of the Resource Management Act 1991 and the National Environmental Standard for Assessing and Managing Contaminants in Soil for the Protection of Human Health (NES:CS)
17. The NES:CS is a set of regulations for five specified activities on pieces of land where there is a potential that soil is contaminated in such a way as to be a risk to human health. The activities are:
 - Removing or replacing all, or part of, a fuel storage system
 - Sampling the soil
 - Disturbing the soil
 - Subdividing the land
 - Changing the land use.¹
18. The focus of the NES:CS is to protect human health. The NES:CS does not apply to any functions of regional councils and so does not affect regional rules. Also, the NES:CS does not apply to assessing or managing the actual or potential adverse effects of contaminants on other receptors including²:
 - the on-site and off-site ecology
 - the on-site and off-site effects on surface water
 - the effect of contaminants discharged to water – including sources of human drinking water
 - amenity values.

¹ Ministry for the Environment. 2012. *Users' Guide: National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*. Wellington: Ministry for the Environment.

² Ministry for the Environment. 2012. *Users' Guide: National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*. Wellington: Ministry for the Environment.

19. These activities fall to the respective functions of regional and district councils under sections 30 and 31 of the Resource Management Act 1991.
20. Regional councils are responsible for managing all discharges to the environment from contaminated land. Regional rules can either allow these discharges as permitted activities or require consent. Regional councils can also investigate contaminated land. Many regional councils have assembled information about contaminated land onto a database, including land known to have been used by hazardous industries or hazardous activities. In Northland, this database is known as the Selected Land Use Register.³

Overview of submissions

21. A total of 14 submitters made submissions on the Contaminated land provisions. These were broken up into 50 submission points.
22. Submitters can broadly be grouped as;
 - Petrochemical companies
 - Councils (Kaipara, Whangarei and Far North District Councils)
 - Primary producers
 - Infrastructure providers
 - Fertilizer producers
 - Tangata whenua groups
 - District Health Board
 - Environmental consultants
 - Environmental protection groups
 - Individuals/others

³ Ministry for the Environment. 2012. *Users' Guide: National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*. Wellington: Ministry for the Environment.

Discharges unable to meet permitted activity standards

Submissions and analysis

23. The aspect of the contaminated land provisions that received the most attention from submitters is the suite of rules that manage passive discharges. The specific rules are
 - C.6.8.2 – Discharges from Contaminated Land – Permitted activity, and
 - C.6.8.4 – Contaminated land – Discretionary activity.
24. The proposed rules provide for the discharge of contaminants from contaminated land onto land and into groundwater provided certain thresholds can be met to safeguard human and ecological health.
25. Submitters generally support the inclusion of a permitted activity rule for discharges from contaminated land. However, several submitters⁴ have requested that council insert a controlled activity for discharges that are unable to meet the permitted activity conditions.
26. Submitters gave a number of reasons supporting a controlled activity rule, including that passive discharges are generally historic in nature i.e. the initial discharge has already occurred so it's about managing existing contamination. They state that a controlled activity is appropriate in this case and is likely to result in better environmental outcomes when compared to sites that are unmanaged. It is reasonable to assume that removing regulatory barriers and increasing certainty that consent will be granted would result in better management of contaminated land.
27. If the Hearing Commissioners are of a mind to insert a controlled rule for discharges from contaminated land that cannot meet the permitted activity standards, The Oil Companies have drafted a controlled activity rule that I believe covers most, if not all the matters of control council would want to manage.
28. However, staff have some concern around the use of a controlled activity and the perverse outcomes that could encourage. While the *passive discharge* rule is intended as a tool to manage historic discharges, there is potential that the controlled activity could be used where people have recently contaminated land through poor practice or negligence.

⁴ The oil companies and Soil and Rock Consultants Limited

29. In some cases, particularly where contamination is the result of blatant negligence or is a repeated offence, Council may wish to take enforcement. Council staff are concerned that including a controlled activity would effectively limit their enforcement options. If a controlled activity passive discharge rule was included in the plan, the discharger could avoid enforcement by applying for a controlled activity consent, that council must grant.
30. The use of a restricted discretionary activity status may be an option to find some balance between encouraging better environmental outcomes by encouraging consenting and maintaining the opportunity for council to undertake enforcement action, when it is required.
31. When I was considering my response to submissions, I drafted a restricted discretionary rule. I used the matters of control suggested by The Oil Companies as a guide for the matters of discretion. While I was satisfied that a restricted discretionary status provided an adequate level of control in relation to the activity it was managing, the issue was that the rule did not restrict council's discretion. It included all the matters that would normally be considered for a discretionary resource consent.
32. While I can see the benefits of including a controlled activity rule or a restricted discretionary rule for passive discharges, my recommendation is to retain a discretionary activity status.
33. The submission from Refining New Zealand raises two points in relation to the activity status for passive discharges. Firstly, they are seeking an additional rule providing a controlled activity for passive discharges from regionally significant infrastructure sites. Secondly, they raise the issue of reconsenting passive discharges that have previously held a discharge consent.
34. Regionally significant infrastructure is defined via Appendix 3 of the Regional Policy Statement for Northland, 2016 (RPS). It includes state highways, district council water infrastructure, electricity generation and Marsden Point Oil Refinery amongst others. Policy 3.7 of the RPS directs the promotion of the benefits of regionally significant infrastructure and recognises their potential to enhance the economic, cultural, environmental and social benefits wellbeing of Northland. While the Regional Policy Statement emphasises the benefits of this infrastructure, it does not necessarily translate into a reduced activity status for RSI. From the evidence provided to date, I do not see the need for a separate rule for passive discharges from regionally significant infrastructure.

35. In addition to consenting for new passive discharges, Refining New Zealand has indirectly raised the issue of re-consenting. In their discussion on passive discharges from RSI, they raise issues around the proposed rule framework not recognising the existing consenting environment (i.e. previously consented discharges) or the information that has been gathered on environmental effects during the term of previous consents. Based on these points and considering that passive discharges can occur over several consenting cycles, I believe there is a case for introducing a controlled activity for re-consenting passive discharges.
36. The oil companies have proposed matters of control for a passive discharge rule that could be applied to a new controlled activity rule for re-consenting of passive discharges. I am confident environmental effects can be addressed through the matters of control recommended in *New rule – Re-consenting passive discharges from contaminated land - controlled activity*, including being able to adapt to advances in technology or advances in remedial techniques.

Recommendation

37. Insert a new controlled activity rule – Re-consenting discharges from contaminated land as shown in the *Proposed Regional Plan for Northland – S42A recommended changes*.

Evaluation of recommended changes

38. Section 32AA, RMA requires an evaluation of any changes that have been made to, or are proposed for, the plan since the RMA s32 Evaluation Report was completed. I believe that the proposed amendment is the most appropriate way to achieve the high-level objectives in Section 11.4 of the Section 32 report, as well as the recommended new 'Water quality management' and 'Hazardous substances and contaminated land' objectives to be included in section F of the plan. I do not consider that the proposed amendments will result in any additional environmental, economic, social or cultural costs but I do consider that it will lead to beneficial economic effects and greater certainty for applicants.

Per and Poly – Fluorinated Alkyl Substances

Submissions and analysis

39. Two submitters discussed the inclusion of contaminant concentrations for perfluorooctane sulfonate acid (PFOS) + perfluorohexane sulfonate (PFHxS) and Perfluorooctanoic acid (PFOA). In this report, I refer to these substances collectively as PFAS.
40. The Oil Companies have made two main points in relation to PFAS. The first being that the use of the proposed contaminant concentrations are “inappropriate, inefficient and unjustified”, and should be deleted unless otherwise properly justified. The section 32 report was primarily used to assess the costs and benefits of various activity statuses and did not discuss the costs and benefits of various contaminant concentrations within the options. In retrospect, I can see that including some details on PFAS in the S32 report would have made it easier for submitters to understand why a rule for PFAS was necessary and why that concentration is used.
41. Contamination of land and water by PFAS is a relatively new issue but is subject to increasing media attention and is gaining a higher profile. This is largely as a result of contamination of land and ground water from firefighting foam at Willamtown RAAF Airbase (NSW, Australia) and the contamination of drinking water supplies for the township of Katherine (Northern Territory, Australia) from Tindal Airbase. More recently PFAS has been found in groundwater at Ohakea and Woodbourne airbases in New Zealand⁵.
42. There are several sites in Northland where firefighting foams PFAS have been used in the past and where contamination of soil and water is possible. While we don't expect this type of contamination to be widespread, it is present within the region and I believe, the inclusion of contaminant concentrations in the plan will be beneficial for the management of those sites.
43. The PFAS concentrations specified in the Proposed Regional Plan were based on the drinking water standards in a report produced for the New South Wales Environmental

⁵ Ministry for the Environment, 13 June 2018. PFAS (per- and poly – fluoroalkyl substances). Retrieved 20 June 2018. <http://www.mfe.govt.nz/more/hazards/hazardous-substances/pfas>

Protection Authority⁶. These concentrations were recently adopted by the Ministry for the Environment as the appropriate value to manage the risk to human health from these contaminants in drinking water⁷.

44. Soil and Rock Consultants Ltd are seeking the concentrations be updated to reflect the most recent guidance. I agree that the concentrations in the plan should reflect the most recent guidance. The concentrations in the Proposed Plan for *sensitive* groundwater do not need amending. I have recommended amendments to the concentration for *non-sensitive groundwater*. The Ministry for the Environment has recently adopted a value for the protection of 80% of species. This was not available in the report produced for the New South Wales Environmental Protection Authority⁸, which was the basis for the concentrations in the Proposed Plan. I recommend that the value for the protection of 80% of species be adopted for non-sensitive groundwater.

Recommendation

45. Amend the concentration for perfluorooctane sulfonate acid (PFOS) + perflurohexane sulfonate (PFHxS) and perfluorooctanoic acid (PFOA) as shown in the *Proposed Regional Plan for Northland – S42A recommended changes*.

Evaluation of recommended changes

46. Section 32AA, RMA requires an evaluation of proposed changes to the Plan. The changes, while potentially more than minor in effect, are considered to be within the scope of the preferred management option as set out in Section 11.4 Hazardous substances and contaminated land of the Section 32 report and therefore do not require further evaluation.

⁶ OEH Science for New South Wales Environmental Protection Authority,2017. *PFAS Screening Criteria (May 2017)*.

⁷ Ministry for the Environment, March 2018. *Per and poly – Fluorinated Alkyl Substances (PFAS)*

⁸ OEH Science for New South Wales Environmental Protection Authority,2017. *PFAS Screening Criteria (May 2017)*.

Activity status of remediation

Background

47. Where land is contaminated by hazardous substances, remedial action may be taken to reduce the risk to human health or the environment. Rule C.6.8.3 (“Contaminated Land remediation”) is intended to manage the discharge of contaminants to air, or water or land where those contaminants may enter water as a result of remedial activities.

Submissions and analysis

48. Several submitters, including Soil and Rock Consultants Ltd and The Oil Companies have suggested a change in activity status for the discharge of contaminants arising from remediation of contaminated land from discretionary to controlled.
49. The primary motivation for the change appears to be that Northland Regional Council should be activity encouraging remediation. It is the submitters view, that this would be better achieved through a controlled activity status rather than a discretionary status, as proposed.
50. The main reason the Proposed Regional Plan adopted a discretionary activity status for remediation is that staff had concerns that there may be cases where certain remediation techniques are inappropriate for the characteristics of the site or the type of contamination. As a result, the remediation activity could increase the risk to the environment rather than reducing it.
51. I agree with the submitters that Council should be encouraging remediation and that a reduced activity status would send that signal. The key to doing this successfully will be to ensure that council retains control or discretion over all the necessary elements to ensure environmental effects can be adequately managed.
52. I have discussed this matter with Stuart Savill, councils Consents Manager and James Mitchell, councils Hazardous Substances Specialist. They believe that the matters of control suggested in The oil companies’ submission adequately covers all the necessary elements to ensure environmental effects can be adequately managed through a controlled activity resource consent. Therefore, I recommend that rule C.6.8.3 be amended to a controlled activity.

53. In addition to the changes discussed above, I also recommend that the exemption for small scale earthworks be deleted. This is a consequential amendment to recommendations I have made to delete the contaminated land area / volume thresholds in earthworks permitted activity rule C.8.3.1. My recommendation in relation to the earthworks rule are discussed in greater detail below.

Recommendation

54. Delete C.6.8.3 – Contaminated land remediation and replace it with a new controlled activity rule as shown in the *Proposed Regional Plan for Northland – S42A recommended changes*.

Evaluation of recommended changes

39. Section 32AA, RMA requires an evaluation of any changes that have been made to, or are proposed for, the plan since the RMA s32 Evaluation Report was completed. I believe that the proposed changes are that most appropriate way to achieve the high-level objectives in Section 11.4 of the Section 32 report, as well as the recommended new 'Water quality management' and 'Hazardous substances and contaminated land' objective to be included in section F of the plan. I do not consider that the proposed amendments will result in any additional environmental, economic, social or cultural costs but I do consider that it will lead to beneficial economic effects and greater certainty for applicants.

Stormwater on contaminated land

Background

55. Rule C.6.4.2 permits the diversion and discharge of stormwater from contaminated land provided, among other things:
- a) *a site investigation report prepared by a suitably qualified and experienced practitioner demonstrates that the stormwater discharge does not contain more than:*
 - i) *15 milligrams per litre of total petroleum hydrocarbons, and*
 - ii) *0.13 micrograms per litre of perfluorooctane sulfonate acid and perfluorohexane sulfonate, and*
 - iii) *632 micrograms per litre of perfluorooctanoic acid, and*
 - iv) *the concentrations listed in Table 3.4.1 in the Australian and New Zealand Guidelines for Fresh and Marine Waters (ANZECC 2000), at the 95% species protection level, and*
 - b) *the discharge is not via deep soakage or rapid infiltration systems, and...*

56. Discharges from contaminated land are also managed through rules in section C.6.8 – Contaminated land. Of particular relevance is rule C.6.8.2, which permits the passive discharge of contaminants from contaminated land. A passive discharge is defined in the Proposed Plan as:

The movement of contaminants entrained in soil or groundwater from the location of a discharge to another property through groundwater or surface water movement.

Submissions and analysis

57. There were several submitters that questioned condition 5 of rule C.6.4.2 which relates to the discharge of stormwater from contaminated land.
58. Bay of Islands Planning Ltd, Carrington Resort Jade LP and The Oil Companies consider that condition 5(iv), which is specific to discharges from contaminated land, should be amended so that it only requires concentrations of contaminants which are relevant to the contaminated land to be measured.⁹
59. Horticulture New Zealand stated that condition 5 “inadvertently captures production land and would be better aligned with clause 5(8) of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES:CS).¹⁰
60. Far North District Council, Whangarei District Council and Kaipara District Council want the following new condition to be added to Rule C.6.4.2 to reduce stormwater entering contaminated land:¹¹
- c) *Stormwater diversion drains, bunds or similar are used to prevent uncontaminated stormwater from entering the contaminated site.*
61. Tegel Foods Ltd “considers that condition 5 is not appropriate within the stormwater rules.” It added:

The presence of contaminated [sic] land on a site does not directly result in contaminants in stormwater. The condition is more appropriate within a specific contaminated land rule.

⁹ Bay of Islands Planning Ltd. p.34., Carrington Resort Jade LP. p.15

¹⁰ Horticulture New Zealand. p43

¹¹ Far North District Council. p12., Whangarei District Council. p.24.

Typically, contaminated soil will be below the sealed surface and there will be no interaction between the contaminants and stormwater.

62. I agree with Tegel Food Ltd. That is, I consider that the discharge of contaminants from contaminated land should be addressed in Section C.6.8 (“Contaminated land”) of the plan, rather than in the stormwater rules. In my opinion, this can be achieved by inserting a new clause into Rule C.6.8.2, as sought by Soil and Rock consultants¹². These amendments set a threshold for contaminants entrained in stormwater and surface water.
63. Turning to the comments from Bay of Islands Planning Ltd, Carrington Resort Jade LP and The Oil Companies. These submitters sought amendments to make it clear that discharges only need to demonstrate compliance for those contaminants that are likely to be present as a result of historical use of the site. I agree with the submitters on this point. While my recommendation is to delete clause 5 of rule C.6.4.2 (“other stormwater discharge”) and relocate these requirements to C.6.8.2 (“contaminated land”) the relief sought should be carried across. My recommendations are to make amendments to the contents of rule C.6.8.2 (“contaminated land”) to refer to “contaminants of concern” as sought by The oil companies, and to introduce a note providing guidance on how the rule is expected to be implemented.
64. In respect to the submission point from Far North District Council, Whangarei District Council and Kaipara District Council seeking a condition to reduce storm water entering contaminated land I have the following comments. In my opinion, there are two key matters in respect to stormwater being discharged **onto or into** contaminated land. Firstly, directing stormwater onto contaminated land has the potential to entrain soil and thereby mobilise contaminants. This risk increases with the volume and velocity of water directed onto contaminated land. It should also be noted that this risk only applies where stormwater interacts with contaminated land. The risk is avoided if the contaminated land is sealed with an impermeable surface. The rule should reflect this by focusing on “exposed contaminated land” and permitting the discharge of stormwater onto contaminated land, if it has been covered with an impermeable surface.
65. The second issue, is the discharge of stormwater into contaminated land. This has the potential to mobilise contaminants in contaminated land, which may migrate through groundwater movement or exit to surface water. In my opinion, the discharge of stormwater into contaminated land is best managed through the resource consent

¹² Soil and Rock Consultants. p13

process. This will allow a case by case assessment of the risk of the activity mobilising contaminants in contaminated land

66. I recommend including a clause that prevents stormwater¹³ discharges being a permitted activity where;

- the discharge is onto contaminated land where contaminants can be entrained, and
- the discharge is into contaminated land.

67. Horticulture New Zealand¹⁴ are seeking amendments to align the provisions for the discharge of stormwater from contaminated land with the NES:CS. The relevant section of the NES:CS is Regulation 5 (8) which states;

If a piece of land described in subclause (7) is production land, these regulations apply if the person wants to—

(a) remove a fuel storage system from the piece of land or replace a fuel storage system in or on the piece of land:

(b) sample or disturb—

(i) soil under existing residential buildings on the piece of land:

(ii) soil used for the farmhouse garden or other residential purposes in the immediate vicinity of existing residential buildings:

(iii) soil that would be under proposed residential buildings on the piece of land:

(iv) soil that would be used for the farmhouse garden or other residential purposes in the immediate vicinity of proposed residential buildings:

(c) subdivide land in a way that causes the piece of land to stop being production land:

(d) change the use of the piece of land in a way that causes the piece of land to stop being production land.

¹³ The *Proposed Regional Plan for Northland – S42A recommended changes* defines stormwater as “Runoff that has been intercepted, channelled, diverted, intensified or accelerated by human modification of a land surface, or runoff from the external surface of any structure as a result of precipitation and includes any entrained contaminants”

¹⁴ Horticulture New Zealand. p43

68. In crude terms, the NES:CS exempts production land from many of the restrictions that apply to other activities unless an activity is being undertaken that increases the risk of contaminated land affecting human health. In my opinion, exemption like this are entirely appropriate if the risk profile changes with the environment or land use. In respect to discharges of stormwater from contaminated land, the submitter has not provided any evidence to suggest that the risk to the environment is any different on production land to other land. For that reason, I believe stormwater provisions should apply equally to production land and other types of land.
69. I do not support the amendments sought by Horticulture New Zealand.

Recommendation

70. Amend rule C.6.4.2 as shown in *Proposed Regional Plan for Northland – S42A recommended changes* to ensure the discharge is not:
- the discharge is onto contaminated land where contaminants can be entrained, and
 - the discharge is into contaminated land.

Evaluation of recommended changes

71. Section 32AA, RMA requires an evaluation of proposed changes to the Plan. The changes, while potentially more than minor in effect, are considered to be within the scope of the preferred management option as set out in Section 11.4 Hazardous substances and contaminated land of the Section 32 report and therefore do not require further evaluation.

Earthworks on contaminated land

Submissions and analysis

72. Earthworks on contaminated land or potentially contaminated land are managed in the Proposed Plan through Rule C.8.3.1 Earthworks – permitted activity and Rule C.8.3.3 Earthworks – discretionary activity. The scale of earthworks that could be undertaken on contaminated or potential contaminated land was quite low. Although the intent of this rule is to manage discharges of contaminants arising from earthworks, the rule adopts the thresholds from the NES:CS. This was in part to encourage parallel consenting with the Territorial Authorities under the NES:CS.

73. Several submitters¹⁵ commented on these provisions seeking that they are amended or deleted because earthworks on contaminated land area already managed by Territorial Authorities under the NES:CS.
74. The purpose of this NES is to “protect human health”. The matters controlled in the NES only relate to the protection of human health.¹⁶
75. The proposed Regional Plan seeks to manage discharges from contaminated land where they enter water or where they have the potential to enter water. The primary¹⁷ focus on the provisions is to protect ecological values in water and to protect human health where people are using water. This is consistent with the functions of regional councils under section 30 RMA and is supported by guidance on the NES:CS which states “*Regional councils are responsible for managing all discharges to the environment.*”¹⁸
76. I believe there is a role for regional councils to play in managing earthworks on contaminated land. This is primarily to ensure that earthworks do not create pathways for contaminants in soil to migrate offsite, where they can enter water. In my opinion, this function can be achieved through section C.6.8 Contaminated Land and section C.8.3 Earthworks without having specific earthworks thresholds for *contaminated land* and *potentially contaminated land* controls.
77. I have discussed this matter with Simon Hunt. We believe the key risks in respect to regional council functions¹⁹, from earthworks on contaminated land are;
- Contaminants entrained in soil migrating to water or onto land where they may enter water
 - Earthwork activities creating preferential conduits/pathways for contaminants to migrate – could be LNAPL, vapour and/or groundwater contamination.
 - Other matters such as the disposal of contaminated soil and tracking of contaminated soil by vehicles off site are managed by Territorial Authorities under the NES:CS.

¹⁵ For example : Haigh Workman Limited, The oil companies and Balance Agrinutrients Limited

¹⁶ Ministry for the Environment, 2012. *Users Guide: NES for Assessing and Managing Contaminants in Soil to Protect Human Health.*

¹⁷ The provisions within C.6.8 also relate to discharges to air from contaminated land.

¹⁸ Ministry for the Environment, 2012. *Users Guide: NES for Assessing and Managing Contaminants in Soil to Protect Human Health.*

¹⁹ S30 RMA

78. In respect to contaminants entrained in sediment, Section C.8.3 Earthworks includes a number of requirements to manage sediment loss from earthworks e.g. erosion and sediment control, stabilising batters and stabilising areas of exposed earth.
79. In addition, Rule C.6.8.2 sets standards for surface water quality at the boundary or immediately adjacent to rivers, streams, lakes or the coastal marine area.
80. In summary, I believe that rules in sections C.8.3 Earthworks and C.6.8 Contaminated land adequately manage the risk posed by earthworks on contaminated land. The volume based thresholds for earthworks on contaminated land and potentially contaminated land are likely to require resource consent for earthworks that could be managed as permitted activities under the previously mentioned sections. In my opinion, these controls are not necessary and should be deleted.

Recommendation

81. Delete the row containing earthwork thresholds for contaminated land and potentially contaminated land from Table 8 in rule C.8.3 ("Earthworks - permitted activity) as shown in *Proposed Regional Plan for Northland – S42A recommended changes*

Evaluation of recommended changes

40. Section 32AA, RMA requires an evaluation of any changes that have been made to, or are proposed for, the plan since the RMA s32 Evaluation Report was completed. I believe that the proposed changes are that most appropriate way to achieve the high-level objectives in Section 11.4 of the Section 32 report, as well as the recommended new 'Water quality management' and 'Hazardous substances and contaminated land' objective to be included in section F of the plan. I do not consider that the proposed amendments will result in any additional environmental, economic, social or cultural costs but I do consider that it will lead to less cost to people undertaking earthworks.

Light and Dense non-aqueous phase liquids

Background

82. Light non-aqueous phase liquids (LNAPL's) such as petrol and diesel are lighter than water and are a key contaminant source /contaminant of concern on petroleum impacted sites.
83. Dense non-aqueous phase liquids (DNAPL) such as chlorinated solvents) are denser than water and often a key contaminant of concern at dry cleaners, machine workshops etc.
84. Rule C.6.8.2 ("Passive discharges from contaminated land") permits passive discharges from contaminated land provided the following conditions are met:

1. *light non-aqueous phase liquids (LNAPLs) Light non-aqueous phase liquids are liquids that have a spe light non-aqueous phase liquids (LNAPLs) Light non-aqueous phase liquids are liquids that have a specific gravity of less than one must not have a LNAPL transmissivity of less than 0.001 square metres per day, and*
2. *dense non-aqueous phase liquids Dense non-aqueous phase liquids are liquids with a specific gravity of greater than one are not mobile and in free phase form, The oil companies, and*
3. *non-aqueous phase liquids do not extend across the **property** boundary.*

Submissions and Analysis

85. The oil companies and Soil and Rock consultants were the only submitters to comment on LNAPL and DNAPL conditions of rule C.6.8.2.
86. Discussion on the content of submissions and my recommendations in respect to the relief they sought is included below. The background to the conditions on LNAPL and DNAPL in rule C.6.8.2 is technical. In order to prepare a well-informed response to submissions I have worked closely with Simon Hunt to make the following comments.

Condition 3 – Light non-aqueous phase liquids

87. LNAPL's (light non-aqueous phase liquids – such as petrol and diesel) are lighter than water and are a key contaminant source /contaminant of concern on petroleum impacted sites and can be an ongoing source of soil, groundwater and vapour contamination. On historic petroleum impacted sites (particularly small sites such as service stations) LNAPL plumes have been in place for many years and are often in equilibrium with the

groundwater system in which the LNAPL is located. These historic LNAPL plumes tend not to be mobile and often not able to migrate unless there are changes to equilibrium conditions. With both historic and recent LNAPL plumes an understanding of LNAPL mobility is needed to assess whether the LNAPL is recoverable or can potentially migrate and pose a human health and/or environmental risk.

88. Over the last 10-15 years a significant amount of research has been undertaken by regulatory agencies in Europe and USA and the international oil companies to better understand LNAPL mobility and how to measure mobility. This research has generated a large amount of guidance and standards on LNAPL mobility, including (but not limited to) ASTM – Standard Guide for Development of Conceptual Site Models and Remedial Strategies for LNAPL Releases to Surface and Standard Guide for Estimation of LNAPL Transmissivity. Rule 3 requires the discharger to demonstrate that LNAPL on an impacted site is not mobile and can meet a transmissivity value (which is a measure of whether the LNAPL is likely to migrate or not under equilibrium conditions, the value quoted should be corrected to read $0.01 \text{ m}^2/\text{day}$). This is likely to require a number of lines of evidence (as detailed in guidance and standards), including (where applicable) estimates/measurement of transmissivity, to confirm whether the LNAPL is mobile or not. The transmissivity value quoted in condition 3 was taken guidance issued in the USA (Evaluating LNAPL Remedial Technologies for Achieving Project Goals. Interstate Technology and Research Council. 2009).
89. The relief sought in the Oil Company submission is to add to the rule “or a SQEP certifies the LNAPL is unlikely to be mobile”.
90. To rely on a SQEP to define whether LNAPL is mobile or not does not provide certainty that the SQEP will adequately assess and characterise LNAPL mobility and associated risk. My recommendation is to amend the rule as follows:

“Light non-aqueous phase liquids must not have a LNAPL transmissivity of less than 0.001 square meters per day or a SQEP certifies the LNAPL is unlikely to be mobile using a lines of evidence approach”.

Condition 4 – Dense non-aqueous phase liquids

91. DNAPL (dense non-aqueous phase liquids – such as chlorinated solvents) are denser than water and often a key contaminant of concern at dry cleaners, machine workshops etc. In free phase / pure form they are notoriously difficult to detect. However, when

present in sufficient quantity certain DNAPLs have the ability to generate significant levels of groundwater and vapour contamination. A significant amount of guidance has been developed on the investigation and assessment of DNAPL contamination principally by the regulatory agencies in the USA and Europe. A lines of evidence approach is typically proposed / adopted to assess whether DANPL is present at a site. Rule 4 requires a Discharger to demonstrate that DNAPL is not in free phase / pure form and mobile and will require the use of a lines of evidence approach to demonstrate these requirements.

92. The relief sought in the Oil Company submission is to remove the requirement for the DNAPL to be in a free phase form, while retaining the need to demonstrate that the DNAPL is mobile. Removing this requirement from the rule will reduce the effectiveness of the rule and so my recommendation is to retain the rule as written.
93. Soil and Rock have stated that sites with LNAPL and DNAPL should not be a permitted activity. The submitter has not discussed why they believe amendments are necessary. I have not seen any evidence that suggests that changes are necessary.

Recommendation

94. Amend rule C.6.8.2 (3) by adding the following words "*or a SQEP certifies the LNAPL is unlikely to be mobile using a lines of evidence approach*".
95. Retain C.6.8.2 (4) as notified.

Evaluation of recommended changes

96. Section 32AA, RMA requires an evaluation of proposed changes to the Plan. The changes, while potentially more than minor in effect, are considered to be within the scope of the preferred management option as set out in Section 11.4 of the Section 32 report and therefore do not require further evaluation.

Objective for hazardous substances and contaminated land

97. As discussed in the General approach s42A report, the recommendation is to include specific objectives in the Plan. I have recommended including an objective for hazardous substances and contaminated land. The objective is based on issues identified in Regional Plan Review 2014. It also reflects the content of the policies and rules of the Proposed Plan.

Other matters

98. Refer to Appendix A for the summary of submission points, analysis and recommendations made on the contaminated land provisions not addressed in the key matters sections of this report.

Appendix A - Response to other matters raised in submissions

Note – this table does not include the summary of submission points, analysis and recommendations made on the Contaminated Land provisions addressed in the key matters sections of the report.

Provision	Summary of main submission points	Discussion	Recommendation
General – delete section	First Gas Ltd are seeking the deletion of section C.6.8 as they believe these functions are outside the S30 RMA functions of a regional council.	I disagree with the submitters position. In my view, this rule is within the functions in s30(c) and s30(f).	No change
General – delete section	Haigh Workman Limited is seeking the deletion of section C.6.8. in its entirety because in their view, contaminated land is adequately managed by the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. Therefore, the rules in C.6.8 are unnecessary.	The purpose of this NES is to “protect human health” and the matters controlled in the NES relate only to the protection of human health. ²⁰ The proposed Regional Plan seeks to manage discharges from contaminated land where they enter water or where they have the potential to enter water. The primary ²¹ focus on the provisions is to protect ecological values in water and to protect human health where people are using water. This is consistent with the functions of regional councils under section 30 RMA and is supported by guidance on the NES:CS which states	No change

²⁰ Ministry for the Environment, 2012. *Users Guide: NES for Assessing and Managing Contaminants in Soil to Protect Human Health*.

²¹ The provisions within C.6.8 also relate to discharges to air from contaminated land.

Provision	Summary of main submission points	Discussion	Recommendation
		<p><i>“Regional councils are responsible for managing all discharges to the environment.”²²</i></p> <p>I do not support the submitters argument.</p>	
New Policies	<p>The Oil Companies stated that there is no policy framework for contaminated land investigations or passive discharges, either in this Plan or in the RPS. Policy guidance is required.</p> <p>The Oil Companies state that policy should provide for some flexibility in management responses to enable:</p> <ol style="list-style-type: none"> 1. a better understanding of the nature and characteristics of the discharge over time; 2. its appropriate management over time; and 3. active management and/or monitoring to cease, when effects are acceptable (e.g. stable or reducing plume). 	<p>I agree that policy guidance specifically for contaminated land would be beneficial. I have suggested a policy in the <i>Proposed Regional Plan for Northland – S42A recommended changes</i>.</p> <p>This policy does not include information on when management over time or active management and / or when monitoring can cease. The submitter may wish to put forward wording to achieve the relief they are seeking.</p>	Amend the wording of as outlined in the <i>Proposed Regional Plan for Northland – S42A recommended changes</i> .
New Rule	Soil and Rock Consultants Ltd. Is seeking a new rule to manage discharges from rural production activities.	It is unclear why a separate rule addressing discharges from rural production activities is required. In my view, Rule C.6.8.2 adequately manages discharges from rural activities.	No change

²² Ministry for the Environment, 2012. *Users Guide: NES for Assessing and Managing Contaminants in Soil to Protect Human Health*.

Provision	Summary of main submission points	Discussion	Recommendation
New Rule	Soil and Rock Consultants Ltd. is seeking a new rule to manage discharges from removal or replacement of fuel storage systems.	This is managed through the NES:CS and discharges are managed through the C.6.8.2 and through earthworks controls. I do not believe additional controls are necessary.	No change
New Rule	Soil and Rock Consultants Ltd. is seeking a new rule to manage discharges from soil disturbance on contaminated sites.	In my opinion, this is adequately managed through Rule C.6.8.2 – Discharges from contaminated land.	
Definition - Sensitive groundwater	The oil companies are seeking amendments to the definition of <i>sensitive groundwater</i> or amendments to rule C.6.8.2 to ensure the drinking water standards do not apply to discharges to groundwater where the only reason groundwater is sensitive is because it is within 100m of the point where groundwater discharges to surface water.	Staff understand the concern around managing groundwater quality to meet drinking water standards where the groundwater was already unsuitable for drinking. Nevertheless, staff have concerns that discharges of this nature have the potential to effect surface water takes where groundwater exits to surface water. The resource consent process would allow this risk to be assessed and methods to be put in place to remedy or mitigate effects on people using surface water.	No change
Definition of Passive discharge	Refining New Zealand considers that the current wording is uncertain as a result of the reference to property boundaries and as such should be amended.	I agree with the submitter that reference to the boundaries in the definition should be removed. Referring to boundaries in the definition is unnecessary and could cause confusion.	Delete references to boundaries in the definition of passive discharge as outlined in the <i>Proposed Regional Plan for Northland – S42A recommended changes</i> .
Definition of Passive discharge	Royal Forest and Bird Protection Society NZ (Forest and Bird) have requested that the definition of <i>passive discharge</i> is replaced by the following definition:	I agree with the submitter that the definition of <i>passive discharge</i> is similar to how one would describe a diffuse discharge. In my opinion, a <i>passive discharge</i> is a type of diffuse discharge	Amend the definition of Passive Discharge as shown in the <i>Proposed Regional Plan for Northland</i>

Provision	Summary of main submission points	Discussion	Recommendation
	<p><u>“Diffuse discharge: Is the movement of contaminants entrained in soil or from diffuse contaminants on the surface of land to a groundwater aquifer, river, lake or wetland through the movement of groundwater or surface water runoff.”</u></p>	<p>that is particular to contaminated land. The term is commonly used in the contaminated land management field and I believe it is appropriate to use it in the Proposed Plan.</p> <p>The oil companies made a further submission in response to the original submission by Forest and Bird. The oil companies suggest additional words to clarify that “<i>passive discharge</i>” is specific to contaminated land.</p> <p>I believe the amendments amendments put forward by The oil companies would be helpful.</p> <p>In addition, Forest and bird raise concerns regarding the words “<i>to another property</i>” Refining New Zealand also submitted on that aspect of the definition. I recommend this aspect of the definition is deleted.</p>	<p>– S42A recommended changes</p>
Potentially Contaminated Land definition	Horticulture New Zealand	As a consequential amendment to submissions on the contaminated land component of rule C.8.3.2 (“earthworks”), I recommend deleting the definition of “ <i>potentially contaminated land</i> ”	Delete the definition of “ <i>potentially contaminated land</i> ”.
Definition of Registered contaminated site	The oil complains seek amendments to the appendix to remove potential confusions around the term <i>registered contaminated site</i> .	I agree that the wording used in the appendix could be confusing. I recommend changing the words to refer to <i>contaminated land</i> .	Make amendment as requested to Appendix H.2 – Stormwater Management Plans as outlined in the <i>Proposed Regional Plan for Northland – S42A recommended changes</i> .
C.6.8.1 – Investigating	Miru M and Tinopai RMU Limited are seeking amendment to require notice to be given to	The submitter has not included any information to support the proposed amendment or to detail the	No change

Provision	Summary of main submission points	Discussion	Recommendation
Contaminated Land	tangata whenua where an investigation is in an area of significance to tangata whenua.	risks to areas of significance if the amendments were not made. For that reason, I cannot recommend that the amendments are adopted.	
C.6.8.1 – Investigating Contaminated Land	Balance Agri-Nutrients Limited are seeking that C.6.8.2 is deleted entirely. The submitters consider <i>a more appropriate approach is for the rule framework to be triggered by works that disturb a contaminated site (which is currently governed by the National Environmental Standard for Assessing and Managing contaminants in Soil to Protect Human Health) Regulations 2011 ('NES Contaminated Land') and rule C.6.8.3.</i>	<p>Full justification for the inclusion of these provisions are in the hazardous substances and contaminated land section of the section32 report.</p> <p>In short, the rules within C.6.8 – Contaminated land seek to managed discharges from contaminated land, managing the impact of these discharges on water quality, ecosystem health and human health in respect to water quality and discharges to air. These functions are not managed by the NES:CS.</p> <p>The submitter does not provide any new evidence that convinces me that these provisions are unnecessary.</p>	No change.
C.6.8.2 – Contaminated land permitted activity	<p>The oil companies are seeking that the following words are inserted after any references to the ANZECC 2000 Guidelines:</p> <p><i>Australian and New Zealand Guidelines for Fresh and Marine Waters (ANZECC 2000) for fresh and marine water at the level of 80% protection of species <u>and applied in accordance with those Guidelines</u></i></p>	<p>The relief sought is consistent with council's intent. I would expect that the use of any guideline value must be used or applied in accordance with those guidelines. I would also expect that this concept is well understood and for council staff to push back where guideline values are used incorrectly.</p> <p>While I am not one hundred percent convinced that the amendments are required, the submitters are experienced in the field of contaminated land and obviously see this as an issue.</p> <p>In order to improve clarity to the reader I recommend that the relief sought is granted.</p>	Make amendment as requested to C.6.8.2 as outlined in the <i>Proposed Regional Plan for Northland – S42A recommended changes.</i>

Provision	Summary of main submission points	Discussion	Recommendation
C.6.8.2 – Contaminated land permitted activity	<p>The oil companies make the following statement:</p> <p><i>“C.6.8.2(d) currently doubles up on the application of the ANZECC benzene criteria (which already apply to soil/vapour pathways) and uses trigger values that necessitate expensive and unnecessary soil gas testing.”</i></p> <p>Amendments are suggested to make the rule more appropriate and efficient.</p>	I recommend the rule is simplified as suggested by the submitter.	Make amendment as requested to C.6.8.2 as outlined in the <i>Proposed Regional Plan for Northland – S42A recommended changes</i> .
C.6.8.2 – Contaminated land permitted activity	GBC Winstone are seeking a note to be added which confirms that this rule seeks to authorise any discharge from a contaminated site which is identified as part of a NES contaminated land investigation.	<p>The submitter is correct in their assumption that C.6.8.2 may permit discharges from contaminated land from investigations conducted on the NES:CS.</p> <p>Nevertheless, the inclusion of a note as sought in GBC Winstone's submission may be misleading as the rule also applies to contamination that is not covered by the NES:CS i.e. contamination on production land.</p> <p>I do not believe the inclusion of a note as suggested by GBC Winstone is necessary or desirable.</p>	No change
C.6.8.2 – Contaminated land permitted activity	Leonard B is seeking that C.6.8.2 is amended to a prohibited activity.	The submitter has not provided any evidence that has convinced me that a more restrictive activity status is required.	No change
C.6.8.2 – Contaminated	Soil and Rock Consultants have raised concerns around the cost, to council, to monitor	This rule was developed in conjunction with the James Mitchell, Hazardous Substance Specialist. James did not have any concerns regarding the	No change

Provision	Summary of main submission points	Discussion	Recommendation
land permitted activity	groundwater to demonstrate compliance with rule C.6.8.2.	cost of monitoring or enforcing this rule. Given that this is James's area of responsibility I do not share Soil and Rock Consultants concerns.	
C.6.8.3 Contaminated land remediation – Permitted activity	Top Energy seek clarification on whether the rule requires all contaminated sites to be investigated.	The permitted activity rule C.6.8.3 does essentially require all contaminated land to be investigated to be a permitted activity.	No change
C.6.8.3 – Contaminated land remediation – Permitted activity	Refining New Zealand are seeking the inclusion of an addition clause makes remediation of contaminated land a permitted activity if a resource consent has been granted for remediation under the NES:CS.	<p>These rules have a focus on discharges to land where they may enter water and discharges to water (i.e. rules to implement S15 RMA). These discharges are out of scope of the NES:CS. Conditions to manage the risk to water quality cannot, generally be managed adequately through NES consents.</p> <p>Discharges of contaminants to land where they may enter water and discharges contaminants to water fall within the functions of regional councils.</p>	No change.
C.6.8.4 – Contaminated land - Discretionary activity	Refining New Zealand are seeking an exception to rule C.6.8.4. Under that exception site investigations or discharges from contaminated land that are unable to meet the permitted activity standards in C.6.8.2 would be permitted activities if resource consent has been granted under the NES:CS.	<p>Proposed rule C.6.8.4 is intended as a trigger to assess and manage site investigations on contaminated land and passive discharges from contaminated where the proposed activity cannot meet the permitted activity standards.</p> <p>These rules have a focus on discharges to land where they may enter water and discharges to water. These activities are out of scope of the NES:CS.</p>	No change.

Provision	Summary of main submission points	Discussion	Recommendation
		Discharges of contaminants to land where they may enter water and discharges contaminants to water fall within the functions of regional councils.	
C.6.8.4 – Contaminated land - Discretionary activity	Soil and Rock Consultants Ltd oppose the use of discretionary activity status for investigation of contaminated land. They seek that it be amended to a controlled activity.	<p>The submitter is seeking a controlled activity for any contaminated land activity that is unable to meet the permitted activity conditions.</p> <p>I have concerns that a ‘catch all’ controlled activity may limit council’s ability to undertake enforcement action where a recent discharge contaminates land. I also believe it would be difficult to write a controlled activity rule that adequately covers all the possible scenarios.</p> <p>If the submitter believes this matter of relief is necessary, then it would be helpful to see a draft rule. The submitter may wish to present a draft rule at the hearing.</p>	No change