

Contaminated land management strategy

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Executive Summary

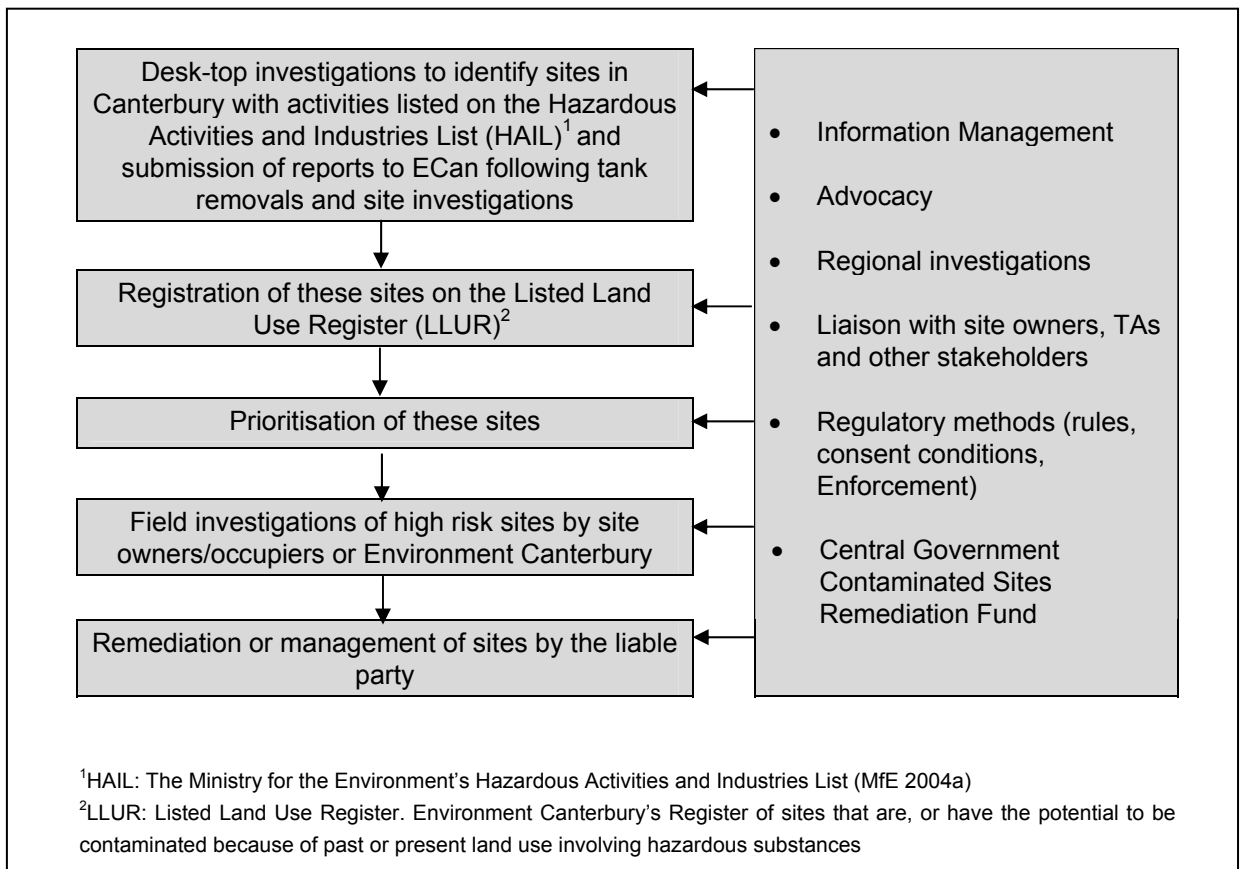
Environment Canterbury's (ECan's) Contaminated Land Management Strategy sets the organisation's strategic goals for contaminated land management in the region and defines work programmes to meet those goals.

Production of the Strategy meets method WQL11(c) of the proposed Canterbury Natural Resources Regional Plan, Chapter 4: Water Quality (ECan 2004a).

This strategy details ECan's legislative functions and the policy context for involvement in contaminated site management. ECan's involvement in the investigation of land is defined along with information management and monitoring of identified contaminated sites.

Environment Canterbury's core activities in contaminated land management are summarised in Figure 1.1. The activities are consistent with those advocated by the Ministry for the Environment in their Contaminated Land Management Guidelines (MfE 2003a, b, c, 2004a, b, c) and New Zealand Waste Strategy (MfE 2002). The activities have been organised into a three year work plan, which will be updated when this strategy is reviewed in 2009/10.

Figure 1.1 Contaminated land management at Environment Canterbury



The activities detailed in this strategy are consistent with the methods and environmental results in the proposed Canterbury Natural Resources Regional Plan.

This strategy is written to provide direction to those working on contaminated land within Environment Canterbury. It is also written to provide the community with details of the work conducted by Environment Canterbury on contaminated land.

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Glossary

HAIL	Hazardous Activities and Industries List. This is a list of 53 activities compiled by the Ministry for the Environment (MfE 2004a). The list is similar to Environment Canterbury's Schedule WQL3 – which is based on the HAIL.
LLUR	Listed Land Use Register. Environment Canterbury's register of sites that either are, or have the potential to be contaminated because of the past or present land use.
LTCCP	Long Term Council Community Plan
MfE	Ministry for the Environment
NRRP	Proposed Canterbury Natural Resources Regional Plan
RMA 1991	Resource Management Act 1991
Schedule WQL3	A list of activities and industries that store, use or dispose of hazardous substances. Sites that accommodate these activities have the potential to be contaminated. The list is based on the Ministry for the Environment's Hazardous Activities and Industries List.

PART 1: STRATEGY

1 Introduction

Environmental impacts associated with contaminated land have been addressed by Environment Canterbury for a number of years. This Strategy collates current procedures with new activities to provide an integrated approach. Production of the Strategy meets method WQL11(c) of the Proposed Canterbury Natural Resources Regional Plan, Chapter 4: Water Quality (ECan 2004a).

The Strategy will help guide budget allocation and Levels of Service through the annual plan (Long Term Council Community Plan - LTCCP) process, and provide direction to staff working on contaminated land. It is a non-statutory document, aimed at setting Environment Canterbury's objectives for contaminated site management, and how these will be achieved.

Environment Canterbury's involvement in contaminated land management is outlined in the proposed Canterbury Natural Resources Regional Plan. The Plan refers to other documents associated with contaminated land management such as the Ministry for the Environment's contaminated land management guidelines (MfE 2003a, b, c, 2004a, b, c, 2006a, b), the New Zealand Waste Strategy (MfE 2002), and Canterbury Regional Policy Statement (ECan 1998). Specific activities associated with contaminated land management are outlined in the Long Term Council Community Plan Part A (ECan 2004b).

Certain types of land use activities are associated with contaminated land due to manufacture, use, storage or disposal of hazardous substances. By identifying and recording details of sites where such activities have occurred or are occurring, potential contamination can be managed. There are approximately 3000 sites in the Canterbury region that are currently (May 2007) known to have accommodated land use activities that may cause contamination, and there are likely to be many unknown sites.

Along with activities to identify and record information to monitor contamination, and to enforce remedial or management work, an advocacy programme is required to raise awareness of the impact of contamination on natural resources and future use of land.

Management of widespread soil contamination of arable land by persistent, immobile and toxic contaminants (e.g. cadmium and fluorine) that affect soil quality is not addressed in this strategy as it is covered in the *Proposed Canterbury Natural Resources Regional Plan, Chapter 8: Soil Conservation* (ECan 2004c).

2 Legislative and policy context

2.1 Central government

The main piece of legislation relevant to contaminated land management by regional councils is the Resource Management Act 1991 (RMA 1991).

The following functions and responsibilities under the Resource Management Act 1991 are of relevance:

- i) the investigation of land for the purpose of identifying and monitoring contaminated land (S30 (1) (ca))
- ii) the prevention or mitigation of any adverse effects of the storage, use, disposal, or transportation of hazardous substances (S30 (1) (d) (v))
- iii) managing the discharge of contaminants to the environment. (S15)

Contaminated land is defined in the RMA 1991 as follows:

- (a) *if there is an applicable national environmental standard on contaminants in soil, the land is more contaminated than the standard allows; or*
- (b) *if there is no applicable national environmental standard on contaminants in soil, the land has a hazardous substance in or on it that—*
 - (i) *has significant adverse effects on the environment; or*
 - (ii) *is reasonably likely to have significant adverse effects on the environment*

There are currently no applicable national environmental standards.

The Local Government Official Information and Meetings Act 1987 also contains sections of relevance to the provision of information related to contaminated sites and sites associated with the storage, use and disposal of hazardous substances. In essence these provisions direct that if information is requested, it must be provided unless there are good reasons for withholding it.

Central government policy relevant to contaminated land management includes:

- New Zealand Waste Strategy (MfE 2002)
- Contaminated Land Management Guidelines (MfE & MoH 1997, MfE 1997, 1999, 2003a, b, c, 2004a, b, c, 2006a, b)

There are a number of issues relevant to contaminated land that are not addressed in the legislation or by other, non-statutory methods. These include liability for historic contamination, mandatory reporting, an inability to enforce RMA provisions on the Crown, timing of prosecutions and the uncertainty associated with interpretation of s15 RMA 1991 as it relates to discharges from contaminated sites.

Environment Canterbury is involved in advocating to the Ministry for the Environment to develop and implement a national policy for management of contaminated land (PNRRP, Chapter 4, Method WQL11(a)). (ECan 2004a).

Environment Canterbury's Resource Management Planners will co-ordinate submissions from Environment Canterbury on any proposed national contaminated land management guidelines or standards.

2.2 Environment Canterbury

Environment Canterbury has the following statutory and policy documents relevant to contaminated land management:

- Environment Canterbury Proposed Natural Resources Regional Plan, Chapter 4, Policy and Methods WQL11 (Management of Contaminated Land) and Objective WQL2 (Water quality outcomes for groundwater and contaminated land) (PNRRP, ECan 2004a)
- Environment Canterbury Proposed Natural Resources Regional Plan, Chapter 8, Issue SCN2: Widespread contamination.
- Long Term Council Community Plan (ECan 2004b)
- Regional Policy Statement (ECan 1998)

Environment Canterbury will implement the provisions of the proposed Natural Resources Regional Plan related to contaminated land using the methods detailed in its Contaminated Land Management Strategy (this document).

The strategy will be reviewed every three years. The next review will be in 2009/10.

2.3 Territorial authorities

Territorial authorities, in most cases, have included some provisions for managing contaminated land within their plans in accordance with their responsibilities defined in the Health Act 1956, Building Act 2004 and Resource Management Act 1991.

Environment Canterbury liaises with territorial authorities on contaminated land issues as follows:

1. Preparing submissions on consent applications associated with contaminated land that are notified by territorial authorities;
2. Review of district plans and working with territorial authorities to amend plans so that they include provisions for the identification and management of contaminated land in accordance with their function in s31 of the RMA 1991 and the principles defined in contaminated land management guidelines issued by the Ministry for the Environment, and with Method WQL11(i) of the proposed Natural Resources Regional Plan (ECan 2004a).
3. Sharing information on contaminated and HAIL sites through ECan's web based search system.

Resource Management Planners co-ordinate tasks 1 and 2 above. A flow diagram indicating the interaction between Resource Management Planners and Contaminated Sites Officers is presented in Appendix 1.

2.4 Other agencies

Other government agencies that also have responsibilities for contaminated land management in Canterbury are:

- Community and Public Health (CPH)
- Occupational Safety and Health Services (OSH)
- Ministry for the Environment

Environment Canterbury will advocate for effective policy to be implemented by agencies with responsibilities for contaminated land management.

3 Investigation of land for the purpose of identification and monitoring of contaminated land

3.1 Introduction

The investigation of land for the purpose of identification and monitoring of contaminated land is a regional council function detailed in section 30 of the RMA 1991.

The identification of contaminated land through investigative work, along with management of this information is discussed in this section, with monitoring of contaminated land discussed in section 5.

3.2 Investigation of land: identification of HAIL sites

The types of activities and industries that are associated with the potential for contamination are listed in Schedule WQL3 of the proposed Canterbury Natural Resources Regional Plan (ECan 2004a) (presented in Appendix 3). Schedule WQL3 has been adapted from the MfE's Hazardous Activities and Industries List (HAIL) (MfE 2004a).

Environment Canterbury has a long-term aim (proposed Canterbury Natural Resources Regional Plan, Chapter 4, page 4-234, environmental result, ECan 2004a) to identify all sites that have a current or historic activity (or activities) listed in Schedule WQL3 within ten years of Chapter 4 becoming operative.

The Ministry for the Environment's Waste Strategy (MfE 2002) has a similar target: 'by December 2008, all sites on the Hazardous Activities and Industry List will have been identified'. This target will not be met by Environment Canterbury because the staff resource required is not available.

A programme of identification of sites on the Hazardous Activities and Industries List has been initiated. This involves working with territorial authority staff and researching information sources to identify these sites on a district by district basis, with one district investigated per financial year. A modified approach, spread over a number of years, will be used for the Christchurch City Council due to the much larger amount of information held by this organisation, and much larger number of sites that are likely to be identified through investigation of information sources.

Identification of HAIL sites will be guided by Environment Canterbury's best practice procedure: *Identification of HAIL sites* (ECan in prep.).

Verification and registration of HAIL sites will be guided by Environment Canterbury's best practice procedure: *Verifying and Registering HAIL Sites* (ECan in prep.).

The timeframe for identification, verification, risk screening and registration of all sites listed on the HAIL in Canterbury is given in Table 3.1.

Table 3.1 Timeframe for identification of all HAIL sites in Canterbury

Year	District
06/07	Hurunui District
07/08	District 2
08/09	District 3
09/10	District 4
10/11	District 5
11/12	District 6
12/13	District 7
13/14	District 8
14/15	District 9
15/16	District 10

The best practice procedure: *Identification of HAIL sites* (ECan in prep.) will be reviewed and updated in the 2007/08 financial year.

The use of a district by district approach for identification of sites makes sense from an information collection point of view. However, the use of desktop or field investigations on a limited number of land use activities that present a particular political or environmental risk will also be conducted in parallel with the district-by-district methodology. This is consistent with NRRP, Chapter 4, Method WQL11 (d) Investigations.

Each year a desk top or field investigation will be conducted on at least one group of sites with similar contamination issues.

ECan's Pollution Prevention Officers visit sites that use, store or dispose of hazardous substances to assist in implementation of the Pollution Prevention Guide (ECan 2005). Some of the sites visited may not be included on the Listed Land Use Register at the time of the visit. Each month Contaminated Sites Officers will check the Pollution Prevention Officers' database to identify sites not on the Register. These sites will be registered.

3.3 Investigation of land: prioritisation of sites

In order for Environment Canterbury to direct resources most appropriately, HAIL sites that have only been investigated by desktop methods, i.e. no field investigation, will be prioritised using the Ministry for the Environment's risk screening system (MfE 2004b). Further investigative work can thus be directed to high risk sites.

Environment Canterbury has a long-term aim (proposed Canterbury Natural Resources Regional Plan environmental result) to risk screen all sites that have a current or historic activity (or activities) listed in Schedule WQL3 of the Plan within ten years of Chapter 4 becoming operative.

The New Zealand Waste Strategy (MfE 2002) has a similar target (from which the NRRP environmental result was based): 'by December 2010, all sites on the Hazardous Activities and Industries List will have been subject to a rapid screening system in accordance with Ministry guidelines'. This target will not be met by Environment Canterbury because the staff resource required is not available.

Risk screening will be conducted on all sites identified that have not had samples taken from them.

Risk screening of sites will be guided by Environment Canterbury's best practice procedure: *Risk Screening System* (ECan in prep.).

Targets for risk screening of sites are given in Table 3.2:

Table 3.2 Risk screening of sites

NB: Risk screening is a crude, desk top exercise. It is only conducted on sites for which no site investigation has been conducted, or where a site investigation has not addressed all HAIL issues on a site.

Year	Item
07/08	600 sites
08/09	600 sites
09/10	600 sites

Environment Canterbury has a policy that sites classified as high risk should be assessed (proposed Canterbury Natural Resources Regional Plan, Policy WQL 11 (2) (a), ECan 2004a). There is no statutory mechanism that would enable Environment Canterbury to insist that another party conduct this assessment in the absence of evidence of an adverse effect on the environment, and there are financial and practical difficulties associated with Environment Canterbury attempting to gain access on to all high risk sites for this purpose.

However, to implement the policy, the following action will be taken for sites returning a high risk result from the MfE's Risk Screening System (MfE 2004b):

- ECan staff will undertake a site visit to validate the risk screening result;
- Where non-compliance with the RMA or with the conditions of any consent associated with the site is noted, Enforcement or Environmental Protection Officers will be notified and will take appropriate action;
- A phase 2 risk screening will be conducted using the procedure defined in PDP (PDP *in prep.*);
- Preliminary site investigations will be conducted on up to five sites per year. These sites will be selected using the results of the phase 2 risk screening, along with practical considerations such as the site owner's willingness for an investigation to take place. This is consistent with proposed Canterbury Natural Resources Regional Plan, Chapter 4, Method WQL11(d), with ECan's function to investigate land for the purpose of identification and monitoring of contaminated land and with the targets in the MfE's New Zealand Waste Strategy (MfE 2002).

3.4 Investigation of land: preliminary site investigations

3.4.1 NRRP Policy and Rules

In accordance with policy WQL11 (2)(b) of the proposed Canterbury Natural Resources Regional Plan, when land is registered on the Listed Land Use Register and the land is to be subdivided or redeveloped for another use and this change in land use requires authorization by Environment Canterbury under the Resource Management Act 1991, a site assessment

shall be undertaken. Environment Canterbury's Consents Investigating Officers will ensure that this policy is implemented, where appropriate (for land use consents).

The following rules in Chapter 4 of the proposed Canterbury Natural Resources Regional Plan apply to investigation and excavation on contaminated land in Canterbury. These rules are all considered to be operative and Environment Canterbury expects them to be followed:

1. Rule WQL42 Use, including storage or removal of an underground container used for a specified hazardous substance – permitted activity
2. Rule WQL50 Discharge of a contaminant from a closed landfill (1960 – 1991) – controlled activity
3. Rule WQL53: Investigation of land - permitted activity
4. Rule WQL54: Excavation of land on high risk sites - discretionary activity
5. Rule WQL57: Discharge of a contaminant onto or into land - discretionary
6. Rule WQL58. Discharge of a contaminant into groundwater – discretionary activity

The proposed Canterbury Natural Resources Regional Plan should be referred to for further details relating to these rules. Notification forms for Rules WQL42 & 53 are available on the Environment Canterbury website.

Environmental Protection Officers maintain the register of notifications of containers located in or under land that are to be demolished or removed (notifications required as a condition of rule WQL42).

Contaminated Sites Officers maintain the register of site investigation notifications (required as a condition of rule WQL53).

It is anticipated that in the future both of these registers will be maintained by a Environmental Protection Officers.

3.4.2 Advocacy

In accordance with the policy and methods in Chapter 4 of the proposed Canterbury Natural Resources Regional Plan, Environment Canterbury will advocate for site investigations to be undertaken in the following specific situations:

1. Generally to owners of, or parties with liability for land, where any of the land uses identified in Schedule WQL 3 (presented in Appendix 3) are likely to have occurred, to undertake an assessment of contamination and conduct the mitigation measures necessary to address risks from contamination.
2. On any site accommodating an activity listed in Schedule WQL 3 when the site is to be sold, or a facility is decommissioned, i.e., a tank is removed, processing plant demolished, etc.

Site owners or occupiers interested in improving hazardous substance management on their sites can contact Environment Canterbury's Pollution Prevention Officers for a copy of the Pollution Prevention Guide (ECan 2005), and for assistance in implementing the Guide.

3.4.3 Enforcement driven investigations by Environment Canterbury

Enforcement Officers (using Enforcement mechanisms where necessary) will require investigations on sites that have clear evidence of RMA 1991 non-compliance associated with land contamination.

Those responsible for the RMA 1991 non-compliance have responsibility for conducting the investigation, in accordance with their duty under s17 RMA 1991. However, Environmental

Protection or Enforcement Officers will investigate sites for contamination on a cost-recovery basis if the following conditions apply:

- Environment Canterbury has become aware of a non-compliance with s15 of the RMA, e.g. a spill or spills have resulted in an un-authorized discharge to land, or multiple discharges to land, and
- An Infringement or Abatement Notice has been issued, and follow up visit is undertaken, and
- The party responsible is unwilling to conduct an appropriate investigation, and
- An investigation is required to ascertain the risk to the environment, and
- The party responsible is still associated with the site and still engaged in the industry that caused the contamination.

3.4.4 Investigations using the Contaminated Sites Remediation Fund (CSRF)

The Ministry for the Environment has made funding available from the Contaminated Sites Remediation Fund to assist regional councils to encourage investigation and remediation of contaminated sites. To qualify, the sites must pose a known or potential risk to human health and the environment within their regions (MfE website 2007)

Environment Canterbury will facilitate the selection of approximately one site per year for application to the Ministry for the Environment's Contaminated Sites Remediation Fund. Environment Canterbury will facilitate applications on behalf of site owners and occupiers. This meets method WQL11(d) (c) of the NRRP.

3.4.5 Regional investigations

There is little New Zealand specific information related to the scale and extent of contamination associated with some of the activities and industries listed in Schedule WQL3.

As part of the process of identifying all sites with current or historic activities listed in Schedule WQL3 (presented in Appendix 3), regional investigations will be undertaken as necessary. These investigations will provide necessary detail for a particular land use activity, e.g. types of contaminants, level of contamination, profile of contamination at a site.

Examples of studies conducted in the past include:

- *Initial investigation into lead contamination at clay target clubs and wetlands in Canterbury* (Lobb et al. 1997),
- *Investigation of arsenic contamination of soil and groundwater on the Kaikoura plain* (ECan 2003a),
- *Pentachlorophenol contamination site investigations* (Works Environmental Management 1993).
- *Chemical use in timber treatment and processing: A preliminary investigation of the use of CCA, boron, antisapstain and other chemicals at 23 sites* (Loe Pearce & Associates 1994)

A desktop or field investigation will be conducted on at least one high priority contaminated site or group of sites with similar contamination issues each year (proposed Canterbury Natural Resources Regional Plan, Chapter 4, Method WQL11(d)).

Environment Canterbury will use Contaminated Land Management Guideline No.5: *Site Investigation and Analysis of Soils* (MfE 2004c), and Environment Canterbury's best practice procedure: *Conducting regional investigations* (ECan, in prep.) as best practice guidelines for preparing regional site investigation briefs.

3.4.6 Sites owned by Environment Canterbury

In order for Environment Canterbury to determine and manage financial liability associated with contamination that may be present at any sites owned by the organisation, investigations have already been conducted on those sites with activities listed in ANZECC & NH&MRC 1992 (a list which was updated by in Schedule WQL3).

Environment Canterbury will prepare a strategy for land it owns or administers that incorporates best management practices to achieve the objectives and implement the policies of the NRRP. Environment Canterbury will implement these practices to manage this land where it may be contaminated from current or past land use activities. (from proposed Canterbury Natural Resources Regional Plan, Chapter 4, Method WQL11(e)) (ECan 2004a).

The strategy will be prepared by the Property and Reserves Section by 30 June 2008.

3.5 Investigation of land: Requirements of site investigations and analysis

3.5.1 Authorisation for investigative work

Those conducting site investigations are responsible for obtaining all necessary authorisations (bore permits, excavation, discharge to groundwater) before activities associated with investigative work are conducted.

3.5.2 Investigation guidelines

Data quality objectives and sampling and analysis of media should be conducted in accordance with best practice procedures, as exemplified in the following documents:

- Ministry for the Environment and Ministry of Health 1997. *Health and Environmental Guidelines for Selected Timber Treatment Chemicals*. Ministry for the Environment, Wellington.
- Ministry for the Environment 1997. *Guidelines for Assessing and Managing Contaminated Gasworks Sites in New Zealand*. Ministry for the Environment, Wellington.
- Rosen MR, Cameron SG, Taylor CB, Reeves RR 1999. *New Zealand Guidelines for the collection of groundwater samples for chemical and isotopic analyses*. Institute of Geological & Nuclear Sciences Science Report 99/9.
- Oil Industry Environmental Working Group 1999. *Sampling Protocols and Analytical Methods for Determining Petroleum Products in Soil and Water*. Ministry for the Environment, Wellington.
- Ministry for the Environment 1999. *Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand*. Ministry for the Environment, Wellington.
- MfE 2003c. *Contaminated Land Management Guideline Number 5: Site Investigation and Analysis of Soils*. Ministry for the Environment, Wellington.
- Ministry for the Environment 2006. *Identifying, Investigating and Managing Risks Associated with Former Sheep-dip Sites. A Guide for Local Authorities*. Ministry for the Environment, Wellington.
- Environment Canterbury *in prep*. *Guidelines on the use of compositing for contaminated site investigations*.

- Environment Waikato 2006. *Hot spot grid size algorithms*. Excel spreadsheet. Unpublished spreadsheet prepared by Nick Kim, Environment Waikato.

3.5.3 Selecting consultants

In New Zealand there is no system of accreditation of contaminated land practitioners and therefore no method to address practitioner compliance with certain minimum requirements.

Environment Canterbury does not promote the use of specific practitioners. However, it encourages those who are seeking a consultant to determine:

- Qualifications: All staff (including field staff) should be experienced or have tertiary qualifications in a relevant subject area, i.e. geology, environmental engineering, science.
- Experience: The person setting the data quality objectives and writing the report should have at least three years experience of contaminated land investigative work.
- Peer review process: The consultancy should have appropriate document control processes to ensure that the final report is of a suitable quality.

Investigation of sites for contamination is complex and Environment Canterbury will advocate that specialist contaminated land practitioners are used by all those undertaking investigations.

3.5.4 Reporting

Environment Canterbury expects all investigations to be reported in accordance with MfE's Contaminated Land Management Guideline No.1 (MfE 2003a) *Reporting on Contaminated Sites in New Zealand*. Any departures from the recommended reporting structure should be identified and explained.

3.6 Investigation of land: Submission of reports to Environment Canterbury

There is currently no national legislation requiring that contaminated land investigation reports are provided to regional councils. This creates a conflict with the regional council RMA 1991 function to investigate land for the purpose of identification and monitoring of contaminated land. Environment Canterbury has attempted to alleviate the difficulties associated with gaining information about contaminated land through two rules in the Proposed Canterbury Natural Resources Regional Plan (NRRP) (ECan 2004a).

Rule WQL42 and WQL53 of the NRRP concern the removal of underground storage tanks and the investigation of contaminated land respectively. These are permitted activities subject to conditions including that a copy of the report be provided to Environment Canterbury within 3 months (Rule WQL42) and 2 months (Rule WQL53) of completion of the investigation.

Method WQL11(i) of the NRRP indicates that territorial authorities should provide information to Environment Canterbury on land where activities listed in the HAIL have occurred or are continuing to occur, for inclusion in the Listed Land Use Register.

All reports received will be recorded in the Listed Land Use Register and assessed using ECan's report assessment templates.

3.7 Identification of contaminated land: Assessment of investigation reports by Environment Canterbury

3.7.1 Introduction

When Environment Canterbury receives site investigation reports, they are assessed to identify whether they accurately describe the risk presented to the environment and human health by any contaminants identified on the site, and to identify if the land meets the RMA definition of contaminated (section 2 RMA 1991).

In assessing any investigation, Environment Canterbury considers:

- All past uses of the site, and possible associated hazardous substances;
- On-site and off-site receptors, both human and environmental;
- All relevant media (soil, groundwater, sediment, surface water, air). Some consideration will be given to Objective WQL2 of the Proposed Canterbury Natural Resources Regional Plan (ECan 2004a), which relates to groundwater quality outcomes;
- The level of information obtained, and whether it is satisfactory;
- The current and likely future use of a site;
- The statutory role of Environment Canterbury, and other agencies, in addressing any contamination.

Environment Canterbury's best practice procedure: *Processing site investigation reports* (ECan in prep.) will be used for the assessment of investigations. This includes assessment templates which ensure consistency and best practice when assessing reports.

3.7.2 Environmental guideline values

Environmental guideline values are concentrations of contaminants in specified media that have been established as conservative indicators of risk under standard exposure scenarios.

Environmental guideline values are used in 'tier 1 assessments' of analytical results for sites where generic (conservative) assumptions are used. When values are exceeded, action is required. This action can include further investigation and assessment of risk in the form of a 'tier 2 assessment', or remedial work to address exceedances.

In New Zealand, there is currently no national environmental standard detailing environmental guideline values to be applied to contaminated site investigation results. However, the Ministry for the Environment has published a guideline *Hierarchy and application in New Zealand of environmental guideline values* (MfE 2003b). Environment Canterbury will use the hierarchy established in this guideline as a first step to identify appropriate environmental guideline values. Care will be used to ensure selection of guideline values within the hierarchy that are appropriate for protection of relevant receptors (i.e. humans, plant or animal life) at the site.

Environment Canterbury expects all contaminated site investigation reports to reference relevant environmental guideline values and background concentrations when assessing analytical results. Where no environmental guideline values are available for a contaminant, they should be calculated in accordance with the methodology as set out in MfE 2003b (page 21). This methodology is used for the calculation of guideline values for protection of human health only. In the future, the Ministry for the Environment may produce methodologies for calculation of guideline values protective of specified receptors (human

health, ecological, groundwater protection). These methodologies will be considered once they are available.

Environment Canterbury will give consideration to ecological receptors on and off site for residential and agricultural land uses and areas of open space (i.e., parks, etc.). However, consideration is not generally required for on-site terrestrial ecological receptors (i.e. existing plant or animal life) in industrial sites due to the significant modification of these environments inherent in urban industrial zoned land.

In addition to environmental guideline values identified in MfE 2003b, Environment Canterbury will use its own values for background concentrations of soils (ECan 2006, plus future addendums).

When assessing groundwater contamination, consideration will be given to the Proposed Canterbury Natural Resources Regional Plan Objective WQL2: Water quality outcomes for groundwater and contaminated land. This objective states that:

“In semi-confined, unconfined, and other confined aquifers or parts of these aquifers, where: the water quality is affected by human activities, the groundwater quality shall meet the following values:....any other inorganic or organic determinand of health significance or pesticide (excluding nitrate nitrogen, or Escherichia coli,) listed in the Drinking Water Standards for New Zealand 2000 shall not be detected at a concentration greater than one tenth of the Maximum Acceptable Value for that determinand...”

This objective is more stringent than the environmental guideline values that would be selected using the *Hierarchy and application in New Zealand of environmental guideline values* (MfE 2003). Where relevant, it will be used for setting consent conditions for discharges from contaminated sites.

3.7.3 Background concentrations of contaminants

Environment Canterbury has a set of categories that it uses to define what is known about the contamination status of sites (Table 4.1). In order for a site to be classified as ‘At or below background concentrations’, site investigative results must demonstrate that there are no hazardous substances present on the site. This may be a result of remedial activity or an absence of discharges of hazardous substances into land.

In both cases, the background concentrations of contaminants in the area need to be measured because certain contaminants are naturally present in the environment at low concentrations. *Background concentrations of selected trace elements in Canterbury soil* (ECan 2006) and associated addendums will be used for this purpose.

3.7.4 Limits of detection and uncertainty of measurement

The limit of detection and uncertainty of measurement of concentration for a contaminant depends on the contaminant and the analytical technique chosen.

Environment Canterbury requires the following limits of detection for analytical work conducted on water, soils and sediment:

1. Below the relevant **environmental guideline values** for the hazardous substances being analysed and,
2. Below the relevant **background concentrations** for the hazardous substances being analysed.

The laboratory’s statistically determined detection limits (method detection limit) for each determinand (hazardous substance) should ideally be one-fifth, or less, of the acceptance

value for that hazardous substance (adapted from MoH 2005, page 118). This may or may not be possible for all hazardous substances. Where it is not possible, this should be noted in the report.

3.7.5 Registration process

Once a site investigation report has been received, details will be added to the Listed Land Use Register. If the site is not already listed on the Register, it will need to be added. Section 4.2 covers site registration.

3.8 Consultation and communication

3.8.1 Territorial authorities and other government bodies

Environment Canterbury will inform territorial authorities when sites in their area are added to the Listed Land Use Register. Territorial authority staff are also able to query the Listed Land Use Register to download information held about sites using a web-based query mechanism. This is discussed in section 4.3.5.

3.8.2 The public

Following consultation with the site owner, Environment Canterbury will engage in consultation with parties other than the site owner and occupier on a specific site when:

- A common environmental resource has been contaminated, e.g., groundwater, or;
- Adjacent properties have been affected by contamination, or;
- The area of contamination has public access, or;
- Environment Canterbury is proposing to spend a significant amount of money on the site, or;
- The site has a high public profile, or;
- There are a number of sites with similar issues, e.g. residential properties on closed landfills, properties within a clay target club shot fall zone.

The NEPC Schedule B (8) *Guideline on Community Consultation and Risk Communication* (NEPC 1999) will be used for guidance.

Environment Canterbury's Portfolio Communications and Relations Officer will co-ordinate the production of communication plans and media statements and facilitate any consultation processes that are required.

3.8.3 Iwi Liaison

Appropriate iwi liaison, including liaison with Te Rūnanga o Ngāi Tahu (TRoNT), will be initiated by Environment Canterbury when discharges identified at sites have the potential to affect Maori cultural values. Further details of these values are contained within the following iwi management plans:

- Te Taumutu Rūnanga Natural Resource Management Plan (Te Taumutu Rūnanga 2003)
- Te Rūnanga o Kaikōura Environmental Management Plan (Te Rūnanga o Kaikōura Inc. 2007)

4 Information management

4.1 Contaminated Land Information Management Strategy

Information related to sites identified through the HAIL identification programme, or through receipt of information by other means will be collated, managed and released by Environment Canterbury in accordance with the protocols defined in the *Contaminated Land Information Management Strategy* (ECan 2007). This strategy covers site identification, classification, and release of information, and management and security of the Listed Land Use Register.

The Listed Land Use Register is an electronic database used to store information about sites that are or may be contaminated because of past or present land use. The Listed Land Use Register provides details of site identification, a summary of information relating to hazardous substance use, storage or disposal and any contamination, the category that a site is classified into, and the risk screening input values and result. Collection and maintenance of this register meets the proposed Canterbury Natural Resources Regional Plan, Chapter 4, Method WQL11(b).

In addition to this database, hard copy files contain day-to-day correspondence relating to sites as well as hard copy reports. The Council's electronic document management system (TRIM) will be used to store electronic information relating to sites.

4.2 Registration

Once information has been collected about a site, it is registered on the Listed Land Use Register (LLUR) into a category. The categories that will be adopted by Environment Canterbury on adoption of this strategy are listed in Table 4.1. Currently a more basic category system is in use.

For each site, Registration involves provision of the information to the site owner to enable their input to be considered.

Sites are registered as soon as verified information becomes available about them.

A flow chart detailing the registration process is provided in Appendix 1.

Table 4.1 Categories used by Environment Canterbury to classify sites

Land uses	
Unverified HAIL: <HAIL> <HAIL>	The relevant land-use history has not been confirmed. The site has been reported as one that appears on the Hazardous Activities and Industries List, but the reported use has not been confirmed.
Entered in error	The site has been entered on the register in error. Information shows that this site has never been associated with any of the specific activities or industries on the Hazardous Activities and Industries List.
Verified HAIL: <HAIL> <HAIL>	The land-use history has been confirmed. The site has been confirmed as one that appears on the Hazardous Activities and Industries List.

Site status (for those sites with Verified HAIL land use)	
Contaminated for <land use>	The site has been investigated. Results demonstrated it is land of one of the following kinds: (a) if there is an applicable national environmental standard on contaminants in soil, the land is more contaminated than the standard allows; or (b) if there is no applicable national environmental standard on contaminants in soil, the land has a hazardous substance in or on it that – (i) has significant adverse effects on the environment; or (ii) is reasonably likely to have significant adverse effects on the environment (s2 RMA 1991)
Significant Adverse Environmental Effects	The site has been investigated. Results demonstrated that sediment, groundwater or surface water has hazardous substances in or on it that – (i) have significant adverse effects on the environment; or (ii) are reasonably likely to have significant adverse effects on the environment
Partially investigated	The site has been partially investigated. Investigations demonstrate that there are hazardous substances present at the site; however, there is insufficient information to quantify any adverse effects or risks to people or the environment.
Acceptable for <land use>	The site has been investigated. Investigations demonstrate that there are hazardous substances present at the site, but indicate that any adverse effects or risks to people and the environment are considered to be so low as to be acceptable.
Managed for <land use>	The site has been investigated. Investigations demonstrate that there are hazardous substances present at the site, but indicate that any adverse effects or risks to people and the environment are managed.

At or below background concentrations	The site has been investigated or remediated. The investigation or validation results confirm that there are no hazardous substances above local background concentrations. Local background concentrations are those that occur naturally in the area. The investigation or validation sampling has been sufficiently detailed, in terms of locations sampled and analytes tested, to characterise the site.
Not investigated	The site has not been investigated

The following best practice procedures are used to register sites:

- *Verifying and Registering of HAIL sites* (ECan in prep.) – for sites with no investigative information
- *Registration of sites and the RMOG process* (ECan in prep.) - for sites with investigative information including soil sampling results.

4.3 Information release

4.3.1 Introduction

An important part of contaminated land management is the dissemination of information to those parties requiring it. Environment Canterbury encourages the release of easily understandable information on a site by site basis. Management and release of information must be conducted in accordance with the principles established in the *Contaminated Land Information Management Strategy* (ECan 2007).

Release of contaminated land information needs to be managed because it has the potential to affect property prices, can limit land use, can easily be misinterpreted, and has a high media profile.

Any requests for information about contaminated land need to be considered under the provisions of the Local Government Official Information and Meetings Act (1987) (LGOIMA). The principle of LGOIMA is that information should be released unless there is good reason for withholding it. The Act also states that information can be placed in context, and provides for limited disclaimers on information released.

Further details relating to information release are provided in the *Contaminated Land Information Management Strategy* (ECan 2007).

4.3.2 Information release to ECan staff

The locations of all sites on the LLUR are represented by polygons created using Geographical Information System software. These polygons are available as a layer on ECan's mapping system. Access to the information is made available to staff who have been trained in the type and nature of the information held. This minimises the possibility of maps of sites being accidentally produced and disseminated. The LLUR is currently incomplete, most sites have not had any samples taken to determine whether contamination is present, and maps are therefore misleading.

A signed agreement between the Environmental Quality & Hazards Manager and the section manager of the relevant staff establishes what information will be provided by EQ&H, and the agreed limitations on its use.

The contaminated sites team will conduct annual training sessions for all staff requiring access to the contaminated site information on ECan's GIS mapping system. The agreement over use of the contaminated site information in GIS will be re-signed annually following the training session.

Maintenance of the GIS layer is guided by Environment Canterbury's best practice procedure: *Contaminated site GIS layers* (ECan in prep.)

4.3.3 Information release to the public

Advisory Officers in Environment Canterbury's Customer Services team respond to requests for information about contamination on a piece of land. The following information is supplied:

- A standard letter detailing the results of a search for the site on the Listed Land Use Register
- A standard information sheet detailing the functions of the Listed Land Use Register
- A copy of the MfE's Hazardous Activities and Industries List
- For those sites on the Register, a Statement with summarised information held about the contamination issues identified at the site – including land use history, summary of any investigations undertaken and other factors relevant to contamination. A disclaimer on the information is also provided.

Environment Canterbury's best practice procedure: *Responding to property enquiries* (ECan in prep.) is used to guide responses to property enquiries. All property enquiries with the exception of bulk information requests are responded to within a ten working day timeframe.

4.3.4 Bulk information requests

The release of information about specific properties on the Listed Land Use Register that individuals or organisations are interested in (because of a potential purchase, or a concern about their local environment) is encouraged. When information is requested on more than one site, this is termed a bulk information request. Requests for bulk information are considered on a case-by-case basis and may be declined in accordance with the provisions of section 7 of the Local Government Official Information and Meetings Act 1987.

Release of bulk information must be carefully managed to avoid inaccurate assumptions being made about the area or type of industry that the bulk information request refers to. The Listed Land Use Register is currently incomplete, and the information contained within it is commercially sensitive.

All bulk information releases must be accompanied by a signed relevant Memorandum of Understanding between Environment Canterbury and the recipient covering the reason for the information request, and restrictions on the use of the information.

4.3.5 Information release to territorial authorities

Environment Canterbury has established a web-based mechanism to search the Listed Land Use Register for use by territorial authority staff in the Canterbury Region. The developed protocols for the collection and exchange of information about contaminated land meet the proposed Canterbury Natural Resources Regional Plan Method WQL11(b) (ECan 2004a).

This mechanism is made available under agreement to a memorandum of understanding (MoU) covering the limitations on the use of the information on the basis of its sensitivity, and Environment Canterbury's commitment to maintain the web-based mechanism. Environment Canterbury has prepared a best practice procedure: *Responding to Contaminated Land Property Enquiries – use of the web based search system* (ECan in prep.), to assist territorial authority staff in use of the system.

The MoU also covers the requirement for territorial authorities to inform Environment Canterbury of any sites they know of that are not included on the LLUR. The system contains a 'submit' facility to enable territorial authority staff to supply ECan staff with information on sites not on the Register, or provide additional information on registered sites. This meets method WQL11(i) of chapter 4 proposed Canterbury Natural Resources Regional Plan (ECan 2004a). Territorial authority staff will be approached annually for their comments on the search system, and training will be given as required.

Information on contaminated or HAIL sites submitted by territorial authority staff will be added to the LLUR following verification by contaminated sites staff.

5 Monitoring of contaminated land

5.1 Introduction

The investigation of land for the identification and monitoring of contaminated land is a regional council function detailed in section 30 of the RMA 1991. This section deals with the monitoring of contaminated land.

5.2 Consenting discharges - RMA 1991, Section 15

Once land has been contaminated, a discharge of contaminants from the source of contamination can occur as a result of natural processes. This has been described by Environment Canterbury as a 'passive discharge'.

Nationally, interpretation of section 15 of the RMA as it relates to passive discharges has been inconsistent, and a variety of legal opinions exist.

Based on a legal opinion (Wynn Williams & Co 2004a) Environment Canterbury considers that passive discharges are unauthorised unless consent has been obtained. The various discharge scenarios for which Environment Canterbury considers that authorisation should be sought are detailed in Table 5.1.

Environment Canterbury will request that authorisation is obtained for significant discharges. Significant discharges are currently defined for the purpose of this strategy as those where contamination has reached groundwater, or is likely to have reached groundwater (if no groundwater data are available).

Environment Canterbury will continue to seek clarification or rewording of section 15 RMA 1991 from the Ministry for the Environment or, failing that, Environment Court to clarify that passive discharges are included within the meaning of section 15.

Table 5.1 Contaminated site discharge situations in which authorisation should be sought from Environment Canterbury.

Adapted from Wynn Williams & Co 2004a (Table Attachment). Bold denotes the specifics of each variation to the central theme of historic contamination of land.

Variation	Relationship of current landowner/occupier to discharge	Timing of original discharge	Contamination	Nature of the discharge	RMA provision
1.1	Current landowner/occupier is the original discharger	After 1/10/91	There is potential for contaminant to enter groundwater due to natural processes ¹	The owner 'discharges a contaminant into land in circumstances which may result in the contaminant entering water'.	S15 (1)(b)
1.2	Current landowner/occupier is <u>not</u> the original discharger	After 1/10/91	There is potential for contaminant to enter groundwater due to natural processes	The owner 'discharges a contaminant into land in circumstances which may result in that contaminant entering water'.	S15 (1)(b)
1.3	Current landowner/occupier is <u>not</u> the original discharger	After 1/10/91	There is potential for contaminant to enter groundwater due to natural processes	The historic polluter 'discharges a contaminant into land in circumstances which may result in that contaminant entering water'.	S15 (1)(b)
1.4	Current landowner/occupier is <u>not</u> the original discharger, current landowner is not current occupier	After 1/10/91	There is potential for contaminant to enter groundwater due to natural processes	The owner 'discharges a contaminant into land in circumstances which may result in that contaminant entering water'.	S15 (1)(b)
1.5	Current landowner/occupier is <u>not</u> the original discharger, land occupied by a person ("the occupier") other than the owner	After 1/10/91	There is potential for contaminant to enter groundwater due to natural processes	The occupier 'discharges a contaminant into land in circumstances which may result in that contaminant entering water'.	S15 (1)(b)
1.6 ²	Current landowner/occupier is the original discharger	Original discharge occurred before 1/10/91	There is potential for contaminant to enter groundwater due to natural processes	The owner 'discharges a contaminant into land in circumstances which may result in that contaminant entering water'	S15 (1)(b)
1.7	Current landowner/occupier is the original discharger	After 1/10/91	The contaminant is moving through soil into groundwater (i.e. actual movement into water, not just potential for movement)	The owner 'discharges a contaminant into land in circumstances which may result in that contaminant entering water'	S15(1)(b)
1.8	Current landowner/occupier is the original discharger	After 1/10/91	The contaminant is moving through soil into surface water (i.e. actual movement into water, not just potential for movement)	The owner 'discharges a contaminant into land in circumstances which may result in that contaminant entering water'	S15(1)(b)
1.9	Current landowner/occupier is the original discharger	After 1/10/91	Contaminant is moving through soil, but not necessarily into water	The owner 'discharges a contaminant into land'.	S15 (2)
1.10	Current landowner/occupier is the original discharger	After 1/10/91	Contaminant is moving from land into the air	The owner 'discharges a contaminant into air'.	S15 (2)
1.11	Current landowner/occupier is the original discharger	After 1/10/91	Current landowner/occupier is the original discharger is taking steps which increase movement of contamination towards groundwater or increase likelihood of movement towards groundwater	The owner 'discharges a contaminant into land in circumstances which may result in that contaminant entering water'.	S15 (1)(b)

¹ This includes situations where contamination is moving through soil into groundwater or surface water (ie actual movement into water, not just potential for movement).

² Contrary to *Voullaire v Jones*.

This consenting of passive discharges involves the following activities:

- Identification of sites fitting the categories in Table 5.1 by Contaminated Sites Officers
- Request for a resource consent application to be prepared and submitted from landowners/occupiers sent by Enforcement Officers³
- Processing of resource consent applications by Consents Investigating Officers (Contaminated Sites Officers to provide technical advice)
- Monitoring of resource consents by Environmental Protection Officers
- Enforcement activities by Enforcement Officers

The procedure *Application for Passive Discharge Consent* (ECan in prep.) is used to guide the work leading to submission of an application.

5.3 Monitoring and enforcement

Environmental Protection and Enforcement Officers monitor and enforce consent conditions and compliance with statutory provisions, including activities or incidents that cause contamination of land. Typical situations are:

- Discharge of hazardous substances to land caused by a spill, leak or unauthorised discharge
- An on-going unauthorised discharge occurring on a site
- An authorised discharge that is not complying with consent conditions either because the conditions are not being complied with, or the results of monitoring do not comply with consent conditions.

The Enforcement Unit has a range of options available to it under the RMA 1991:

- Verbal warning;
- Notice of alleged offence;
- Letter of formal warning and cost recovery;
- Request for an application for a resource consent;
- Issue an abatement notice;
- Issue an infringement notice;
- Application to the Environment Court for an Enforcement order;
- Prosecution.

When Environmental Protection Officers and Enforcement Officers are dealing with contaminated sites, Contaminated Sites Officers will be informed so that the Listed Land Use Register can be kept up-to-date and so specialist advice can be provided, if required. Flow charts in Appendix 1 detail the inter-relationship between:

1. Environmental Protection Officers and Contaminated Sites Officers, and
2. Enforcement Officers and Contaminated Sites Officers.

³ Except in situations where a site is already monitored by an Environmental Protection Officer for a consent for a different activity. In this situation the Environmental Protection Officer would request the consent.

6 Site remediation and management

6.1 Introduction

Site remediation and management includes the methods used to reduce or manage risks to human health and the environment from contaminated land. The New Zealand Waste Strategy (MfE 2002) has set a target as follows:

'by December 2015, all high risk contaminated sites will have been managed or remediated. A timeframe will also have been developed to address the management of remaining sites.'

The Waste Strategy provides no indication of which organisation/s are responsible for attaining this target. Additionally high risk sites may not be contaminated (the risk screening system is a desk based assessment tool). However, in line with the intent of this target, Environment Canterbury will advocate for site owners, occupiers, property consultants, financial institutions, territorial authorities, public health and other agencies to adopt appropriate management methods for contaminated land (NRRP method WQL11(a)).

In situations where an unauthorised discharge has occurred and site management is not undertaken by the responsible party, Enforcement Officers will take enforcement action to ensure satisfactory site management, and ensure that a passive discharge consent application is submitted, if required.

Contaminated sites that meet the eligibility criteria for the Ministry for the Environment's Contaminated Sites Remediation Fund may be managed with assistance from this fund.

6.2 Management goals

When considering resource consent management goals for groundwater at contaminated sites, the outcomes in the proposed Canterbury Natural Resources Regional Plan, Chapter 4, Objective WQL2 (2)(c) will be considered, along with risk based guideline values.

6.3 Monitoring of management

Where isolation of contaminated soil is chosen as the preferred management option, or groundwater is impacted and needs monitoring, a Monitoring and Management Plan is required. The Plan should be prepared using the guidance provided in the *Contaminated Land Management Guidelines: Reporting on Contaminated Sites in New Zealand* (MfE 2003a). Regular reports (no less than annual) must be produced to demonstrate the effectiveness of the management, and these reports must be forwarded to Environment Canterbury and other relevant stakeholders.

If a plan is not reported on, Environment Canterbury cannot be confident that it is being implemented, and therefore that the risks are being managed.

Consent conditions for discharge consents will include production of monitoring and management plans.

Where applicable, use of WasteTRACK for transfer of contaminated soil from one location to another will be encouraged by inclusion in consent conditions.

6.4 Monitoring progress

Progress made towards meeting the New Zealand Waste Strategy targets for contaminated sites will be reported annually.

At intervals of not more than 5 years, a regional State of Environment Report must be produced (RMA 1991, s35). The report will include details of the state of contaminated land in Canterbury.

7 Advocacy

Environment Canterbury will advocate appropriate management of contaminated sites through a variety of methods.

Environment Canterbury will advocate:

1. to the Ministry for the Environment to formalise the roles and responsibilities of the various agencies and landholders and occupiers for managing contaminated sites, and to develop a national policy on the management of contaminated land.
2. the use of national guidelines published or endorsed by the Ministry for the Environment, when assessing and reporting on contaminated land.
3. to site owners, property consultants, financial institutions, territorial authorities, public health and other agencies to:
 - be aware of issues about contaminated land
 - adopt appropriate management methods for contaminated land; and
 - provide information to Environment Canterbury about contaminated and potentially contaminated land.
4. to owners of, or parties with liability for land, where any of the land uses identified in Schedule WQL3 are likely to have occurred, to undertake an assessment of contamination and the mitigation measures necessary to address risks from contamination.

Source: Proposed Canterbury Natural Resources Regional Plan, Chapter 4, Method WQL11(a)

Environment Canterbury will also advocate good management of hazardous substances and hazardous waste, particularly through encouraging use of its *Pollution Prevention Guide* (ECan 2005).

Generally accessible information is also available on Environment Canterbury's website. This information includes key documents such as the HAIL, fact sheets and strategies. The website will be maintained to reflect developments in this work area.

8 Best practice procedures

The following draft best practice procedures have been developed to assist in meeting the regional council's statutory functions related to contaminated land management:

1. Contaminated Land Team: Risk Screening System Users Guide
2. Contaminated Land Team: Responding to property enquiries
3. Customer Services: Responding to Property enquiries – Use of the web based search system
4. Contaminated Land Team: Responding to Property enquiries – Use of the web based search system (TA Version)
5. Contaminated Land Team: Creation and modification of polygon shape files in ArcGIS
6. Contaminated Land Team: Contaminated site GIS layers
7. Contaminated Land Team: Verifying and Registering HAIL sites
8. Contaminated Land Team: Processing site investigation reports
9. Contaminated Land Team: Registration of sites and the RMOG process
10. Contaminated Land Team: Identification of HAIL sites
11. Contaminated Land Team: Conducting regional investigations
12. Contaminated Land Team: Application for passive discharge consent

These best practice documents will be finalised in the 07/08 financial year.

The following best practice procedures will be developed in the 07/08 financial year:

- Contaminated Land Team: Determination of compliance with NRRP permitted activity Rule WQL53 Investigation of contaminated land
- Consent Enforcement: Determination of compliance with NRRP permitted activity Rule WQL42 Use including storage or removal of an underground container used for a specified hazardous substance
- Contaminated Land Team: Compositing of soil samples for contaminated site investigations.
- Contaminated Land Team: Registration of subdivided sites on the LLUR
- Contaminated Land Team: Conducting site visits.

PART 2: IMPLEMENTATION

9 Three year work programme

The activities detailed in the Strategy have been co-ordinated into a three year programme presented in Table 9.1.

Table 9.1 Contaminated land management: Three year work programme

	Activity	Strategy Reference	PNRRP, Chapter 4	Project code	Timeline for implementation and Project Output		
					07/08	08/09	09/10
1	Environment Canterbury will advocate to the Ministry for the Environment to develop a national policy for management of contaminated land	Section 2.1	Method WQL11(a)	061300	Ongoing: Contaminated Site personnel participate in the development of national contaminated land guidelines, standards and other site management tools		
2	Resource Management Planners will co-ordinate submissions from Environment Canterbury on any proposed national contaminated land management guidelines or standards.	Section 2.1		061300	Ongoing: Contaminated Site personnel participate in the development of national contaminated land guidelines, standards and other site management tools.		
3	Environment Canterbury will implement the relevant provisions of the proposed Natural Resources Regional Plan through its contaminated land management strategy	Section 2.2	Method WQL11(c)	061300	A report on implementation of the Contaminated Land Management Strategy is completed	A report on implementation of the Contaminated Land Management Strategy is completed	A report on implementation of the Contaminated Land Management Strategy is completed
4	The Contaminated Land Management Strategy will be reviewed every three years	Section 2.2		061300			The Contaminated Land Management Strategy is reviewed
5	Resource Management Planners will produce planning documentation for Environment Canterbury, prepare submissions on relevant district council consent applications, and liaise with district council staff as appropriate to give effect to the Strategy	Section 2.3	Method WQL11(i)	064300	Ongoing: Lodging submissions and appeals with district and city councils and the Environment Court to ensure district and city plans are consistent with Environment Canterbury's plans and strategies.		
6	Environment Canterbury will advocate for effective policy to be implemented by agencies with responsibility for contaminated land management	Section 2.4	Method WQL11(a)	061300	Output needs to be added as follows: A report on ECan's contaminated land management advocacy programme is produced.	A report on ECan's contaminated land management advocacy programme is produced.	A report on ECan's contaminated land management advocacy programme is produced.
7	Each month, Contaminated Sites Officers will check the Pollution Prevention Officers' database to identify HAIL sites not on the LLUR. These sites will be added	Section 3.2			Output needs to be added as follows: A report on sites identified by PPO visits is produced.	A report on sites identified by PPO visits is produced.	A report on sites identified by PPO visits is produced.
8	The best practice procedure: <i>Identification of HAIL sites</i> will be reviewed and updated in 2007/08	Section 3.2		028602	The best practice procedure: <i>Identification of HAIL sites</i> is reviewed and updated		

	Activity	Strategy Reference	PNRRP, Chapter 4	Project code	Timeline for implementation and Project Output		
					07/08	08/09	09/10
9	As far as practicable, all HAIL sites (sites on Schedule WQL3) in Canterbury without site investigations will have been risk screened by 2017	Section 3.3	Environmental result & Method WQL11(d)	028602	600 sites risk screened	600 sites risk screened	600 sites risk screened
10	Sites with a risk screening result of 'High Risk' will be assessed through a site visit and Phase 2 risk screening	Section 3.3	Policy WQL11	028602	On-going: A report on the investigation of RSS High Risk sites is produced.		
11	Preliminary site investigations will be conducted on up to five sites per year that have been classified as High Risk using the Phase 2 Risk Screening System	Section 3.3	Method WQL11(d)	028600	A report on the investigation of RSS High Risk sites is produced	A report on the investigation of RSS High Risk sites is produced	A report on the investigation of RSS High Risk sites is produced
12	Contaminated Sites Officers will maintain a register of site investigation notifications (required as a condition of Rule WQL53)	Section 3.4.2	Rule WQL53	028800	On-going: Output to be added as follows: A register of site investigation notifications is maintained.		
13	Environmental Protection Officers will maintain the register of notifications of containers located in or under land that are to be demolished or removed (notifications required as a condition of rule WQL42)	Section 3.4.2	Rule WQL42	065500	Ongoing: Permitted activities are monitored for compliance in accordance with monitoring procedures documentation.		
14	Investigating Officers will ensure that where land registered on the Listed Land Use register is to be subdivided or redeveloped for another use and this requires authorisation by ECan under RMA 1991, a site assessment will be undertaken.	Section 3.4.2	Policy WQL11(2)(b)	066602	On-going. Decisions on resource consent applications are made.		
15	Environment Canterbury will investigate sites on a cost-recoverable basis if the following conditions apply: <ul style="list-style-type: none"> Environment Canterbury has become aware of a non-compliance with s15 of the RMA, e.g. a spill or spills have resulted in an unauthorised discharge to land, or multiple discharges to land, and An Infringement Notice has been issued, and The responsible party is unwilling 	Section 3.4.4	Method WQL11(d)	066802	As required: Complaints of alleged breaches of RMA are investigated, actioned and reported on in accordance with Pollution Hotline response manual and Enforcement Procedures guideline		

	Activity	Strategy Reference	PNRRP, Chapter 4	Project code	Timeline for implementation and Project Output		
					07/08	08/09	09/10
	to conduct an appropriate investigation, and <ul style="list-style-type: none"> An investigation is required to ascertain the risk to the environment, and The responsible party is still associated with the site and still engaged in the industry that caused the contamination 						
16	Environment Canterbury will advocate for site investigations to be undertaken in the following specific circumstances: <ul style="list-style-type: none"> Generally to owners of, or parties with liability for land, where any of the land uses identified in Schedule WQL3 are likely to have occurred, to undertake an assessment of contamination and conduct the mitigation measures necessary to address risks from contamination On any site accommodating an activity listed in Schedule WQL3 when the site is to be sold, or a facility is decommissioned, i.e. a tank is removed, processing plant demolished, etc On any site when there is visual or olfactory evidence of contamination; or a spill or leak of hazardous substances has occurred (including multiple small scale spills) 	Section 3.4.3		061300	On-going: Contaminated site personnel participate in the development of national contaminated land guidelines, standards and other site management tools		
17	Enforcement Officers will require investigations on sites that have clear evidence of RMA 1991 non-compliance associated with contamination	Section 3.4.4		066802	As required: Complaints of alleged breaches of RMA are investigated, actioned and reported on in accordance with Pollution Hotline response manual and Enforcement Procedures guideline.		

	Activity	Strategy Reference	PNRRP, Chapter 4	Project code	Timeline for implementation and Project Output		
					07/08	08/09	09/10
18	Contaminated Sites Officers will submit one or more applications per year to the Ministry for the Environment's (MfE's) Contaminated Sites Remediation Fund for sites meeting some or all of the criteria specified by MfE	Section 3.4.5	Method WQL11(d)	028600	A report on sites investigated or managed using the CSRF is produced	A report on sites investigated or managed using the CSRF is produced	A report on sites investigated or managed using the CSRF is produced
19	Each year, a desktop or field investigation will be conducted on at least one group of sites with similar contamination issues	Section 3.2 & 3.4.6	Method WQL11(d)	028600	A report on the investigation of sites with past or present horticultural use is provided	A report on a desk top or field investigation of at least one high priority group of sites is produced	A report on a desk top or field investigation of at least one high priority group of sites is produced
20	Environment Canterbury will prepare a strategy for land that it owns or administers that incorporates best practices to achieve the objectives and implement the policies of the NRRP. Environment Canterbury will implement these practices to manage this land where it may be contaminated from current or past land use activities	Section 3.4.6	Method WQL11(e)	019400	Strategy produced	Strategy implemented	Strategy implemented
21	Environment Canterbury will advocate that specialist contaminated land practitioners are used by all those undertaking investigations	Section 3.5.3		061300	On-going.		
22	Environment Canterbury will audit all site investigation reports using its best practice procedure: <i>Processing site investigation reports</i>	Section 3.7.1	Policy WQL11	028800	A report on contaminated site investigation reports reviewed during the year is completed	A report on contaminated site investigation reports reviewed during the year is completed	A report on contaminated site investigation reports reviewed during the year is completed
23	Environment Canterbury's Portfolio Communications and Relations Officer will produce communications plans and media statements and facilitate any consultation processes that are required	Section 3.8.2		020200	On-going: Informing the community about environmental management issues		
24	The Listed Land Use Register will be collated and maintained	Section 4.1	Method WQL11(b)	028700	Information on the Listed Land Use register is accurate and up to date	Information on the Listed Land Use register is accurate and up to date	Information on the Listed Land Use register is accurate and up to date
25	As far as practicable, all HAIL sites (sites on Schedule WQL3) in Canterbury will have been identified by 2017	Section 4.2	Environmental Result & Method WQL11(d)	028602	1 district	1 district	1 district

	Activity	Strategy Reference	PNRRP, Chapter 4	Project code	Timeline for implementation and Project Output		
					07/08	08/09	09/10
26	Information on the LLUR will be released in accordance with the Contaminated Land Information Management Strategy (ECan 2007)	Section 4.3.1, 4.3.3	Method WQL11(b)	028700	Site information requests are responded to within 10 working days	Site information requests are responded to within 10 working days	Site information requests are responded to within 10 working days
27	Basic information on the LLUR will be made available to Environment Canterbury staff, under agreement as to its use, via the GIS system	Section 4.3.2		028700	An output will be added as follows: A report on searches of the LLUR using GIS by ECan staff is produced	A report on searches of the LLUR using GIS by ECan staff is produced	A report on searches of the LLUR using GIS by ECan staff is produced
28	A training session will be conducted annually for all staff requiring access to the contaminated site information on GIS	Section 4.3.2			An output will be added as follows: A report on searches of the LLUR using GIS by ECan staff is produced	A report on searches of the LLUR using GIS by ECan staff is produced	A report on searches of the LLUR using GIS by ECan staff is produced
29	Information on the LLUR will be made available to TA staff	Section 4.3.5	Method WQL11(i)	028700	A report on the web-based query mechanism to provide Listed Land Use register site information to Territorial Authorities is produced.	A report on the web-based query mechanism to provide Listed Land Use register site information to Territorial Authorities is produced.	A report on the web-based query mechanism to provide Listed Land Use register site information to Territorial Authorities is produced.
30	Territorial authority staff will be approached annually for their comments on the LLUR search system, and training will be given as required	Section 4.3.5	Method WQL11(i)	028700	A report on the web-based query mechanism to provide Listed Land Use register site information to Territorial Authorities is produced.	A report on the web-based query mechanism to provide Listed Land Use register site information to Territorial Authorities is produced..	A report on the web-based query mechanism to provide Listed Land Use register site information to Territorial Authorities is produced..
31	Information on contaminated or HAIL sites submitted by TA staff will be added to the LLUR following verification	Section 4.3.5	Method WQL11(i)	028700	Information on the Listed Land Use Register is accurate and up to date	Information on the Listed Land Use Register is accurate and up to date	Information on the Listed Land Use Register is accurate and up to date
32	Environment Canterbury staff will identify and contact relevant parties associated with known discharges on contaminated sites, and request that they seek authorisation for the discharge by means of a consent	Section 5.2		066802	Ongoing: Complaints of alleged breaches of RMA are investigated, actioned and reported on in accordance with Pollution Hotline response manual and Enforcement Procedures guideline.		
33	Environment Canterbury will continue to seek clarification or rewording of s15 RMA 1991	Section 5.2		061300	Ongoing: Contaminated sites personnel participate in the development of national contaminated land guidelines, standards and other site management tools		

	Activity	Strategy Reference	PNRRP, Chapter 4	Project code	Timeline for implementation and Project Output		
					07/08	08/09	09/10
34	When considering management goals for groundwater at contaminated sites, remedial goals based on the PNRRP Objective WQL2 (2)(c) will be used in resource consent conditions for discharges from contaminated sites.	Section 3.7.2 & 6.2	Objective WQL2(2)(c)	066602	Ongoing. Decisions on resource consent applications are made		
35	Environment Canterbury will require a Monitoring and Management Plan in conditions for consents for discharges from contaminated sites, and this plan will need to be reported on at least annually	Section 6.3	Policy WQL11, (5)	066602	Ongoing. Decisions on resource consent applications are made		
36	Use of WasteTRACK will be encouraged by inclusion in consent conditions where applicable.	Section 6.3		066602	Ongoing: Decisions on resource consent applications are made		
37	Progress will be made towards meeting the NZ Waste Strategy targets for contaminated sites	Section 6.4	Environmental result & Method WQL11(d)	028600	A report on progress made toward meeting the New Zealand Waste Strategy targets for contaminated sites is produced	A report on progress made toward meeting the New Zealand Waste Strategy targets for contaminated sites is produced	A report on progress made toward meeting the New Zealand Waste Strategy targets for contaminated sites is produced
38	Contaminated Sites Officers will provide input for Regional State of Environment Reports when required	Section 6.4		063700	Data are collected for inclusion in the waste, hazardous substances and contaminated sites chapter of the regional environment report due in 08/09		
39	Environment Canterbury will develop and implement an advocacy programme, in accordance with the details in PNRRP Method WQL11(a)	Section 7	Method WQL11(a)	061300	Output needs to be added as follows: A report on ECan's contaminated land management advocacy programme is produced.	Output needs to be added as follows: A report on ECan's contaminated land management advocacy programme is produced.	Output needs to be added as follows: A report on ECan's contaminated land management advocacy programme is produced.

PART 3: MONITORING

10 Monitoring

Monitoring of this Strategy will be achieved through annual output reporting, which is linked to the three year work programme detailed in Table 9.1. Monitoring will cover the following:

- Identification of implementation problems and how these will be addressed
- Identification of new matters that need to be added to the strategy and updates required
- Identification of any redundant matters

The Strategy is scheduled for review by Contaminated Sites Officers after three years. Thereafter the strategy will be reviewed every five years. The next review will be in 2009/10.

11 Acknowledgements

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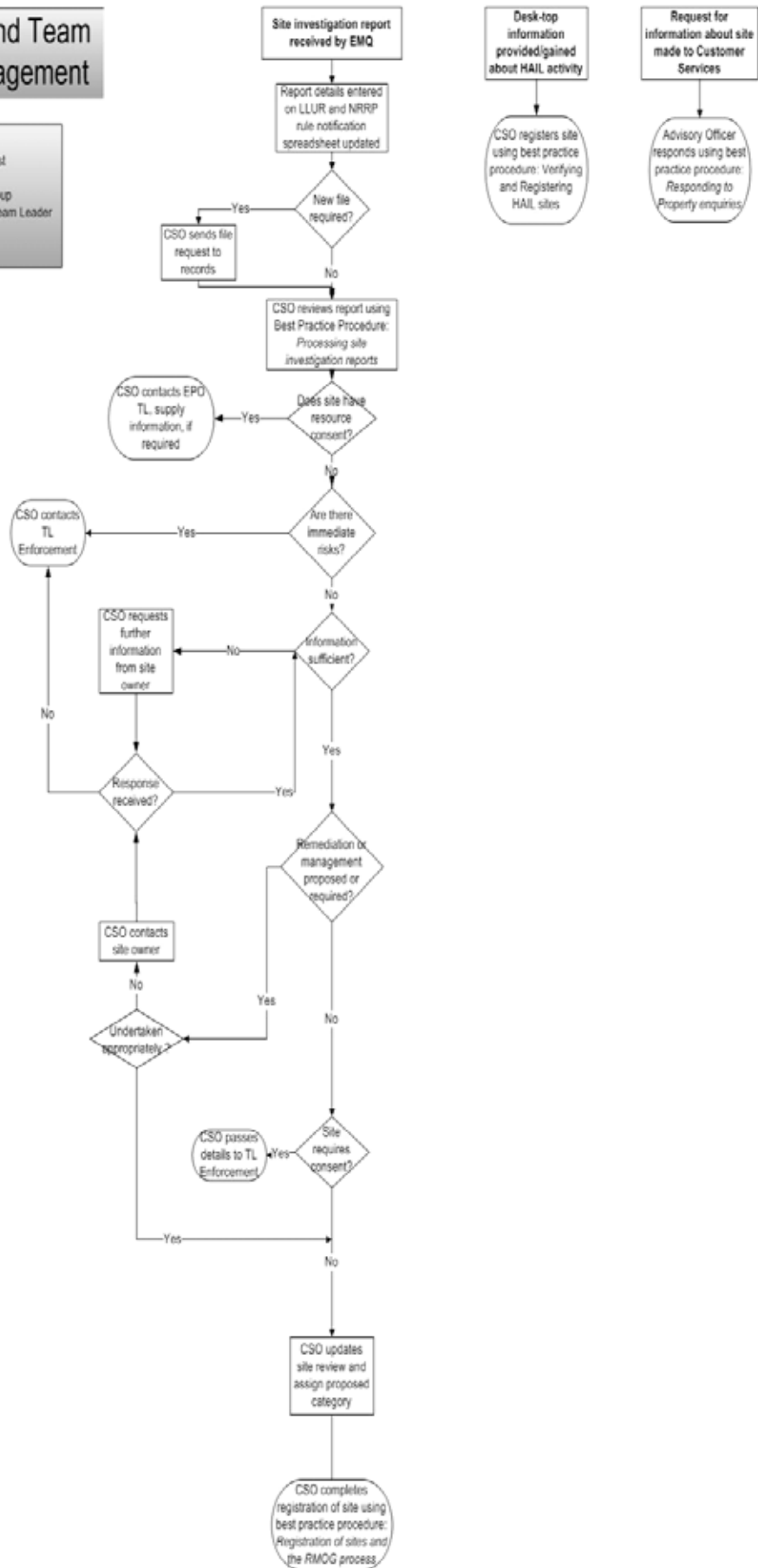
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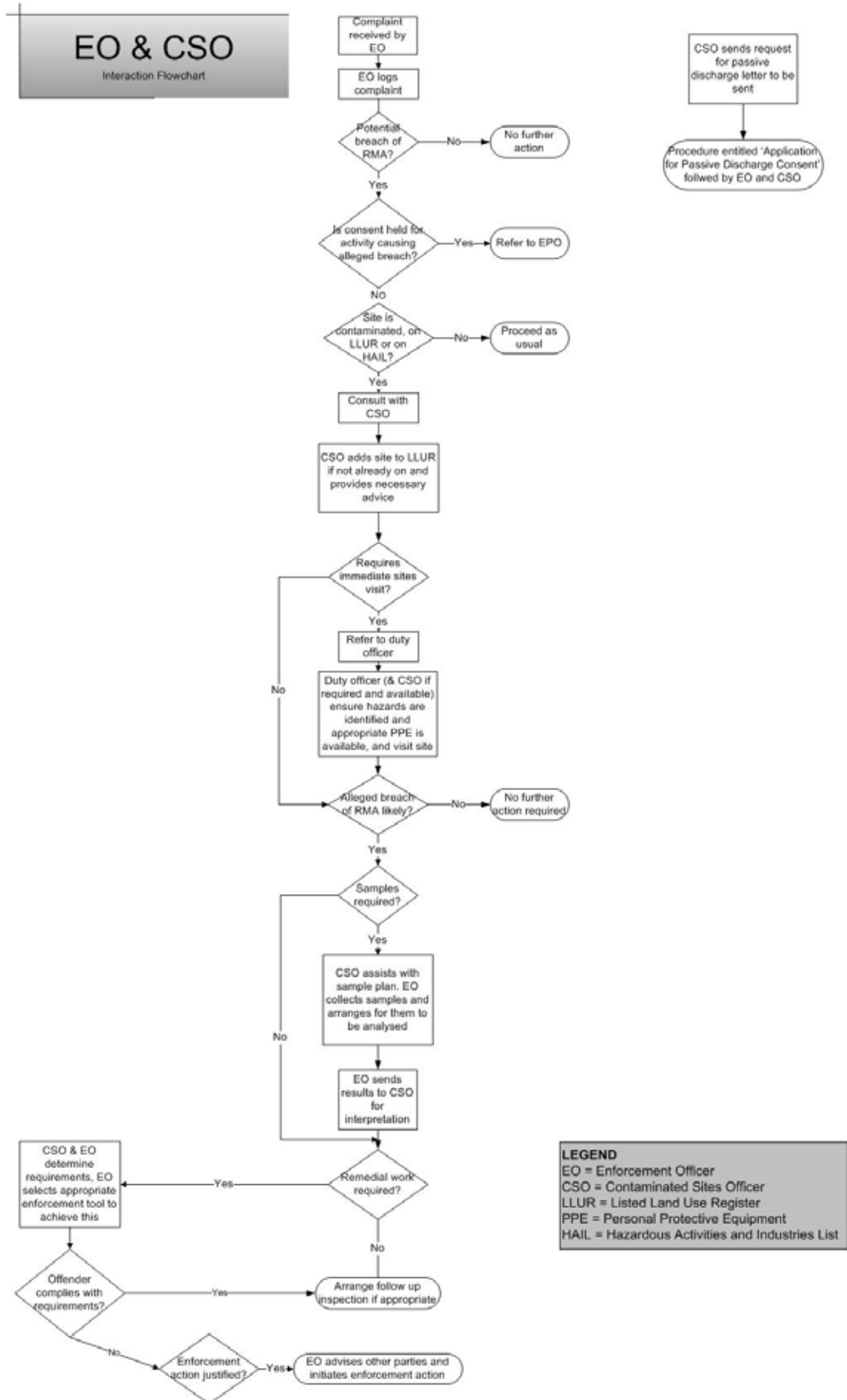
Appendix 1: Organisational flow charts

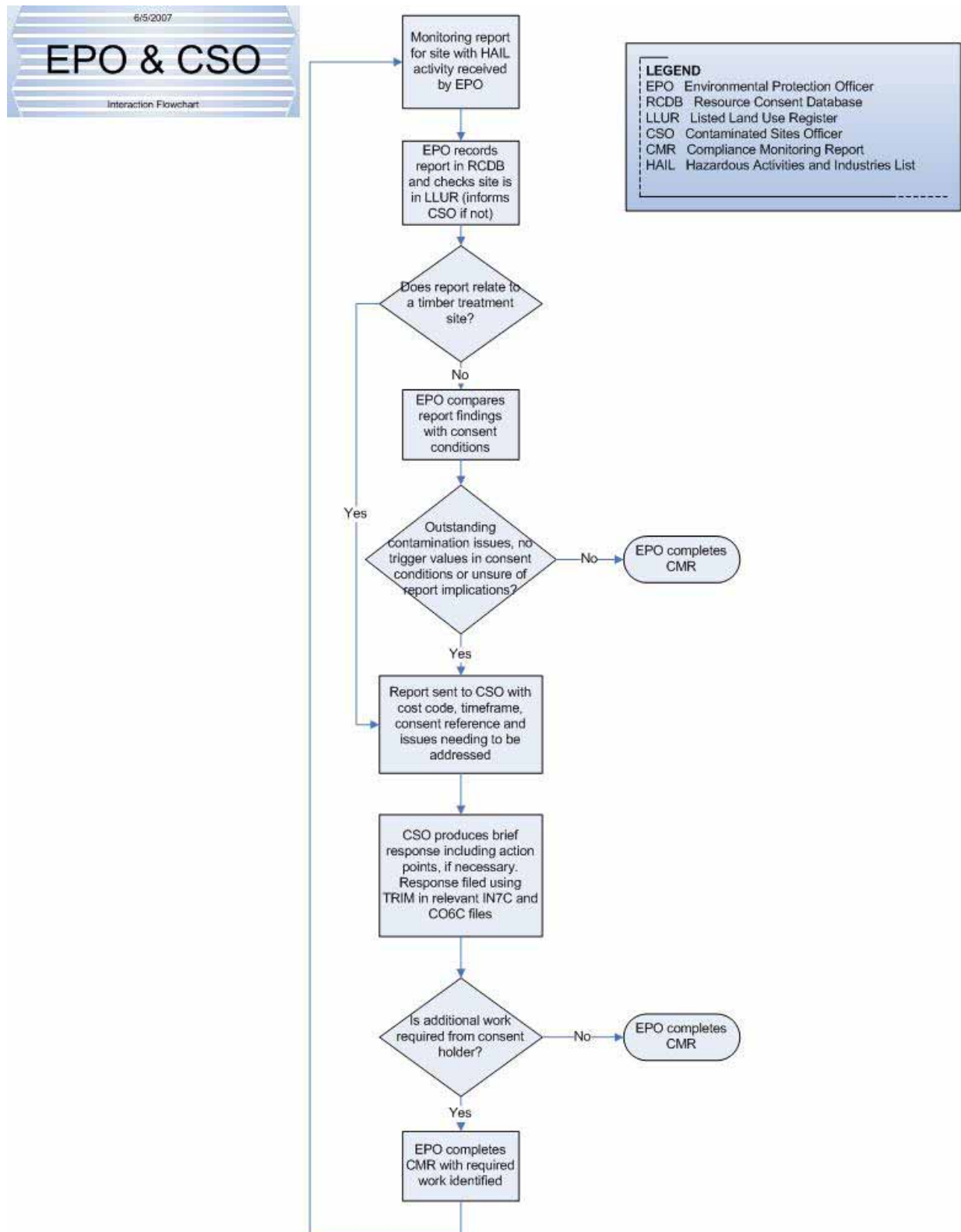
1. Contaminated Land Team – Registration Process
2. Enforcement
3. RMA compliance monitoring
4. Consent processing
5. District planning

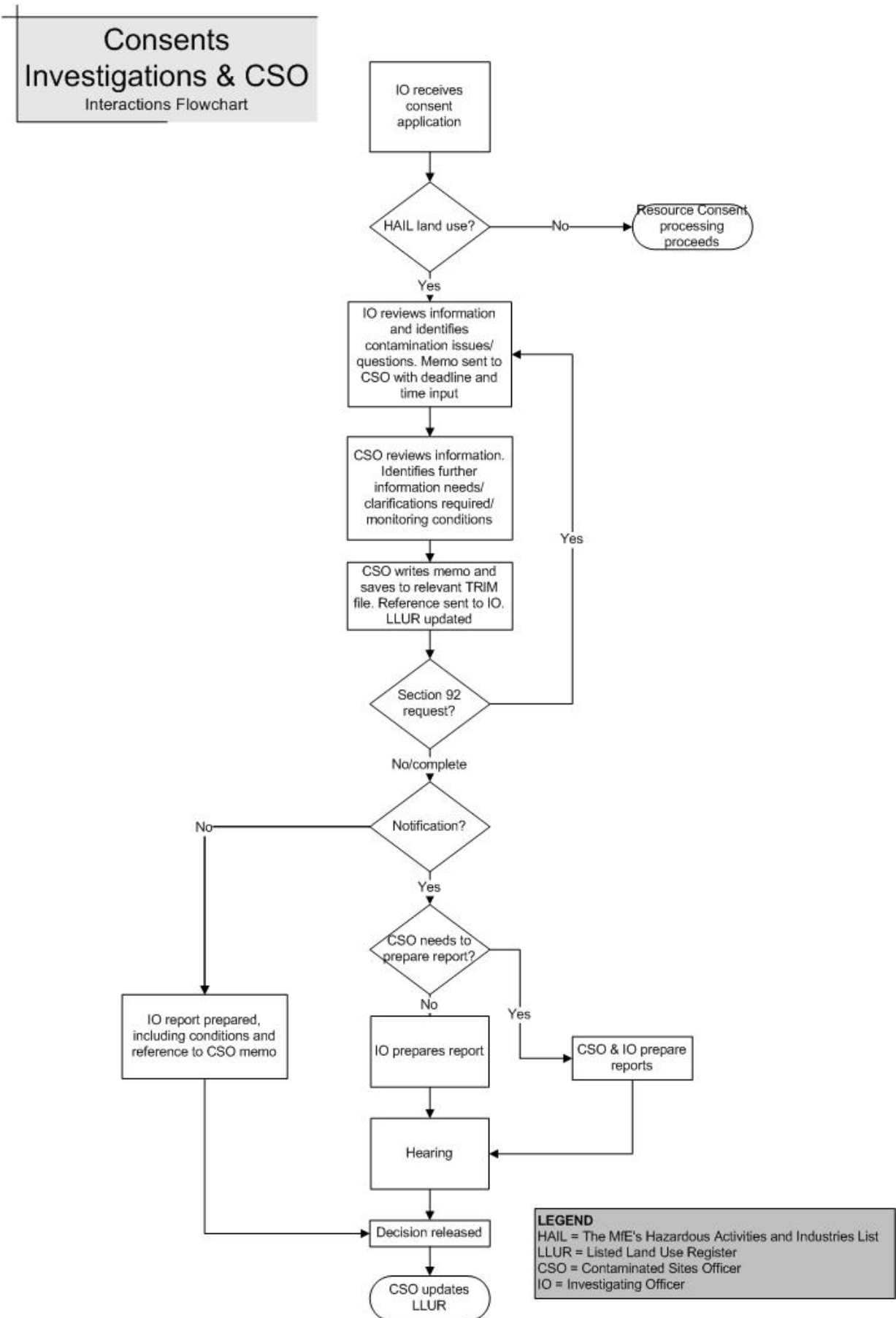
Contaminated Land Team Information Management

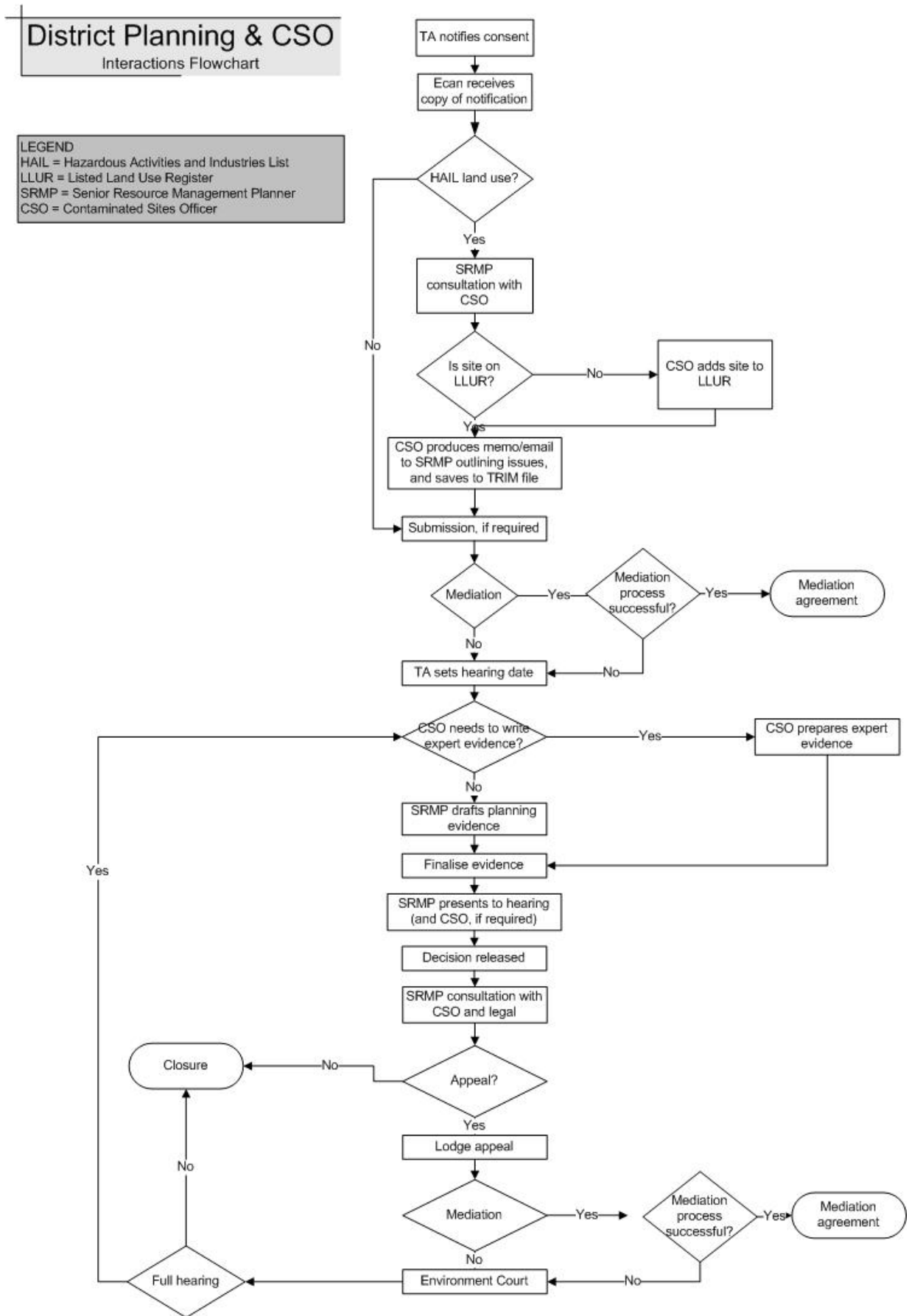
LEGEND
 HAIL: Hazardous Activities and Industries List
 LLUR: Listed Land Use Register
 RMOG: Resource Management Officers Group
 EPO TL: Environmental Protection Officer Team Leader
 CSO: Contaminated Sites Officer
 TA: Territorial Authority











Appendix 2: NRRP, Chapter 4 Policy WQL11 Management of contaminated land

Land where an activity listed in Schedule WQL3 has occurred or is continuing, shall be identified, and where necessary, investigated, managed or remediated, in accordance with national guidelines and in consultation with site owners, occupiers, territorial authorities and other relevant parties, as follows:

- (1) Information about the land will be managed as follows:
 - (a) data about this land and its surrounding environment will be collected, verified, and the land registered on Environment Canterbury's Listed Land Use Register;
 - (b) the information about registered land will be assessed to determine the potential risk to the environment and human health from the contamination, and the land classified according to that risk; and
 - (c) information on all land registered on the Listed Land Use Register will be made available to appropriate authorities, and used to respond to site specific enquiries from the public, in accordance with national guidelines and Environment Canterbury's Contaminated Site Information Management Strategy.

- (2) When the land is registered on the Listed Land Use Register and:
 - (a) the classification of risk in accordance with Policy WQL11(1)(b) identifies the land as being of high risk to the environment or human health, a site assessment should be undertaken; or
 - (b) the land is to be subdivided or redeveloped for another use and this change in land use requires authorisation under the Resource Management Act 1991, a site assessment shall be undertaken.

- (3) When a site assessment is undertaken in accordance with Policy WQL11(2), sufficient information shall be collected to adequately characterise the site and to determine the risk to the environment and human health from the contamination.

- (4) Land that has been assessed in accordance with Policy WQL11(2) and WQL 11(3), and is classified on the Listed Land Use Register as having contamination at unacceptable levels, shall be managed to reduce the risk to the environment or human health from the contamination by:
 - (a) implementing measures to reduce the adverse effects of the contamination to an acceptable level; and
 - (b) minimising adverse effects on human health, and on aquatic ecosystems and water quality in accordance with Policies WQL1, WQL2, WQL6, WQL8, and WQL10, where an activity involves:
 - (i) the disturbance of the land; or
 - (ii) the discharge of contaminants from the land to water, or onto land where contaminants may enter water.

- (5) Where land has been assessed in accordance with Policy WQL11(2) and WQL11(3) and classified on the Listed Land Use Register, contaminants may remain in the ground or in groundwater beneath the site, if:
 - (a) the extent and nature of the contamination will not exceed relevant national environmental acceptance criteria for the current or proposed land use; or

- b) any discharges of contaminants beyond the site to groundwater, surface water, or soil, will not result in an unacceptable risk to human health or the environment, and monitoring and management of the site is undertaken to ensure that this is achieved.

Explanation and principal reasons

Contaminated land is an area of land where hazardous substances are present at concentrations which exceed the natural levels in the soil or in the groundwater beneath the site and there is an unacceptable risk to human health or the environment. Certain types of land use activities have been commonly associated with known contaminated land. By recording where such activities have occurred or are currently occurring it is possible to identify areas of potentially contaminated land. There are a significant number of potentially contaminated sites in the region, and there are likely to be many unknown sites.

The management of contaminated sites is complex, and can involve many agencies, landholders and occupiers. As at July 2004, there is no comprehensive national policy to coordinate the management of contaminated sites, although the New Zealand Waste Strategy has set dates by which targets for identification, assessment and remediation of contaminated sites are to be achieved. This Policy promotes a co-operative approach to the management of information about contaminated land.

This policy is limited to those sites where contamination has occurred or may occur as a result of the land use activities identified in Schedule WQL4. Chapter 4, Soil Conservation addresses the related issue of widespread low-level contamination of land involving persistent immobile and toxic contaminants which affect soil quality and its potential use for agricultural production, but which do not pose a threat to water quality.

Policy WQL11 sets out a framework for collecting, managing and releasing information, assessing the risks, and managing the adverse effects from contaminated land.

The purpose of Policy WQL11(1) is to identify and acquire information about potentially contaminated land and to carry out an initial screening of the potential risk posed by the contaminants which may be present in the land, to carry out site assessments on high risk sites and to manage the effects from these sites.

Landholders have not been specifically required under the RMA to disclose to Environment Canterbury information about contaminated sites. However, there are advantages to providing information about actual and potentially contaminated sites to Environment Canterbury, and having that information verified. These include accessing information about what environmental acceptance criteria should be met, discussing solutions, and having access to site-specific information when considering purchase of properties.

The risk assessment for a contaminated site relies on the collection of information about its history, and surrounding environment. Environment Canterbury has developed a database of land in the region – the Listed Land Use Register – that is used as a tool to manage information about land that has been, is, or may be contaminated. The information contained on the register will be used to classify the sites according to their potential effects on the environment.

Policy WQL11(2) sets out the circumstances when a site assessment will be required. The requirement is limited to land that has been identified in the initial screening as being of high risk or where land use change is being contemplated. Where a change in land use occurs, especially to a more sensitive land use, the contamination could limit or adversely effect the use of the land because of environmental or human health effects. The scale of the assessment will vary according to the potential contamination and the risk to the environment and human health. The information from a site assessment can be used to develop a plan for remediation of the land, to determine appropriate uses of the land, or to manage the land to minimise risks to the environment or people.

Once the land has been assessed and the level of contamination verified, the purpose of Policy WQL11(3) is to ensure measures are applied to reduce the level and adverse effects of the contamination to an acceptable level. Sites are to be assessed and classified in accordance with national guidelines, and the management of the sites must meet the policies and objectives of this plan.

Policy WQL11(4) addresses situations where the contaminants could be left in the ground without causing off-site adverse effects, because the level of contamination does not exceed relevant acceptance values established in national guidelines, or because of specific site management measures that limit the exposure to the contaminants.

Methods

The methods used or to be used to implement Policy WQL11 are:

Method WQL11(a) Advocacy

Environment Canterbury will advocate:

(a) to the Ministry for the Environment to formalise the roles and responsibilities of the various agencies and landholders and occupiers for managing contaminated sites, and to develop a national policy on the management of contaminated land.

(b) the use of national guidelines published or endorsed by the Ministry for the Environment, when assessing and reporting on contaminated land.

(c) to site owners, occupiers, property consultants, financial institutions, territorial authorities, public health and other agencies to:

- (i) be aware of the potential for land contamination from historic and current land use activities;
- (ii) adopt appropriate management methods for contaminated land; and
- (iii) provide information to Environment Canterbury about contaminated and potentially contaminated land.

(d) to owners of, or parties with liability for land, where any of the land uses identified in Schedule WQL3 are likely to have occurred, to undertake an assessment of contamination and the mitigation measures necessary to address risks from contamination.

Method WQL11(b) Collection and management of information about contaminated land

Environment Canterbury will:

(a) seek information from consultants, landowners and other agencies about investigations of contaminated land.

(b) collate and maintain a register- the Listed Land Use Register-containing information about sites where hazardous substances have been, or are being used, and which could potentially contaminate land.

(c) manage and release this information in accordance with the principles established in national guidelines and Environment Canterbury's *"Contaminated Site Information Management Strategy"*⁴³.

(d) develop, in consultation with territorial local authorities, protocols for the collection and exchange of information about contaminated land.

Public access to this information will be subject to the provisions of the Local Government Official Information and Meetings Act 1997.

Method WQL11(c) Contaminated Land Management Strategy

Environment Canterbury will develop a Contaminated Land Management Strategy which will state how contaminated land should be managed to minimise adverse effects on the environment. Specific matters to be considered in the strategy include:

- (a) setting priorities, responsibilities and methods for investigating and classifying land which may be contaminated.
- (b) criteria for determining when regional investigations of particular land use activities may be required to assess the risk of contamination.
- (c) the receipt, management and distribution of information about contaminated land.
- (d) principles for managing or remediating sites.
- (e) implementing the provisions of the Proposed Canterbury Natural Resources Regional Plan.

Method WQL11(d) Investigations

Environment Canterbury will:

- (a) undertake a desk top or field investigation on at least one high priority contaminated site or a group of sites with similar contamination issues each year after 1 July 2004.
- (b) identify and screen sites in accordance with national protocols where activities listed in Schedule WQL3 occur or have occurred in the Canterbury region, and register the site information on the Listed Land Use Register.
- (c) facilitate investigations and remediation of high risk sites.

Method WQL11(e) Land under the management of Environment Canterbury

Environment Canterbury will prepare a strategy for land it owns or administers that incorporates best management practices to achieve the objectives and implement the policies of this plan. Environment Canterbury will implement these practices to manage this land where it may be contaminated from current or past land use activities.

Method WQL11(f) Regional rules

Environment Canterbury will apply Regional Rules WQL53 and WQL54 in Section 4.6, to give effect to Policy WQL11.

Method WQL11(g) Resource consents

Resource consents may be required for the removal of contaminated material or remediation of contaminated land. Where the activity will result in a discharge of contaminants from the land a discharge permit will be required.

Method WQL11(h) Compliance monitoring and CEnforcement

Environment Canterbury will monitor and CEorce compliance with the conditions of permitted activities and of any resource consent it has granted. Environment Canterbury may apply for CEnforcement orders, issue abatement notices and infringement notices, and use other CEnforcement mechanisms in Part 12 of the RMA, to CEorce the rules of Chapter 4, or a breach of resource consent conditions.

An Enforcement order or abatement notice can require a person to do something that is necessary in order to avoid, remedy, or mitigate any actual or likely adverse effect on the environment caused, by, or on behalf of that person.

Method WQL11(i) Territorial authorities

(a) Territorial authorities in the preparation, variation, change or review of their district plans and the exercise of their functions under RMA 1991, shall require a site assessment to be undertaken and reported, in accordance with the relevant national guidelines, on any land registered on the Listed Land Use Register or where a land use activity listed in Schedule WQL3 has occurred, and the land is to be subdivided or redeveloped for another use.

(b) Territorial authorities should:

(i) provide information to Environment Canterbury on land where activities listed in Schedule WQL3 have occurred, or are continuing to occur, for inclusion on the Listed Land Use Register.

(ii) use the Listed Land Use Register to identify land within their district that is or may have been contaminated.

Relevant rules:**Rule WQL42 Use, including storage or removal of an underground container used for a specified hazardous substance – permitted activity**

Activity	Conditions	Cross reference
<p>The use of land for the use or removal of a container, or part of any container, located in or under land that is, or has been, used to store any of the following substances:</p> <ul style="list-style-type: none"> (a) petroleum hydrocarbons, including those for cooling purposes, but excluding liquefied petroleum gas, (b) chlorinated hydrocarbons, (c) agrichemicals (d) timber preservatives, or (e) any other substance containing arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium; <p>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1996 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C;</p> <p>is –</p> <ul style="list-style-type: none"> 1. a permitted activity if such use complies with all of the conditions of this Rule; 2. a controlled activity if such use; <ul style="list-style-type: none"> (a) does not comply with any one or more of the conditions of this Rule, and (b) is not located in Zone 1 of the Christchurch Groundwater Recharge Zone as shown on the Map Volume Part 1 – Planning Maps; <p>in which case a resource consent under Rule WQL44 is required;</p> <ul style="list-style-type: none"> 3. a discretionary activity if such use; <ul style="list-style-type: none"> (a) does not comply with any one or more of conditions of this Rule, and (b) is located in Zone 1 of the Christchurch Groundwater 	<ul style="list-style-type: none"> 1. The alteration of a container is limited to the repair or replacement of, or part of, any pipe, tap, valve, hose or other fitting that is attached to the container. 2. If any inventory control undertaken in accordance with Section 13.2.4.2 of the <i>Controls for Stationary Containers for Hazardous Liquids and Gases</i> (February 2004), shows a discrepancy of greater than 0.5 percent of product, Environment Canterbury shall be notified within two working days. If requested, a copy of the most recent stock reconciliation shall be provided to Environment Canterbury within five working days. 3. The container shall be tested to detect any leakage of contaminants within two years of this rule being notified and thereafter: <ul style="list-style-type: none"> (a) a container located in: <ul style="list-style-type: none"> (i) the Christchurch Groundwater Recharge Zone as shown on the Map Volume Part 1- Planning Maps; or (ii) a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2; shall be tested at not less than two yearly intervals; and (b) any other container shall be tested at not less than five yearly intervals. 4. If a leak is detected: <ul style="list-style-type: none"> (i) Environment Canterbury shall be notified immediately; and (ii) the results of the leakage test shall be forwarded to Environment Canterbury as soon as the results become available. 5. Where any container located in or under land is to be demolished or removed, Environment Canterbury shall be advised in writing at least ten working days prior to the commencement of the work. This advice shall include: <ul style="list-style-type: none"> (a) the capacity of the container; (b) the type of hazardous substance that has been stored in the container; (c) the legal description of the land and the location of the container on the site; (d) the name and address of the person responsible for the demolition or removal of the container; (e) the date and approximate time the container is to be removed; (f) the reason for the removal or demolition of the container; 	<p>Policy WQL2 WQL8 WQL12</p>

<p>Recharge Zone as shown on the Map Volume Part 1 – Planning Maps; in which case a resource consent under Rule WQL55 is required.</p>	<p>(g) the destination and proposed use of the removed container; and (h) any process for cleaning or decontaminating the container, and the disposal of any residue from this process.</p> <p>6. Where a container in or under land is demolished or removed and has been used for the storage of:</p> <p>(a) petroleum hydrocarbons, an investigation of the site shall be undertaken in accordance with Section 4 of <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand</i> (Ministry for the Environment, 2003).</p> <p>If there is evidence of hydrocarbon contamination of groundwater, or hydrocarbon concentrations in soil exceed Tier 1 soil acceptance criteria in Module 4 of the <i>Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand</i> (Ministry for the Environment, 1999), either:</p> <p>(i) a site assessment to establish Tier 2 site specific acceptance criteria shall be undertaken in accordance with Module 6 of the <i>Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand</i>, (Ministry for the Environment, 1999), and reported in accordance with the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand</i> (Ministry for the Environment, 2003); or,</p> <p>(ii) a Remedial Action Plan shall be prepared in accordance with Section 2.3 of the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand</i>, (Ministry for the Environment, 2003) and implemented; and</p> <p>(b) an other hazardous substance to which this rule applies, an investigation of the site shall be undertaken and reported on in accordance with Section 2.2 of the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand</i> (Ministry for the Environment 2003).</p> <p>7. Where an investigation, site assessment or Remedial Action Plan is undertaken in accordance with Condition 6(a) or 6(b):</p> <p>(a) the investigation shall be completed within three months from the date the container was demolished or removed; or</p> <p>(b) where a site assessment is undertaken, it shall be completed within six months from the date the container was demolished or removed; or</p> <p>(c) where a Remedial Action Plan is undertaken, a site validation report shall be prepared in accordance with Section 2.4 of the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand</i> (Ministry for</p>	
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	the Environment, 2003). 8. A copy of any report prepared in accordance with Condition 7 shall be forwarded to Environment Canterbury within three working days of the report being completed.	
For the purposes of this rule, a container includes any associated pipes or pipeline.		
Where this rule applies This rule applies everywhere in the Canterbury region, excluding the Coastal marine area.		

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The use and storage of a hazardous substance must also comply with other relevant controls under the Hazardous Substances and New Organisms Act 1996 including but not limited to “Controls for Stationary Containers for Hazardous Liquids and Gases”, February 2004 and the Hazardous Substances (Emergency Management) Regulations 2001.

Rule WQL49 Discharge of a contaminant from a closed landfill (pre 1960) – permitted activity

Activity	Conditions	Cross reference
<p>The discharge of a contaminant into water or into land where the contaminant may enter water from a landfill that was lawfully operated and ceased to operate before 31 December 1960 is a permitted activity.</p> <p>This rule applies everywhere in the Canterbury region, excluding the Coastal marine area.</p>		<p>Policy WQL3 WQL7 WQL12</p>

Rule WQL50 Discharge of a contaminant from a closed landfill (1960 – 1991) – controlled activity

Activity	Conditions	Matters for control	Cross reference
<p>The discharge of a contaminant into water or into land where the contaminant may enter water, from a landfill that was lawfully operated and ceased to operate between 31 December 1960 and 1 October 1991:</p> <p>Is –</p> <ol style="list-style-type: none"> 1. a controlled activity if the discharge complies with all of the conditions of this Rule; 2. a discretionary activity if the discharge does not comply with any one or more of the conditions of this Rule, in which case a resource consent under Rules WQL57 or WQL58 is required. 	<ol style="list-style-type: none"> 1. The surface of the closed landfill is: <ol style="list-style-type: none"> a. capped with material to minimize the infiltration of water; and b. contoured to facilitate surface run-off and to prevent ponding of surface water on the landfill. 2. The final capping layer is planted using vegetation that will maintain ground cover as far as practicable, and the roots of the vegetation will not intrude through the capping layer. 3. Surface run-off from outside the landfill is prevented from entering the landfill. 4. The site is protected from erosion or inundation by floodwaters from a river or lake. 	<p>Environment Canterbury has reserved control over the following matters in imposing any conditions:</p> <ol style="list-style-type: none"> 1. Measures to avoid, mitigate or remedy adverse effects on water quality. 2. Restoration and ongoing management of the site. 3. Monitoring of water quality. 4. The requirement for financial contributions, or bonds. 5. The duration of a resource consent. 6. Review of resource consent conditions. 	<p>Policy WQL6 WQL8 WQL12</p>
<p>Where rule applies</p> <p>This rule applies everywhere in the Canterbury region, excluding the Coastal marine area</p>			
<p>Information to be provided</p> <p>An application for a resource consent under this rule must meet the information requirements set out in Section 1.3.4 and Section 4.7</p>			
		<p>Service</p> <p>In accordance with section 94D(3) RMA 1991, notice of an application for a resource consent required by this rule does not need to be served on those persons identified under Section 94(1) of that Act.</p>	

WQL 53 Investigation of contaminated land – permitted activity

Activity	Conditions	Cross reference
<p>The use of land for the purpose of a site investigation to assess concentrations of hazardous substances that may be present in the soil at a site:</p> <p>Is –</p> <ol style="list-style-type: none"> 1. a permitted activity if such use complies with all of the conditions of this Rule; 2. a discretionary activity if such use does not comply with any one or more of the conditions of this Rule, in which case a resource consent under Rule WQL54 is required. 	<ol style="list-style-type: none"> 1. The person undertaking the site investigation shall inform Environment Canterbury within two working days of the commencement of the investigation that the investigation is being undertaken. 2. The site investigation shall be undertaken and reported on in accordance with Section 4 of the Contaminated Land Management Guidelines No.1: Reporting on Contaminated Sites in New Zealand, (Ministry for the Environment, November 2003). 3. A copy of the report of the site investigation shall be provided to Environment Canterbury within two months of the completion of the investigation. 	<p>Policy WQL11 WQL12</p>
<p>Where rule applies</p> <p>This rule applies everywhere in the Canterbury region, excluding the Coastal marine area</p>		

Rule WQL54 Excavation of land or discharge to groundwater from land registered on the Listed Land Use Register - discretionary

Activity	Conditions	Discretion	Cross reference
<p>Except where it is a permitted activity under Rule WQL53;</p> <p>a. the use of land to excavate or remove natural material by mechanical methods, excluding hand-held devices; or</p> <p>b. the discharge of a contaminant into groundwater to:</p> <p>i. reduce the concentration of contaminants in land; or</p> <p>ii. remove contaminants from the land;</p> <p>on land classified as a high risk to water quality, ecosystems, or human health on the Environment Canterbury Listed Land Use Register;</p> <p>is a discretionary activity, in which case a resource consent is required.</p>		Unlimited	<p>Policy</p> <p>WQL6</p> <p>WQL8</p> <p>WQL11</p> <p>WQL12</p>
<p>Where rule applies</p> <p>This rule applies everywhere in the Canterbury region, excluding the Coastal marine area</p>			
<p>Information to be provided</p> <p>An application for a resource consent under this rule must meet the information requirements set out in Section 1.3.4 and Section 4.7</p>			

Appendix 3 - Schedule WQL3: Activities or industries that use or store hazardous substances

Source: Proposed Canterbury Natural Resources Regional Plan (ECan 2004a)

Schedule WQL3: Activities or industries that use or store hazardous substances

Description of activity or industry	Hazardous Substances
Abrasive blasting – carrying out abrasive blast cleaning (other than cleaning carried out in fully enclosed booths) or disposing of abrasive blasting material.	Heavy metals, iron
Acid/alkali plant, formulation and bulk storage.	Mercury, sulphuric, hydrochloric and nitric acids, sodium and calcium hydroxide
Commercial or pest control premises used storage and preparation of pesticides or agrichemicals for filling and washing out tanks.	Arsenic, cyanide, strychnine, lead, mercury phosphorus, sodium mono-fluoroacetate (1080) copper, organic pesticides
Fuel storage areas, underground storage tanks, refuelling pads for hydrocarbons	Hydrocarbons, metals
Commercial analytical laboratories	Solvents, acids, mercury
Asbestos products Production, storage, use and disposal of asbestos or asbestos products.	Asbestos
Asphalt or bitumen manufacture or bulk storage – manufacturing asphalt or bitumen, or bulk storage of these products, (excludes single-use site used by a mobile asphalt plant).	Petroleum hydrocarbons, including aromatic hydrocarbons
Battery manufacture or recycling – assembling, disassembling, manufacturing or recycling batteries (excludes sites used to store batteries for retail sale).	Heavy metals (lead, mercury, zinc, cadmium, nickel, antimony, silver, manganese), sulphuric acid,
Brake lining manufacturers, repairers and recyclers.	Asbestos, copper
Cement or lime processing – manufacturing cement or processing lime from limestone material using a kiln and storing wastes from the manufacturing process.	Lime, calcium hydroxide, alkalis
Manufacture, formulation and bulk storage of chemicals.	Wide range of organic and inorganic compounds –
Coal and coke yards.	Polycyclic aromatic hydrocarbons
Concrete manufacture and bulk cement storage.	Cement, calcium hydroxide, alkalis
Ordnance storage, and testing of ordnance. Training areas or ranges where live firing is carried out.	Explosives, lead, copper, antimony zinc, tin, nickel (firing ranges), solvents and metals (workshops),
Drum and tank reconditioning or recycling.	Wide range of chemicals from drums
Dry cleaning plants - where dry cleaning is carried out and solvents are stored.	Trichloroethylene, 1,1,1-trichloroethane, perchloroethylene, carbon tetrachloride, Volatile organic compounds (VOC), ammonia, phosphoric acid, hydrochloric acid
Electrical transformers – manufacture, use, repair or disposal of electrical transformers or other heavy electrical equipment.	Polychlorinated Biphenyls, hydrocarbons, copper, tin, lead, mercury
Electronics manufacturing	Alkalis, acids, cyanides, oils, metal sludges, methylene chloride, tetrachloroethylene, trichloroethane, acetone, toluene, PCB
Reconditioning industries, including engines, drums	Solvents, hydrocarbons, heavy metals, detergents, paint, organic and inorganic chemicals, degreasers
Explosive production or bulk storage	Acetone, nitric & sulphuric acid, ammonium nitrate, fuel oil, nitroglycerine, lead, mercury, copper, aluminium, silver, sodium hydroxide
Inorganic fertiliser manufacture – manufacturing or bulk storage of agriculture fertiliser.	Calcium phosphate, calcium sulphate, copper chloride, sulphur, sulphuric acid, molybdenum, selenium, boron, cadmium, nitrates, ammonia
Smelting or refining, commercial production of metal products – fusing or melting metalliferous ores or refining the metal.	Metals, particularly (iron, aluminium, lead, zinc, copper, tin, nickel, chromium and oxides, chlorides, fluorides and sulphates of these. Acids, coke, fuel oil
Gasworks – manufacture of town gas from coal or oil feedstocks.	Polycyclic aromatic hydrocarbons, phenolics, metals (particularly arsenic, lead, copper, chromium), cyanide compounds, sulphides and sulphates, thiocyanates, ammonia, nitrates, coke

Landfill sites	Hydrocarbons, including aromatic hydrocarbons, metals, organic acids, landfill gas
Livestock dip or spray race operations	Arsenic, organochlorines and organophosphates, carbamates, and synthetic pyrethroids.
Market gardens, orchards, glass houses used for commercial horticulture	Arsenic, lead, copper, mercury, organochlorines and organophosphates, carbamates, and synthetic pyrethroids
Metal treatment or coating – including polishing, anodising, galvanising, pickling, electroplating, heat treatment using cyanide compounds and finishing, curing works or commercially finishing leather.	Metals (zinc, aluminium, cadmium, chromium, lead, copper, tin), acids (sulphuric, nitric, hydrochloric, phosphoric), alkalis (sodium hydroxide), organic solvents, gluconates, emulsifying agents, surfactants, degreasers, cyanide, antimony trichloride
Mining and extractive industries and mineral processing – including chemically or physically extracting metalliferous ores, storage hazardous wastes, including waste dumps and tailings dams, excluding gravel extraction and gravel processing plants .	Arsenic, mercury, cyanides, sulphides, metals
Workshops , maintenance and servicing of transport plant, engines, railway workshops	Hydrocarbons, organic solvents, metals
Paint manufacture, formulation and storage	Solvents, resins, heavy metals
Manufacture of paper and paper products	Chlorine, chlorate, sodium hydroxide, sulphuric acid
Manufacture of plastic and rubber products	Organic solvents, oils, cyanides acids, esters, alkalis, surfactants, glycols, phenols, formaldehyde, peroxides
Pesticide manufacture (including animal poisons, insecticides, fungicides and herbicides) – commercially manufacturing, or formulating proprietary pesticides.	Wide range of insecticides, herbicides and fungicides, including arsenic, lead, mercury, copper, tin, chromium, organochlorines, organonitrogens, organophosphates, acid herbicides, dioxin, carbamates
Petroleum or petrochemical industries or storage, including oil production and operating a petroleum depot, terminal, blending plant or refinery, retail or commercial refuelling facility, and facilities for recovery, reprocessing or recycling petroleum based materials and bulk storage above and below ground.	Hydrocarbons, including polycyclic aromatic hydrocarbons, solvents, lead
Pharmaceutical manufacture - commercially manufacturing, blending, mixing or formulating pharmaceuticals, including animal remedies.	Solvents, organic compounds
Printing – commercial printing, using metal type, inks and dyes, or solvents.	Solvents, acids, alkalis, heavy metals
Scrap yards –including automotive dismantling or wrecking yard or scrap metal yard.	Metals, hydrocarbons, solvents
Tannery, fellmongery or hide curing, wool scouring or washing or commercially finishing leather.	Chromium, manganese, copper, ammonia, sulphides, acids, sodium hydroxide, lime
Sites used to store, collect, and dispose of waste including land disposal of wastes, but not the use of biosolids as soil conditioners.	Depends on type of waste – biological hazards (bacteria, viruses), metals, polycyclic aromatic hydrocarbons, semi-volatile organic compounds, solvents.
Wood processing and treatment and preservation and bulk storage of treated timber.	Pentachlorophenol, copper, arsenic, chromium, boron, organo-tin, polycyclic aromatic hydrocarbons, and phenolics (creosote), organochlorine pesticides, solvents, anti-sapstain fungicides



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