RULES FOR ON-SITE AND EXCESS SOIL MANAGEMENT

This document "Rules for On-Site and Excess Soil Management", is adopted by reference in O. Reg. XXX/XX (On-Site and Excess Soil Management) made under the Environmental Protection Act, R.S.O. 1990, c. E.19 ("EPA") ("the regulation").

Contents

INTRODUCTION 2
PART I GENERAL 4
PART II EXCESS SOIL MANAGEMENT PLAN 8
PART III ASSESSMENT OF PAST USES AND SOIL CHARACTERIZATION 15
PART IV REUSE OF EXCESS SOIL AND APPLICATION OF THE STANDARDS FOR REUSE OF EXCESS SOIL AT REUSE SITES 28
PART V REQUIREMENTS FOR TEMPORARY EXCESS SOIL STORAGE SITES 39
APPENDIX 1 EXCESS SOIL REUSE STANDARDS TABLES 40
APPENDIX 2 GENERIC LEACHATE SCREENING LEVELS FOR EXCESS SOIL REUSE 80
APPENDIX 3 CEILING VALUES FOR EXCESS SOIL REUSE 118

INTRODUCTION

This document, titled “Rules for On-Site and Excess Soil Management” (“document”), is adopted by reference in O. Reg. XXX/XX (On-Site and Excess Soil Management) made under the *Environmental Protection Act,* R.S.O. 1990, c. E.19 (“EPA”) (“the regulation”).

This document contains both mandatory requirements and guidance that is recommended for consideration and is non-mandatory.

PART I of this document defines key terms. Some of these definitions are reproduced from the Act or regulation indicated, and in the event that any of these definitions are amended in the source Act or regulation, the definition in the source Act or regulation prevails.

PART II of this document outlines the mandatory content requirements and recommended guidance for the development of an Excess Soil Management Plan.

PART III of this document provides mandatory and recommended content in order to carry out an assessment of past uses, soil characterization, the development of a sampling and analysis plan and the development of a soil characterization report.

PART IV of this document provides direction on determining the excess soil standards to be used for final placement of excess soil at a reuse site. The applicable standards may be determined using generic tables of excess soil standards provided in this document, or may be site-specific standards developed using acceptable tools or approaches enabled by this part, including the Beneficial Reuse Assessment Tool (BRAT).

The excess soil standards tables, and the standards within the tables, vary based on factors such as property use, soil volume and site conditions. The applicable standard is determined by matching these variables to the site where the excess soil will be finally placed. This variety of approaches and tables is intended to facilitate greater reuse of excess soil while helping to ensure that public health and the environment are protected.

PART V of this document provides the mandatory requirements for operating a Temporary Soil Storage Site.

Note: for excess soil movements to RSC properties, please refer to requirements for soil being brought to an RSC property in O. Reg. 153/04.

Ce document intitulé « Règles relatives à la gestion de la terre d'excavation sur place et hors site » (le « document ») est adopté par renvoi, avec ses modifications, dans le **Règl. de l'Ont. XXX/XX** (Gestion de la terre d'excavation sur place et hors site) pris en application de la *Loi sur la protection de l'environnement*, L.R.O. 1990, chap. E.19 (le « règlement »).

Le document comprend un contenu obligatoire et recommandé sur la façon d'élaborer un plan de gestion de la terre d'excavation, sur la nécessité d'évaluer les utilisations et caractéristiques antérieures de la terre, sur la réutilisation de la terre d'excavation et sur l'application des normes de réutilisation de la terre d'excavation dans les sites de réutilisation. Il comprend également des exigences obligatoires pour les sites d'entreposage provisoires de la terre d'excavation.

Avertissement: Cette publication hautement spécialisée Règles relatives à la gestion de la terre d'excavation sur place et hors site n'est disponible qu'en anglais conformément au Règlement 671/92, selon lequel il n'est pas obligatoire de la traduire en vertu de la Loi sur les services en français. Pour obtenir des renseignements en français, veuillez communiquer avec le ministère de MOECC au 416-314-7595 ou à karan.jandoo@ontario.ca.

PART I
GENERAL

Interpretation

1. (1) In this document,

"areas of potential environmental concern" has the same meaning as in O.Reg. 153/04;

"archaeological site" has the same meaning as in O.Reg. 170/04;

"area of settlement" has the same meaning as in the *Planning Act;*

"assessment of past uses study area" means the area that includes:

1. the project area;
2. any other property that is located, wholly or partly, within 250 metres from the nearest point on a boundary of the project area; and
3. any property that the qualified person determines should be included as a part of the assessment of past uses study area that is not located, wholly or partly, within 250 metres from the nearest point on a boundary of the project area;

"building" has the same meaning as in the *Building Code Act*, 1992, S.O. 1992, c. 23;

"Building Code" means Ontario Regulation 332/12 (Building Code) made under the *Building Code Act*, 1992, S.O. 1992, c. 23;

"BRAT" means beneficial reuse assessment tool;

"ceiling values" means values listed in the Table of Ceiling Values, contained in Appendix 3 of this document;

"contaminants of concern", has the same meaning as in O.Reg. 153/04, means,

"contaminants of potential concern" has the same meaning as in defined in the Provincial Sediment Quality Guidelines (PSQGs) contained in the Guidelines for Identifying, Assessing and Managing Contaminated Sediments in Ontario (2008);

"environmentally sensitive area" means any of the following:

a) An area reserved or set apart as a provincial park or conservation reserve under the *Provincial Parks and Conservation Reserves Act*, 2006, S.O. 2006, c. 12.
b) An area of natural and scientific interest (life science or earth science) identified by the Ministry of Natural Resources as having provincial significance.
c) A wetland, a coastal wetland identified by the Ministry of Natural Resources and Forestry as having provincial significance, or a wetland or coastal wetland that is not yet evaluated to determine whether it is provincially significant.
d) A significant woodland identified by a municipality in accordance with the Provincial Policy Statement under the *Planning Ac*t, R.S.O. 1990, c. P.13.

e) An area designated by a municipality in its official plan as environmentally significant, however expressed, including designations of areas as environmentally sensitive, as being of environmental concern and as being ecologically significant.
f) An area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan under the *Niagara Escarpment Planning and Development Act*, R.S.O. 1990, c. N.2.
g) An area identified by the Ministry of Natural Resources and Forestry as significant habitat of a threatened or endangered species.
h) An area which is habitat of a species that is classified under section 7 of the *Endangered Species Act*, 2007, S.O. 2007, c. 6 as a threatened or endangered species.
i) A property within an area designated as a natural core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan under the *Oak Ridges Moraine Conservation Act*, 2001, S.O. 2001, c. 31 applies.
j) An area set apart as a wilderness area under the *Wilderness Areas Act*;

"EPA" means the *Environmental Protection Act*, R.S.O. 1990, c. E.19;

"ESMP", means the excess soil management plan;

"excess soil" has the same meaning as in "the regulation";

"excess soil standards tables" means a list of tables for the "small volume excess soil standards" and "volume independent excess soil standards";

"infrastructure" has the same meaning as in "the regulation";

"liquid soil" has the same meaning as in "the regulation";

"ministry" means the Ontario Ministry of the Environment and Climate Change;

"Ontario Regulation 153/04" means Ontario Regulation 153/04 (Records of Site Condition — Part XV.1 of the Act) made under the Act;

"potentially contaminating activity" has the same meaning as set out in Column A of Table 2 of Schedule D of O. Reg. 153;

"project" has the same meaning as in "the regulation";

"project area" has the same meaning as in "the regulation";

"project leader" has the same meaning as in "the regulation";

"public body" has the same meaning as in "the regulation";

"qualified person" has the same meaning as in section 5 of Ontario Regulation 153/04;

"rationale document" means the Rationale Document for Development of Excess Soil Standards as developed by the "ministry";

"Registry" has the same meaning as in Part XV.1 of the Act;

"reuse site" has the same meaning as in "the regulation";

"the regulation" means the On-Site and Excess Soil Management regulation made under the Environmental Protection Act, R.S.O. 1990, c. E.19 ("EPA");

"Regulation 347" means Regulation 347, R.R.O. 1990 (General — Waste Management) made under the Act;

"sampling location" has the same meaning as in O. Reg. 153/04;

"site condition standards has the same meaning as in O. Reg. 153/04;

"small volume excess soil standards" has the same meaning as in O. Reg. 153/04;

"soil" has the same meaning as in "the regulation";

"soil bank storage site" has the same meaning as in "the regulation";

"soil processing site" has the same meaning as in "the regulation";

"Soil Rules" means the document entitled "Rules for On-Site and Excess Soil Management", dated [*date to be confirmed before Regulation is finalized*], published by the Ministry and available on a website of the Government of Ontario;

"stormwater management facility" means a facility for the treatment, retention, infiltration or control of storm water; O. Reg. 525/98 (Approvals Exemptions under OWRA);

"subsurface soil" has the same meaning as in in O. Reg. 153/04;

"surface soil' has the same meaning as in in O. Reg. 153/04; "Table 1" means Table 1 of the Soil, Ground Water and Sediment Standards;

"temporary soil storage site" has the same meaning as in "the regulation";

"topsoil" has the same meaning as in the *Municipal Act*, 2001, S.O. 2001, c. 25;

"volume independent excess soil standards" means excess soil standards included in this document (Appendices 1 to 3) and includes leachate screening levels;

"water body" has the same meaning as in in O. Reg. 153/04;

The following types of property uses have same meaning as in in O. Reg. 153/04:

1. Agricultural or other use;

2. Commercial use;
3. Community use;
4. Industrial use;
5. Institutional use
6. Parkland use; and
7. Residential use.

PART II
EXCESS SOIL MANAGEMENT PLAN

For the purposes of subsection 7 (3) of the regulation, the following are the required contents of the excess soil management plan.

CONTENTS OF THE PLAN

1. Description of the Project:

A. A general description of the project and project type

B. If the project involves a change of property use in the project area, describe the change

C. A description of the following:

i. The estimated volume and quality of soil to be removed from the project area as excess soil;
ii. The estimated volume and quality of excess soil to be brought to the project area;
iii. The estimated volume of soil to be reused at the project area;
iv. The types of soil processing to be conducted at the project area;
v. The approximate date that excess soil will commence leaving the project area, and the approximate date when all excess soil will have been removed from the project area;

D. A list of soil management approaches being used to increase reuse of soil at the project area (i.e. processing or temporary storage at the project area, use of temporary soil storage sites);

E. A list of any legal instruments that apply to soil management within the project area; (i.e. Environmental Compliance Approval, by-law or permit issued under a by-law passed under section 142 of the Municipal Act);

F. A statement as to whether a record of site condition has been or is intended to be submitted for filing under Part XV.1 of the EPA for all or part of the project area, and whether a risk assessment has been or will be submitted to the Director under the same Part.

G. A statement as to whether any orders requiring remediation have been issued in relation to all or part of the project area.

Recommended Guidance:

- Minimize excavation where appropriate: Opportunities should always be explored to minimize the amount of soil to be excavated during construction projects. When soil does

need to be excavated, the *"ministry"* encourages the reuse of excavated soil in the project area, to limit the amount of excess soil needing to be removed from the project area.

2. Description of the Project Area:

A. A general description of the current and most recent use(s) of the project area and their location(s) within the project area;

B. Any municipal address(es) and property identification number(s) applicable to the property or properties comprising the project area;

C. A map of the project area showing the boundaries of the project area and of the property or properties comprising the project area; structural features including buildings, paved surfaces, and natural features; and areas of planned excavation, stockpiling, and processing of soil that may be removed from the project area;

D. a list of the owner(s) of the property or properties comprising the project area;

E. The Universal Transverse Mercator coordinates of the approximate center of the project area.

3. Persons Involved in the Project:

A. Project leader(s)

i. The name, mailing address, e-mail address, and telephone number of all project leader(s) for the project.

B. Qualified Person(s)

i. The name, mailing address, e-mail address, telephone number, and type of licence(s) held for any qualified person(s) who prepared or supervised the preparation of the excess soil management plan.

C. Other Persons Involved in Management of Excess Soil

i. If applicable, the name, mailing address, email address, and telephone number of each contractor or subcontractor with whom the project leader has entered into a contract relating to the management of excess soil originating from the project area, including the tracking and transportation of excess soil from the project area.
ii. For each person listed in accordance with i. above, a description of their role in managing excess soil.

4. Assessment of Past Uses, Sampling and Analysis Plan and Soil Characterization Report:

A. Assessment of Past Uses

i. An assessment of past uses that complies with mandatory requirements set out in Part III of this document.

B. Sampling and Analysis Plan

ii. A sampling and analysis plan that complies with mandatory requirements set out in Part III of this document (if required under paragraph 7 of subsection 7 (3) of the regulation)

C. Soil Characterization Report

iii. A soil characterization report that complies with mandatory requirements set out in Part III of this document.

5. Tracking System:

A. A description of procedures and implementation responsibilities, and sample records, for a tracking system that is capable of:

i. Ensuring that, as soil is excavated and stored in stockpiles at the project area, the excess soil is segregated and stockpiled to ensure that soil that meets different excess soil quality standards remains segregated and that excess soil that is sampled and analysed is kept segregated from other soil;
ii. Ensuring that hazardous waste and other waste remains segregated from excess soil;
iii. Associating the results of the assessment of past uses and any characterization undertaken with excavated soil that is or will be excess soil, including excess soil that is in stockpiles and each load of excess soil leaving a project area;
iv. Tracking each load of excess soil from the time it is loaded in a project area, during its transportation, until it is deposited for final placement at the intended site;
v. Procedures that ensure that excess soil was not deposited at an unintended site and that excess soil was not added from another site;
vi. Producing a hauling record in accordance with sub-sections 15 (4-7) of the regulation;
vii. Producing records upon request or to support required reports, regarding:
    1. The level of assessment and characterization undertaken and the assessment and characterization results associated with soil that is or will be excess soil, including soil that is in a stockpile and with respect to each load of excess soil transported from a project area and deposited at another site;
    2. The volume of soil excavated that is or will be excess soil, including the volume stockpiled and the volume that has left a project area;
    3. The time and date of each load of excess soil leaving a project area and the time and date that the soil is deposited at a site;
    4. The location on a reuse site where excess soil was deposited;

5. The total quantity and quality of excess soil sent to each reuse site, temporary soil storage site, soil bank storage site, soil processing site and/or landfill as applicable; and
6. The contractors and sub-contractors involved in the on-site management of soil that will be excess soil as well as the loading, tracking, transportation and deposit at another site, of the excess soil;

viii. Informing the production of reports on the Registry in accordance with sections 13 and 14 of the regulation; and

B. A description of procedures for periodic testing of the tracking system for the purpose of ensuring that the system is operating in compliance with the regulation and the requirements in the document.

6. Excess Soil Destination Assessment and Identification:

A. Assess the options for depositing the excess soil at reuse sites for final placement and assess additional options for reuse sites at which excess soil may be deposited in the event that a reuse site initially identified cannot be uses;

B. Assess the options the options for disposing of the soil at a soil bank storage site, soil processing site or landfill, in the event any of the excess soil cannot be deposited at a reuse site for final placement;

C. Identity additional reuse sites at which excess soil may be deposited in the event that a reuse site identified under subparagraph iii cannot be used;

D. For each reuse site, soil bank storage site, soil processing site or landfill at which excess soil will be deposited, provide the following information:

i. Municipal address;
ii. The estimated quantity of excess soil to be deposited;
iii. The estimated quality of the excess soil to be deposited;
iv. The excess soil standards that apply to that site;
v. The undertaking for which the excess soil is required
vi. Whether the site has any applicable legal instrument in place (i.e. Environmental Compliance Approval, by-law or permit issued under a by-law passed under section 142 of the Municipal Act)
vii. Whether a fill management plan was developed for that site, and information on how to access the plan if applicable; and
viii. Written confirmation from the operator of that site that the quantity and quality of excess soil estimated under ii. and iii. above will be accepted for deposit at the site.
ix. If the project leader becomes aware that there is a higher concentration of contaminants in the excess soil than is indicated in the confirmation mentioned in item vi. above, or if the quantity of excess soil is greater than indicated in that

confirmation, the project leader shall ensure a new confirmation is included in the excess soil management plan within 30 days after the day the project leader becomes aware of the matter, in accordance with subsection 7 (4) of the regulation.

Recommended Guidance:

- Minimize travel distances where possible: Efforts should be made to choose destinations that are as close to the project area as possible, provided that requirements of the regulation are met.

7. Temporary Soil Storage Site Identification:

A. For every temporary soil storage site at which excess soil will be stored, provide the following information:

i. Municipal address;
ii. Confirmation that the temporary soil storage site is located on a property owned by a public body or by the project leader for the project in relation to which the soil was excavated;
iii. The estimated quantity and quality of excess soil to be stored at the temporary soil storage site;
iv. Approximate dates during which excess soil will be stored at the temporary soil storage site;
v. A list of the intended reuse site(s) and the date(s) when these reuse site(s) will accept the excess soil for final placement; and
vi. A list of any applicable legal instruments (i.e. Environmental Compliance Approval, by-law or permit issued under a by-law passed under section 142 of the Municipal Act) relevant to excess soil management at the temporary soil storage site, and identifying information about the instrument sufficient to allow for retrieval of the instrument.

8. Procedures if Certain Observations Made:

A. The procedures set out in section 9.1, to be followed if an individual responsible for soil excavation makes an observation that suggests any soil at the project area may be affected by contaminants. These observations may include those made as a result of visual or olfactory observations, including the following indicators:

i. drums and containers;
ii. stained or discoloured earth in contrast with adjoining soil;
iii. fill material containing debris;
iv. trash/garbage or waste;
v. suspected odours that emanate when the earth is disturbed;
vi. oily residue intermixed with earth;

vii. sheens, films or discolorations on groundwater;
viii. cinders/ash or other combustion by-products, like ash,

9. Contingency Plan Regarding the Excess Soil Destination:

A. A description of the steps to be taken in the event that the excess soil cannot be finally deposited or placed in accordance with the regulation or in accordance with the excess soil destination assessment and identification, including steps to ensure that the excess soil is finally placed or deposited in a manner that complies with the regulation.

10. Declarations:

A. A declaration by the project leader that complies with paragraph 17 of subsection 7 (3) of the regulation; and

B. A declaration by the qualified person who prepared or supervised the preparation of the excess soil management plan, that complies with paragraph 18 of subsection 7 (3) of the regulation.

Recommended Guidance:

- Engage proactively with stakeholders: Public consultation by the owners/operators of potential reuse sites is recommended. It is recommended that this engagement include representatives from the municipality where the source site is located and the municipalities where reuse sites may be located.

- Engage proactively with Indigenous communities: Early in the process, proactive engagement with Indigenous communities that may be impacted or interested in the proposed activity is recommended. In addition, this engagement include interested indigenous communities where the source and reuse sites are located.

- Addressing invasive species: Consideration should be given to controlling the introduction and spread of invasive species during all excess soil management activities. Those managing excavated soil may need to mitigate or eradicate invasive species or plant growth resulting from soil management activities. For additional information please refer to Ontario`s Ministry of Natural Resources and Forestry`s web page: https://www.ontario.ca/page/stop-spread-invasive-species

- Addressing Archaeological sites: If, during the records review, interviews, or site reconnaissance components of the assessment of past uses the qualified person becomes aware that excavation of soil may disturb an archeological site, it is recommended that they notify the project leader and determine if an archeological assessment is necessary before excavations take place, to help ensure that no contravention of section 48 of the *Ontario Heritage Act* occurs.

- Addressing noise, dust, and odour: If, at any time, the management of excavated soil or excess soil causes an adverse effect, such as odour, litter, dust, noise, or other impacts to the natural environment or water quality, appropriate preventive and remedial actions should immediately be taken to alleviate the adverse effect or impact. Until these issues are addressed, the owner/operator may need to suspend all soil management activities, including soil excavating, transporting or receiving.

- Traffic and Transportation Management Plan:
    i. It is recommended that owners and operators engaged in excess soil management activities have a Traffic and Transportation Management Plan for both the source and reuse sites. This plan should address the following considerations where applicable:
        1. location and configuration of site entrances;
        2. truck queuing and parking;
        3. dust control and mud-tracking prevention/truck cleaning;
        4. kilometres traveled; and
        5. haul routes between project areas, reuse sites and temporary soil storage site(s).

    ii. When preparing a Traffic and Transportation Management Plan those managing excess soil should consult with local upper-tier and lower-tier municipalities regarding appropriate transportation routes. This consultation can be addressed through the proactive engagement with stakeholders described above.

PART III
ASSESSMENT OF PAST USES AND SOIL CHARACTERIZATION

ASSESSMENT OF PAST USES

For the purposes of paragraph 6 of subsection 7 (3) of the regulation, an assessment of past uses is required as a component of the excess soil management plan and shall meet the following requirements. The requirement of the assessment of past uses is subject to subsection 7 (6) of the regulation.

1. **The assessment of past uses of the project area shall be carried out to achieve the following objectives:**

   i. To develop a preliminary determination of the likelihood that one or more contaminants have affected soil in a location where soil is to be excavated at the project area.

   ii. To identify any areas of potential environmental concern within the project area and to determine if any location where soil is to be excavated could have been affected by a potentially contaminating activity.

   iii. If any areas of potential environmental concern are identified, to identify the contaminants of potential concern for the purpose of determining the focus of the sampling and analysis plan.

2. **The assessment of past uses shall include the following components:**

   i. A records review;
   ii. Interviews;
   iii. Site reconnaissance;
   iv. An evaluation of the information gathered from the records review, interviews and site reconnaissance;
   v. The preparation of a conceptual site model; and
   vi. The preparation of an assessment of past uses report that includes the conceptual site model.

3. **Records review**

   A. The specific objective of the records review is to obtain and review records that relate to the assessment of past uses study area and to the current and past uses of and activities at or affecting the project area to determine if an area of potential environmental concern exists within the project area where soil will be excavated.
   B. Subject to item 7 (below), the records review component shall comply with section 3 of Schedule D of O. Reg. 153/04, with necessary modifications.

4. **Interviews**

   A. The specific objectives of conducting the assessment of past uses interviews are to:

i. obtain information to assist in determining if an area of potential environmental concern exists within the project area where soil will be excavated; and
ii. identify details of potentially contaminating activities or potential contaminant pathways that could result in the presence of contaminants in soil that is to be excavated within the project area.

B. Subject to item 7 (below), the assessment of past uses interviews shall be conducted in accordance with sections 5 to 8 of Schedule D of O. Reg. 153/04, with necessary modifications.

5. **Site reconnaissance**

A. The specific objectives of the site reconnaissance component of the assessment of past uses are to:

i. determine if any areas of potential environmental concern exist within the project area where soil will be excavated through observations about current and past uses and potentially contaminating activities in the assessment of past uses study area.
ii. identify details of:
    1. Potential contaminant pathways that could result in the presence of contaminants in soil to be excavated within the project area; and
    2. Every area of potential environmental concern and, the contaminants of potential concern within the project area where soil will be excavated.

B. Subject to item 7 (below), the site reconnaissance component of the assessment of past uses shall comply with sections 9 to 15 of Schedule D of O. Reg. 153/04, with necessary modifications.

6. **An evaluation of the information gathered from the records review, interviews and site reconnaissance**

A. Subject to item 7 (below), the evaluation shall comply with subsections (1) to (6) of section 16 of Schedule D of O. Reg. 153/04, with necessary modifications.

7. **Schedule D Compliance:** The records review, interviews, site reconnaissance and evaluation components of the assessment of past uses shall comply, with necessary modifications, with the requirements of Schedule D of O. Reg. 153/04 mentioned in items (3) to (6) above, respectively, unless the qualified person is of the opinion that,

A. It is not necessary to comply with the requirement in order meet the general objectives of an assessment of past uses; or

B. Having regard to the nature of the project and the geographic size of the project area, it is not practicable to comply with the requirement.

C. Where a qualified person forms an opinion mentioned in a) or b) above, the qualified person shall, in the assessment of past uses report,

i. identify every requirement in the relevant portion of Schedule D of O. Reg. 153/04 that was not complied with in carrying out that component of the assessment of past uses;
ii. describe the rationale for the opinion;
iii. identify and describe any information gaps in that component as a result of the non-compliance; and
iv. describe how the information gaps shall be addressed in the preparation of the sampling and analysis plan in order to ensure that the general objectives of the excess soil characterization can be satisfied.

8. **The preparation of a conceptual site model**

A. The conceptual site model shall include one or more figures of the assessment of past uses study area that:

i. show any existing buildings and structures;
ii. show roads, including names, within the assessment of past uses study area;
iii. show uses or properties adjacent to the assessment of past uses property (where the examination of the assessment of past uses study area is necessary);
iv. identify and locate areas where any potentially contaminating activity has occurred and show tanks in such areas; and
v. identify and locate any areas of potential environmental concern that could result in the presence of contaminants in soil that is to be excavated within the project area.

9. **The past uses report shall include:**

A. The qualified person's conclusions, based on a review of the information collected during the assessment of past uses and on the exercise of professional judgment, about the following:

i. the existence and location of any areas of potential environmental concern within the project area that could result in the presence of contaminants in soil that is to be excavated within the project area;
ii. the current and past uses of the project area;
iii. the likelihood that one or more contaminants have affected the soil that is to be excavated within the project area; and
iv. the contaminants of potential concern that shall be the focus of the sampling and analysis plan.

B. A table, prepared by the qualified person, that sets out:

i. every area of potential environmental concern within the project area that could result in the presence of contaminants in the soil to be excavated; and
ii. current and past activities that have been undertaken within the project area, to the extent past activities have been investigated as part of the assessment of past uses.

10. Sections 27, 28, 29 and 30 of O. Reg. 153/04 shall be complied with, with necessary modifications, in the preparation of the assessment of past uses.

SAMPLING AND ANALYSIS PLAN AND SOIL CHARACTERIZATION REPORT

For the purposes of paragraph 7 and 8 of subsection 7 (3) of the regulation a sampling and analysis plan and soil characterization shall meet the following requirements.

11. **As per paragraph 7 of subsection 7 (3) of the regulation, a sampling and analysis plan is mandatory if:**

i. Any part of a project area is used or has ever been used, in whole or in part, for an industrial use or for any of the following commercial uses:
    1. Use as a garage;
    2. Use as a bulk liquid dispensing facility, including a gasoline outlet; or
    3. Use for the operation of dry cleaning equipment;

ii. The assessment of past uses identifies a potentially contaminating activity.

12. **The sampling and analysis plan shall be prepared to achieve the following objectives:**

i. To identify each location where soil is to be excavated that will be subject to sampling and analysis, based on the assessment of past uses and the conceptual site model.

ii. To ensure an appropriate level of sampling and analysis is carried out to determine the concentration of contaminants in the excavated soil in order to determine:

    1. Which soil may be reused within the project area, with or without processing at the project area, and which soil may be deposited at a soil processing site or a landfill; and

    2. The potential reuse sites at which excess soil from the project area may be deposited for final placement, having regard to the excess soil quality standards set out in the Soil Rules.

13. **An excess soil characterization shall include the following components:**

i. Preparing a sampling and analysis plan;

ii. Implementing the sampling and analysis plan; and

iii. The preparation of an excess soil characterization report including a review and evaluation of information.

14. **Preparing a Sampling and Analysis Plan**

A. The following are the specific objectives of a sampling and analysis plan:

i. based on the findings of the assessment of past uses and the conceptual site model and the areas where excavations are planned within the project area;
ii. to identify those areas of the project area that must be investigated using sampling; and
iii. to identify all other areas of the project area where excavations are planned and that will not be subject to sampling and to provide a rationale explaining why such areas of the project area are not required to be subject to sampling to make determinations on how the excavated soil from those areas shall be managed and disposed of.

B. For the areas of the project area subject to sampling, determine the location, concentration and distribution of contaminants in the soil to be excavated within those areas.

C. To determine whether additional sampling of soil that was placed in stockpiles after excavation is necessary, having regard to any impediments to in situ sampling and the manner in which the soil is handled, stored or transported prior to it being deposited at a reuse site, including any period the excess soil is stored at a temporary soil storage site.

D. To develop a quality assurance and quality control program that is designed to effectively limit errors and bias in sampling and analysis through the implementation of assessment and control measures that will ensure data are useful, appropriate and accurate in the determination of whether excess soil to be removed from the project area is suitable for deposition at a reuse site identified in the excess soil management plan.

15. **The qualified person shall ensure the following:**

A. Where soil is to be stored in stockpiles, excavated soil from areas of the project area that is not subject to sampling should be stored in stockpiles that are segregated from soil that is excavated from areas of the project area that is subject to sampling. The qualified person shall further ensure that, for the soil that is subject to sampling and analysis, the soil shall be segregated into stockpiles according to contaminant and concentration of contaminant. Decisions on how to segregate the soil into stockpiles shall be based on any one or more of the following:

i. in situ sampling;
ii. field screening;

iii. sample collection and analysis; and
iv. indications of contamination (Section 35 of Schedule E, with necessary modifications).

B. The plan must also include procedures to ensure that stockpiles are tracked so that they remain segregated in the manner described above.

C. Stockpiles should be managed to limit the potential migration of contaminants from the stockpile through mitigation measures such as the use of impermeable covers placed over the stockpiles; placement of stockpiles on low permeability liners; use of berms to manage potential run-off; and, appropriate disposal for impacted soil.

D. If sampling is undertaken prior to placement into stockpiles within the project area, or if soil will be sampled after it is stockpiled, the qualified person shall consider planning for additional sampling and analysis to determine if any contaminants have been introduced to the soil since its excavation, as a result of handling, transporting, storing or other management of the soil.

16. **In implementing the sampling and analysis plan, the qualified person shall ensure that the following minimum sampling requirements are satisfied:**

A. Soil samples should be collected using professionally acceptable soil collection methods and shall be taken by or under the supervision of the qualified person;

B. Precautions should be taken to minimize the potential for cross-contamination;

C. The qualified person shall ensure that the number of samples of soil collected and analyzed is sufficient to determine the subsurface stratigraphy at or under the project area and the location of contaminants in soil, on, in or under the project area;.

D. Where a contaminant is identified on, in or under the project area during the site investigation and the contaminant is one for which there is no standard listed in the this Document, samples of the contaminant shall be collected and analyzed if the contaminant is a contaminant of concern;

E. The qualified person shall ensure the following are considered when soil samples to be analyzed are being selected in order to ensure the samples analyzed are representative of the maximum concentration of a contaminant in each area of the project area to be investigated:

F. Any evidence of the presence of a contaminant; and

G. The maximum concentrations of a contaminant,

i. measured using field screening equipment; and

ii. any other field screening means which may be necessary to ensure the analysis includes such maximum concentrations;.

H. The qualified person shall ensure that field logs are recorded and finalized for all sampling locations to document the soil conditions within the project area;

I. The qualified person shall ensure that the volume of any free flowing product encountered at the project area and/or removed from the project area is monitored and recorded and disposed of appropriately;

J. Sampling of undisturbed soil (i.e. in situ sampling) is the recommended approach for characterizing excess soil. Where an in situ sampling approach is not practical, soil samples shall be collected from the stockpiles where the soil is temporarily stored;

K. For an in situ sampling approach, the following rules apply:

i. a minimum of three soil samples must be analyzed if less than 600 cubic metres of soil will be excavated;
ii. At least one soil sample shall be analyzed for each 200 cubic metres of soil for the first 10,000 cubic metres of soil to be excavated; and
iii. At least one sample for each additional 450 cubic metres after the first 10,000 cubic metres of soil to be excavated, shall be analyzed;

L. For a stockpile sampling approach, the sampling frequencies specified in Table 1 of this Document shall be followed;

M. At a minimum, soil samples are required to be analyzed for the following parameters:

i. petroleum hydrocarbons (F1 through F4) including BTEX;
ii. metals (antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, uranium, vanadium and zinc); and
iii. SAR and EC, unless the soil is to be finally placed at a location referenced in item 4 in section 7 of Part IV of this document.
iv. Any contaminants of potential concern identified during the assessment of past uses;
v. Soil samples excavated, and soil stockpiled from stormwater management facilities shall be subject to excess soil stockpile sampling requirements after the soil is dewatered, otherwise shall be subject to in-situ sampling requirements. Soil sampled excavated from stormwater management facilities shall sample for, PAHs, EC, SAR in addition to the minimum parameters listed in (i) and (ii) and;
vi. Leachate analysis for certain contaminants as outlined in item 18 (below)

A. Where there is information regarding the location of potential sources of contaminants within an area of potential environmental concern (e.i. former tank) that is within the project area,

sample locations must be identified with the objective of locating the maximum concentration so that impacted soil can be segregated and sent to same appropriate reuse site;

B. The qualified person shall provide a rationale for the sampling design used;

C. Having regard to the findings of the assessment of past uses and the intended depths of the areas of excavation, a sufficient number of soil samples shall be collected from representative depths and locations. The sampling program must be adequate to allow the concentrations of any contaminants in the soil that is to be excavated to be known in order to meet the objectives of the sampling analysis plan set out in this document. The sampling depth intervals should be based on the contaminants of potential concern, nature of the contaminant, contaminant pathways and the geology;

D. If two or more samples of soil are taken from sampling points at the same sampling location that are at the same depth, the sample meets an applicable excess soil standard if the average of the sampling results meets that standard.

E. The averaging provision set out immediately above does not allow for compositing of samples of soil that will be analyzed for volatile contaminants, including volatile organic compounds;

F. Sufficient numbers of samples should be collected at different depths within a stockpile to characterize the depth profile and the spatial variation, laterally, of the substances of concern within the stockpile; and

G. Soil samples should not be obtained from the surface of the stockpile; rather, techniques and equipment need to allow for collection of samples from the entire stockpile, including the core.

Recommended Guidance:

- Quality assurance/quality control samples are recommended and should include a minimum of 1 duplicate sample for every 10 samples, one or more field blanks to verify that the equipment is clean, and trip blank samples where considered appropriate; and

- If excess soil is being taken to a reuse site that is governed by a site specific instrument mentioned in subsection 3 (1) of the regulation, any additional sampling requirements to satisfy the provisions of that site specific instrument should also be considered.

Table 1: Stockpile Sampling Frequencies

Volume of Stockpile (m3)	Number of Samples
≤130	3
>130 to 220	4
> 220 to 320	5
> 320 to 430	6
> 430 to 550	7
> 550 to 670	8
> 670 to 800	9
> 800 to 950	10
> 950 to 1100	11
> 1100 to 1250	12
> 1250 to 1400	13
> 1400 to 1550	14
> 1550 to 1700	15
> 1700 to 1850	16
> 1850 to 2050	17
> 2050 to 2200	18
> 2200 to 2350	19
> 2350 to 2500	20
> 2500 to 2700	21
> 2700 to 2900	22
> 2900 to 3100	23
> 3100 to 3300	24
> 3300 to 3500	25
> 3500 to 3700	26
> 3700 to 3900	27
> 3900 to 4100	28
> 4100 to 4300	29
> 4300 to 4500	30
> 4500 to 4700	31
> 4700 to 5000	32
> 5000	N= 32 + (volume – 5000)/300

17. **Requirements for Handling, Storage and Analysis of Samples:**

A. Where a sample of soil is taken, the qualified person shall ensure that requirements of section 47 (Analytical procedures) of O. Reg. 153/04 are complied with, including the requirements in relation to the handling and storage of the samples, the analyses of the samples to be carried out by an accredited lab and the requirements to comply with the ’s “Protocol for

Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the ministry and dated March 9, 2004, as it may be amended from time to time.

18. **Mandatory Leachate Analyses Requirements**

A. If a soil sample is being analysed for a contaminant of potential concern identified during the assessment of past uses and leachate analysis is required based on Section 5 of Part IV of this document, then the following soil sampling frequencies are required.

B. A minimum of three soil samples must be submitted for leachate analysis from each area of potential environmental concern. The soil samples submitted for leachate analysis should be collected from the sampling locations which had the highest bulk concentrations of the contaminant of potential concern.

C. Leachate samples should be analysed at a frequency of at least 10% of the number of bulk samples (see the in situ sampling frequencies), in addition to the three minimum samples, unless the qualified person can provide a rationale regarding why sampling at depth is not necessary in order to meet the general and specific objectives of the excess soil characterization.

D. For soil excavated from an area of potential environmental concern that is stored in stockpiles, the minimum leachate sample frequency would be based on the volume of soil in the pile. The required number of leachate samples would be a minimum of three, plus 10% of the required number of bulk soil samples (as detailed in the stockpile sampling frequency table – see Table 1).

E. Where a sample of soil is submitted for leachate analysis, the leachate extraction shall be completed using the Synthetic Precipitation Leaching Procedure (US EPA SW-846 Method 1312), the Toxicity Characterization Leaching Procedure (US EPA SW-846 Method 1311) or another method approved by the Director. The subsequent analysis of the leachate elute must be completed in accordance with the requirements of Section 47 of O. Reg. 153/04, including the requirements in relation to the handling and storage of the samples and the requirements to comply with the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the ministry and dated March 9, 2004, as it may be amended from time to time.

19. **Heavily Impacted Soil That Cannot Be Reused At a Reuse Site**

A. Where a qualified person determines that soil within an area of potential environmental concern contains high concentrations of contaminants, and the sampling and analysis of that soil shows that the concentration of contaminants exceeds the full-depth excess soil standards for Residential/Parkland/Institutional property uses small volume excess soil standard tables set out in Appendix 2 of Part IV of this document, the qualified person may depart from the

sampling and analysis requirements set out in this part of this document if the qualified person has determined that the only practical disposal option for the impacted soil is to transport it to a landfill or to a soil processing site.

B. In the circumstances described in clause (a) where the qualified person has determined that the only practical option is to dispose of the soil at a landfill or at a soil processing site, the suite of analyses and the number of sampling locations required to delineate the limits of the impacted soil are at the discretion of the qualified person. The number of samples collected within and in the vicinity of the impacted soil shall be sufficient to be able to distinguish soil that is destined for landfill or a soil processing site, and that which can be re-used. Where there are multiple contaminants of concern, the qualified person may be able to focus on a single parameter group and use that as an indicator instead of analyzing multiple parameter groups as required by the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the ministry and dated March 9, 2004, as it may be amended from time to time.

20. **Excess soil characterization report including a review and evaluation of information.**

A. The qualified person shall review, interpret and evaluate the information used in preparing and implementing the excess soil management plan and shall prepare an excess soil characterization report. The soil excess characterization report shall include the following:

B. Cross-sections, figures, tables and narrative descriptions that illustrate the following, with respect to each area where excavations are planned within the project area:

i. each area of potential environmental concern within the project area, and its dimensions;
ii. each part of the project area that was subject to sampling, and its dimensions;
iii. each area of potential environmental concern within the project area where soil is to be excavated and its dimensions, and for each such area of potential environmental concern, the related potentially contaminating activity;
iv. the information required by report section 5 in Table 1 to Schedule E of O. Reg. 153/04 (investigation methods including drilling and excavating test pits, soil sampling, field screening methods and analytical testing), with necessary modifications and excluding any requirements related to groundwater;
v. stratigraphy from ground surface to the depth of the deepest planned excavation within the project area;
vi. approximate depth to water table, including whether the depths of excavation for each area where soil excavation is planned are below the water table;
vii. for every area of excavation where soil samples were collected;
    1. minimum number of samples required and total number of samples collected;
    2. the locations and depths of samples, and a rationale for the selection of sampling locations;

3. the parameter groups for analysis, including a rationale for the choice of parameter goups;
4. the date of sample collection;
5. the date of analysis;
6. contaminants of concern;
7. comparison of analytical results to soil quality standards; and
8. the distribution of each contaminant present;

viii. for all in situ soil samples analyzed, a discussion of any soil field screening results along with a discussion and analysis of the laboratory analytical results

ix. if soil could not be sampled in situ, the following information in relation to each stockpile:
1. the location and volume of the stockpile;
2. the area within the project area that the soil in the stockpile originated from;
3. the location and number of samples collected from the stockpile, the minimum number of samples required, and a rationale for the selection of sampling locations;
4. the parameter groups for analysis, including a rationale for the choice of parameter groups;
5. the date of sample collection; the date of analysis; and
6. the distribution of each contaminant present within each stockpile;

x. for all stockpile soil samples analyzed, provide a discussion of any soil field screening results along with a discussion and analysis of the laboratory analytical results.

xi. for any soil that is subject to leachate analyses,
1. the locations and depths of samples, and a rationale for the selection of sampling locations
2. the date of sample collection;
3. the date of analysis;
4. contaminants of concern;
5. comparison of analytical results to the screening levels;
6. a rationale regarding why a sampling frequency of at least 10% of the number of bulk samples was not necessary in order to meet the general and specific objectives of the excess soil characterization, if applicable;
7. the leachate extraction method and rationale for the selection of method;
8. proof of Director approval for use of an alternate leachate extraction method, if applicable; and
9. assessment and conclusions regarding the leachate extraction results.

xii. one or more tables that, (i) show soil quality data contained in laboratory certificates of analysis of samples taken at the project area; (ii) include borehole, test hole or test pit identification number, sample depths, sample identification number, date of sample collection, date of analysis and laboratory certificate of analysis or analytical report reference number, and (iii) include a comparison of the data to soil quality standards.

xiii. laboratory certificates of analysis or analytical reports for all samples analyzed;
xiv. the information required by report section 6, sub-heading (ix) in Table 1 to Schedule E of O. Reg. 153/04 (quality assurance and quality control results), with necessary modifications.
xv. If, during the sampling and analysis of soil within an area of potential environmental concern, the qualified person determined that soil contains high concentrations of contaminants as described in item 19 (above) and the only practical disposal option is to dispose of the soil at a landfill or soil processing site, the qualified person shall:
    1. identify the location within the project area where the contaminated soil is located;
    2. identify the analytical results from the sampling of the impacted soil, and confirm that the concentration of contaminants in the soil exceeds the full-depth excess soil standards set out in Part IV for Residential/Parkland/Institutional property uses small volume excess soil standard tables set out in Appendix 2 of Part IV of this document;
    3. describe the steps taken to delineate the impacted soil that is to be excavated, from other soil within the area of potential environmental concern that is to be excavated; and
    4. describe the extent of sampling and analysis that the qualified person undertook in substitution to the sampling and analysis requirements set out in this document.

PART IV
REUSE OF EXCESS SOIL AND APPLICATION OF THE STANDARDS FOR REUSE OF EXCESS SOIL AT REUSE SITES

Excess Soil Standards Tables

The excess soil standards tables are found in Appendix 1 of this document.

Table 1 provides the "Full Depth Background Site Condition Standards" and is the same as Table 1 of the Soil, Ground Water and Sediment Standards.

Tables 2 to 9.1 provide excess soil standards in respect of two different volume classes of excess soil being brought to a property for use in an undertaking. In relation to each volume class, eight tables are provided for different location placement conditions: full-depth depth placement, stratified placement, potability of groundwater, shallow overburden thickness, and a nearby water body.

The tables for small volume excess soil standards (2, 3, 4, 5, 6, 7, 8 and 9), may be used for excess soil volumes up to 350 m3, or up to 1000 m3 with rationale provided by a qualified person. The standards in these tables are the same as those in tables 2 to 9 of the Soil, Ground Water and Sediment Standards and are set for coarse textured soil. These excess soil standards may be updated from time to time.

The tables for volume independent excess soil standards may be used for any volume of excess soil. For ease of reference, these tables have been presented in the same order with the same placement site conditions as the tables for small volume excess soil standards.

The following provides a summary of the excess soil standards tables available for use under the soil regulation:

Table Description	Small Volume (up to 350 m^3) (or up to 1000 m^3 with rationale provided by a qualified person)	Volume Independent
Full Depth Background	Table 1	Table 1
Full Depth, Potable	Table 2	Table 2.1
Full Depth, Non-Potable	Table 3	Table 3.1
Stratified, Potable	Table 4	Table 4.1
Stratified, Non-Potable	Table 5	Table 5.1
Full Depth, Shallow Soil, Potable	Table 6	Table 6.1
Full Depth, Shallow Soil, Non-Potable	Table 7	Table 7.1
Full Depth, Within 30 m of a Water Body, Potable	Table 8	Table 8.1
Full Depth, Within 30 m of a Water body, Non-Potable	Table 9	Table 9.1

Within each table, standards for contaminants are presented in relation to property use. Property use categories and definitions are the same as in O. Reg. 153/04 and are provided in Part I of this document.

In relation to standards in this document that are copied from tables in the Soil, Ground Water and Sediment Standards, the latter document prevails in the case of a discrepancy between standards.

Leachate analysis is a mandatory component, in specific circumstances, of meeting the volume independent excess soil standards, site-specific standards generated using BRAT and Table 1 in larger volume scenarios. Leachate analysis is required for contaminants for which soil to groundwater component values are not derived, and for contaminants with analytical limitations. Contaminants that may require leachate analysis are denoted with a superscript "a" alongside the excess soil standard. Rules governing the determination of whether leachate analysis is required, and how to complete leachate analysis, are provided in this document along with tables of leachate screening levels.

Additional rules that apply in special circumstances are also provided; these may affect the excess soil standard that is applicable to a particular type of soil or beneficial reuse site.

Rules Associated with the Use of Excess Soil Standards
For the purposes of paragraph 1 of subsection 5 (1) of the regulation

1. In this Part,
    A. a reference to a table of excess soil standards means the tables in Appendix 1 of this document
    B. in the event that an excess soil standard in one of Tables 1, 2, 3, 4, 5, 6, 7, 8 or 9 in this document is different than the analogous soil standard in the analogous Table in the Soil, Ground Water and Sediment Standards, as it may be amended from time to time, the latter prevails provided it applies to coarse textured soil.
    C. volume independent tables means tables 2.1, 3.1, 4.1, 5.1, 6.1, 7.1, 8.1, and 9.1;
    D. small volume tables means tables 2, 3, 4, 5, 6, 7, 8, and 9;
    E. potable tables means tables 2, 4, 6, 8, 2.1, 4.1, 6.1, and 8.1;
    F. non-potable tables means tables 3, 5, 7, 9, 3.1, 5.1, 7.1, and 9.1;
    G. near a water body tables means tables 8, 9, 8.1, and 9.1;
    H. shallow soil tables means tables 6, 7, 6.1, and 7.1;
    I. stratified standards tables means Tables 4, 5, 4.1 and 5.1

2. **The quality of the excess soil that is intended to be finally placed at a reuse site must meet the excess soil standards determined in accordance of paragraph 1 of subsection 5 (1) of the regulation with the following rules:**

    A. Table 1 excess soil standards may be applied in relation to any reuse site and any volume of excess soil;

    B. If Table 1 is not being used or required to be used by this Part, the volume independent tables will be used unless it is determined that a small volume table is applicable in accordance with the following:

i. if the volume is less than or equal to 350 cubic metres the small volume tables may be used; or
ii. if the volume is 1000 cubic metres or less the small volume tables may be used if a qualified person for the reuse site has determined that this volume of soil at that standard would not result in an increase in risk relative to the risk upon which the standards were developed, based upon an assessment of the potential contaminant receivers and contaminant pathways, the distribution and thickness of the excess soil, and the specific use of the excess soil;

C. Potable tables must be used unless the requirements set out Section 35 of O. Reg. 153/04 for use of non-potable tables are met (modified as necessary to apply to a reuse site rather than to the submission of a record of site condition for filing);

D. If the final placement of the excess soil is to be within 30m of a water body then near a water body tables must be used;

E. Shallow soil tables must be used if:
i. If the reuse site is at a property that has more than 1/3 of its area covered by 2 meters or less in depth beneath the soil surface, excluding any non-soil surface treatment such as asphalt, concrete or aggregate; or
ii. If there is or would be a separation distance of less than 0.8 m between the bottom of the gravel crush of an existing or future building associated with the beneficial purpose and the top of the capillary fringe, or if the depth to the water table is less than 3 m from the surface of the soil;

F. If the previous rules require both the use of shallow soil tables and the use of near a water body tables then the lower standard for each chemical applies when comparing the two tables;

G. Stratified standards tables may only be applied in compliance with the conditions in section 3;

H. The excess soil standard selected within a table is the standard that relates to the property use of the reuse site as determined using the rules in section 4;

I. The excess soil standard includes the applicable Leachate Screening Level, if any, determined using the rules in section 6; and

J. The standard complies with the rules for specific circumstances in this Part of this document.

3. **Stratified standards tables may only be used if the reuse site and final placement comply with the following conditions:**
A. Placement of the excess soil achieves a stratified condition such that soil that meets the at-depth standards in the tables is located 1.5 metres or greater below the soil surface;

B. The reuse site does not have an Agricultural or Other property use, is not a shallow soil property, and the final placement is not within 30 metres of a water body; and

C. It is reasonable to expect that the location of final placement, the property use and the type of beneficial purpose are such that a stratified condition is likely to be maintained into the foreseeable future.

4. **The following rules apply to the determination of the property use to use when selecting the applicable excess soil standards within a table:**

D. Property uses to be used are the same as those applicable to O. Reg. 153/04 being:
   i. Agricultural and other use;
   ii. Residential, parkland and institutional uses; and
   iii. Community, commercial and industrial uses;

E. The applicable property use is the one that will apply to the reuse site at the time the undertaking for which the soil is being used is completed; and

F. If more than one property use applies to the property then the more sensitive standards apply.

5. **The following rules apply to contaminants for which excess soil standards are not listed or are listed as "N/A" or "N/V" in the referenced excess soil standards tables**

A. In cases where a cell in a referenced table indicates "N/V", if the contaminant is detected in excess soil and is associated with potentially contaminating activity at the project area, and if the qualified person is of the opinion that a risk assessment is necessary to develop an excess soil standard for that contaminant, a risk assessment should be completed in accordance with rules for site specific standards.

B. In cases where a contaminant is detected in excess soil and the contaminant is not listed in the referenced table that sets out the applicable standards and is associated with potentially contaminating activity at the project area, if the qualified person is of the opinion that a risk assessment is necessary to develop an excess soil standard for that contaminant, a risk assessment should be completed in accordance with the rules for site specific standards.

6. **The following rules apply to the determination of leachate screening levels applicable to a given undertaking:**

A. If Table 1 or the tables for small volume excess soil standards are being applied in relation to a volume of excess soil equal to or less than 350 cubic metres, then leachate analysis is not required and no leachate screening levels apply

B. If Table 1 or the tables for small volume excess soil standards are being applied to excess soil volumes greater than 350 cubic metres, but less than 1000 cubic metres, the qualified

person must consider whether leachate analysis is appropriate to assess potential increased risk and if necessary determine the appropriate Leachate Screening Levels

C. In circumstances not listed in paragraphs i. and ii. immediately above, leachate analysis is required and leachate screening levels are applicable if:
    i. the excess soil originates from an areas of potential environmental concern or the origin is unknown; and,
    ii. a chemical identified as a contaminant of potential concern has a superscript "a" following the excess soil standard in the applicable excess soil standards Table

D. If leachate analysis is required, the applicable Leachate Screening Level table is the table titled "Leachate Screening Levels" and with the same Table number as the applicable excess soil standards. For example, if Table 3.1 Excess Soil Standards is being used, the corresponding Leachate Screening Level Table is Table 3.1 Leachate Screening Levels.

7. **Rules for Determining and Applying Excess Soil Standards in Specific Circumstances**

A. **Environmentally Sensitive Areas**

Excess soil may only be finally placed within an environmentally sensitive area if the excess soil meets Table 1 and the results of any required leachate analysis, if required, meet the Table 1 Leachate Screening Levels.

B. **Soil for Growing Crops and Pasture**
    i. Excess soil may only be finally placed for the beneficial purpose of growing crops or pasture if the following criteria are met:
        1. no excess soil will be placed on top of existing topsoil unless the excess soil is topsoil; and
        2. the excess soil meets Table 1 and the results of any required leachate analysis, if required, meet the Table 1 Leachate Screening Levels.

C. **Local Background Concentrations**
    i. An excess soil standard may be considered to be met if the following criteria are met:
        1. A qualified person has demonstrated that the excess soil contains a parameter that is naturally occurring at the reuse site of beneficial purpose and that does not exceed the naturally occurring range of concentrations typically found within the area of the reuse site; and
        2. Documented evidence of the naturally occurring parameter concentrations is provided to the reuse site owner and retained by the reuse site owner and qualified person.

D. **Salt Impacted Excess Soil**
    i. Excess soil standards for chemicals (e.g. Sodium Absorption Ratio/Electrical Conductivity) in soil resulting solely from the use of a substance for the safety of

vehicular or pedestrian traffic applied under conditions of snow or ice or both, are deemed to be met to excess soil if the following criteria are met:

1. The excess soil standard for the chemical in question would not be met as a result of the past application of that chemical for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both;
2. The excess soil will be finally placed at a location:
    a. where it is reasonable to expect that the soil will be affected by the same chemicals as a result of continued application of a substance for the safety of vehicular or pedestrian traffic under conditions of snow or ice;
    b. with an industrial or commercial property use and to which non-potable standards would be applicable; and
3. The excess soil will not be finally placed at a location:
    a. within 120 m of a waterbody;
    b. within 100 m of a potable water well; or
    c. that will be used for growing crops and pasturing livestock.

Recommended Guidance:

- Where an issue contributing area for sodium and/or chloride in relation to a drinking water system has been identified in an approved source protection plan under the Clean Water Act, municipalities should consider passing a by-law under section 142 of the Municipal Act, 2001 that has rules that limit or restrict salt impacted soil being brought to these areas. If salt impacted excess soil is desired to be brought to these areas, it is recommended that the by-law contain provisions for a qualified person to be retained to conduct an assessment of the location where the salt impacted soil is to be deposited to ensure runoff or infiltration will be minimal and to demonstrate that no loading to the system's drinking water source is anticipated.

8. **Excess Soil Blended with Compost Materials**
    A. Processed organic waste from a composting facility, if the waste meets the requirements for Category AA compost in Part II of the document published by the ministry titled "Ontario Compost Quality Standards", as amended from time to time, originally dated July 25, 2012 and available on a website of the Government of Ontario, is deemed to meet the excess soil standards applicable to a reuse site if either,

        i. The excess soil standards are met in the mixed state; or
        ii. The excess soil standards and the applicable compost standards were both documented to have been met prior to mixing, whether that mixing takes place at the reuse site or at another site.

Recommended Guidance:

- Volume considerations: Presiding entities and qualified persons are encouraged to consider the potential cumulative impact of fill of various qualities. For example, when considering use of the tables for small volume excess soil standards, consideration should be given to existing site

conditions including whether existing soil at the property is suspected to be impacted, or if the total volume of the excess soil being brought to the property and the potentially impacted soil currently at the property is greater than 350 m^3. In these circumstances use of tables for small volume excess soil standards may not be appropriate.

- Maintaining site conditions and notification of future land owners: If stratified soil standards are used on a reuse site the reuse site owner, occupier, or person who has charge, management or control of the reuse site should ensure that surface soil and subsurface soil on, in or under the property or properties comprising the reuse site meets the applicable stratified condition standards for all prescribed contaminants. This responsibility should be communicated to subsequent property owners

- Other Assumptions: Conditions may exist at a site for which the assumptions used to develop the excess soil standards may not be valid. Some key types of conditions that may be important in this respect are presented in Appendix 1. The qualified person should ascertain that the site conditions are appropriate for use of the standards such that he/she can be comfortable with signing the certifications required.

Site-Specific Excess Soil Standards

In cases where meeting excess soil standards is not possible or desirable, the Ministry's Beneficial Reuse Assessment Tool (BRAT) or completion of a risk assessment may be used to establish site-specific excess soil standards.

The BRAT is an excel-based spreadsheet model developed by the Ministry. It uses the same models and algorithms used in the development of the volume independent excess soil standards. Note that the Ministry may update the BRAT from time to time; a copy of the most current version of the BRAT will be available on a website of the Government of Ontario

The BRAT allows for the development of site-specific excess soil reuse standards for a reuse site as an alternative to using the excess soil reuse standards by allowing simple modification of the generic standards using site-specific information. The BRAT also includes the ability to reflect more site-specific land use characteristics of the reuse site, for example, if no buildings are present on-site, this can be accounted for in the BRAT. In general, the use of BRAT would not require oversight or approval by a public body, except in cases covered in sub-section (d), below.

9. **The BRAT shall be used to develop site specific excess soil standards in accordance with the following requirements:**

    A. The BRAT shall only be used by a qualified person as determined in accordance with Section 5 or Section 6 of O. Reg. 153/04. In respect of the following clauses (b) and (f) below:
        i. it is recommended that the qualified person have experience in risk assessment or consults with professionals with expertise in risk assessment.

B. The qualified person shall ascertain that the site conditions are appropriate for use of the BRAT to develop site-specific excess soil reuse standards. To assist the qualified person in recognizing the types of site conditions that may be important in this respect, some key conditions are listed in Appendix 1. Some limitations related to the use of BRAT are also listed directly in BRAT. These limitations must be reviewed and understood by the qualified person in order to confirm the applicability of using BRAT to develop site-specific excess soil reuse standards.

C. Where a default value or an assumption is modified from those published by the ministry in the development of the excess soil standards, an assessment is carried out which satisfies the minimum requirements and meets the objective set out in Table 4 of Schedule E of O. Reg. 153/04. Additional requirements are also presented directly in the BRAT.

D. The BRAT shall not be used in relation to a project or beneficial use for which Table 1 excess soil standards would be required to apply by this document (i.e. an Environmentally Sensitive Area and soil for growing crops).

E. The qualified person shall not utilize site use characteristics identified in the BRAT to modify site-specific excess soil standards unless:

   i. in relation to site use characteristics that are built, they are already built or are specified in approved planning or development permits (e.g. site plan approvals) or other site specific legal instruments;
   ii. in relation to the building prohibition site use characteristic, it is reasonably determined based on any site specific legal instruments, land use planning policies and the proposed beneficial purpose of the fill that a building is not foreseeable in that area

F. The qualified person certifies to the property owner that the site-specific excess soil quality standards (including any site use characteristics) are developed using the BRAT and used in accordance with any rules and limitations that are specified by the Ministry, and

G. The output tab of the BRAT, which includes a summary of key site-specific input used in BRAT and corresponding excess soil reuse standards, ceiling values, leachate screening levels (where required) and site use characteristics (if any were selected)shall be printed and documented in the ESMP or other related assessment documents. A copy of the document is retained by both the property owner and the qualified person, and must be provided to the Ministry upon request. The output tab must also be provided to any parties that may express an interest in the property.

H. When the BRAT is used to develop site-specific excess soil standards, it will also generate site-specific leachate screening levels which must be applied in the same way as for the volume independent excess soil standards.

Recommended Guidance:

- The Ministry may provide additional guidance on the proper use of the BRAT from time to time. qualified persons are expected to review this guidance before using the BRAT.

10. **Risk Assessment**

A. In addition to the BRAT mentioned above, other risk assessment approaches may be used to develop site-specific excess soil standards for a reuse site. Utilizing a risk assessment approach, other than the BRAT, for the development of site-specific excess soil standards for a reuse site would only be permitted with the deposit of excess soil at a reuse site that is to be governed by a site-specific instrument. The reason for this is the need to ensure that a public body has oversight over the conduct of the risk assessment

B. As part of its process for issuing the site-specific instrument, the responsible public body would review or engage in a peer review of the risk assessment as part of its process when assessing the reuse site. Another reason for requiring the oversight of a public body is that the risk assessment may rely on the implementation of administrative controls and/or management measures at the reuse site; these may need to be incorporated into any site-specific instrument that the public body will issue to govern deposit of excess soil at the reuse site. This includes specifying the level and mechanism to determine compliance with any related rules and professional best practices, such as approvals, review, peer review, application through a site-specific instrument, etc. It is expected that over time different agencies may identify a range of risk assessment approaches, guidance and procedures that may be used by applicants who apply for site-specific instruments governing the deposit of excess soil at reuse sites.

C. When risk assessment is used to develop site- specific excess soil standards for a reuse site, the following requirements apply:

i. The risk assessment report shall be prepared by a qualified person as referred to in section 6 of O. Reg. 153/04 (qualified person, risk assessment)
ii. The risk assessment must include the following:
    1. Identify the applicable of excess soil standards for the reuse site. This includes identifying the applicable Table of excess soil standards and the current property use at the reuse site.
    2. A list of all of the contaminants of concern. The contaminants of concern must include any contaminants present in excess soil to be placed at the reuse site that are at concentrations that are greater than the applicable excess soil standards;
    3. The conduct of an assessment of human health risk and of ecological risk for each contaminant of concern;
    4. Consideration of the leaching pathway and whether there is a need to develop site-specific LSL and, if this is the case, then it is recommended that

site-specific LSL be developed using the Ministry approved method which is detailed in the Rationale document; and,

5. Based on the outcome of the assessment of human health risk and of ecological risk, a site-specific standard must be specified in the risk assessment for each contaminant of concern.

11. **Excess soil standards will have been determined to be met if:**

    A. The results of the excess soil analysis are compared to the standards using either the single-point compliance rules or the statistical compliance rules and the results are less than or equal to the excess soil standard; and

    B. The result of the leachate analysis is compared directly to the Leachate Screening Level and the result is less than or equal to the Leachate Screening Level.

    C. There is no evidence of the presence of a contaminant in the soil as a result of visual or olfactory observations as listed in Part III.

12. **Single Point Compliance:** Excess soil is deemed to meet the applicable excess soil standards at the reuse site using single point compliance if the following requirements are met:

    A. the applicable excess soil reuse standard is met at each sampling point from which a sample is taken for soil analysis; or

    B. if two or more in-situ samples of excess soil are taken from sampling points at the same sampling location, as specified in O. Reg. 153/04, s. 48 (4), that are at the same depth, the excess soil is deemed to meet the applicable standard if the average of the sampling results meets the standard.

13. **Statistical Compliance** Excess soil is deemed to meet applicable excess soil standards at the reuse site using statistical compliance if the following requirements are met:

    A. The 90th percentile of the data set (90% of the samples) must meet the applicable excess soil reuse standards.

    B. The upper 95% confidence limit of the mean concentration of the samples must meet the applicable excess soil reuse standards.

    C. No single sample within the data set exceeds applicable ceiling values that are corresponding to excess soil reuse standards, as specified in the following subsections:
        i. For an excess soil standard, the ceiling values are provided in the correspondingly numbered Table of Ceiling Values (e.g. 2-9 and 2.1- 9.1) provided in Appendix 3.

ii. For an excess soil reuse standard that is derived using the BRAT or other risk assessment, site-specific ceiling values should be derived using the Ministry's approach.

D. A minimum of twenty (20) soil samples that are collected from excess soil that has similar soil characteristics and may be impacted by similar process, or if soil from one population.

E. The statistical compliance approach is not being used in respect of pH levels in excess soil being analyzed as required by clause 41(1) (b) of O. Reg. 153/04.

PART V
REQUIREMENTS FOR TEMPORARY EXCESS SOIL STORAGE SITES

For the purposes of section 18 of the regulation a temporary soil storage site, is exempted from sections. 27, 40 and 41 of the Act if:

1. The project leader or public body who owns the property on which the temporary soil storage site is located shall ensure that the following requirements are met:

    A. Excess soil from different projects shall remain segregated unless the excess soil meets the same applicable excess soil standards table and is destined for the same reuse site;

    B. Records containing the following information shall be maintained and made available to the ministry upon request:

        i. municipal addresses of the project areas from which the excess soil originated;
        ii. the dates that excess soil was received from each project area and total quantity and quality of excess soil received
        iii. for each segregated excess soil stockpile, the quality and quantity of excess soil and the project area from which it originated
        iv. the confirmed reuse site(s) as detailed in the applicable ESMP and the date on which the reuse site(s) can start to receive the relevant excess soil

    C. Excess soil shall be managed in such a way as to prevent any adverse effects associated with the stored excess soil, including management of:
        i. noise;
        ii. dust;
        iii. mud tracking;
        iv. run-off and erosion; and
        v. potential odour issue(s);

    D. Excess soil shall not leach to groundwater;
    E. Excess soil should not come into direct contact with vegetation;

Recommended Guidance:

- The maximum size of each pile at a temporary soil storage site should not exceed 2500m³;
- Consider whether municipal approvals or permits are required for the temporary soil storage site; these may restrict storage volumes or stockpile heights, for example;
- It is recommended that the temporary soil storage site be constructed, operated and maintained in a manner that promotes health and safety;
- It is recommended that operational best management practices for the temporary soil storage site be undertaken, such as having a paved or otherwise impermeable surface, covering of stockpiles when not in use, and conducting site inspections.

APPENDIX 1 EXCESS SOIL REUSE STANDARDS TABLES

How to Read These Tables

Similar to Tables 2-9 in the Soil, Ground Water and Sediment Standards, the tables below set out prescribed standards for contaminants by listing contaminants in the column of rows that has the heading row entitled "Contaminant". The tables also set out prescribed standards for these contaminants by indicating in the appropriate locations the maximum concentrations of the contaminants in excess soil which is expressed in a number that is to be read as µg/g dry weight.

The standard for a property that is applicable for a type of property can be found in the row named for the contaminant and in the column that has the heading row that indicates the type of property use of the property at which excess soil is reused.

A contaminant that is listed and for which the abbreviation "NV" appears in the cell, instead of a number representing a maximum concentration, is a contaminant for which a standard is not prescribed. The abbreviation "NV" means "no value".

A contaminant that is listed and for which the abbreviation "NA" appears in the cell, instead of a number representing a maximum concentration, is a contaminant for which a standard is not prescribed because no standard is required. The abbreviation "NA" means "not applicable".

A contaminant that is listed and for which there is a superscript “a” following the excess soil reuse standard is a contaminant for which corresponding leachate screening levels are also presented in Appendix 2. If the contaminant is identified as a contaminant of potential concern in excess soil, leachate analysis requires to be completed (see Appendix 2 for additional details).

In respect of Table 1, a contaminant that is listed and for which there is a superscript “RL” following the excess soil reuse standard is a contaminant for which Table 1 value is set at an analytical reporting limit (see notes below for additional details).

Notes on Table 1

The excess soil standards in Table 1 are intended to represent background conditions derived from the Ontario Typical Range (OTR) values for the land uses indicated and are considered representative of upper limits of typical province-wide background concentrations in soil that are not contaminated by point sources. However, where an OTR value is numerically lower (or not available) than what a laboratory can reliably measure with confidence (as established in O. Reg. 153/04) and referred to as the “reporting limit” (RL)) then to be pragmatic the Table 1 value is set at the RL instead of the OTR. Where this happens, it indicates that either:

i. the particular chemical does not occur naturally, and so in the absence of an OTR the Table 1 standard is set at the achievable reporting limit - this ensures that detection demonstrates the likelihood of anthropogenic impacts; or,
ii. the chemical may be present in the soil but has been missed by the soil sampling and subsequent analysis.

Notes on Tables 2 to 9 and 2.1 to 9.1

The following table provides a screening matrix of key site conditions and how they impact table selection.

Site Condition Table / Conditions of Use	Table 2/2.1	Table 3/3.1	Table 4/4.1	Table 5/5.1	Table 6/6.1	Table 7/7.1	Table 8/8.1	Table 9/9.1
Property is, or is adjacent to or within 30 m of an Environmentally Sensitive Area.	x	x	x	x	x	x	x	x
Use of non-potable standards has not been approved by municipality	✓	x	✓	x	✓	x	✓	x
Land Use is Agricultural or Other	✓	x	x	x	✓	x	✓	x
Overburden thickness is unknown or is less than 2 m.	x	x	x	x	✓	✓	x	x
Depth to groundwater is unknown, is less than 3 m below ground surface or the capillary fringe is <0.8 m from the base of the gravel crush of any existing/future building foundation.	x	x	x	x	✓	✓	x	x
Nearest water body is unknown or less than 30 m from property.	x	x	x	x	x	x	✓	✓
Excess soil may be placed at any depth.	✓	✓	✓	x	x	✓	✓	✓
Sub-surface soil (soil > 1.5 m below ground surface) will be maintained at > 1.5 m below ground surface.	✓	✓	✓	✓	✓	✓	✓	✓

X This Table should not be used without further assessment.
✓This Table may be acceptable, see Section "Additional Notes" for the additional considerations

Additional Notes

a) For all tables, the methyl naphthalene soil standard is applicable to both 1-methyl naphthalene and 2 –methyl naphthalene, with the provision that if both are detected the sum of the two concentrations cannot exceed the standard.
b) There are two boron parameters in the tables, one for a hot water extract (HWS) that is designed for protection of plants and soil invertebrates, and one for a total (mixed strong acid digest). The HWS boron can be used by itself for all surface soil, as plants are the most sensitive receptor for boron. For subsurface soil the total boron standard can be used by itself, since plant protection for soil below the root zone is not a significant concern.
c) Conditions can exist at a site for which the assumptions used to develop the generic standards may not be valid. The qualified person must ascertain that the site conditions are appropriate for use of the generic standards. To assist the qualified person in recognizing the types of conditions that may be important in this respect the following examples are given:

    - if any exposure pathway that is not considered in the development of the generic standards is present at the property, the use of the excess soil standards presented may not be protective of that exposure.

- Table 2-9 are derived for a finite volume of 13 m by 13 m by 2 m (or approximately 350 m^3 in volume). If the contaminated zone has a volume larger than 350 m^3 or a source length or width greater than 13 metres then all pathways which employ source depletion or groundwater transport (e.g., Soil to Nose, S-GW1, S-IA, S-GW3, GW2 and GW3 components of the standards) may be affected.
- if a high permeability zone is present in the vadose zone which provides a direct preferential pathway to the building then the soil properties assumed in the generic J&E modelling to determine the S-IA and GW2 components of the standard may change.
- if the average Organic Carbon content (foc) of soil above the water table is < 0.002 then more contaminant may be in the water and gas phases than assumed in the generic standards.
- if there is a continuous source of the contaminant then the pathways which assume a depleting source (i.e., S-IA, S-GW1, and Soil to Nose) might be non-conservative.
- if site buildings have characteristics that vary significantly from the generic assumptions, this could result in enhanced transport of vapour into a building and the S-IA and S-GW2 component values may be non-conservative.
- the development of excess soil standards assumes that preferential pathways (e.g. shallow bed rock, gas under pressure, utility conduits that directly connect the contamination source to the enclosed space of the building, etc.) are not present. If preferential pathways are identified, the S-IA and the soil to groundwater pathways may be non-conservative
- if there is a surface water body that could be affected by the property from contaminant migration via groundwater, and the surface water has total hardness less than 70mg/L (as $CaCO_3$) and/or has pH less than 6.7, the aquatic protection values for some metals and pentachlorophenol may be non-conservative. In such cases, the qualified person may need to consider whether a site-specific estimate of hardness and pH resulting from mixing of groundwater and surface water is needed to estimate an appropriate aquatic protection value for this site.

The existence of any of the above conditions does not necessarily indicate that the generic criteria are not valid for a given site. There are many interrelated parameters and factors that were used in the development of the generic standards, and in many cases one factor, such as any of those above, can be outweighed by differences in other factors in a manner that, overall, there is sufficient natural protection provided by the site. In addition, it must also be considered that the component that drives the standard may not be affected by the particular limiting condition described above (e.g. a terrestrial ecological driver, but there are high permeable zones in the vadose zone). The qualified person should consider these types of factors in assessing the appropriateness of the use of the generic standards.

TABLE 1: Full Depth Background Site Condition Standards

(Unit in µg/g)

Contaminant	Agricultural and Other Property Use	Residential/Parkland/Institutional and Industrial/Commercial/Community Property Use
Acenaphthene	0.05 RL	0.072
Acenaphthylene	0.093	0.093
Acetone	0.5 RL	0.5 RL
Aldrin	0.05 RL	0.05 RL
Anthracene	0.05 RL	0.16
Antimony	1 a, RL	1.3
Arsenic	11	18
Barium	210	220
Benzene	0.02 RL	0.02 RL
Benz[a]anthracene	0.095	0.36
Benzo[a]pyrene	0.05 RL	0.3
Benzo[b]fluoranthene	0.3	0.47
Benzo[ghi]perylene	0.2	0.68
Benzo[k]fluoranthene	0.05 RL	0.48
Beryllium	2.5	2.5
Biphenyl 1,1'-	0.05 RL	0.05 RL
Bis(2-chloroethyl)ether	0.5 a, RL	0.5 a,RL
Bis(2-chloroisopropyl)ether	0.5 a, RL	0.5 a,RL
Bis(2-ethylhexyl)phthalate	5 RL	5 RL
Boron (Hot Water Soluble)*	NA	NA
Boron (total)	36	36
Bromodichloromethane	0.05 RL	0.05 RL
Bromoform	0.05 RL	0.05 RL
Bromomethane	0.05 a, RL	0.05 a,RL
Cadmium	1 RL	1.2
Carbon Tetrachloride	0.05 a, RL	0.05 a,RL
Chlordane	0.05 RL	0.05 RL
Chloroaniline p-	0.5 a, RL	0.5 a,RL
Chlorobenzene	0.05 RL	0.05 RL

Contaminant	Agricultural and Other Property Use	Residential/Parkland/Institutional and Industrial/Commercial/Community Property Use
Chloroform	0.05 a, RL	0.05 a,RL
Chlorophenol, 2-	0.1 RL	0.1 RL
Chromium Total	67	70
Chromium VI	0.66	0.66
Chrysene	0.18	2.8
Cobalt	19	21
Copper	62	92
Cyanide (CN-)	0.051	0.051
Dibenz[a h]anthracene	0.1 RL	0.1 RL
Dibromochloromethane	0.05 RL	0.05 RL
Dichlorobenzene, 1,2-	0.05 a, RL	0.05 a,RL
Dichlorobenzene, 1,3-	0.05 RL	0.05 RL
Dichlorobenzene, 1,4-	0.05 a, RL	0.05 a,RL
Dichlorobenzidine, 3,3'-	1 a, RL	1 a,RL
Dichlorodifluoromethane	0.05 RL	0.05 RL
DDD	0.05 RL	0.05 RL
DDE	0.05 RL	0.05 RL
DDT	0.078	1.4
Dichloroethane, 1,1-	0.05 a, RL	0.05 a,RL
Dichloroethane, 1,2-	0.05 a, RL	0.05 a,RL
Dichloroethylene, 1,1-	0.05 a, RL	0.05 a,RL
Dichloroethylene, 1,2-cis-	0.05 a, RL	0.05 a,RL
Dichloroethylene, 1,2-trans-	0.05 a, RL	0.05 a,RL
Dichlorophenol, 2,4-	0.1 RL	0.1 RL
Dichloropropane, 1,2-	0.05 a, RL	0.05 a,RL
Dichloropropene,1,3-	0.05 a, RL	0.05 a,RL
Dieldrin	0.05 a, RL	0.05 a,RL
Diethyl Phthalate	0.5 a, RL	0.5 a,RL

Contaminant	Agricultural and Other Property Use	Residential/Parkland/Institutional and Industrial/Commercial/Community Property Use
Dimethylphthalate	0.5 a, RL	0.5 a,RL
Dimethylphenol, 2,4-	0.2 RL	0.2 RL
Dinitrophenol, 2,4-	2 a, RL	2 a,RL
Dinitrotoluene, 2,4 & 2,6-	0.5 a, RL	0.5 a,RL
Dioxane, 1,4	0.2 a, RL	0.2 a,RL
Dioxin/Furan (TEQ)	0.000007	0.000007 RL
Endosulfan	0.04 RL	0.04 RL
Endrin	0.04 a, RL	0.04 a,RL
Ethylbenzene	0.05 RL	0.05 RL
Ethylene dibromide	0.05 a, RL	0.05 a,RL
Fluoranthene	0.24	0.56
Fluorene	0.05 RL	0.12
Heptachlor	0.05 a, RL	0.05 a,RL
Heptachlor Epoxide	0.05 a, RL	0.05 a,RL
Hexachlorobenzene	0.01 RL	0.01 RL
Hexachlorobutadiene	0.01 RL	0.01 RL
Hexachlorocyclohexane Gamma-	0.01 RL	0.01 RL
Hexachloroethane	0.01 RL	0.01 RL
Hexane (n)	0.05 RL	0.05 RL
Indeno[1 2 3-cd]pyrene	0.11	0.23
Lead	45	120
Mercury	0.16	0.27
Methoxychlor	0.05 RL	0.05 RL
Methyl Ethyl Ketone	0.5 RL	0.5 RL
Methyl Isobutyl Ketone	0.5 RL	0.5 RL
Methyl Mercury **	NV	NV
Methyl tert-Butyl Ether (MTBE)	0.05 RL	0.05 RL
Methylene Chloride	0.05 RL	0.05 RL
Methlynaphthalene, 2-(1-) ***	0.05 RL	0.59

Contaminant	Agricultural and Other Property Use	Residential/Parkland/Institutional and Industrial/Commercial/Community Property Use
Molybdenum	2 a, RL	2 a,RL
Naphthalene	0.05 RL	0.09
Nickel	37	82
Pentachlorophenol	0.1 RL	0.1 RL
Petroleum Hydrocarbons F1****	17	25
Petroleum Hydrocarbons F2	10 RL	10 RL
Petroleum Hydrocarbons F3	240	240
Petroleum Hydrocarbons F4	120	120
Phenanthrene	0.19	0.69
Phenol	0.5 RL	0.5 RL
Polychlorinated Biphenyls	0.3 RL	0.3 RL
Pyrene	0.19	1
Selenium	1.2	1.5
Silver	0.5 a, RL	0.5 a,RL
Styrene	0.05 RL	0.05 RL
Tetrachloroethane, 1,1,1,2-	0.05 a, RL	0.05 a,RL
Tetrachloroethane, 1,1,2,2-	0.05 a, RL	0.05 a,RL
Tetrachloroethylene	0.05 a, RL	0.05 a,RL
Thallium	1 RL	1 a,RL
Toluene	0.2 RL	0.2 RL
Trichlorobenzene, 1,2,4-	0.05 RL	0.05 RL
Trichloroethane, 1,1,1-	0.05 RL	0.05 RL
Trichloroethane, 1,1,2-	0.05 a, RL	0.05 a,RL
Trichloroethylene	0.05 a, RL	0.05 a,RL
Trichlorofluoromethane	0.05 RL	0.25
Trichlorophenol, 2,4,5-	0.1 RL	0.1 RL
Trichlorophenol, 2,4,6-	0.1 a, RL	0.1 a,RL
Uranium	1.9	2.5
Vanadium	86	86
Vinyl Chloride	0.02 RL	0.02 RL

Contaminant	Agricultural and Other Property Use	Residential/Parkland/Institutional and Industrial/Commercial/Community Property Use
Xylene Mixture	0.05 RL	0.05 RL
Zinc	290	290
Electrical Conductivity (mS/cm)	0.47	0.57
Sodium Adsorption Ratio	1	2.4

Notes:

NV: No Value; RL: Table 1 value set at Reporting Limits [a]: Leachate analysis is required only for chemicals that are identified as chemicals of potential concern in excess soil

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 2.1: Full Depth Excess Soil Reuse Standards in A Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/Parkland/ Institutional Property Use	Industrial/Commercial/ Community Property Use
Acenaphthene	0.25	0.25	0.25
Acenaphthylene	0.093	0.093	0.093
Acetone	0.5	0.5	0.5
Aldrin	0.05	0.05	0.088
Anthracene	0.058	0.16	0.16
Antimony	7.5 [a]	7.5 [a]	40 [a]
Arsenic	11	18	18
Barium	390 [a]	390 [a]	670 [a]
Benzene	0.02	0.02	0.02
Benz[a]anthracene	0.5	0.5	0.96
Benzo[a]pyrene	0.078	0.3	0.3
Benzo[b]fluoranthene	0.78	0.78	0.8
Benzo[ghi]perylene	6.6	6.6	9.6
Benzo[k]fluoranthene	0.78	0.78	0.79
Beryllium	4 [a]	4 [a]	8 [a]
Biphenyl 1,1'-	0.05	0.05	0.05
Bis(2-chloroethyl)ether	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-chloroisopropyl)ether	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-ethylhexyl)phthalate	5	5	9.9
Boron (Hot Water Soluble)*	1.5	1.5	2
Boron (total)	120 [a]	120 [a]	120 [a]
Bromodichloromethane	0.05	0.05	0.05
Bromoform	0.05	0.05	0.05
Bromomethane	0.05 [a]	0.05 [a]	0.05 [a]
Cadmium	1	1.2	1.9 [a]
Carbon Tetrachloride	0.05 [a]	0.05 [a]	0.05 [a]
Chlordane	0.05	0.05	0.05
Chloroaniline p-	0.5 [a]	0.5 [a]	0.5 [a]
Chlorobenzene	0.083	0.083	0.083
Chloroform	0.05	0.05	0.05
Chlorophenol, 2-	0.1	0.1	0.1
Chromium Total	160 [a]	160 [a]	160 [a]

Contaminant	Agricultural or Other Property Use	Residential/Parkland/ Institutional Property Use	Industrial/Commercial/ Community Property Use
Chromium VI	8	8	8
Chrysene	0.24	2.8	2.8
Cobalt	22 [a]	22 [a]	80 [a]
Copper	140 [a]	140 [a]	230 [a]
Cyanide (CN-)	0.051	0.051	0.051
Dibenz[a h]anthracene	0.1	0.1	0.1
Dibromochloromethane	0.05	0.05	0.05
Dichlorobenzene, 1,2-	3.4 [a]	3.4 [a]	6.8 [a]
Dichlorobenzene, 1,3-	0.26	0.26	0.26
Dichlorobenzene, 1,4-	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorobenzidine, 3,3'-	1 [a]	1 [a]	1 [a]
Dichlorodifluoromethane	1.5	1.5	1.5
DDD	3.3	3.3	4.6
DDE	0.26	0.26	0.52
DDT	0.078	1.4	1.4
Dichloroethane, 1,1-	0.05	0.05	0.05
Dichloroethane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,1-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-cis-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-trans-	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorophenol, 2,4-	0.1	0.1	0.1
Dichloropropane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloropropene,1,3-	0.05	0.05	0.05
Dieldrin	0.05 [a]	0.05 [a]	0.088 [a]
Diethyl Phthalate	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphthalate	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphenol, 2,4-	0.43	0.43	0.43
Dinitrophenol, 2,4-	2 [a]	2 [a]	2 [a]
Dinitrotoluene, 2,4 & 2,6-	0.5 [a]	0.5 [a]	0.5 [a]
Dioxane, 1,4	0.2 [a]	0.2 [a]	0.2 [a]
Dioxin/Furan (TEQ)	0.000013	0.000013	0.000022
Endosulfan	0.04	0.04	0.04
Endrin	0.04 [a]	0.04 [a]	0.04 [a]
Ethylbenzene	0.05	0.05	0.05
Ethylene dibromide	0.05 [a]	0.05 [a]	0.05 [a]
Fluoranthene	0.29	0.56	0.56

Contaminant	Agricultural or Other Property Use	Residential/Parkland/ Institutional Property Use	Industrial/Commercial/ Community Property Use
Fluorene	6.8	6.8	6.8
Heptachlor	0.072	0.072	0.072
Heptachlor Epoxide	0.05 [a]	0.05 [a]	0.05 [a]
Hexachlorobenzene	0.034	0.034	0.034
Hexachlorobutadiene	0.01	0.01	0.01
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01
Hexachloroethane	0.01	0.01	0.01
Hexane (n)	2.5	2.5	2.5
Indeno[1 2 3-cd]pyrene	0.38	0.38	0.76
Lead	45	120	120
Mercury	0.24	0.27	0.27
Methoxychlor	0.13	0.13	0.19
Methyl Ethyl Ketone	0.5	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5	0.5
Methyl Mercury **	0.00097	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.05	0.05	0.05
Methylene Chloride	0.05	0.05	0.05
Methlynaphthalene, 2-(1-) ***	0.096	0.59	0.59
Molybdenum	6.9 [a]	6.9 [a]	40 [a]
Naphthalene	0.18	0.18	0.18
Nickel	100 [a]	100 [a]	270 [a]
Pentachlorophenol	0.1	0.1	0.34
Petroleum Hydrocarbons F1****	17	25	25
Petroleum Hydrocarbons F2	10	10	26
Petroleum Hydrocarbons F3	240	240	240
Petroleum Hydrocarbons F4	2800	2800	3300
Phenanthrene	0.21	0.69	0.69
Phenol	2.4	2.4	2.4
Polychlorinated Biphenyls	0.35	0.35	0.78
Pyrene	6.9	6.9	6.9
Selenium	2.4 [a]	2.4 [a]	5.5 [a]
Silver	20 [a]	20 [a]	40 [a]
Styrene	0.05	0.05	0.05
Tetrachloroethane, 1,1,1,2-	0.05	0.05	0.05
Tetrachloroethane, 1,1,2,2-	0.05 [a]	0.05 [a]	0.05 [a]

Contaminant	Agricultural or Other Property Use	Residential/Parkland/ Institutional Property Use	Industrial/Commercial/ Community Property Use
Tetrachloroethylene	0.05 [a]	0.05 [a]	0.05 [a]
Thallium	1	1	3.3 [a]
Toluene	0.2	0.2	0.2
Trichlorobenzene, 1,2,4-	0.17	0.17	0.51
Trichloroethane, 1,1,1-	0.11	0.11	0.12
Trichloroethane, 1,1,2-	0.05	0.05	0.05
Trichloroethylene	0.05 [a]	0.05 [a]	0.05 [a]
Trichlorofluoromethane	0.17	0.25	0.25
Trichlorophenol, 2,4,5-	0.11	0.11	0.11
Trichlorophenol, 2,4,6-	4.4 [a]	4.4 [a]	10 [a]
Uranium	23 [a]	23 [a]	33 [a]
Vanadium	86	86	86
Vinyl Chloride	0.02	0.02	0.02
Xylene Mixture	0.091	0.091	0.091
Zinc	340 [a]	340 [a]	340 [a]
Electrical Conductivity (mS/cm)	0.7	0.7	1.4
Sodium Adsorption Ratio	5	5	12

Notes:

[a]: Leachate analysis is required only for chemicals that are identified as chemicals of potential concern in excess soil

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 3.1: Full Depth Excess Soil Reuse Standards in A Non-Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	7.8	8.5
Acenaphthylene	0.093	0.093
Acetone	1.8	1.8
Aldrin	0.05	0.088
Anthracene	0.16	0.16
Antimony	7.5	40
Arsenic	18	18
Barium	390 [a]	670 [a]
Benzene	0.02	0.034
Benz[a]anthracene	0.5	0.96
Benzo[a]pyrene	0.3	0.3
Benzo[b]fluoranthene	0.78	0.96
Benzo[ghi]perylene	6.6	9.6
Benzo[k]fluoranthene	0.78	0.96
Beryllium	4 [a]	8 [a]
Biphenyl 1,1'-	0.3	21
Bis(2-chloroethyl)ether	0.5	0.5
Bis(2-chloroisopropyl)ether	0.5	11
Bis(2-ethylhexyl)phthalate	5	28
Boron (Hot Water Soluble)*	1.5	2
Boron (total)	120	120
Bromodichloromethane	5.8	5.8
Bromoform	2.5	2.5
Bromomethane	0.05 [a]	0.05 [a]
Cadmium	1.2	1.9 [a]
Carbon Tetrachloride	0.05 [a]	0.05 [a]
Chlordane	0.05	0.05
Chloroaniline p-	0.5	0.5
Chlorobenzene	0.28	0.28
Chloroform	0.08	0.26
Chlorophenol, 2-	1.6	2.3
Chromium Total	160 [a]	160 [a]

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chromium VI	8	8
Chrysene	7	9.6
Cobalt	22 [a]	80 [a]
Copper	140 [a]	230 [a]
Cyanide (CN-)	0.051	0.051
Dibenz[a h]anthracene	0.1	0.1
Dibromochloromethane	5.5	5.5
Dichlorobenzene, 1,2-	3.4	6.8
Dichlorobenzene, 1,3-	4.8	6.8
Dichlorobenzene, 1,4-	0.05	0.05
Dichlorobenzidine, 3,3'-	1	1
Dichlorodifluoromethane	1.8	1.8
DDD	3.3	4.6
DDE	0.26	0.52
DDT	1.4	1.4
Dichloroethane, 1,1-	0.14	0.57
Dichloroethane, 1,2-	0.05	0.05
Dichloroethylene, 1,1-	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-cis-	0.05	0.05
Dichloroethylene, 1,2-trans-	0.05 [a]	0.05 [a]
Dichlorophenol, 2,4-	1.7	3.4
Dichloropropane, 1,2-	0.05	0.05
Dichloropropene,1,3-	0.05	0.05
Dieldrin	0.05 [a]	0.088 [a]
Diethyl Phthalate	0.5 [a]	0.5 [a]
Dimethylphthalate	0.5 [a]	0.5 [a]
Dimethylphenol, 2,4-	45	45
Dinitrophenol, 2,4-	6.7	6.7
Dinitrotoluene, 2,4 & 2,6-	0.92	1.2
Dioxane, 1,4	1.8	1.8
Dioxin/Furan (TEQ)	0.000013	0.000099
Endosulfan	0.04	0.04
Endrin	0.04 [a]	0.04 [a]
Ethylbenzene	1.9	1.9
Ethylene dibromide	0.05 [a]	0.05 [a]
Fluoranthene	0.69	9.6

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Fluorene	6.8	6.8
Heptachlor	0.072	0.072
Heptachlor Epoxide	0.05 [a]	0.05 [a]
Hexachlorobenzene	0.52	0.66
Hexachlorobutadiene	0.01	0.01
Hexachlorocyclohexane Gamma-	0.01	0.01
Hexachloroethane	0.01	0.13
Hexane (n)	2.5	2.5
Indeno[1 2 3-cd]pyrene	0.38	0.76
Lead	120	120
Mercury	0.27	0.27
Methoxychlor	0.13	0.19
Methyl Ethyl Ketone	14	26
Methyl Isobutyl Ketone	0.89	17
Methyl Mercury **	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.05	0.05
Methylene Chloride	0.06	0.2
Methlynaphthalene, 2-(1-) ***	0.92	8.7
Molybdenum	6.9	40 [a]
Naphthalene	0.59	1.8
Nickel	100 [a]	270 [a]
Pentachlorophenol	0.1	0.34
Petroleum Hydrocarbons F1****	25	25
Petroleum Hydrocarbons F2	10	26
Petroleum Hydrocarbons F3	300	1700
Petroleum Hydrocarbons F4	2800	3300
Phenanthrene	6.2	12
Phenol	5.3	5.3
Polychlorinated Biphenyls	0.35	0.78
Pyrene	70	70
Selenium	2.4 [a]	5.5 [a]
Silver	20 [a]	40 [a]
Styrene	0.5	6.8
Tetrachloroethane, 1,1,1,2-	0.05	0.05

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Tetrachloroethane, 1,1,2,2-	0.05	0.05
Tetrachloroethylene	0.05 [a]	0.05 [a]
Thallium	1	3.3 [a]
Toluene	0.99	7.8
Trichlorobenzene, 1,2,4-	0.17	1.3
Trichloroethane, 1,1,1-	0.11	0.4
Trichloroethane, 1,1,2-	0.05	0.05
Trichloroethylene	0.05 [a]	0.05 [a]
Trichlorofluoromethane	0.46	0.46
Trichlorophenol, 2,4,5-	3.1	3.1
Trichlorophenol, 2,4,6-	0.43	0.43
Uranium	23 [a]	33 [a]
Vanadium	86	86
Vinyl Chloride	0.02	0.02
Xylene Mixture	0.9	3
Zinc	340 [a]	340 [a]
Electrical Conductivity (mS/cm)	0.7	1.4
Sodium Adsorption Ratio	5	12

Notes:

[a]: Leachate analysis is required only for chemicals that are identified as chemicals of potential concern in excess soil

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 4.1: Stratified Excess Soil Reuse Standards in A Potable Ground Water Condition

Volume Independent

(Unit in μg/g)

Contaminant	Residential/ Parkland/Institutional Property Use		Industrial/ Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Acenaphthene	0.25	0.25	0.25	0.25
Acenaphthylene	0.093	0.093	0.093	0.093
Acetone	0.5	0.5	0.5	0.5
Aldrin	0.05	0.37	0.088	0.37
Anthracene	0.16	0.16	0.16	0.16
Antimony	7.5 [a]	63 [a]	40 [a]	63 [a]
Arsenic	18	18	18	47 [a]
Barium	390 [a]	7700 [a]	670 [a]	7700 [a]
Benzene	0.02	0.02	0.02	0.02
Benz[a]anthracene	0.5	0.96	0.96	2.3
Benzo[a]pyrene	0.3	0.3	0.3	0.3
Benzo[b]fluoranthene	0.78	0.8	0.8	0.8
Benzo[ghi]perylene	6.6	9.6	9.6	27
Benzo[k]fluoranthene	0.78	0.79	0.79	0.79
Beryllium	4 [a]	60 [a]	8 [a]	60 [a]
Biphenyl 1,1'-	0.05	0.05	0.05	0.05
Bis(2-chloroethyl)ether	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-chloroisopropyl)ether	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-ethylhexyl)phthalate	5	9.9	9.9	9.9
Boron (Hot Water Soluble)*	1.5	NA	2	NA
Boron (total)	NA	5000 [a]	NA	5000 [a]
Bromodichloromethane	0.05	0.05	0.05	0.05
Bromoform	0.05	0.05	0.05	0.05
Bromomethane	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Cadmium	1.2	7.9 [a]	1.9 [a]	7.9 [a]
Carbon Tetrachloride	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Chlordane	0.05	0.8	0.05	3.4
Chloroaniline p-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Chlorobenzene	0.083	0.083	0.083	0.083
Chloroform	0.05	0.05	0.05	0.05
Chlorophenol, 2-	0.1	0.1	0.1	0.1

Contaminant	Residential/ Parkland/Institutional Property Use		Industrial/ Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Chromium Total	160 [a]	11000 [a]	160 [a]	11000 [a]
Chromium VI	8	40	8	40
Chrysene	2.8	2.8	2.8	2.8
Cobalt	22 [a]	250 [a]	80 [a]	2500 [a]
Copper	140 [a]	1900 [a]	230 [a]	1900 [a]
Cyanide (CN-)	0.051	0.051	0.051	0.051
Dibenz[a h]anthracene	0.1	0.1	0.1	0.26
Dibromochloromethane	0.05	0.05	0.05	0.05
Dichlorobenzene, 1,2-	3.4 [a]	4.9 [a]	6.8 [a]	14 [a]
Dichlorobenzene, 1,3-	0.26	0.26	0.26	0.26
Dichlorobenzene, 1,4-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorobenzidine, 3,3'-	1 [a]	1 [a]	1 [a]	1 [a]
Dichlorodifluoromethane	1.5	1.5	1.5	1.5
DDD	3.3	4.6	4.6	15
DDE	0.26	3.2	0.52	15
DDT	1.4	3.2	1.4	22
Dichloroethane, 1,1-	0.05	0.05	0.05	0.05
Dichloroethane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,1-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-cis-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-trans-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorophenol, 2,4-	0.1	0.1	0.1	0.1
Dichloropropane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichloropropene,1,3-	0.05	0.05	0.05	0.05
Dieldrin	0.05 [a]	7.9 [a]	0.088 [a]	12 [a]
Diethyl Phthalate	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphthalate	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphenol, 2,4-	0.43	0.43	0.43	0.43
Dinitrophenol, 2,4-	2 [a]	2 [a]	2 [a]	2 [a]
Dinitrotoluene, 2,4 & 2,6-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dioxane, 1,4	0.2 [a]	0.2 [a]	0.2 [a]	0.2 [a]
Dioxin/Furan (TEQ)	0.000013	0.000022	0.000022	0.000022
Endosulfan	0.04	0.04	0.04	0.04
Endrin	0.04 [a]	7.8 [a]	0.04 [a]	7.8 [a]
Ethylbenzene	0.05	0.05	0.05	0.05

Contaminant	Residential/ Parkland/Institutional Property Use		Industrial/ Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Ethylene dibromide	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Fluoranthene	0.56	0.56	0.56	0.56
Fluorene	6.8	6.8	6.8	6.8
Heptachlor	0.072	0.072	0.072	0.072
Heptachlor Epoxide	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Hexachlorobenzene	0.034	0.034	0.034	0.034
Hexachlorobutadiene	0.01	0.01	0.01	0.01
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01	0.01
Hexachloroethane	0.01	0.01	0.01	0.01
Hexane (n)	2.5	2.5	2.5	2.5
Indeno[1 2 3-cd]pyrene	0.38	0.96	0.76	2.7
Lead	120	1000 [a]	120	1000 [a]
Mercury	0.27	0.27	0.27	1.9
Methoxychlor	0.13	0.19	0.19	0.19
Methyl Ethyl Ketone	0.5	0.5	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5	0.5	0.5
Methyl Mercury **	0.00097	0.00097	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.05	0.05	0.05	0.05
Methylene Chloride	0.05	0.05	0.05	0.05
Methlynaphthalene, 2-(1-) ***	0.59	0.59	0.59	0.59
Molybdenum	6.9 [a]	1200 [a]	40 [a]	1200 [a]
Naphthalene	0.18	0.18	0.18	0.18
Nickel	100 [a]	510 [a]	270 [a]	510 [a]
Pentachlorophenol	0.1	0.34	0.34	0.34
Petroleum Hydrocarbons F1****	25	25	25	25
Petroleum Hydrocarbons F2	10	10	26	26
Petroleum Hydrocarbons F3	240	240	240	240
Petroleum Hydrocarbons F4	2800	6900	3300	6900
Phenanthrene	0.69	0.69	0.69	0.69
Phenol	2.4	2.4	2.4	2.4
Polychlorinated Biphenyls	0.35	2.7	0.78	4.1
Pyrene	6.9	6.9	6.9	6.9

Contaminant	Residential/ Parkland/Institutional Property Use		Industrial/ Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Selenium	2.4 [a]	1200 [a]	5.5 [a]	1200 [a]
Silver	20 [a]	490 [a]	40 [a]	490 [a]
Styrene	0.05	0.05	0.05	0.05
Tetrachloroethane, 1,1,1,2-	0.05	0.05	0.05	0.05
Tetrachloroethane, 1,1,2,2-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Tetrachloroethylene	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Thallium	1	3.3 [a]	3.3 [a]	33 [a]
Toluene	0.2	0.2	0.2	0.2
Trichlorobenzene, 1,2,4-	0.17	0.17	0.51	0.51
Trichloroethane, 1,1,1-	0.11	0.11	0.12	0.12
Trichloroethane, 1,1,2-	0.05	0.05	0.05	0.05
Trichloroethylene	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Trichlorofluoromethane	0.25	0.25	0.25	0.25
Trichlorophenol, 2,4,5-	0.11	0.11	0.11	0.11
Trichlorophenol, 2,4,6-	4.4 [a]	24 [a]	10 [a]	24 [a]
Uranium	23 [a]	300 [a]	33 [a]	300 [a]
Vanadium	86	160 [a]	86	160 [a]
Vinyl Chloride	0.02	0.02	0.02	0.02
Xylene Mixture	0.091	0.091	0.091	0.091
Zinc	340 [a]	15000 [a]	340 [a]	15000 [a]
Electrical Conductivity (mS/cm)	0.7	0.7	1.4	1.4
Sodium Adsorption Ratio	5	5	12	12

Notes:

NA: Not Applicable; [a]: Leachate analysis is required only for chemicals that are identified as chemicals of potential concern in excess soil

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 5.1: Stratified Excess Soil Reuse Standards in A Non-Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Acenaphthene	7.8	7.8	8.5	37
Acenaphthylene	0.093	0.093	0.093	0.093
Acetone	1.8	1.8	1.8	1.8
Aldrin	0.05	4.7	0.088	6.3
Anthracene	0.16	0.16	0.16	0.16
Antimony	7.5	63	40	63
Arsenic	18	18	18	47 [a]
Barium	390 [a]	7700 [a]	670 [a]	7700 [a]
Benzene	0.02	0.02	0.034	0.077
Benz[a]anthracene	0.5	0.96	0.96	36
Benzo[a]pyrene	0.3	0.3	0.3	3.6
Benzo[b]fluoranthene	0.78	0.96	0.96	36
Benzo[ghi]perylene	6.6	9.6	9.6	360
Benzo[k]fluoranthene	0.78	0.96	0.96	36
Beryllium	4 [a]	60 [a]	8 [a]	60 [a]
Biphenyl 1,1'-	0.3	11	21	21
Bis(2-chloroethyl)ether	0.5	0.5	0.5	11
Bis(2-chloroisopropyl)ether	0.5	11	11	11
Bis(2-ethylhexyl)phthalate	5	7100	28	7100
Boron (Hot Water Soluble)*	1.5	NA	2	NA
Boron (total)	NA	5000 [a]	NA	5000 [a]
Bromodichloromethane	5.8	5.8	5.8	5.8
Bromoform	2.5	2.5	2.5	2.5
Bromomethane	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Cadmium	1.2	7.9 [a]	1.9 [a]	7.9 [a]
Carbon Tetrachloride	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Chlordane	0.05	0.8	0.05	3.4
Chloroaniline p-	0.5	0.5	0.5	0.5
Chlorobenzene	0.28	0.28	0.28	0.28
Chloroform	0.08	0.08	0.26	0.26
Chlorophenol, 2-	1.6	2.3	2.3	2.3

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Chromium Total	160 [a]	11000 [a]	160 [a]	11000 [a]
Chromium VI	8	40	8	40
Chrysene	7	9.6	9.6	360
Cobalt	22 [a]	250 [a]	80 [a]	2500 [a]
Copper	140 [a]	1900 [a]	230 [a]	1900 [a]
Cyanide (CN-)	0.051	0.051	0.051	0.051
Dibenz[a h]anthracene	0.1	0.1	0.1	3.6
Dibromochloromethane	5.5	5.5	5.5	5.5
Dichlorobenzene, 1,2-	3.4	4.9	6.8	6.9
Dichlorobenzene, 1,3-	4.8	6.8	6.8	6.8
Dichlorobenzene, 1,4-	0.05	0.05	0.05	0.05
Dichlorobenzidine, 3,3'-	1	1	1	7.5
Dichlorodifluoromethane	1.8	1.8	1.8	1.8
DDD	3.3	4.6	4.6	110
DDE	0.26	3.2	0.52	110
DDT	1.4	3.2	1.4	110
Dichloroethane, 1,1-	0.14	0.14	0.57	0.57
Dichloroethane, 1,2-	0.05	0.05	0.05	0.05
Dichloroethylene, 1,1-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-cis-	0.05	0.05	0.05	0.05
Dichloroethylene, 1,2-trans-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorophenol, 2,4-	1.7	5.3	3.4	5.3
Dichloropropane, 1,2-	0.05	0.05	0.05	0.05
Dichloropropene,1,3-	0.05	0.05	0.05	0.05
Dieldrin	0.05 [a]	7.9 [a]	0.088 [a]	12 [a]
Diethyl Phthalate	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphthalate	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphenol, 2,4-	45	45	45	45
Dinitrophenol, 2,4-	6.7	6.7	6.7	6.7
Dinitrotoluene, 2,4 & 2,6-	0.92	1.2	1.2	1.7
Dioxane, 1,4	1.8	92	1.8	92
Dioxin/Furan (TEQ)	0.000013	0.00051	0.000099	0.0044
Endosulfan	0.04	0.04	0.04	0.04
Endrin	0.04 [a]	7.8 [a]	0.04 [a]	7.8 [a]
Ethylbenzene	1.9	1.9	1.9	1.9

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Ethylene dibromide	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Fluoranthene	0.69	9.6	9.6	360
Fluorene	6.8	6.8	6.8	6.8
Heptachlor	0.072	0.072	0.072	0.072
Heptachlor Epoxide	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Hexachlorobenzene	0.52	0.66	0.66	1.6
Hexachlorobutadiene	0.01	0.01	0.01	0.01
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01	0.01
Hexachloroethane	0.01	0.01	0.13	0.22
Hexane (n)	2.5	2.5	2.5	2.5
Indeno[1 2 3-cd]pyrene	0.38	0.96	0.76	36
Lead	120	1000 [a]	120	1000 [a]
Mercury	0.27	0.27	0.27	1.9
Methoxychlor	0.13	0.19	0.19	0.19
Methyl Ethyl Ketone	14	16	26	26
Methyl Isobutyl Ketone	0.89	6.6	17	17
Methyl Mercury **	0.00097	0.00097	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.05	0.05	0.05	0.05
Methylene Chloride	0.06	0.06	0.2	0.2
Methlynaphthalene, 2-(1-) ***	0.92	8.7	8.7	8.7
Molybdenum	6.9	1200 [a]	40 [a]	1200 [a]
Naphthalene	0.59	0.59	1.8	23
Nickel	100 [a]	510 [a]	270 [a]	510 [a]
Pentachlorophenol	0.1	0.34	0.34	0.34
Petroleum Hydrocarbons F1****	25	25	25	25
Petroleum Hydrocarbons F2	10	10	26	26
Petroleum Hydrocarbons F3	300	5800	1700	5800
Petroleum Hydrocarbons F4	2800	6900	3300	6900
Phenanthrene	6.2	23	12	23
Phenol	5.3	5.3	5.3	5.3
Polychlorinated Biphenyls	0.35	2.7	0.78	4.1
Pyrene	70	70	70	70
Selenium	2.4 [a]	1200 [a]	5.5 [a]	1200 [a]

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Silver	20 [a]	490 [a]	40 [a]	490 [a]
Styrene	0.5	1.6	6.8	6.8
Tetrachloroethane, 1,1,1,2-	0.05	0.05	0.05	0.05
Tetrachloroethane, 1,1,2,2-	0.05	0.05	0.05	0.05
Tetrachloroethylene	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Thallium	1	3.3 [a]	3.3 [a]	33 [a]
Toluene	0.99	6.2	7.8	7.8
Trichlorobenzene, 1,2,4-	0.17	0.17	1.3	1.3
Trichloroethane, 1,1,1-	0.11	0.11	0.4	0.4
Trichloroethane, 1,1,2-	0.05	0.05	0.05	0.05
Trichloroethylene	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Trichlorofluoromethane	0.46	0.46	0.46	0.46
Trichlorophenol, 2,4,5-	3.1	3.1	3.1	3.1
Trichlorophenol, 2,4,6-	0.43	0.43	0.43	0.43
Uranium	23 [a]	300 [a]	33 [a]	300 [a]
Vanadium	86	160 [a]	86	160 [a]
Vinyl Chloride	0.02	0.02	0.02	0.02
Xylene Mixture	0.9	0.9	3	3
Zinc	340 [a]	15000 [a]	340 [a]	15000 [a]
Electrical Conductivity (mS/cm)	0.7	0.7	1.4	1.4
Sodium Adsorption Ratio	5	5	12	12

Notes:

NA: Not Applicable; [a]: Leachate analysis is required only for chemicals that are identified as chemicals of potential concern in excess soil

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 6.1: Full Depth Excess Soil Reuse Standards for Shallow Soils in A Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/ Community Property Use
Acenaphthene	0.25	0.25	0.25
Acenaphthylene	0.093	0.093	0.093
Acetone	0.5	0.5	0.5
Aldrin	0.05	0.05	0.088
Anthracene	0.05	0.16	0.16
Antimony	7.5 [a]	7.5 [a]	40 [a]
Arsenic	11	18	18
Barium	390 [a]	390 [a]	670 [a]
Benzene	0.02	0.02	0.02
Benz[a]anthracene	0.5	0.5	0.83
Benzo[a]pyrene	0.078	0.3	0.3
Benzo[b]fluoranthene	0.78	0.78	0.8
Benzo[ghi]perylene	1.1	1.1	1.1
Benzo[k]fluoranthene	0.78	0.78	0.79
Beryllium	4 [a]	4 [a]	8 [a]
Biphenyl 1,1'-	0.05	0.05	0.05
Bis(2-chloroethyl)ether	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-chloroisopropyl)ether	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-ethylhexyl)phthalate	5	5	9.9
Boron (Hot Water Soluble)*	1.5	1.5	2
Boron (total)	120 [a]	120 [a]	120 [a]
Bromodichloromethane	0.05	0.05	0.05
Bromoform	0.05	0.05	0.05
Bromomethane	0.05 [a]	0.05 [a]	0.05 [a]
Cadmium	1	1.2	1.9 [a]
Carbon Tetrachloride	0.05 [a]	0.05 [a]	0.05 [a]
Chlordane	0.05	0.05	0.05
Chloroaniline p-	0.5 [a]	0.5 [a]	0.5 [a]
Chlorobenzene	0.083	0.083	0.083
Chloroform	0.05 [a]	0.05 [a]	0.05 [a]
Chlorophenol, 2-	0.1	0.1	0.1

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/ Community Property Use
Chromium Total	160 [a]	160 [a]	160 [a]
Chromium VI	8	8	8
Chrysene	0.24	2.8	2.8
Cobalt	22 [a]	22 [a]	80 [a]
Copper	140 [a]	140 [a]	230 [a]
Cyanide (CN-)	0.051	0.051	0.051
Dibenz[a h]anthracene	0.1	0.1	0.1
Dibromochloromethane	0.05	0.05	0.05
Dichlorobenzene, 1,2-	3.4 [a]	3.4 [a]	6.8 [a]
Dichlorobenzene, 1,3-	0.26	0.26	0.26
Dichlorobenzene, 1,4-	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorobenzidine, 3,3'-	1 [a]	1 [a]	1 [a]
Dichlorodifluoromethane	1.5	1.5	1.5
DDD	0.55	0.55	0.55
DDE	0.26	0.26	0.52
DDT	0.078	1.4	1.4
Dichloroethane, 1,1-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,1-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-cis-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-trans-	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorophenol, 2,4-	0.1	0.1	0.1
Dichloropropane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloropropene,1,3-	0.05 [a]	0.05 [a]	0.05 [a]
Dieldrin	0.05 [a]	0.05 [a]	0.088 [a]
Diethyl Phthalate	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphthalate	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphenol, 2,4-	0.43	0.43	0.43
Dinitrophenol, 2,4-	2 [a]	2 [a]	2 [a]
Dinitrotoluene, 2,4 & 2,6-	0.5 [a]	0.5 [a]	0.5 [a]
Dioxane, 1,4	0.2 [a]	0.2 [a]	0.2 [a]
Dioxin/Furan (TEQ)	0.000013	0.000013	0.000022
Endosulfan	0.04	0.04	0.04
Endrin	0.04 [a]	0.04 [a]	0.04
Ethylbenzene	0.05	0.05	0.05
Ethylene dibromide	0.05 [a]	0.05 [a]	0.05 [a]

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/ Community Property Use
Fluoranthene	0.29	0.56	0.56
Fluorene	6.6	6.6	6.6
Heptachlor	0.05 [a]	0.05 [a]	0.05 [a]
Heptachlor Epoxide	0.05 [a]	0.05 [a]	0.05 [a]
Hexachlorobenzene	0.034	0.034	0.034
Hexachlorobutadiene	0.01	0.01	0.01
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01
Hexachloroethane	0.01	0.01	0.01
Hexane (n)	0.05	0.05	0.05
Indeno[1 2 3-cd]pyrene	0.38	0.38	0.76
Lead	45	120	120
Mercury	0.16	0.27	0.27
Methoxychlor	0.05	0.05	0.05
Methyl Ethyl Ketone	0.5	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5	0.5
Methyl Mercury **	0.00097	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.05	0.05	0.05
Methylene Chloride	0.05	0.05	0.05
Methlynaphthalene, 2-(1-) ***	0.096	0.59	0.59
Molybdenum	6.9 [a]	6.9 [a]	40 [a]
Naphthalene	0.081	0.09	0.09
Nickel	100 [a]	100 [a]	270 [a]
Pentachlorophenol	0.1	0.1	0.34
Petroleum Hydrocarbons F1****	17	25	25
Petroleum Hydrocarbons F2	10	10	10
Petroleum Hydrocarbons F3	240	240	240
Petroleum Hydrocarbons F4	2800	2800	3300
Phenanthrene	0.21	0.69	0.69
Phenol	2.4	2.4	2.4
Polychlorinated Biphenyls	0.3	0.3	0.3
Pyrene	0.79	1	1
Selenium	2.4 [a]	2.4 [a]	5.5 [a]
Silver	20 [a]	20 [a]	40 [a]
Styrene	0.05	0.05	0.05
Tetrachloroethane, 1,1,1,2-	0.05 [a]	0.05 [a]	0.05 [a]

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/ Community Property Use
Tetrachloroethane, 1,1,2,2-	0.05 [a]	0.05 [a]	0.05 [a]
Tetrachloroethylene	0.05 [a]	0.05 [a]	0.05 [a]
Thallium	1	1	3.3 [a]
Toluene	0.2	0.2	0.2
Trichlorobenzene, 1,2,4-	0.05	0.05	0.05
Trichloroethane, 1,1,1-	0.05	0.05	0.05
Trichloroethane, 1,1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Trichloroethylene	0.05 [a]	0.05 [a]	0.05 [a]
Trichlorofluoromethane	0.17	0.25	0.25
Trichlorophenol, 2,4,5-	0.11	0.11	0.11
Trichlorophenol, 2,4,6-	4.4 [a]	4.4 [a]	10 [a]
Uranium	23 [a]	23 [a]	33 [a]
Vanadium	86	86	86
Vinyl Chloride	0.02	0.02	0.02
Xylene Mixture	0.091	0.091	0.091
Zinc	340 [a]	340 [a]	340 [a]
Electrical Conductivity (mS/cm)	0.7	0.7	1.4
Sodium Adsorption Ratio	5	5	12

Notes:

[a]: Leachate analysis is required only for chemicals that are identified as chemicals of potential concern in excess soil

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 7.1: Full Depth Excess Soil Reuse Standards for Shallow Soils in A Non-Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	1	1
Acenaphthylene	0.093	0.093
Acetone	1.8	1.8
Aldrin	0.05	0.088
Anthracene	0.16	0.16
Antimony	7.5	40
Arsenic	18	18
Barium	390 [a]	670 [a]
Benzene	0.02	0.02
Benz[a]anthracene	0.5	0.83
Benzo[a]pyrene	0.3	0.3
Benzo[b]fluoranthene	0.78	0.96
Benzo[ghi]perylene	1.1	1.1
Benzo[k]fluoranthene	0.78	0.96
Beryllium	4 [a]	8 [a]
Biphenyl 1,1'-	0.3	21
Bis(2-chloroethyl)ether	0.5	0.5
Bis(2-chloroisopropyl)ether	0.5	11
Bis(2-ethylhexyl)phthalate	5	9.9
Boron (Hot Water oluble)*	1.5	2
Boron (total)	120	120
Bromodichloromethane	5.8	5.8
Bromoform	2.5	2.5
Bromomethane	0.05 [a]	0.05 [a]
Cadmium	1.2	1.9 [a]
Carbon Tetrachloride	0.05 [a]	0.05 [a]
Chlordane	0.05	0.05
Chloroaniline p-	0.5	0.5
Chlorobenzene	0.28	0.28
Chloroform	0.05 [a]	0.05 [a]
Chlorophenol, 2-	1.6	2.3

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chromium Total	160 [a]	160 [a]
Chromium VI	8	8
Chrysene	2.8	2.8
Cobalt	22 [a]	80 [a]
Copper	140 [a]	230 [a]
Cyanide (CN-)	0.051	0.051
Dibenz[a h]anthracene	0.1	0.1
Dibromochloromethane	5.5	5.5
Dichlorobenzene, 1,2-	0.69	0.69
Dichlorobenzene, 1,3-	4.8	6.8
Dichlorobenzene, 1,4-	0.05	0.05
Dichlorobenzidine, 3,3'-	1	1
Dichlorodifluoromethane	1.8	1.8
DDD	0.55	0.55
DDE	0.26	0.52
DDT	1.4	1.4
Dichloroethane, 1,1-	0.14 [a]	2.3 [a]
Dichloroethane, 1,2-	0.05 [a]	0.05 [a]
Dichloroethylene, 1,1-	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-cis-	0.05	0.05
Dichloroethylene, 1,2-trans-	0.05 [a]	0.05 [a]
Dichlorophenol, 2,4-	1.7	3.4
Dichloropropane, 1,2-	0.05 [a]	0.05 [a]
Dichloropropene,1,3-	0.05 [a]	0.05 [a]
Dieldrin	0.05 [a]	0.088 [a]
Diethyl Phthalate	0.5 [a]	0.5 [a]
Dimethylphthalate	0.5 [a]	0.5 [a]
Dimethylphenol, 2,4-	45	45
Dinitrophenol, 2,4-	6.7	6.7
Dinitrotoluene, 2,4 & 2,6-	0.92	1.2
Dioxane, 1,4	1.8	1.8
Dioxin/Furan (TEQ)	0.000013	0.000029
Endosulfan	0.04	0.04
Endrin	0.04 [a]	0.04 [a]
Ethylbenzene	0.6	0.6
Ethylene dibromide	0.05 [a]	0.05 [a]

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Fluoranthene	0.69	9.6
Fluorene	6.6	6.6
Heptachlor	0.05 [a]	0.05 [a]
Heptachlor Epoxide	0.05 [a]	0.05 [a]
Hexachlorobenzene	0.52	0.66
Hexachlorobutadiene	0.01	0.01
Hexachlorocyclohexane Gamma-	0.01	0.01
Hexachloroethane	0.01	0.01
Hexane (n)	0.05	0.05
Indeno[1 2 3-cd]pyrene	0.38	0.76
Lead	120	120
Mercury	0.27	0.27
Methoxychlor	0.05	0.05
Methyl Ethyl Ketone	2.3	2.3
Methyl Isobutyl Ketone	0.89	0.93
Methyl Mercury **	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.05	0.05
Methylene Chloride	0.05	0.05
Methlynaphthalene, 2-(1-) ***	0.92	8.7
Molybdenum	6.9	40 [a]
Naphthalene	0.09	0.09
Nickel	100 [a]	270 [a]
Pentachlorophenol	0.1	0.34
Petroleum Hydrocarbons F1****	25	25
Petroleum Hydrocarbons F2	10	10
Petroleum Hydrocarbons F3	300	1700
Petroleum Hydrocarbons F4	2800	3300
Phenanthrene	6.2	12
Phenol	5.3	5.3
Polychlorinated Biphenyls	0.3	0.3
Pyrene	1	1
Selenium	2.4 [a]	5.5 [a]
Silver	20 [a]	40 [a]
Styrene	0.23	0.23

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Tetrachloroethane, 1,1,1,2-	0.05 [a]	0.05 [a]
Tetrachloroethane, 1,1,2,2-	0.05 [a]	0.05 [a]
Tetrachloroethylene	0.05 [a]	0.05 [a]
Thallium	1	3.3 [a]
Toluene	0.88	0.88
Trichlorobenzene, 1,2,4-	0.05	0.05
Trichloroethane, 1,1,1-	0.05	0.05
Trichloroethane, 1,1,2-	0.05 [a]	0.05 [a]
Trichloroethylene	0.05 [a]	0.05 [a]
Trichlorofluoromethane	0.46	0.46
Trichlorophenol, 2,4,5-	3.1	3.1
Trichlorophenol, 2,4,6-	0.43	0.43
Uranium	23 [a]	33 [a]
Vanadium	86	86
Vinyl Chloride	0.02	0.02
Xylene Mixture	0.12	0.12
Zinc	340 [a]	340 [a]
Electrical Conductivity (mS/cm)	0.7	1.4
Sodium Adsorption Ratio	5	12

Notes:

[a]: Leachate analysis is required only for chemicals that are identified as chemicals of potential concern in excess soil

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 8.1: Full Depth Excess Soil Reuse Standards for Use within 30 m of A Water Body in A Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/ Community Property Use
Acenaphthene	0.05	0.072	0.072
Acenaphthylene	0.093	0.093	0.093
Acetone	0.5	0.5	0.5
Aldrin	0.05	0.05	0.05
Anthracene	0.05	0.16	0.16
Antimony	1	1.3	1.3
Arsenic	11	18	18
Barium	210	220	220
Benzene	0.02	0.02	0.02
Benz[a]anthracene	0.32	0.36	0.36
Benzo[a]pyrene	0.078	0.3	0.3
Benzo[b]fluoranthene	0.3	0.47	0.47
Benzo[ghi]perylene	0.2	0.68	0.68
Benzo[k]fluoranthene	0.24	0.48	0.48
Beryllium	2.5	2.5	2.5
Biphenyl 1,1'-	0.05	0.05	0.05
Bis(2-chloroethyl)ether	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-chloroisopropyl)ether	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-ethylhexyl)phthalate	5	5	5
Boron (Hot Water Soluble)*	1.5	1.5	1.5
Boron (total)	36	36	36
Bromodichloromethane	0.05	0.05	0.05
Bromoform	0.05	0.05	0.05
Bromomethane	0.05 [a]	0.05 [a]	0.05 [a]
Cadmium	1	1.2	1.2
Carbon Tetrachloride	0.05 [a]	0.05 [a]	0.05 [a]
Chlordane	0.05	0.05	0.05
Chloroaniline p-	0.5 [a]	0.5 [a]	0.5 [a]
Chlorobenzene	0.05	0.05	0.05
Chloroform	0.05	0.05	0.05
Chlorophenol, 2-	0.1	0.1	0.1

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/ Community Property Use
Chromium Total	67	70	70
Chromium VI	0.66	0.66	0.66
Chrysene	0.24	2.8	2.8
Cobalt	22 [a]	22 [a]	40 [a]
Copper	62	92	92
Cyanide (CN-)	0.051	0.051	0.051
Dibenz[a h]anthracene	0.1	0.1	0.1
Dibromochloromethane	0.05	0.05	0.05
Dichlorobenzene, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorobenzene, 1,3-	0.05	0.05	0.05
Dichlorobenzene, 1,4-	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorobenzidine, 3,3'-	1 [a]	1 [a]	1 [a]
Dichlorodifluoromethane	0.05	0.05	0.05
DDD	0.05	0.05	0.05
DDE	0.05	0.05	0.05
DDT	0.078	1.4	1.4
Dichloroethane, 1,1-	0.05	0.05	0.05
Dichloroethane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,1-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-cis-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-trans-	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorophenol, 2,4-	0.1	0.1	0.1
Dichloropropane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloropropene,1,3-	0.05	0.05	0.05
Dieldrin	0.05 [a]	0.05 [a]	0.05 [a]
Diethyl Phthalate	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphthalate	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphenol, 2,4-	0.2	0.2	0.2
Dinitrophenol, 2,4-	2 [a]	2 [a]	2 [a]
Dinitrotoluene, 2,4 & 2,6-	0.5 [a]	0.5 [a]	0.5 [a]
Dioxane, 1,4	0.2 [a]	0.2 [a]	0.2 [a]
Dioxin/Furan (TEQ)	0.000007	0.000007	0.000007
Endosulfan	0.04	0.04	0.04
Endrin	0.04 [a]	0.04 [a]	0.04 [a]
Ethylbenzene	0.05	0.05	0.05
Ethylene dibromide	0.05 [a]	0.05 [a]	0.05 [a]

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/ Community Property Use
Fluoranthene	0.29	0.56	0.56
Fluorene	0.19	0.19	0.19
Heptachlor	0.05 [a]	0.05 [a]	0.05 [a]
Heptachlor Epoxide	0.05 [a]	0.05 [a]	0.05 [a]
Hexachlorobenzene	0.02	0.02	0.02
Hexachlorobutadiene	0.01	0.01	0.01
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01
Hexachloroethane	0.01	0.01	0.01
Hexane (n)	0.05	0.05	0.05
Indeno[1 2 3-cd]pyrene	0.2	0.23	0.23
Lead	45	120	120
Mercury	0.2	0.27	0.27
Methoxychlor	0.05	0.05	0.05
Methyl Ethyl Ketone	0.5	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5	0.5
Methyl Mercury **	NV	NV	NV
Methyl tert-Butyl Ether (MTBE)	0.05	0.05	0.05
Methylene Chloride	0.05	0.05	0.05
Methlynaphthalene, 2-(1-) ***	0.05	0.59	0.59
Molybdenum	2	2	2
Naphthalene	0.05	0.09	0.09
Nickel	37	82	82
Pentachlorophenol	0.1	0.1	0.1
Petroleum Hydrocarbons F1****	17	25	25
Petroleum Hydrocarbons F2	10	10	10
Petroleum Hydrocarbons F3	240	240	240
Petroleum Hydrocarbons F4	120	120	120
Phenanthrene	0.21	0.69	0.69
Phenol	0.5	0.5	0.5
Polychlorinated Biphenyls	0.3	0.3	0.3
Pyrene	0.49	1	1
Selenium	1.2	1.5	1.5
Silver	0.5	0.5	0.5
Styrene	0.05	0.05	0.05
Tetrachloroethane, 1,1,1,2-	0.05	0.05	0.05

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/ Community Property Use
Tetrachloroethane, 1,1,2,2-	0.05 [a]	0.05 [a]	0.05 [a]
Tetrachloroethylene	0.05 [a]	0.05 [a]	0.05 [a]
Thallium	1	1	1
Toluene	0.2	0.2	0.2
Trichlorobenzene, 1,2,4-	0.05	0.05	0.05
Trichloroethane, 1,1,1-	0.05	0.05	0.05
Trichloroethane, 1,1,2-	0.05	0.05	0.05
Trichloroethylene	0.05 [a]	0.05 [a]	0.05 [a]
Trichlorofluoromethane	0.05	0.25	0.25
Trichlorophenol, 2,4,5-	0.1	0.1	0.1
Trichlorophenol, 2,4,6-	0.1 [a]	0.1 [a]	0.1 [a]
Uranium	1.9	2.5	2.5
Vanadium	86	86	86
Vinyl Chloride	0.02	0.02	0.02
Xylene Mixture	0.05	0.05	0.05
Zinc	290	290	290
Electrical Conductivity (mS/cm)	0.7	0.7	0.7
Sodium Adsorption Ratio	5	5	5

Notes:

NV: No Value; [a]: Leachate analysis is required only for chemicals that are identified as chemicals of potential concern in excess soil

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 9.1: Full Depth Excess Soil Reuse Standards for Use within 30 m of A Water Body in A Non-Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional/ Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	0.072	0.072
Acenaphthylene	0.093	0.093
Acetone	0.5	0.5
Aldrin	0.05	0.05
Anthracene	0.16	0.16
Antimony	1.3	1.3
Arsenic	18	18
Barium	220	220
Benzene	0.02	0.02
Benz[a]anthracene	0.36	0.36
Benzo[a]pyrene	0.3	0.3
Benzo[b]fluoranthene	0.47	0.47
Benzo[ghi]perylene	0.68	0.68
Benzo[k]fluoranthene	0.48	0.48
Beryllium	2.5	2.5
Biphenyl 1,1'-	0.05	0.05
Bis(2-chloroethyl)ether	0.5	0.5
Bis(2-chloroisopropyl)ether	0.5	0.5
Bis(2-ethylhexyl)phthalate	5	5
Boron (Hot Water Soluble)*	1.5	1.5
Boron (total)	36	36
Bromodichloromethane	0.05	0.05
Bromoform	0.05	0.05
Bromomethane	0.05 [a]	0.05 [a]
Cadmium	1.2	1.2
Carbon Tetrachloride	0.05 [a]	0.05 [a]
Chlordane	0.05	0.05
Chloroaniline p-	0.5	0.5
Chlorobenzene	0.05	0.05
Chloroform	0.05	0.05

Contaminant	Residential/Parkland/Institutional/ Property Use	Industrial/Commercial/Community Property Use
Chlorophenol, 2-	0.1	0.1
Chromium Total	70	70
Chromium VI	0.66	0.66
Chrysene	2.8	2.8
Cobalt	22 [a]	40 [a]
Copper	92	92
Cyanide (CN-)	0.051	0.051
Dibenz[a h]anthracene	0.1	0.1
Dibromochloromethane	0.05	0.05
Dichlorobenzene, 1,2-	0.05	0.05
Dichlorobenzene, 1,3-	0.05	0.05
Dichlorobenzene, 1,4-	0.05	0.05
Dichlorobenzidine, 3,3'-	1	1
Dichlorodifluoromethane	0.05	0.05
DDD	0.05	0.05
DDE	0.05	0.05
DDT	1.4	1.4
Dichloroethane, 1,1-	0.05	0.05
Dichloroethane, 1,2-	0.05	0.05
Dichloroethylene, 1,1-	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-cis-	0.05	0.05
Dichloroethylene, 1,2-trans-	0.05 [a]	0.05 [a]
Dichlorophenol, 2,4-	0.1	0.1
Dichloropropane, 1,2-	0.05	0.05
Dichloropropene,1,3-	0.05	0.05
Dieldrin	0.05 [a]	0.05 [a]
Diethyl Phthalate	0.5 [a]	0.5 [a]
Dimethylphthalate	0.5 [a]	0.5 [a]
Dimethylphenol, 2,4-	0.2	0.2
Dinitrophenol, 2,4-	2	2
Dinitrotoluene, 2,4 & 2,6-	0.5	0.5
Dioxane, 1,4	0.2	0.2
Dioxin/Furan (TEQ)	0.000007	0.000007
Endosulfan	0.04	0.04
Endrin	0.04 [a]	0.04 [a]
Ethylbenzene	0.05	0.05

Contaminant	Residential/Parkland/Institutional/ Property Use	Industrial/Commercial/Community Property Use
Ethylene dibromide	0.05 [a]	0.05 [a]
Fluoranthene	0.69	0.69
Fluorene	0.19	0.19
Heptachlor	0.05 [a]	0.05 [a]
Heptachlor Epoxide	0.05 [a]	0.05 [a]
Hexachlorobenzene	0.02	0.02
Hexachlorobutadiene	0.01	0.01
Hexachlorocyclohexane Gamma-	0.01	0.01
Hexachloroethane	0.01	0.01
Hexane (n)	0.05	0.05
Indeno[1 2 3-cd]pyrene	0.23	0.23
Lead	120	120
Mercury	0.27	0.27
Methoxychlor	0.05	0.05
Methyl Ethyl Ketone	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5
Methyl Mercury **	NV	NV
Methyl tert-Butyl Ether (MTBE)	0.05	0.05
Methylene Chloride	0.05	0.05
Methlynaphthalene, 2-(1-) ***	0.59	0.59
Molybdenum	2	2
Naphthalene	0.09	0.09
Nickel	82	82
Pentachlorophenol	0.1	0.1
Petroleum Hydrocarbons F1****	25	25
Petroleum Hydrocarbons F2	10	10
Petroleum Hydrocarbons F3	240	240
Petroleum Hydrocarbons F4	120	120
Phenanthrene	0.69	0.69
Phenol	0.5	0.5
Polychlorinated Biphenyls	0.3	0.3
Pyrene	1	1

Contaminant	Residential/Parkland/Institutional/ Property Use	Industrial/Commercial/Community Property Use
Selenium	1.5	1.5
Silver	0.5	0.5
Styrene	0.05	0.05
Tetrachloroethane, 1,1,1,2-	0.05	0.05
Tetrachloroethane, 1,1,2,2-	0.05	0.05
Tetrachloroethylene	0.05 [a]	0.05 [a]
Thallium	1	1
Toluene	0.2	0.2
Trichlorobenzene, 1,2,4-	0.05	0.05
Trichloroethane, 1,1,1-	0.05	0.05
Trichloroethane, 1,1,2-	0.05	0.05
Trichloroethylene	0.05 [a]	0.05 [a]
Trichlorofluoromethane	0.25	0.25
Trichlorophenol, 2,4,5-	0.1	0.1
Trichlorophenol, 2,4,6-	0.1	0.1
Uranium	2.5	2.5
Vanadium	86	86
Vinyl Chloride	0.02	0.02
Xylene Mixture	0.05	0.05
Zinc	290	290
Electrical Conductivity (mS/cm)	0.7	0.7
Sodium Adsorption Ratio	5	5

Notes:

NV: No Value; [a]: Leachate analysis is required only for chemicals that are identified as chemicals of potential concern in excess soil

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

APPENDIX 2 GENERIC LEACHATE SCREENING LEVELS FOR EXCESS SOIL REUSE

Introduction

The Ministry incorporated leachate analysis as a mandatory component, for certain tables, to confirm acceptable soil quality for the following conditions:

- when soil to groundwater component values (S-GW1, S-GW2, or S-GW3) are not derived within the development of excess soil reuse standards; and,
- when a soil standard for a chemical is identified as having analytical limitations (as explained in the rationale document).

This appendix provides leachate screening levels organized in a series of look-up tables that are corresponding to the tables of generic excess soil reuse standards, including Table 1 and Table 2.1 to 9.1.

Leachate analysis is not required when Tables 2-9 are used for small volumes of excess soil and therefore LSL are not provided for these Tables.

How to Read These Tables

The tables of leachate screening levels set out prescribed contaminants by listing contaminants in the column of rows that has the heading row entitled "Contaminant". The tables set out prescribed leachate screening levels for these contaminants by indicating in the appropriate locations the maximum concentrations of the in leachate expressed in a number that is to be read as μg/L.

The leachate screening level that is applicable for a type of property can be found in the row named for the contaminant and in the column that has the heading row that indicates the type of property use of the property at which excess soil is reused.

A contaminant that is listed and for which the symbol ^{3} -^{3} appears in the cell, instead of a number representing a maximum concentration, is a contaminant for which leachate analysis is not required for the contaminant in that Table, because neither of the aforementioned conditions which would require leachate analysis are present.

A contaminant that is listed and for which the abbreviation "NA" appears in the cell, instead of a number representing a maximum concentration, is a contaminant for which a standard is not prescribed because no standard is required. The abbreviation "NA" means "not applicable".

Notes for Tables 1 and 2.1 to 9.1

Leachate screening levels presented in this Appendix are associated with their corresponding excess soil reuse standards that are provided in Appendix 1. For example, if Table 2.1 for residential land use presented in Appendix 1 is selected as the appropriate table of excess soil reuse standards, the leachate screening levels of Table 2.1 for residential land use presented in this Appendix must be used.

Any site conditions that may lead to the inappropriateness of the use of the generic excess soil standards at a given property may also result in leachate screening levels not being appropriate for use.
The qualified person must ascertain that the site conditions, as specified in Appendix 1, are appropriate for use of the generic excess soil reuse standards and corresponding leachate screening levels.

For a contaminant in excess soil that originates from an area of potential environmental concern (APEC) and that are identified as a contaminant of potential concern (COPC), if there is a numerical screening level shown in the table being used, leachate analysis requires to be completed. In such cases, leachate screening levels shall be met in order for excess soil reuse standards being met.

TABLE 1: Leachate Screening Levels for Excess Soil Reuse

(Unit in µg/L)

Contaminant	Agricultural and Others Property Use	Residential/Parkland/Institutional and Industrial/Commercial/Community Property Use
Acenaphthene	-	-
Acenaphthylene	-	-
Acetone	-	-
Aldrin	-	-
Anthracene	-	-
Antimony	6	-
Arsenic	-	-
Barium	-	-
Benzene	-	-
Benz[a]anthracene	-	-
Benzo[a]pyrene	-	-
Benzo[b]fluoranthene	-	-
Benzo[ghi]perylene	-	-
Benzo[k]fluoranthene	-	-
Beryllium	-	-
Biphenyl 1,1'-	-	-
Bis(2-chloroethyl)ether	5	5
Bis(2-chloroisopropyl)ether	4	4
Bis(2-ethylhexyl)phthalate	-	-
Boron (Hot Water Soluble)*	-	-
Boron (total)	-	-
Bromodichloromethane	-	-
Bromoform	-	-
Bromomethane	0.5	0.5
Cadmium	-	-
Carbon Tetrachloride	0.2	0.2
Chlordane	-	-
Chloroaniline p-	10	10
Chlorobenzene	-	-
Chloroform	1	1
Chlorophenol, 2-	-	-
Chromium Total	-	-

Contaminant	Agricultural and Others Property Use	Residential/Parkland/Institutional and Industrial/Commercial/Community Property Use
Chromium VI	-	-
Chrysene	-	-
Cobalt	-	-
Copper	-	-
Cyanide (CN-)	-	-
Dibenz[a h]anthracene	-	-
Dibromochloromethane	-	-
Dichlorobenzene, 1,2-	0.55	0.55
Dichlorobenzene, 1,3-	-	-
Dichlorobenzene, 1,4-	0.5	0.5
Dichlorobenzidine, 3,3'-	0.5	0.5
Dichlorodifluoromethane	-	-
DDD	-	-
DDE	-	-
DDT	-	-
Dichloroethane, 1,1-	0.5	0.5
Dichloroethane, 1,2-	0.5	0.5
Dichloroethylene, 1,1-	0.5	0.5
Dichloroethylene, 1,2-cis-	0.5	0.5
Dichloroethylene, 1,2-trans-	0.5	0.5
Dichlorophenol, 2,4-	-	-
Dichloropropane, 1,2-	0.5	0.5
Dichloropropene,1,3-	0.5	0.5
Dieldrin	0.095	0.095
Diethyl Phthalate	2	2
Dimethylphthalate	2	2
Dimethylphenol, 2,4-	-	-
Dinitrophenol, 2,4-	10	10
Dinitrotoluene, 2,4 & 2,6-	5	5
Dioxane, 1,4	2	2
Dioxin/Furan (TEQ)	-	-
Endosulfan	-	-
Endrin	0.061	0.061
Ethylbenzene	-	-
Ethylene dibromide	0.2	0.2

Contaminant	Agricultural and Others Property Use	Residential/Parkland/Institutional and Industrial/Commercial/Community Property Use
Fluoranthene	-	-
Fluorene	-	-
Heptachlor	0.01	0.01
Heptachlor Epoxide	0.01	0.01
Hexachlorobenzene	-	-
Hexachlorobutadiene	-	-
Hexachlorocyclohexane Gamma-	-	-
Hexachloroethane	-	-
Hexane (n)	-	-
Indeno[1 2 3-cd]pyrene	-	-
Lead	-	-
Mercury	-	-
Methoxychlor	-	-
Methyl Ethyl Ketone	-	-
Methyl Isobutyl Ketone	-	-
Methyl Mercury **	-	-
Methyl tert-Butyl Ether (MTBE)	-	-
Methylene Chloride	-	-
Methlynaphthalene, 2-(1-) ***	-	-
Molybdenum	15	15
Naphthalene	-	-
Nickel	-	-
Pentachlorophenol	-	-
Petroleum Hydrocarbons F1****	-	-
Petroleum Hydrocarbons F2	-	-
Petroleum Hydrocarbons F3	-	-
Petroleum Hydrocarbons F4	-	-
Phenanthrene	-	-
Phenol	-	-
Polychlorinated Biphenyls	-	-
Pyrene	-	-
Selenium	-	-
Silver	0.3	0.3

Contaminant	Agricultural and Others Property Use	Residential/Parkland/Institutional and Industrial/Commercial/Community Property Use
Styrene	-	-
Tetrachloroethane, 1,1,1,2-	0.5	0.5
Tetrachloroethane, 1,1,2,2-	0.5	0.5
Tetrachloroethylene	0.5	0.5
Thallium	-	2
Toluene	-	-
Trichlorobenzene, 1,2,4-	-	-
Trichloroethane, 1,1,1-	-	-
Trichloroethane, 1,1,2-	0.5	0.5
Trichloroethylene	0.5	0.5
Trichlorofluoromethane	-	-
Trichlorophenol, 2,4,5-	-	-
Trichlorophenol, 2,4,6-	0.75	0.75
Uranium	-	-
Vanadium	-	-
Vinyl Chloride	-	-
Xylene Mixture	-	-
Zinc	-	-
Electrical Conductivity (mS/cm)	NA	NA
Sodium Adsorption Ratio	NA	NA

Notes:

NA: Not Applicable; -: No leachate analysis required

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 2.1: Leachate Screening Levels for Full Depth Excess Soil in A Potable Ground Water Condition

Volume Independent

(Unit in µg/L)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	-	-	-
Acenaphthylene	-	-	-
Acetone	-	-	-
Aldrin	-	-	-
Anthracene	-	-	-
Antimony	6	6	6
Arsenic	-	-	-
Barium	1000	1000	1000
Benzene	-	-	-
Benz[a]anthracene	-	-	-
Benzo[a]pyrene	-	-	-
Benzo[b]fluoranthene	-	-	-
Benzo[ghi]perylene	-	-	-
Benzo[k]fluoranthene	-	-	-
Beryllium	4	4	4
Biphenyl 1,1'-	-	-	-
Bis(2-chloroethyl)ether	5	5	5
Bis(2-chloroisopropyl)ether	4	4	4
Bis(2-ethylhexyl)phthalate	-	-	-
Boron (Hot Water Soluble)*	-	-	-
Boron (total)	5000	5000	5000
Bromodichloromethane	-	-	-
Bromoform	-	-	-
Bromomethane	0.5	0.5	0.5
Cadmium	-	-	0.5
Carbon Tetrachloride	0.2	0.2	0.2
Chlordane	-	-	-
Chloroaniline p-	10	10	10
Chlorobenzene	-	-	-
Chloroform	-	-	-
Chlorophenol, 2-	-	-	-

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chromium Total	50	50	50
Chromium VI	-	-	-
Chrysene	-	-	-
Cobalt	3	3	3
Copper	14	14	14
Cyanide (CN-)	-	-	-
Dibenz[a h]anthracene	-	-	-
Dibromochloromethane	-	-	-
Dichlorobenzene, 1,2-	0.55	0.55	0.55
Dichlorobenzene, 1,3-	-	-	-
Dichlorobenzene, 1,4-	0.5	0.5	0.5
Dichlorobenzidine, 3,3'-	0.5	0.5	0.5
Dichlorodifluoromethane	-	-	-
DDD	-	-	-
DDE	-	-	-
DDT	-	-	-
Dichloroethane, 1,1-	-	-	-
Dichloroethane, 1,2-	0.5	0.5	0.5
Dichloroethylene, 1,1-	0.5	0.5	0.5
Dichloroethylene, 1,2-cis-	0.5	0.5	0.5
Dichloroethylene, 1,2-trans-	0.5	0.5	0.5
Dichlorophenol, 2,4-	-	-	-
Dichloropropane, 1,2-	0.5	0.5	0.5
Dichloropropene,1,3-	-	-	-
Dieldrin	0.097	0.097	0.097
Diethyl Phthalate	2	2	2
Dimethylphthalate	2	2	2
Dimethylphenol, 2,4-	-	-	-
Dinitrophenol, 2,4-	10	10	10
Dinitrotoluene, 2,4 & 2,6-	5	5	5
Dioxane, 1,4	2	2	2
Dioxin/Furan (TEQ)	-	-	-
Endosulfan	-	-	-
Endrin	0.062	0.062	0.062
Ethylbenzene	-	-	-
Ethylene dibromide	0.2	0.2	0.2

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Fluoranthene	-	-	-
Fluorene	-	-	-
Heptachlor	-	-	-
Heptachlor Epoxide	0.01	0.01	0.01
Hexachlorobenzene	-	-	-
Hexachlorobutadiene	-	-	-
Hexachlorocyclohexane Gamma-	-	-	-
Hexachloroethane	-	-	-
Hexane (n)	-	-	-
Indeno[1 2 3-cd]pyrene	-	-	-
Lead	-	-	-
Mercury	-	-	-
Methoxychlor	-	-	-
Methyl Ethyl Ketone	-	-	-
Methyl Isobutyl Ketone	-	-	-
Methyl Mercury **	-	-	-
Methyl tert-Butyl Ether (MTBE)	-	-	-
Methylene Chloride	-	-	-
Methlynaphthalene, 2-(1-) ***	-	-	-
Molybdenum	15	15	15
Naphthalene	-	-	-
Nickel	78	78	78
Pentachlorophenol	-	-	-
Petroleum Hydrocarbons F1****	-	-	-
Petroleum Hydrocarbons F2	-	-	-
Petroleum Hydrocarbons F3	-	-	-
Petroleum Hydrocarbons F4	-	-	-
Phenanthrene	-	-	-
Phenol	-	-	-
Polychlorinated Biphenyls	-	-	-
Pyrene	-	-	-
Selenium	10	10	10
Silver	0.3	0.3	0.3
Styrene	-	-	-
Tetrachloroethane, 1,1,1,2-	-	-	-

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Tetrachloroethane, 1,1,2,2-	0.5	0.5	0.5
Tetrachloroethylene	0.5	0.5	0.5
Thallium	-	-	2
Toluene	-	-	-
Trichlorobenzene, 1,2,4-	-	-	-
Trichloroethane, 1,1,1-	-	-	-
Trichloroethane, 1,1,2-	-	-	-
Trichloroethylene	0.5	0.5	0.5
Trichlorofluoromethane	-	-	-
Trichlorophenol, 2,4,5-	-	-	-
Trichlorophenol, 2,4,6-	0.75	0.75	0.75
Uranium	20	20	20
Vanadium	-	-	-
Vinyl Chloride	-	-	-
Xylene Mixture	-	-	-
Zinc	180	180	180
Electrical Conductivity (mS/cm)	NA	NA	NA
Sodium Adsorption Ratio	NA	NA	NA

Notes:

NA: Not Applicable; -: No leachate analysis required

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2-methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 3.1: Leachate Screening Levels for Full Depth Excess Soil in A Non-Potable Ground Water Condition

Volume Independent

(Unit in µg/L)

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	-	-
Acenaphthylene	-	-
Acetone	-	-
Aldrin	-	-
Anthracene	-	-
Antimony	-	-
Arsenic	-	-
Barium	4600 [a]	4600 [a]
Benzene	-	-
Benz[a]anthracene	-	-
Benzo[a]pyrene	-	-
Benzo[b]fluoranthene	-	-
Benzo[ghi]perylene	-	-
Benzo[k]fluoranthene	-	-
Beryllium	11 [a]	11 [a]
Biphenyl 1,1'-	-	-
Bis(2-chloroethyl)ether	-	-
Bis(2-chloroisopropyl)ether	-	-
Bis(2-ethylhexyl)phthalate	-	-
Boron (Hot Water Soluble)*	-	-
Boron (total)	-	-
Bromodichloromethane	-	-
Bromoform	-	-
Bromomethane	0.5 [a]	0.5 [a]
Cadmium	-	0.5 [a]
Carbon Tetrachloride	0.2 [a]	0.2 [a]
Chlordane	-	-
Chloroaniline p-	-	-
Chlorobenzene	-	-
Chloroform	-	-
Chlorophenol, 2-	-	-

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chromium Total	130 [a]	130 [a]
Chromium VI	-	-
Chrysene	-	-
Cobalt	10 [a]	10 [a]
Copper	14 [a]	14 [a]
Cyanide (CN-)	-	-
Dibenz[a h]anthracene	-	-
Dibromochloromethane	-	-
Dichlorobenzene, 1,2-	-	-
Dichlorobenzene, 1,3-	-	-
Dichlorobenzene, 1,4-	-	-
Dichlorobenzidine, 3,3'-	-	-
Dichlorodifluoromethane	-	-
DDD	-	-
DDE	-	-
DDT	-	-
Dichloroethane, 1,1-	-	-
Dichloroethane, 1,2-	-	-
Dichloroethylene, 1,1-	0.5 [a]	0.5 [a]
Dichloroethylene, 1,2-cis-	-	-
Dichloroethylene, 1,2-trans-	0.5 [a]	0.5 [a]
Dichlorophenol, 2,4-	-	-
Dichloropropane, 1,2-	-	-
Dichloropropene,1,3-	-	-
Dieldrin	0.097 [a]	0.097 [a]
Diethyl Phthalate	2 [a]	2 [a]
Dimethylphthalate	2 [a]	2 [a]
Dimethylphenol, 2,4-	-	-
Dinitrophenol, 2,4-	-	-
Dinitrotoluene, 2,4 & 2,6-	-	-
Dioxane, 1,4	-	-
Dioxin/Furan (TEQ)	-	-
Endosulfan	-	-
Endrin	0.062 [a]	0.062 [a]
Ethylbenzene	-	-
Ethylene dibromide	0.2 [a]	0.2 [a]

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Fluoranthene	-	-
Fluorene	-	-
Heptachlor	-	-
Heptachlor Epoxide	0.01 [a]	0.01 [a]
Hexachlorobenzene	-	-
Hexachlorobutadiene	-	-
Hexachlorocyclohexane Gamma-	-	-
Hexachloroethane	-	-
Hexane (n)	-	-
Indeno[1 2 3-cd]pyrene	-	-
Lead	-	-
Mercury	-	-
Methoxychlor	-	-
Methyl Ethyl Ketone	-	-
Methyl Isobutyl Ketone	-	-
Methyl Mercury **	-	-
Methyl tert-Butyl Ether (MTBE)	-	-
Methylene Chloride	-	-
Methlynaphthalene, 2-(1-) ***	-	-
Molybdenum	-	1500 [a]
Naphthalene	-	-
Nickel	78 [a]	78 [a]
Pentachlorophenol	-	-
Petroleum Hydrocarbons F1****	-	-
Petroleum Hydrocarbons F2	-	-
Petroleum Hydrocarbons F3	-	-
Petroleum Hydrocarbons F4	-	-
Phenanthrene	-	-
Phenol	-	-
Polychlorinated Biphenyls	-	-
Pyrene	-	-
Selenium	10 [a]	10 [a]
Silver	0.3 [a]	0.3 [a]
Styrene	-	-

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Tetrachloroethane, 1,1,1,2-	-	-
Tetrachloroethane, 1,1,2,2-	-	-
Tetrachloroethylene	0.5 [a]	0.5 [a]
Thallium	-	80 [a]
Toluene	-	-
Trichlorobenzene, 1,2,4-	-	-
Trichloroethane, 1,1,1-	-	-
Trichloroethane, 1,1,2-	-	-
Trichloroethylene	0.5 [a]	0.5 [a]
Trichlorofluoromethane	-	-
Trichlorophenol, 2,4,5-	-	-
Trichlorophenol, 2,4,6-	-	-
Uranium	66 [a]	66 [a]
Vanadium	-	-
Vinyl Chloride	-	-
Xylene Mixture	-	-
Zinc	180 [a]	180 [a]
Electrical Conductivity (mS/cm)	NA	NA
Sodium Adsorption Ratio	NA	NA

Notes:

NA: Not Applicable; -: No leachate analysis required

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 4.1: Leachate Screening Levels for Stratified Excess Soil in A Potable Ground Water Condition

Volume Independent

(Unit in µg/L)

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Acenaphthene	-	-	-	-
Acenaphthylene	-	-	-	-
Acetone	-	-	-	-
Aldrin	-	-	-	-
Anthracene	-	-	-	-
Antimony	6 [a]	6 [a]	6 [a]	6 [a]
Arsenic	-	-	-	10 [a]
Barium	1000 [a]	1000 [a]	1000 [a]	1000 [a]
Benzene	-	-	-	-
Benz[a]anthracene	-	-	-	-
Benzo[a]pyrene	-	-	-	-
Benzo[b]fluoranthene	-	-	-	-
Benzo[ghi]perylene	-	-	-	-
Benzo[k]fluoranthene	-	-	-	-
Beryllium	4 [a]	4 [a]	4 [a]	4 [a]
Biphenyl 1,1'-	-	-	-	-
Bis(2-chloroethyl)ether	5 [a]	5 [a]	5 [a]	5 [a]
Bis(2-chloroisopropyl)ether	4 [a]	4 [a]	4 [a]	4 [a]
Bis(2-ethylhexyl)phthalate	-	-	-	-
Boron (Hot Water Soluble)*	-	-	-	-
Boron (total)	-	5000 [a]	-	5000 [a]
Bromodichloromethane	-	-	-	-
Bromoform	-	-	-	-
Bromomethane	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Cadmium	-	0.5 [a]	0.5 [a]	0.5 [a]
Carbon Tetrachloride	0.2 [a]	0.2 [a]	0.2 [a]	0.2 [a]
Chlordane	-	-	-	-
Chloroaniline p-	10 [a]	10 [a]	10 [a]	10 [a]
Chlorobenzene	-	-	-	-
Chloroform	-	-	-	-
Chlorophenol, 2-	-	-	-	-

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Chromium Total	50 [a]	50 [a]	50 [a]	50 [a]
Chromium VI	-	-	-	-
Chrysene	-	-	-	-
Cobalt	3 [a]	3 [a]	3 [a]	3 [a]
Copper	14 [a]	14 [a]	14 [a]	14 [a]
Cyanide (CN-)	-	-	-	-
Dibenz[a h]anthracene	-	-	-	-
Dibromochloromethane	-	-	-	-
Dichlorobenzene, 1,2-	0.55 [a]	0.55 [a]	0.55 [a]	0.55 [a]
Dichlorobenzene, 1,3-	-	-	-	-
Dichlorobenzene, 1,4-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dichlorobenzidine, 3,3'-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dichlorodifluoromethane	-	-	-	-
DDD	-	-	-	-
DDE	-	-	-	-
DDT	-	-	-	-
Dichloroethane, 1,1-	-	-	-	-
Dichloroethane, 1,2-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dichloroethylene, 1,1-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dichloroethylene, 1,2-cis-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dichloroethylene, 1,2-trans-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dichlorophenol, 2,4-	-	-	-	-
Dichloropropane, 1,2-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dichloropropene,1,3-	-	-	-	-
Dieldrin	0.097 [a]	0.097 [a]	0.097 [a]	0.097 [a]
Diethyl Phthalate	2 [a]	2 [a]	2 [a]	2 [a]
Dimethylphthalate	2 [a]	2 [a]	2 [a]	2 [a]
Dimethylphenol, 2,4-	-	-	-	-
Dinitrophenol, 2,4-	10 [a]	10 [a]	10 [a]	10 [a]
Dinitrotoluene, 2,4 & 2,6-	5 [a]	5 [a]	5 [a]	5 [a]
Dioxane, 1,4	2 [a]	2 [a]	2 [a]	2 [a]
Dioxin/Furan (TEQ)	-	-	-	-
Endosulfan	-	-	-	-
Endrin	0.062 [a]	0.062 [a]	0.062 [a]	0.062 [a]
Ethylbenzene	-	-	-	-

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Ethylene dibromide	0.2 [a]	0.2 [a]	0.2 [a]	0.2 [a]
Fluoranthene	-	-	-	-
Fluorene	-	-	-	-
Heptachlor	-	-	-	-
Heptachlor Epoxide	0.01 [a]	0.01 [a]	0.01 [a]	0.01 [a]
Hexachlorobenzene	-	-	-	-
Hexachlorobutadiene	-	-	-	-
Hexachlorocyclohexane Gamma-	-	-	-	-
Hexachloroethane	-	-	-	-
Hexane (n)	-	-	-	-
Indeno[1 2 3-cd]pyrene	-	-	-	-
Lead	-	4 [a]	-	4 [a]
Mercury	-	-	-	-
Methoxychlor	-	-	-	-
Methyl Ethyl Ketone	-	-	-	-
Methyl Isobutyl Ketone	-	-	-	-
Methyl Mercury **	-	-	-	-
Methyl tert-Butyl Ether (MTBE)	-	-	-	-
Methylene Chloride	-	-	-	-
Methlynaphthalene, 2-(1-) ***	-	-	-	-
Molybdenum	15 [a]	15 [a]	15 [a]	15 [a]
Naphthalene	-	-	-	-
Nickel	78 [a]	78 [a]	78 [a]	78 [a]
Pentachlorophenol	-	-	-	-
Petroleum Hydrocarbons F1****	-	-	-	-
Petroleum Hydrocarbons F2	-	-	-	-
Petroleum Hydrocarbons F3	-	-	-	-
Petroleum Hydrocarbons F4	-	-	-	-
Phenanthrene	-	-	-	-
Phenol	-	-	-	-
Polychlorinated Biphenyls	-	-	-	-
Pyrene	-	-	-	-
Selenium	10 [a]	10 [a]	10 [a]	10 [a]
Silver	0.3 [a]	0.3 [a]	0.3 [a]	0.3 [a]

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Styrene	-	-	-	-
Tetrachloroethane, 1,1,1,2-	-	-	-	-
Tetrachloroethane, 1,1,2,2-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Tetrachloroethylene	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Thallium	-	2 [a]	2 [a]	2 [a]
Toluene	-	-	-	-
Trichlorobenzene, 1,2,4-	-	-	-	-
Trichloroethane, 1,1,1-	-	-	-	-
Trichloroethane, 1,1,2-	-	-	-	-
Trichloroethylene	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Trichlorofluoromethane	-	-	-	-
Trichlorophenol, 2,4,5-	-	-	-	-
Trichlorophenol, 2,4,6-	0.75 [a]	0.75 [a]	0.75 [a]	0.75 [a]
Uranium	20 [a]	20 [a]	20 [a]	20 [a]
Vanadium	-	6.2 [a]	-	6.2 [a]
Vinyl Chloride	-	-	-	-
Xylene Mixture	-	-	-	-
Zinc	180 [a]	180 [a]	180 [a]	180 [a]
Electrical Conductivity (mS/cm)	NA	NA	NA	NA
Sodium Adsorption Ratio	NA	NA	NA	NA

Notes:

NA: Not Applicable; -: No leachate analysis required

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 5.1: Leachate Screening Levels for Stratified Excess Soil in A Non-Potable Ground Water Condition

Volume Independent

(Unit in µg/L)

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Acenaphthene	-	-	-	-
Acenaphthylene	-	-	-	-
Acetone	-	-	-	-
Aldrin	-	-	-	-
Anthracene	-	-	-	-
Antimony	-	-	-	-
Arsenic	-	-	-	300 [a]
Barium	4600 [a]	4600 [a]	4600 [a]	4600 [a]
Benzene	-	-	-	-
Benz[a]anthracene	-	-	-	-
Benzo[a]pyrene	-	-	-	-
Benzo[b]fluoranthene	-	-	-	-
Benzo[ghi]perylene	-	-	-	-
Benzo[k]fluoranthene	-	-	-	-
Beryllium	11 [a]	11 [a]	11 [a]	11 [a]
Biphenyl 1,1'-	-	-	-	-
Bis(2-chloroethyl)ether	-	-	-	-
Bis(2-chloroisopropyl)ether	-	-	-	-
Bis(2-ethylhexyl)phthalate	-	-	-	-
Boron (Hot Water Soluble)*	-	-	-	-
Boron (total)	-	7100 [a]	-	7100 [a]
Bromodichloromethane	-	-	-	-
Bromoform	-	-	-	-
Bromomethane	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Cadmium	-	0.5 [a]	0.5 [a]	0.5 [a]
Carbon Tetrachloride	0.2 [a]	0.2 [a]	0.2 [a]	0.2 [a]
Chlordane	-	-	-	-
Chloroaniline p-	-	-	-	-
Chlorobenzene	-	-	-	-
Chloroform	-	-	-	-
Chlorophenol, 2-	-	-	-	-

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Chromium Total	130 [a]	130 [a]	130 [a]	130 [a]
Chromium VI	-	-	-	-
Chrysene	-	-	-	-
Cobalt	10 [a]	10 [a]	10 [a]	10 [a]
Copper	14 [a]	14 [a]	14 [a]	14 [a]
Cyanide (CN-)	-	-	-	-
Dibenz[a h]anthracene	-	-	-	-
Dibromochloromethane	-	-	-	-
Dichlorobenzene, 1,2-	-	-	-	-
Dichlorobenzene, 1,3-	-	-	-	-
Dichlorobenzene, 1,4-	-	-	-	-
Dichlorobenzidine, 3,3'-	-	-	-	-
Dichlorodifluoromethane	-	-	-	-
DDD	-	-	-	-
DDE	-	-	-	-
DDT	-	-	-	-
Dichloroethane, 1,1-	-	-	-	-
Dichloroethane, 1,2-	-	-	-	-
Dichloroethylene, 1,1-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dichloroethylene, 1,2-cis-	-	-	-	-
Dichloroethylene, 1,2-trans-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dichlorophenol, 2,4-	-	-	-	-
Dichloropropane, 1,2-	-	-	-	-
Dichloropropene,1,3-	-	-	-	-
Dieldrin	0.097 [a]	0.097 [a]	0.097 [a]	0.097 [a]
Diethyl Phthalate	2 [a]	2 [a]	2 [a]	2 [a]
Dimethylphthalate	2 [a]	2 [a]	2 [a]	2 [a]
Dimethylphenol, 2,4-	-	-	-	-
Dinitrophenol, 2,4-	-	-	-	-
Dinitrotoluene, 2,4 & 2,6-	-	-	-	-
Dioxane, 1,4	-	-	-	-
Dioxin/Furan (TEQ)	-	-	-	-
Endosulfan	-	-	-	-
Endrin	0.062 [a]	0.062 [a]	0.062 [a]	0.062 [a]
Ethylbenzene	-	-	-	-

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Ethylene dibromide	0.2 [a]	0.2 [a]	0.2 [a]	0.2 [a]
Fluoranthene	-	-	-	-
Fluorene	-	-	-	-
Heptachlor	-	-	-	-
Heptachlor Epoxide	0.01 [a]	0.01 [a]	0.01 [a]	0.01 [a]
Hexachlorobenzene	-	-	-	-
Hexachlorobutadiene	-	-	-	-
Hexachlorocyclohexane Gamma-	-	-	-	-
Hexachloroethane	-	-	-	-
Hexane (n)	-	-	-	-
Indeno[1 2 3-cd]pyrene	-	-	-	-
Lead	-	4 [a]	-	4 [a]
Mercury	-	-	-	-
Methoxychlor	-	-	-	-
Methyl Ethyl Ketone	-	-	-	-
Methyl Isobutyl Ketone	-	-	-	-
Methyl Mercury **	-	-	-	-
Methyl tert-Butyl Ether (MTBE)	-	-	-	-
Methylene Chloride	-	-	-	-
Methlynaphthalene, 2-(1-) ***	-	-	-	-
Molybdenum	-	1500 [a]	1500 [a]	1500 [a]
Naphthalene	-	-	-	-
Nickel	78 [a]	78 [a]	78 [a]	78 [a]
Pentachlorophenol	-	-	-	-
Petroleum Hydrocarbons F1****	-	-	-	-
Petroleum Hydrocarbons F2	-	-	-	-
Petroleum Hydrocarbons F3	-	-	-	-
Petroleum Hydrocarbons F4	-	-	-	-
Phenanthrene	-	-	-	-
Phenol	-	-	-	-
Polychlorinated Biphenyls	-	-	-	-
Pyrene	-	-	-	-
Selenium	10 [a]	10 [a]	10 [a]	10 [a]
Silver	0.3 [a]	0.3 [a]	0.3 [a]	0.3 [a]

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Styrene	-	-	-	-
Tetrachloroethane, 1,1,1,2-	-	-	-	-
Tetrachloroethane, 1,1,2,2-	-	-	-	-
Tetrachloroethylene	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Thallium	-	80 [a]	80 [a]	80 [a]
Toluene	-	-	-	-
Trichlorobenzene, 1,2,4-	-	-	-	-
Trichloroethane, 1,1,1-	-	-	-	-
Trichloroethane, 1,1,2-	-	-	-	-
Trichloroethylene	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Trichlorofluoromethane	-	-	-	-
Trichlorophenol, 2,4,5-	-	-	-	-
Trichlorophenol, 2,4,6-	-	-	-	-
Uranium	66 [a]	66 [a]	66 [a]	66 [a]
Vanadium	-	40 [a]	-	40 [a]
Vinyl Chloride	-	-	-	-
Xylene Mixture	-	-	-	-
Zinc	180 [a]	180 [a]	180 [a]	180 [a]
Electrical Conductivity (mS/cm)	NA	NA	NA	NA
Sodium Adsorption Ratio	NA	NA	NA	NA

Notes:

NA: Not Applicable; -: No leachate analysis required

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 6.1: Leachate Screening Levels for Full Depth and Shallow Soils in A Potable Ground Water Condition

Volume Independent

(Unit in µg/L)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	-	-	-
Acenaphthylene	-	-	-
Acetone	-	-	-
Aldrin	-	-	-
Anthracene	-	-	-
Antimony	6 [a]	6 [a]	6 [a]
Arsenic	-	-	-
Barium	1000 [a]	1000 [a]	1000 [a]
Benzene	-	-	-
Benz[a]anthracene	-	-	-
Benzo[a]pyrene	-	-	-
Benzo[b]fluoranthene	-	-	-
Benzo[ghi]perylene	-	-	-
Benzo[k]fluoranthene	-	-	-
Beryllium	4 [a]	4 [a]	4 [a]
Biphenyl 1,1'-	-	-	-
Bis(2-chloroethyl)ether	5 [a]	5 [a]	5 [a]
Bis(2-chloroisopropyl)ether	4 [a]	4 [a]	4 [a]
Bis(2-ethylhexyl)phthalate	-	-	-
Boron (Hot Water Soluble)*	-	-	-
Boron (total)	5000 [a]	5000 [a]	5000 [a]
Bromodichloromethane	-	-	-
Bromoform	-	-	-
Bromomethane	0.5 [a]	0.5 [a]	0.5 [a]
Cadmium	-	-	0.5 [a]
Carbon Tetrachloride	0.2 [a]	0.2 [a]	0.2 [a]
Chlordane	-	-	-
Chloroaniline p-	10 [a]	10 [a]	10 [a]
Chlorobenzene	-	-	-
Chloroform	1 [a]	1 [a]	1 [a]
Chlorophenol, 2-	-	-	-

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chromium Total	50 [a]	50 [a]	50 [a]
Chromium VI	-	-	-
Chrysene	-	-	-
Cobalt	3 [a]	3 [a]	3 [a]
Copper	14 [a]	14 [a]	14 [a]
Cyanide (CN-)	-	-	-
Dibenz[a h]anthracene	-	-	-
Dibromochloromethane	-	-	-
Dichlorobenzene, 1,2-	0.55 [a]	0.55 [a]	0.55 [a]
Dichlorobenzene, 1,3-	-	-	-
Dichlorobenzene, 1,4-	0.5 [a]	0.5 [a]	0.5 [a]
Dichlorobenzidine, 3,3'-	0.5 [a]	0.5 [a]	0.5 [a]
Dichlorodifluoromethane	-	-	-
DDD	-	-	-
DDE	-	-	-
DDT	-	-	-
Dichloroethane, 1,1-	0.5 [a]	0.5 [a]	0.5 [a]
Dichloroethane, 1,2-	0.5 [a]	0.5 [a]	0.5 [a]
Dichloroethylene, 1,1-	0.5 [a]	0.5 [a]	0.5 [a]
Dichloroethylene, 1,2-cis-	0.5 [a]	0.5 [a]	0.5 [a]
Dichloroethylene, 1,2-trans-	0.5 [a]	0.5 [a]	0.5 [a]
Dichlorophenol, 2,4-	-	-	-
Dichloropropane, 1,2-	0.5 [a]	0.5 [a]	0.5 [a]
Dichloropropene,1,3-	0.5 [a]	0.5 [a]	0.5 [a]
Dieldrin	0.095 [a]	0.095 [a]	0.095 [a]
Diethyl Phthalate	2 [a]	2 [a]	2 [a]
Dimethylphthalate	2 [a]	2 [a]	2 [a]
Dimethylphenol, 2,4-	-	-	-
Dinitrophenol, 2,4-	10 [a]	10 [a]	10 [a]
Dinitrotoluene, 2,4 & 2,6-	5 [a]	5 [a]	5 [a]
Dioxane, 1,4	2 [a]	2 [a]	2 [a]
Dioxin/Furan (TEQ)	-	-	-
Endosulfan	-	-	-
Endrin	0.061 [a]	0.061 [a]	0.061 [a]
Ethylbenzene	-	-	-
Ethylene dibromide	0.2 [a]	0.2 [a]	0.2 [a]

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Fluoranthene	-	-	-
Fluorene	-	-	-
Heptachlor	0.01 [a]	0.01 [a]	0.01 [a]
Heptachlor Epoxide	0.01 [a]	0.01 [a]	0.01 [a]
Hexachlorobenzene	-	-	-
Hexachlorobutadiene	-	-	-
Hexachlorocyclohexane Gamma-	-	-	-
Hexachloroethane	-	-	-
Hexane (n)	-	-	-
Indeno[1 2 3-cd]pyrene	-	-	-
Lead	-	-	-
Mercury	-	-	-
Methoxychlor	-	-	-
Methyl Ethyl Ketone	-	-	-
Methyl Isobutyl Ketone	-	-	-
Methyl Mercury **	-	-	-
Methyl tert-Butyl Ether (MTBE)	-	-	-
Methylene Chloride	-	-	-
Methlynaphthalene, 2-(1-) ***	-	-	-
Molybdenum	15 [a]	15 [a]	15 [a]
Naphthalene	-	-	-
Nickel	78 [a]	78 [a]	78 [a]
Pentachlorophenol	-	-	-
Petroleum Hydrocarbons F1****	-	-	-
Petroleum Hydrocarbons F2	-	-	-
Petroleum Hydrocarbons F3	-	-	-
Petroleum Hydrocarbons F4	-	-	-
Phenanthrene	-	-	-
Phenol	-	-	-
Polychlorinated Biphenyls	-	-	-
Pyrene	-	-	-
Selenium	10 [a]	10 [a]	10 [a]
Silver	0.3 [a]	0.3 [a]	0.3 [a]
Styrene	-	-	-
Tetrachloroethane, 1,1,1,2-	0.5 [a]	0.5 [a]	0.5 [a]

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Tetrachloroethane, 1,1,2,2-	0.5 [a]	0.5 [a]	0.5 [a]
Tetrachloroethylene	0.5 [a]	0.5 [a]	0.5 [a]
Thallium	-	-	2 [a]
Toluene	-	-	-
Trichlorobenzene, 1,2,4-	-	-	-
Trichloroethane, 1,1,1-	-	-	-
Trichloroethane, 1,1,2-	0.5 [a]	0.5 [a]	0.5 [a]
Trichloroethylene	0.5 [a]	0.5 [a]	0.5 [a]
Trichlorofluoromethane	-	-	-
Trichlorophenol, 2,4,5-	-	-	-
Trichlorophenol, 2,4,6-	0.75 [a]	0.75 [a]	0.75 [a]
Uranium	20 [a]	20 [a]	20 [a]
Vanadium	-	-	-
Vinyl Chloride	-	-	-
Xylene Mixture	-	-	-
Zinc	180 [a]	180 [a]	180 [a]
Electrical Conductivity (mS/cm)	NA	NA	NA
Sodium Adsorption Ratio	NA	NA	NA

Notes:

NA: Not Applicable; -: No leachate analysis required

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 7.1: Leachate Screening Levels for Full Depth and Shallow Soils in A Non-Potable Ground Water Condition

Volume Independent

(Unit in µg/L)

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	-	-
Acenaphthylene	-	-
Acetone	-	-
Aldrin	-	-
Anthracene	-	-
Antimony	-	-
Arsenic	-	-
Barium	4600 [a]	4600 [a]
Benzene	-	-
Benz[a]anthracene	-	-
Benzo[a]pyrene	-	-
Benzo[b]fluoranthene	-	-
Benzo[ghi]perylene	-	-
Benzo[k]fluoranthene	-	-
Beryllium	11 [a]	11 [a]
Biphenyl 1,1'-	-	-
Bis(2-chloroethyl)ether	-	-
Bis(2-chloroisopropyl)ether	-	-
Bis(2-ethylhexyl)phthalate	-	-
Boron (Hot Water Soluble)*	-	-
Boron (total)	-	-
Bromodichloromethane	-	-
Bromoform	-	-
Bromomethane	0.5 [a]	0.5 [a]
Cadmium	-	0.5 [a]
Carbon Tetrachloride	0.2 [a]	0.2 [a]
Chlordane	-	-
Chloroaniline p-	-	-
Chlorobenzene	-	-
Chloroform	1 [a]	1 [a]
Chlorophenol, 2-	-	-

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chromium Total	130 [a]	130 [a]
Chromium VI	-	-
Chrysene	-	-
Cobalt	10 [a]	10 [a]
Copper	14 [a]	14 [a]
Cyanide (CN-)	-	-
Dibenz[a h]anthracene	-	-
Dibromochloromethane	-	-
Dichlorobenzene, 1,2-	-	-
Dichlorobenzene, 1,3-	-	-
Dichlorobenzene, 1,4-	-	-
Dichlorobenzidine, 3,3'-	-	-
Dichlorodifluoromethane	-	-
DDD	-	-
DDE	-	-
DDT	-	-
Dichloroethane, 1,1-	0.97 [a]	0.97 [a]
Dichloroethane, 1,2-	0.5 [a]	0.5 [a]
Dichloroethylene, 1,1-	0.5 [a]	0.5 [a]
Dichloroethylene, 1,2-cis-	-	-
Dichloroethylene, 1,2-trans-	0.5 [a]	0.5 [a]
Dichlorophenol, 2,4-	-	-
Dichloropropane, 1,2-	0.5 [a]	0.5 [a]
Dichloropropene,1,3-	0.5 [a]	0.5 [a]
Dieldrin	0.095 [a]	0.095 [a]
Diethyl Phthalate	2 [a]	2 [a]
Dimethylphthalate	2 [a]	2 [a]
Dimethylphenol, 2,4-	-	-
Dinitrophenol, 2,4-	-	-
Dinitrotoluene, 2,4 & 2,6-	-	-
Dioxane, 1,4	-	-
Dioxin/Furan (TEQ)	-	-
Endosulfan	-	-
Endrin	0.061 [a]	0.061 [a]
Ethylbenzene	-	-
Ethylene dibromide	0.2 [a]	0.2 [a]

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Fluoranthene	-	-
Fluorene	-	-
Heptachlor	0.01 [a]	0.01 [a]
Heptachlor Epoxide	0.01 [a]	0.01 [a]
Hexachlorobenzene	-	-
Hexachlorobutadiene	-	-
Hexachlorocyclohexane Gamma-	-	-
Hexachloroethane	-	-
Hexane (n)	-	-
Indeno[1 2 3-cd]pyrene	-	-
Lead	-	-
Mercury	-	-
Methoxychlor	-	-
Methyl Ethyl Ketone	-	-
Methyl Isobutyl Ketone	-	-
Methyl Mercury **	-	-
Methyl tert-Butyl Ether (MTBE)	-	-
Methylene Chloride	-	-
Methlynaphthalene, 2-(1-) ***	-	-
Molybdenum	-	1500 [a]
Naphthalene	-	-
Nickel	78 [a]	78 [a]
Pentachlorophenol	-	-
Petroleum Hydrocarbons F1****	-	-
Petroleum Hydrocarbons F2	-	-
Petroleum Hydrocarbons F3	-	-
Petroleum Hydrocarbons F4	-	-
Phenanthrene	-	-
Phenol	-	-
Polychlorinated Biphenyls	-	-
Pyrene	-	-
Selenium	10 [a]	10 [a]
Silver	0.3 [a]	0.3 [a]
Styrene	-	-

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Tetrachloroethane, 1,1,1,2-	0.5 [a]	0.5 [a]
Tetrachloroethane, 1,1,2,2-	0.5 [a]	0.5 [a]
Tetrachloroethylene	0.5 [a]	0.5 [a]
Thallium	-	80 [a]
Toluene	-	-
Trichlorobenzene, 1,2,4-	-	-
Trichloroethane, 1,1,1-	-	-
Trichloroethane, 1,1,2-	0.5 [a]	0.5 [a]
Trichloroethylene	0.5 [a]	0.5 [a]
Trichlorofluoromethane	-	-
Trichlorophenol, 2,4,5-	-	-
Trichlorophenol, 2,4,6-	-	-
Uranium	66 [a]	66 [a]
Vanadium	-	-
Vinyl Chloride	-	-
Xylene Mixture	-	-
Zinc	180 [a]	180 [a]
Electrical Conductivity (mS/cm)	NA	NA
Sodium Adsorption Ratio	NA	NA

Notes:

NA: Not Applicable; -: No leachate analysis required

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 8.1: Leachate Screening Levels for Full Depth Excess Soil for Use within 30 m of A Water Body in A Potable Ground Water Condition

Volume Independent

(Unit in µg/L)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/ Community Property Use
Acenaphthene	-	-	-
Acenaphthylene	-	-	-
Acetone	-	-	-
Aldrin	-	-	-
Anthracene	-	-	-
Antimony	-	-	-
Arsenic	-	-	-
Barium	-	-	-
Benzene	-	-	-
Benz[a]anthracene	-	-	-
Benzo[a]pyrene	-	-	-
Benzo[b]fluoranthene	-	-	-
Benzo[ghi]perylene	-	-	-
Benzo[k]fluoranthene	-	-	-
Beryllium	-	-	-
Biphenyl 1,1'-	-	-	-
Bis(2-chloroethyl)ether	5 [a]	5 [a]	5 [a]
Bis(2-chloroisopropyl)ether	4 [a]	4 [a]	4 [a]
Bis(2-ethylhexyl)phthalate	-	-	-
Boron (Hot Water Soluble)*	-	-	-
Boron (total)	-	-	-
Bromodichloromethane	-	-	-
Bromoform	-	-	-
Bromomethane	0.5 [a]	0.5 [a]	0.5 [a]
Cadmium	-	-	-
Carbon Tetrachloride	0.2 [a]	0.2 [a]	0.2 [a]
Chlordane	-	-	-
Chloroaniline p-	10 [a]	10 [a]	10 [a]
Chlorobenzene	-	-	-
Chloroform	-	-	-
Chlorophenol, 2-	-	-	-

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/ Community Property Use
Chromium Total	-	-	-
Chromium VI	-	-	-
Chrysene	-	-	-
Cobalt	3 [a]	3 [a]	3 [a]
Copper	-	-	-
Cyanide (CN-)	-	-	-
Dibenz[a h]anthracene	-	-	-
Dibromochloromethane	-	-	-
Dichlorobenzene, 1,2-	0.55 [a]	0.55 [a]	0.55 [a]
Dichlorobenzene, 1,3-	-	-	-
Dichlorobenzene, 1,4-	0.5 [a]	0.5 [a]	0.5 [a]
Dichlorobenzidine, 3,3'-	0.5 [a]	0.5 [a]	0.5 [a]
Dichlorodifluoromethane	-	-	-
DDD	-	-	-
DDE	-	-	-
DDT	-	-	-
Dichloroethane, 1,1-	-	-	-
Dichloroethane, 1,2-	0.5 [a]	0.5 [a]	0.5 [a]
Dichloroethylene, 1,1-	0.5 [a]	0.5 [a]	0.5 [a]
Dichloroethylene, 1,2-cis-	0.5 [a]	0.5 [a]	0.5 [a]
Dichloroethylene, 1,2-trans-	0.5 [a]	0.5 [a]	0.5 [a]
Dichlorophenol, 2,4-	-	-	-
Dichloropropane, 1,2-	0.5 [a]	0.5 [a]	0.5 [a]
Dichloropropene,1,3-	-	-	-
Dieldrin	0.095 [a]	0.095 [a]	0.095 [a]
Diethyl Phthalate	2 [a]	2 [a]	2 [a]
Dimethylphthalate	2 [a]	2 [a]	2 [a]
Dimethylphenol, 2,4-	-	-	-
Dinitrophenol, 2,4-	10 [a]	10 [a]	10 [a]
Dinitrotoluene, 2,4 & 2,6-	5 [a]	5 [a]	5 [a]
Dioxane, 1,4	2 [a]	2 [a]	2 [a]
Dioxin/Furan (TEQ)	-	-	-
Endosulfan	-	-	-
Endrin	0.061 [a]	0.061 [a]	0.061 [a]
Ethylbenzene	-	-	-
Ethylene dibromide	0.2 [a]	0.2 [a]	0.2 [a]

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/ Community Property Use
Fluoranthene	-	-	-
Fluorene	-	-	-
Heptachlor	0.01 [a]	0.01 [a]	0.01 [a]
Heptachlor Epoxide	0.01 [a]	0.01 [a]	0.01 [a]
Hexachlorobenzene	-	-	-
Hexachlorobutadiene	-	-	-
Hexachlorocyclohexane Gamma-	-	-	-
Hexachloroethane	-	-	-
Hexane (n)	-	-	-
Indeno[1 2 3-cd]pyrene	-	-	-
Lead	-	-	-
Mercury	-	-	-
Methoxychlor	-	-	-
Methyl Ethyl Ketone	-	-	-
Methyl Isobutyl Ketone	-	-	-
Methyl Mercury **	-	-	-
Methyl tert-Butyl Ether (MTBE)	-	-	-
Methylene Chloride	-	-	-
Methlynaphthalene, 2-(1-) ***	-	-	-
Molybdenum	-	-	-
Naphthalene	-	-	-
Nickel	-	-	-
Pentachlorophenol	-	-	-
Petroleum Hydrocarbons F1****	-	-	-
Petroleum Hydrocarbons F2	-	-	-
Petroleum Hydrocarbons F3	-	-	-
Petroleum Hydrocarbons F4	-	-	-
Phenanthrene	-	-	-
Phenol	-	-	-
Polychlorinated Biphenyls	-	-	-
Pyrene	-	-	-
Selenium	-	-	-
Silver	-	-	-
Styrene	-	-	-
Tetrachloroethane, 1,1,1,2-	-	-	-

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/ Community Property Use
Tetrachloroethane, 1,1,2,2-	0.5 [a]	0.5 [a]	0.5 [a]
Tetrachloroethylene	0.5 [a]	0.5 [a]	0.5 [a]
Thallium	-	-	-
Toluene	-	-	-
Trichlorobenzene, 1,2,4-	-	-	-
Trichloroethane, 1,1,1-	-	-	-
Trichloroethane, 1,1,2-	-	-	-
Trichloroethylene	0.5 [a]	0.5 [a]	0.5 [a]
Trichlorofluoromethane	-	-	-
Trichlorophenol, 2,4,5-	-	-	-
Trichlorophenol, 2,4,6-	0.75 [a]	0.75 [a]	0.75 [a]
Uranium	-	-	-
Vanadium	-	-	-
Vinyl Chloride	-	-	-
Xylene Mixture	-	-	-
Zinc	-	-	-
Electrical Conductivity (mS/cm)	NA	NA	NA
Sodium Adsorption Ratio	NA	NA	NA

Notes:

NA: Not Applicable; -: No leachate analysis required

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 9.1: Leachate Screening Levels for Full Depth Excess Soil for Use within 30 m of A Water Body in A Non-Potable Ground Water Condition

Volume Independent

(Unit in µg/L)

Contaminant	Residential/Parkland/Institutional/ Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	-	-
Acenaphthylene	-	-
Acetone	-	-
Aldrin	-	-
Anthracene	-	-
Antimony	-	-
Arsenic	-	-
Barium	-	-
Benzene	-	-
Benz[a]anthracene	-	-
Benzo[a]pyrene	-	-
Benzo[b]fluoranthene	-	-
Benzo[ghi]perylene	-	-
Benzo[k]fluoranthene	-	-
Beryllium	-	-
Biphenyl 1,1'-	-	-
Bis(2-chloroethyl)ether	-	-
Bis(2-chloroisopropyl)ether	-	-
Bis(2-ethylhexyl)phthalate	-	-
Boron (Hot Water Soluble)*	-	-
Boron (total)	-	-
Bromodichloromethane	-	-
Bromoform	-	-
Bromomethane	0.5 [a]	0.5 [a]
Cadmium	-	-
Carbon Tetrachloride	0.2 [a]	0.2 [a]
Chlordane	-	-
Chloroaniline p-	-	-
Chlorobenzene	-	-
Chloroform	-	-

Contaminant	Residential/Parkland/Institutional/ Property Use	Industrial/Commercial/Community Property Use
Chlorophenol, 2-	-	-
Chromium Total	-	-
Chromium VI	-	-
Chrysene	-	-
Cobalt	10 [a]	10 [a]
Copper	-	-
Cyanide (CN-)	-	-
Dibenz[a h]anthracene	-	-
Dibromochloromethane	-	-
Dichlorobenzene, 1,2-	-	-
Dichlorobenzene, 1,3-	-	-
Dichlorobenzene, 1,4-	-	-
Dichlorobenzidine, 3,3'-	-	-
Dichlorodifluoromethane	-	-
DDD	-	-
DDE	-	-
DDT	-	-
Dichloroethane, 1,1-	-	-
Dichloroethane, 1,2-	-	-
Dichloroethylene, 1,1-	0.5 [a]	0.5 [a]
Dichloroethylene, 1,2-cis-	-	-
Dichloroethylene, 1,2-trans-	0.5 [a]	0.5 [a]
Dichlorophenol, 2,4-	-	-
Dichloropropane, 1,2-	-	-
Dichloropropene,1,3-	-	-
Dieldrin	0.095 [a]	0.095 [a]
Diethyl Phthalate	2 [a]	2 [a]
Dimethylphthalate	2 [a]	2 [a]
Dimethylphenol, 2,4-	-	-
Dinitrophenol, 2,4-	-	-
Dinitrotoluene, 2,4 & 2,6-	-	-
Dioxane, 1,4	-	-
Dioxin/Furan (TEQ)	-	-
Endosulfan	-	-
Endrin	0.061 [a]	0.061 [a]
Ethylbenzene	-	-

Contaminant	Residential/Parkland/Institutional/ Property Use	Industrial/Commercial/Community Property Use
Ethylene dibromide	0.2 [a]	0.2 [a]
Fluoranthene	-	-
Fluorene	-	-
Heptachlor	0.01 [a]	0.01 [a]
Heptachlor Epoxide	0.01 [a]	0.01 [a]
Hexachlorobenzene	-	-
Hexachlorobutadiene	-	-
Hexachlorocyclohexane Gamma-	-	-
Hexachloroethane	-	-
Hexane (n)	-	-
Indeno[1 2 3-cd]pyrene	-	-
Lead	-	-
Mercury	-	-
Methoxychlor	-	-
Methyl Ethyl Ketone	-	-
Methyl Isobutyl Ketone	-	-
Methyl Mercury **	-	-
Methyl tert-Butyl Ether (MTBE)	-	-
Methylene Chloride	-	-
Methlynaphthalene, 2-(1-) ***	-	-
Molybdenum	-	-
Naphthalene	-	-
Nickel	-	-
Pentachlorophenol	-	-
Petroleum Hydrocarbons F1****	-	-
Petroleum Hydrocarbons F2	-	-
Petroleum Hydrocarbons F3	-	-
Petroleum Hydrocarbons F4	-	-
Phenanthrene	-	-
Phenol	-	-
Polychlorinated Biphenyls	-	-
Pyrene	-	-

Contaminant	Residential/Parkland/Institutional/ Property Use	Industrial/Commercial/Community Property Use
Selenium	-	-
Silver	-	-
Styrene	-	-
Tetrachloroethane, 1,1,1,2-	-	-
Tetrachloroethane, 1,1,2,2-	-	-
Tetrachloroethylene	0.5 [a]	0.5 [a]
Thallium	-	-
Toluene	-	-
Trichlorobenzene, 1,2,4-	-	-
Trichloroethane, 1,1,1-	-	-
Trichloroethane, 1,1,2-	-	-
Trichloroethylene	0.5 [a]	0.5 [a]
Trichlorofluoromethane	-	-
Trichlorophenol, 2,4,5-	-	-
Trichlorophenol, 2,4,6-	-	-
Uranium	-	-
Vanadium	-	-
Vinyl Chloride	-	-
Xylene Mixture	-	-
Zinc	-	-
Electrical Conductivity (mS/cm)	NA	NA
Sodium Adsorption Ratio	NA	NA

Notes:

NA: Not Applicable; -: No leachate analysis required

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

APPENDIX 3 CEILING VALUES FOR EXCESS SOIL REUSE

Introduction

This appendix provides ceiling values that are developed as part of the statistical compliance to generic excess soil reuse standards. These ceiling values are organized in a series of look-up tables that are corresponding to the tables of excess soil reuse standards, including Table 1, Table 2 to 9, and Table 2.1 to 9.1.

How to Read These Tables

The tables are set out prescribed contaminants by listing contaminants in the column of rows that has the heading row entitled "Contaminant". The tables also set out prescribed ceiling values for these contaminants by indicating in the appropriate locations the maximum concentrations of the contaminants in excess soil which is expressed in a number that is to be read as µg/g dry weight.

The ceiling value that is applicable for a type of property can be found in the row named for the contaminant and in the column that has the heading row that indicates the type of property use of the property at which excess soil is reused.

A contaminant that is listed and for which the abbreviation "NV" appears in the cell, instead of a number representing a maximum concentration, is a contaminant for which a ceiling value is not prescribed. The abbreviation "NV" means "no value".

A contaminant that is listed and for which the abbreviation "NA" appears in the cell, instead of a number representing a maximum concentration, is a contaminant for which a ceiling value is not prescribed because no standard is required. The abbreviation "NA" means "not applicable".

Notes for Tables 1, 2 to 9 and 2.1 to 9.1

Ceiling values presented in this Appendix are associated with their corresponding excess soil reuse standards. For example, if Table 2.1 for residential land use presented in Appendix 1 is selected as the appropriate table of excess soil reuse standards, the ceiling values of Table 2.1 for residential land use presented in this Appendix must be used.

Any site conditions that may lead to the inappropriateness of the use of the generic excess soil standards at a given property may also result in ceiling values not being appropriate for use. The qualified person must ascertain that the site conditions, as specified in Appendix 1, are appropriate for use of the generic excess soil reuse standards and corresponding ceiling values.

TABLE 1: Ceiling Values for Excess Soil Reuse

(Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/Parkland/Institutional/ Industrial/Commercial/Community Property Use
Acenaphthene	0.05	0.14
Acenaphthylene	0.17	0.17
Acetone	0.5	0.5
Aldrin	0.05	0.05
Anthracene	0.05	0.32
Antimony	1	2.6
Arsenic	11	18
Barium	430	430
Benzene	0.02	0.02
Benz[a]anthracene	0.19	0.72
Benzo[a]pyrene	0.05	0.6
Benzo[b]fluoranthene	0.59	0.94
Benzo[ghi]perylene	0.4	1.4
Benzo[k]fluoranthene	0.05	0.97
Beryllium	5	5
Biphenyl 1,1'-	0.05	0.05
Bis(2-chloroethyl)ether	0.5	0.5
Bis(2-chloroisopropyl)ether	0.5	0.5
Bis(2-ethylhexyl)phthalate	5	5
Boron (Hot Water Soluble)*	NA	NA
Boron (total)	72	72
Bromodichloromethane	0.05	0.05
Bromoform	0.05	0.05
Bromomethane	0.05	0.05
Cadmium	1	1.4
Carbon Tetrachloride	0.05	0.05
Chlordane	0.05	0.05
Chloroaniline p-	0.5	0.5
Chlorobenzene	0.05	0.05
Chloroform	0.05	0.05
Chlorophenol, 2-	0.1	0.1
Chromium Total	130	140

Contaminant	Agricultural or Other Property Use	Residential/Parkland/Institutional/ Industrial/Commercial/Community Property Use
Chromium VI	1.3	1.3
Chrysene	0.36	3.3
Cobalt	22	22
Copper	120	180
Cyanide (CN-)	0.051	0.051
Dibenz[a h]anthracene	0.1	0.1
Dibromochloromethane	0.05	0.05
Dichlorobenzene, 1,2-	0.05	0.05
Dichlorobenzene, 1,3-	0.05	0.05
Dichlorobenzene, 1,4-	0.05	0.05
Dichlorobenzidine, 3,3'-	1	1
Dichlorodifluoromethane	0.05	0.05
DDD	0.05	0.05
DDE	0.05	0.05
DDT	0.078	1.4
Dichloroethane, 1,1-	0.05	0.05
Dichloroethane, 1,2-	0.05	0.05
Dichloroethylene, 1,1-	0.05	0.05
Dichloroethylene, 1,2-cis-	0.05	0.05
Dichloroethylene, 1,2-trans-	0.05	0.05
Dichlorophenol, 2,4-	0.1	0.1
Dichloropropane, 1,2-	0.05	0.05
Dichloropropene,1,3-	0.05	0.05
Dieldrin	0.05	0.05
Diethyl Phthalate	0.5	0.5
Dimethylphthalate	0.5	0.5
Dimethylphenol, 2,4-	0.2	0.2
Dinitrophenol, 2,4-	2	2
Dinitrotoluene, 2,4 & 2,6-	0.5	0.5
Dioxane, 1,4	0.2	0.2
Dioxin/Furan (TEQ)	0.000013	0.000007
Endosulfan	0.04	0.04
Endrin	0.04	0.04
Ethylbenzene	0.05	0.05
Ethylene dibromide	0.05	0.05
Fluoranthene	0.49	1.1

Contaminant	Agricultural or Other Property Use	Residential/Parkland/Institutional/ Industrial/Commercial/Community Property Use
Fluorene	0.05	0.23
Heptachlor	0.05	0.05
Heptachlor Epoxide	0.05	0.05
Hexachlorobenzene	0.01	0.01
Hexachlorobutadiene	0.01	0.01
Hexachlorocyclohexane Gamma-	0.01	0.01
Hexachloroethane	0.01	0.01
Hexane (n)	0.05	0.05
Indeno[1 2 3-cd]pyrene	0.21	0.46
Lead	90	120
Mercury	0.16	0.27
Methoxychlor	0.05	0.05
Methyl Ethyl Ketone	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5
Methyl Mercury **	NV	NV
Methyl tert-Butyl Ether (MTBE)	0.05	0.05
Methylene Chloride	0.05	0.05
Methlynaphthalene, 2-(1-) ***	0.05	0.59
Molybdenum	2	2
Naphthalene	0.05	0.18
Nickel	74	160
Pentachlorophenol	0.1	0.1
Petroleum Hydrocarbons F1****	17	25
Petroleum Hydrocarbons F2	10	10
Petroleum Hydrocarbons F3	480	480
Petroleum Hydrocarbons F4	240	240
Phenanthrene	0.21	0.69
Phenol	0.5	0.5
Polychlorinated Biphenyls	0.3	0.3
Pyrene	0.38	2.1
Selenium	2.4	3.1
Silver	0.5	0.5
Styrene	0.05	0.05
Tetrachloroethane, 1,1,1,2-	0.05	0.05
Tetrachloroethane, 1,1,2,2-	0.05	0.05

Contaminant	Agricultural or Other Property Use	Residential/Parkland/Institutional/ Industrial/Commercial/Community Property Use
Tetrachloroethylene	0.05	0.05
Thallium	1	1
Toluene	0.2	0.2
Trichlorobenzene, 1,2,4-	0.05	0.05
Trichloroethane, 1,1,1-	0.05	0.05
Trichloroethane, 1,1,2-	0.05	0.05
Trichloroethylene	0.05	0.05
Trichlorofluoromethane	0.05	0.51
Trichlorophenol, 2,4,5-	0.1	0.1
Trichlorophenol, 2,4,6-	0.1	0.1
Uranium	3.8	5
Vanadium	86	86
Vinyl Chloride	0.02	0.02
Xylene Mixture	0.05	0.05
Zinc	590	590
Electrical Conductivity (mS/cm)	0.94	1.1
Sodium Adsorption Ratio	2	4.7

Notes:

NA: Not Applicable; NV: No Value

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 2: Ceiling Values for Full Depth Excess Soil in A Potable Ground Water Condition

Small Volume

(Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	16	16	42
Acenaphthylene	0.3	0.3	0.3
Acetone	32	32	32
Aldrin	0.05	0.05	0.088
Anthracene	1.3	1.3	1.3
Antimony	7.5	7.5	63
Arsenic	11	18	18
Barium	780	780	1300
Benzene	0.42	0.42	0.64
Benz[a]anthracene	1	1	1.9
Benzo[a]pyrene	0.16	0.6	0.6
Benzo[b]fluoranthene	1.6	1.6	1.9
Benzo[ghi]perylene	13	13	19
Benzo[k]fluoranthene	1.6	1.6	1.9
Beryllium	8	8	16
Biphenyl 1,1'-	0.31	0.31	52
Bis(2-chloroethyl)ether	0.5	0.5	0.5
Bis(2-chloroisopropyl)ether	0.67	0.67	11
Bis(2-ethylhexyl)phthalate	8	8	56
Boron (Hot Water Soluble)*	3	3	4
Boron (total)	240	240	240
Bromodichloromethane	3	3	3
Bromoform	0.54	0.54	1.2
Bromomethane	0.1	0.1	0.1
Cadmium	1.4	1.4	3.8
Carbon Tetrachloride	0.066	0.066	0.36
Chlordane	0.05	0.05	0.05
Chloroaniline p-	1	1	1
Chlorobenzene	3.7	3.7	4.8
Chloroform	0.1	0.1	0.94
Chlorophenol, 2-	3.2	3.2	6.2

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chromium Total	320	320	320
Chromium VI	16	16	16
Chrysene	14	14	19
Cobalt	22	22	160
Copper	200	200	460
Cyanide (CN-)	0.1	0.1	0.1
Dibenz[a h]anthracene	0.2	0.2	0.2
Dibromochloromethane	3.3	3.3	3.3
Dichlorobenzene, 1,2-	1.2	1.2	1.2
Dichlorobenzene, 1,3-	9.6	9.6	19
Dichlorobenzene, 1,4-	0.17	0.17	0.4
Dichlorobenzidine, 3,3'-	2	2	2
Dichlorodifluoromethane	32	32	32
DDD	6.6	6.6	9.2
DDE	0.26	0.26	0.52
DDT	0.078	1.4	1.4
Dichloroethane, 1,1-	0.94	0.94	0.94
Dichloroethane, 1,2-	0.1	0.1	0.1
Dichloroethylene, 1,1-	0.051	0.051	0.12
Dichloroethylene, 1,2-cis-	1.9	1.9	1.9
Dichloroethylene, 1,2-trans-	0.12	0.12	1.3
Dichlorophenol, 2,4-	0.19	0.19	0.19
Dichloropropane, 1,2-	0.05	0.05	0.28
Dichloropropene,1,3-	0.1	0.1	0.12
Dieldrin	0.05	0.05	0.088
Diethyl Phthalate	0.64	0.64	0.64
Dimethylphthalate	0.5	0.5	0.5
Dimethylphenol, 2,4-	76	76	76
Dinitrophenol, 2,4-	4	4	4
Dinitrotoluene, 2,4 & 2,6-	1	1	1
Dioxane, 1,4	0.4	3.6	3.6
Dioxin/Furan (TEQ)	0.000013	0.000013	0.000099
Endosulfan	0.04	0.04	0.3
Endrin	0.04	0.04	0.04
Ethylbenzene	1.1	1.1	1.1
Ethylene dibromide	0.079	0.079	0.079

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Fluoranthene	1.4	1.4	19
Fluorene	120	120	120
Heptachlor	0.2	0.2	0.38
Heptachlor Epoxide	0.05	0.05	0.05
Hexachlorobenzene	1	1	1.3
Hexachlorobutadiene	0.024	0.024	0.062
Hexachlorocyclohexane Gamma-	0.056	0.056	0.056
Hexachloroethane	0.18	0.18	0.42
Hexane (n)	5.6	5.6	92
Indeno[1 2 3-cd]pyrene	0.76	0.76	1.5
Lead	90	120	240
Mercury	0.25	0.27	3.9
Methoxychlor	0.26	0.26	1.6
Methyl Ethyl Ketone	26	26	140
Methyl Isobutyl Ketone	1.7	1.7	31
Methyl Mercury **	0.0084	0.0084	0.0084
Methyl tert-Butyl Ether (MTBE)	1.5	1.5	1.6
Methylene Chloride	0.2	0.2	3.2
Methlynaphthalene, 2-(1-) ***	0.99	0.99	30
Molybdenum	14	14	80
Naphthalene	1.2	1.2	17
Nickel	200	200	540
Pentachlorophenol	0.1	0.1	2.9
Petroleum Hydrocarbons F1****	110	110	110
Petroleum Hydrocarbons F2	200	200	460
Petroleum Hydrocarbons F3	600	600	3400
Petroleum Hydrocarbons F4	5600	5600	6600
Phenanthrene	12	12	17
Phenol	19	19	19
Polychlorinated Biphenyls	0.35	0.35	1.1
Pyrene	160	160	190
Selenium	4.8	4.8	11
Silver	40	40	80
Styrene	0.7	0.7	34
Tetrachloroethane, 1,1,1,2-	0.12	0.12	0.17

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Tetrachloroethane, 1,1,2,2-	0.1	0.1	0.1
Tetrachloroethylene	0.47	0.47	1.9
Thallium	1	1	3.3
Toluene	2.3	2.3	6.4
Trichlorobenzene, 1,2,4-	0.72	0.72	6.4
Trichloroethane, 1,1,1-	0.76	0.76	10
Trichloroethane, 1,1,2-	0.1	0.1	0.1
Trichloroethylene	0.061	0.061	0.55
Trichlorofluoromethane	8	8	8
Trichlorophenol, 2,4,5-	8.8	8.8	18
Trichlorophenol, 2,4,6-	2.1	2.1	2.1
Uranium	23	23	66
Vanadium	86	86	130
Vinyl Chloride	0.04	0.04	0.064
Xylene Mixture	6.2	6.2	26
Zinc	680	680	680
Electrical Conductivity (mS/cm)	1.4	1.4	2.8
Sodium Adsorption Ratio	10	10	24

Notes:

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 3: Ceiling Values for Full Depth Excess Soil in A Non-Potable Ground Water Condition

Small Volume

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	16	190
Acenaphthylene	0.3	0.3
Acetone	32	32
Aldrin	0.05	0.088
Anthracene	1.3	1.3
Antimony	7.5	63
Arsenic	18	18
Barium	780	1300
Benzene	0.42	0.64
Benz[a]anthracene	1	1.9
Benzo[a]pyrene	0.6	0.6
Benzo[b]fluoranthene	1.6	1.9
Benzo[ghi]perylene	13	19
Benzo[k]fluoranthene	1.6	1.9
Beryllium	8	16
Biphenyl 1,1'-	0.31	52
Bis(2-chloroethyl)ether	1	1
Bis(2-chloroisopropyl)ether	0.67	11
Bis(2-ethylhexyl)phthalate	8	56
Boron (Hot Water Soluble)*	3	4
Boron (total)	240	240
Bromodichloromethane	26	36
Bromoform	0.54	1.2
Bromomethane	0.1	0.1
Cadmium	1.4	3.8
Carbon Tetrachloride	0.066	0.36
Chlordane	0.05	0.05
Chloroaniline p-	1	1
Chlorobenzene	3.7	4.8
Chloroform	0.1	0.94

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chlorophenol, 2-	3.2	6.2
Chromium Total	320	320
Chromium VI	16	16
Chrysene	14	19
Cobalt	22	160
Copper	200	460
Cyanide (CN-)	0.1	0.1
Dibenz[a h]anthracene	0.2	0.2
Dibromochloromethane	19	26
Dichlorobenzene, 1,2-	6.1	14
Dichlorobenzene, 1,3-	9.6	19
Dichlorobenzene, 1,4-	0.17	0.4
Dichlorobenzidine, 3,3'-	2	2
Dichlorodifluoromethane	32	32
DDD	6.6	9.2
DDE	0.26	0.52
DDT	1.4	1.4
Dichloroethane, 1,1-	7	34
Dichloroethane, 1,2-	0.1	0.1
Dichloroethylene, 1,1-	0.051	0.12
Dichloroethylene, 1,2-cis-	6.8	55
Dichloroethylene, 1,2-trans-	0.12	1.3
Dichlorophenol, 2,4-	3.4	6.8
Dichloropropane, 1,2-	0.05	0.28
Dichloropropene,1,3-	0.1	0.36
Dieldrin	0.05	0.088
Diethyl Phthalate	0.64	0.64
Dimethylphthalate	0.5	0.5
Dimethylphenol, 2,4-	420	780
Dinitrophenol, 2,4-	38	120
Dinitrotoluene, 2,4 & 2,6-	1.8	2.4
Dioxane, 1,4	3.6	3.6
Dioxin/Furan (TEQ)	0.000013	0.000099
Endosulfan	0.04	0.3
Endrin	0.04	0.04
Ethylbenzene	4	19

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Ethylene dibromide	0.1	0.1
Fluoranthene	1.4	19
Fluorene	120	120
Heptachlor	0.2	0.38
Heptachlor Epoxide	0.05	0.05
Hexachlorobenzene	1	1.3
Hexachlorobutadiene	0.024	0.062
Hexachlorocyclohexane Gamma-	0.056	0.056
Hexachloroethane	0.18	0.42
Hexane (n)	5.6	92
Indeno[1 2 3-cd]pyrene	0.76	1.5
Lead	120	240
Mercury	0.27	3.9
Methoxychlor	0.26	1.6
Methyl Ethyl Ketone	26	140
Methyl Isobutyl Ketone	1.7	62
Methyl Mercury **	0.0084	0.0084
Methyl tert-Butyl Ether (MTBE)	1.5	22
Methylene Chloride	0.2	3.2
Methlynaphthalene, 2-(1-) ***	0.99	150
Molybdenum	14	80
Naphthalene	1.2	19
Nickel	200	540
Pentachlorophenol	0.1	2.9
Petroleum Hydrocarbons F1****	110	110
Petroleum Hydrocarbons F2	200	460
Petroleum Hydrocarbons F3	600	3400
Petroleum Hydrocarbons F4	5600	6600
Phenanthrene	12	24
Phenol	19	19
Polychlorinated Biphenyls	0.35	1.1
Pyrene	160	190
Selenium	4.8	11
Silver	40	80

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Styrene	0.7	68
Tetrachloroethane, 1,1,1,2-	0.12	0.17
Tetrachloroethane, 1,1,2,2-	0.1	0.1
Tetrachloroethylene	0.47	4.5
Thallium	1	3.3
Toluene	2.3	100
Trichlorobenzene, 1,2,4-	0.72	6.4
Trichloroethane, 1,1,1-	0.76	10
Trichloroethane, 1,1,2-	0.1	0.1
Trichloroethylene	0.061	0.91
Trichlorofluoromethane	8	8
Trichlorophenol, 2,4,5-	8.8	20
Trichlorophenol, 2,4,6-	7.6	7.6
Uranium	23	66
Vanadium	86	130
Vinyl Chloride	0.04	0.064
Xylene Mixture	6.2	52
Zinc	680	680
Electrical Conductivity (mS/cm)	1.4	2.8
Sodium Adsorption Ratio	10	24

Notes:

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 4: Ceiling Values for Stratified Excess Soil in A Potable Ground Water Condition

Small Volume

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Acenaphthene	16	16	42	42
Acenaphthylene	0.3	0.3	0.3	0.3
Acetone	32	32	32	32
Aldrin	0.05	6.4	0.088	13
Anthracene	1.3	1.3	1.3	1.3
Antimony	7.5	63	63	130
Arsenic	18	18	18	50
Barium	780	7700	1300	7700
Benzene	0.42	0.42	0.64	1.8
Benz[a]anthracene	1	1.9	1.9	72
Benzo[a]pyrene	0.6	0.6	0.6	7.2
Benzo[b]fluoranthene	1.6	1.9	1.9	72
Benzo[ghi]perylene	13	19	19	720
Benzo[k]fluoranthene	1.6	1.9	1.9	72
Beryllium	8	120	16	120
Biphenyl 1,1'-	0.31	11	52	52
Bis(2-chloroethyl)ether	0.5	0.5	0.5	0.5
Bis(2-chloroisopropyl)ether	0.67	11	11	11
Bis(2-ethylhexyl)phthalate	8	1700	56	1700
Boron (Hot Water Soluble)*	3	NA	4	NA
Boron (total)	NA	5000	NA	5000
Bromodichloromethane	3	3	3	3
Bromoform	0.54	0.54	1.2	4
Bromomethane	0.1	0.1	0.1	0.1
Cadmium	1.4	16	3.8	16
Carbon Tetrachloride	0.066	0.066	0.36	0.43
Chlordane	0.05	1.6	0.05	30
Chloroaniline p-	1	1	1	1
Chlorobenzene	3.7	4.8	4.8	4.8
Chloroform	0.1	0.1	0.94	1.7

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Chlorophenol, 2-	3.2	7.4	6.2	7.4
Chromium Total	320	11000	320	11000
Chromium VI	16	80	16	80
Chrysene	14	19	19	40
Cobalt	22	250	160	2500
Copper	200	5600	460	5600
Cyanide (CN-)	0.1	0.1	0.1	0.1
Dibenz[a h]anthracene	0.2	0.2	0.2	7.2
Dibromochloromethane	3.3	3.3	3.3	3.3
Dichlorobenzene, 1,2-	1.2	1.2	1.2	1.2
Dichlorobenzene, 1,3-	9.6	48	19	48
Dichlorobenzene, 1,4-	0.17	0.17	0.4	0.4
Dichlorobenzidine, 3,3'-	2	2	2	2
Dichlorodifluoromethane	32	32	32	32
DDD	6.6	9.2	9.2	110
DDE	0.26	6.4	0.52	110
DDT	1.4	6.4	1.4	110
Dichloroethane, 1,1-	0.94	0.94	0.94	0.94
Dichloroethane, 1,2-	0.1	0.1	0.1	0.11
Dichloroethylene, 1,1-	0.051	0.051	0.12	0.12
Dichloroethylene, 1,2-cis-	1.9	1.9	1.9	1.9
Dichloroethylene, 1,2-trans-	0.12	0.12	1.3	1.9
Dichlorophenol, 2,4-	0.19	0.19	0.19	0.19
Dichloropropane, 1,2-	0.05	0.05	0.28	0.33
Dichloropropene,1,3-	0.1	0.1	0.12	0.12
Dieldrin	0.05	0.11	0.088	0.11
Diethyl Phthalate	0.64	0.64	0.64	0.64
Dimethylphthalate	0.5	0.5	0.5	0.5
Dimethylphenol, 2,4-	76	76	76	76
Dinitrophenol, 2,4-	4	4	4	4
Dinitrotoluene, 2,4 & 2,6-	1	1	1	1
Dioxane, 1,4	3.6	15	3.6	15
Dioxin/Furan (TEQ)	0.000013	0.00065	0.000099	0.0036
Endosulfan	0.04	0.46	0.3	0.46
Endrin	0.04	0.071	0.04	0.071

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Ethylbenzene	1.1	1.1	1.1	1.1
Ethylene dibromide	0.079	0.079	0.079	0.079
Fluoranthene	1.4	19	19	48
Fluorene	120	120	120	120
Heptachlor	0.2	0.38	0.38	1.8
Heptachlor Epoxide	0.05	0.05	0.05	0.05
Hexachlorobenzene	1	1.3	1.3	2.9
Hexachlorobutadiene	0.024	0.024	0.062	0.12
Hexachlorocyclohexane Gamma-	0.056	0.056	0.056	0.056
Hexachloroethane	0.18	0.18	0.42	0.98
Hexane (n)	5.6	5.6	92	110
Indeno[1 2 3-cd]pyrene	0.76	1.9	1.5	72
Lead	120	1000	240	1000
Mercury	0.27	0.27	3.9	13
Methoxychlor	0.26	1.6	1.6	1.7
Methyl Ethyl Ketone	26	32	140	160
Methyl Isobutyl Ketone	1.7	6.6	31	64
Methyl Mercury **	0.0084	0.0084	0.0084	0.0084
Methyl tert-Butyl Ether (MTBE)	1.5	1.5	1.6	1.6
Methylene Chloride	0.2	0.2	3.2	3.9
Methlynaphthalene, 2-(1-) ***	0.99	30	30	30
Molybdenum	14	1200	80	2400
Naphthalene	1.2	1.3	17	93
Nickel	200	1000	540	1000
Pentachlorophenol	0.1	2.9	2.9	2.9
Petroleum Hydrocarbons F1****	110	110	110	110
Petroleum Hydrocarbons F2	200	200	460	460
Petroleum Hydrocarbons F3	600	5800	3400	5800
Petroleum Hydrocarbons F4	5600	6900	6600	6900
Phenanthrene	12	17	17	17
Phenol	19	92	19	92
Polychlorinated Biphenyls	0.35	2.7	1.1	7.3
Pyrene	160	190	190	480
Selenium	4.8	1200	11	2400

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Silver	40	490	80	980
Styrene	0.7	16	34	47
Tetrachloroethane, 1,1,1,2-	0.12	0.12	0.17	0.3
Tetrachloroethane, 1,1,2,2-	0.1	0.1	0.1	0.1
Tetrachloroethylene	0.47	0.47	1.9	1.9
Thallium	1	3.3	3.3	33
Toluene	2.3	6.2	6.4	6.4
Trichlorobenzene, 1,2,4-	0.72	0.72	6.4	17
Trichloroethane, 1,1,1-	0.76	0.76	10	10
Trichloroethane, 1,1,2-	0.1	0.1	0.1	0.14
Trichloroethylene	0.061	0.061	0.55	0.55
Trichlorofluoromethane	8	8	8	8
Trichlorophenol, 2,4,5-	8.8	18	18	18
Trichlorophenol, 2,4,6-	2.1	2.1	2.1	2.1
Uranium	23	300	66	300
Vanadium	86	160	130	320
Vinyl Chloride	0.04	0.04	0.064	0.11
Xylene Mixture	6.2	6.2	26	26
Zinc	680	15000	680	15000
Electrical Conductivity (mS/cm)	1.4	NA	2.8	NA
Sodium Adsorption Ratio	10	NA	24	NA

Notes:

NA: Not Applicable

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 5: Ceiling Values for Stratified Excess Soil in A Non-Potable Ground Water Condition

Small Volume

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Acenaphthene	16	16	190	660
Acenaphthylene	0.3	0.3	0.3	0.3
Acetone	32	32	32	32
Aldrin	0.05	6.4	0.088	13
Anthracene	1.3	1.3	1.3	1.3
Antimony	7.5	63	63	130
Arsenic	18	18	18	50
Barium	780	7700	1300	7700
Benzene	0.42	0.42	0.64	12
Benz[a]anthracene	1	1.9	1.9	72
Benzo[a]pyrene	0.6	0.6	0.6	7.2
Benzo[b]fluoranthene	1.6	1.9	1.9	72
Benzo[ghi]perylene	13	19	19	720
Benzo[k]fluoranthene	1.6	1.9	1.9	72
Beryllium	8	120	16	120
Biphenyl 1,1'-	0.31	11	52	100
Bis(2-chloroethyl)ether	1	1	1	32
Bis(2-chloroisopropyl)ether	0.67	11	11	11
Bis(2-ethylhexyl)phthalate	8	7100	56	7100
Boron (Hot Water Soluble)*	3	NA	4	NA
Boron (total)	NA	5000	NA	5000
Bromodichloromethane	26	36	36	100
Bromoform	0.54	0.54	1.2	4
Bromomethane	0.1	0.1	0.1	0.1
Cadmium	1.4	16	3.8	16
Carbon Tetrachloride	0.066	0.066	0.36	0.43
Chlordane	0.05	1.6	0.05	30
Chloroaniline p-	1	1	1	1
Chlorobenzene	3.7	4.8	4.8	4.8
Chloroform	0.1	0.1	0.94	1.7

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Chlorophenol, 2-	3.2	42	6.2	42
Chromium Total	320	11000	320	11000
Chromium VI	16	80	16	80
Chrysene	14	19	19	720
Cobalt	22	250	160	2500
Copper	200	5600	460	5600
Cyanide (CN-)	0.1	0.1	0.1	0.1
Dibenz[a h]anthracene	0.2	0.2	0.2	7.2
Dibromochloromethane	19	26	26	96
Dichlorobenzene, 1,2-	6.1	70	14	120
Dichlorobenzene, 1,3-	9.6	120	19	120
Dichlorobenzene, 1,4-	0.17	0.17	0.4	0.78
Dichlorobenzidine, 3,3'-	2	2	2	50
Dichlorodifluoromethane	32	32	32	32
DDD	6.6	9.2	9.2	110
DDE	0.26	6.4	0.52	110
DDT	1.4	6.4	1.4	110
Dichloroethane, 1,1-	7	7	34	120
Dichloroethane, 1,2-	0.1	0.1	0.1	0.11
Dichloroethylene, 1,1-	0.051	0.051	0.12	0.12
Dichloroethylene, 1,2-cis-	6.8	6.8	55	110
Dichloroethylene, 1,2-trans-	0.12	0.12	1.3	2.9
Dichlorophenol, 2,4-	3.4	92	6.8	92
Dichloropropane, 1,2-	0.05	0.05	0.28	0.33
Dichloropropene,1,3-	0.1	0.1	0.36	0.68
Dieldrin	0.05	0.11	0.088	0.11
Diethyl Phthalate	0.64	0.64	0.64	0.64
Dimethylphthalate	0.5	0.5	0.5	0.5
Dimethylphenol, 2,4-	420	780	780	780
Dinitrophenol, 2,4-	38	120	120	120
Dinitrotoluene, 2,4 & 2,6-	1.8	2.4	2.4	30
Dioxane, 1,4	3.6	200	3.6	1600
Dioxin/Furan (TEQ)	0.000013	0.00065	0.000099	0.0088
Endosulfan	0.04	0.46	0.3	0.46
Endrin	0.04	0.071	0.04	0.071

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Ethylbenzene	4	4	19	34
Ethylene dibromide	0.1	0.1	0.1	0.1
Fluoranthene	1.4	19	19	720
Fluorene	120	120	120	120
Heptachlor	0.2	0.38	0.38	1.8
Heptachlor Epoxide	0.05	0.05	0.05	0.05
Hexachlorobenzene	1	1.3	1.3	14
Hexachlorobutadiene	0.024	0.024	0.062	0.12
Hexachlorocyclohexane Gamma-	0.056	0.056	0.056	0.056
Hexachloroethane	0.18	0.18	0.42	3.4
Hexane (n)	5.6	5.6	92	110
Indeno[1 2 3-cd]pyrene	0.76	1.9	1.5	72
Lead	120	1000	240	1000
Mercury	0.27	0.27	3.9	13
Methoxychlor	0.26	1.6	1.6	1.7
Methyl Ethyl Ketone	26	32	140	300
Methyl Isobutyl Ketone	1.7	6.6	62	64
Methyl Mercury **	0.0084	0.0084	0.0084	0.0084
Methyl tert-Butyl Ether (MTBE)	1.5	1.5	22	28
Methylene Chloride	0.2	0.2	3.2	3.9
Methlynaphthalene, 2-(1-) ***	0.99	34	150	150
Molybdenum	14	1200	80	2400
Naphthalene	1.2	1.3	19	250
Nickel	200	1000	540	1000
Pentachlorophenol	0.1	2.9	2.9	2.9
Petroleum Hydrocarbons F1****	110	110	110	110
Petroleum Hydrocarbons F2	200	200	460	460
Petroleum Hydrocarbons F3	600	5800	3400	5800
Petroleum Hydrocarbons F4	5600	6900	6600	6900
Phenanthrene	12	540	24	540
Phenol	19	92	19	92
Polychlorinated Biphenyls	0.35	2.7	1.1	7.3
Pyrene	160	190	190	5200
Selenium	4.8	1200	11	2400

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Silver	40	490	80	980
Styrene	0.7	18	68	100
Tetrachloroethane, 1,1,1,2-	0.12	0.12	0.17	0.48
Tetrachloroethane, 1,1,2,2-	0.1	0.1	0.1	0.1
Tetrachloroethylene	0.47	0.47	4.5	9.5
Thallium	1	3.3	3.3	33
Toluene	2.3	9	100	140
Trichlorobenzene, 1,2,4-	0.72	0.72	6.4	17
Trichloroethane, 1,1,1-	0.76	0.76	10	10
Trichloroethane, 1,1,2-	0.1	0.1	0.1	0.14
Trichloroethylene	0.061	0.061	0.91	1.8
Trichlorofluoromethane	8	8	8	8
Trichlorophenol, 2,4,5-	8.8	54	20	54
Trichlorophenol, 2,4,6-	7.6	7.6	7.6	7.6
Uranium	23	300	66	300
Vanadium	86	160	130	320
Vinyl Chloride	0.04	0.04	0.064	0.11
Xylene Mixture	6.2	6.2	52	52
Zinc	680	15000	680	15000
Electrical Conductivity (mS/cm)	1.4	NA	2.8	NA
Sodium Adsorption Ratio	10	NA	24	NA

Notes:

NA: Not Applicable

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 6: Ceiling Values for Full Depth and Shallow Soils in A Potable Ground Water Condition

Small Volume

(Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	16	16	42
Acenaphthylene	0.3	0.3	0.3
Acetone	32	32	32
Aldrin	0.05	0.05	0.088
Anthracene	1.3	1.3	1.3
Antimony	7.5	7.5	63
Arsenic	11	18	18
Barium	780	780	1300
Benzene	0.21	0.21	0.32
Benz[a]anthracene	1	1	1.9
Benzo[a]pyrene	0.16	0.6	0.6
Benzo[b]fluoranthene	1.6	1.6	1.9
Benzo[ghi]perylene	13	13	19
Benzo[k]fluoranthene	1.6	1.6	1.9
Beryllium	8	8	16
Biphenyl 1,1'-	0.31	0.31	52
Bis(2-chloroethyl)ether	0.5	0.5	0.5
Bis(2-chloroisopropyl)ether	0.67	0.67	11
Bis(2-ethylhexyl)phthalate	8	8	56
Boron (Hot Water Soluble)*	3	3	4
Boron (total)	240	240	240
Bromodichloromethane	3	3	3
Bromoform	0.54	0.54	1.2
Bromomethane	0.05	0.05	0.05
Cadmium	1.4	1.4	3.8
Carbon Tetrachloride	0.05	0.05	0.21
Chlordane	0.05	0.05	0.05
Chloroaniline p-	1	1	1
Chlorobenzene	3.7	3.7	4.8
Chloroform	0.1	0.1	0.94
Chlorophenol, 2-	3.2	3.2	6.2

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chromium Total	320	320	320
Chromium VI	16	16	16
Chrysene	14	14	19
Cobalt	22	22	160
Copper	200	200	460
Cyanide (CN-)	0.1	0.1	0.1
Dibenz[a h]anthracene	0.2	0.2	0.2
Dibromochloromethane	3.3	3.3	3.3
Dichlorobenzene, 1,2-	1.2	1.2	1.2
Dichlorobenzene, 1,3-	9.6	9.6	19
Dichlorobenzene, 1,4-	0.17	0.17	0.4
Dichlorobenzidine, 3,3'-	2	2	2
Dichlorodifluoromethane	32	32	32
DDD	3.8	3.8	4.6
DDE	0.26	0.26	0.52
DDT	0.078	1.4	1.4
Dichloroethane, 1,1-	0.94	0.94	0.94
Dichloroethane, 1,2-	0.1	0.1	0.1
Dichloroethylene, 1,1-	0.05	0.05	0.064
Dichloroethylene, 1,2-cis-	1.9	1.9	1.9
Dichloroethylene, 1,2-trans-	0.084	0.084	1.3
Dichlorophenol, 2,4-	0.19	0.19	0.19
Dichloropropane, 1,2-	0.05	0.05	0.16
Dichloropropene,1,3-	0.1	0.1	0.12
Dieldrin	0.05	0.05	0.088
Diethyl Phthalate	0.56	0.56	0.56
Dimethylphthalate	0.5	0.5	0.5
Dimethylphenol, 2,4-	76	76	76
Dinitrophenol, 2,4-	4	4	4
Dinitrotoluene, 2,4 & 2,6-	1	1	1
Dioxane, 1,4	0.4	3.6	3.6
Dioxin/Furan (TEQ)	0.000013	0.000013	0.000099
Endosulfan	0.04	0.04	0.3
Endrin	0.04	0.04	0.04
Ethylbenzene	1.1	1.1	1.1
Ethylene dibromide	0.05	0.05	0.05

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Fluoranthene	1.4	1.4	19
Fluorene	120	120	120
Heptachlor	0.15	0.15	0.19
Heptachlor Epoxide	0.05	0.05	0.05
Hexachlorobenzene	1	1	1.3
Hexachlorobutadiene	0.024	0.024	0.062
Hexachlorocyclohexane Gamma-	0.056	0.056	0.056
Hexachloroethane	0.11	0.11	0.21
Hexane (n)	2.9	2.9	46
Indeno[1 2 3-cd]pyrene	0.76	0.76	1.5
Lead	90	120	240
Mercury	0.25	0.27	3.9
Methoxychlor	0.26	0.26	1.6
Methyl Ethyl Ketone	16	16	70
Methyl Isobutyl Ketone	1.7	1.7	31
Methyl Mercury **	0.0084	0.0084	0.0084
Methyl tert-Butyl Ether (MTBE)	1.5	1.5	1.6
Methylene Chloride	0.17	0.17	1.6
Methlynaphthalene, 2-(1-) ***	0.99	0.99	30
Molybdenum	14	14	80
Naphthalene	0.76	0.76	9.6
Nickel	200	200	540
Pentachlorophenol	0.1	0.1	2.9
Petroleum Hydrocarbons F1****	55	55	55
Petroleum Hydrocarbons F2	98	98	230
Petroleum Hydrocarbons F3	600	600	3400
Petroleum Hydrocarbons F4	5600	5600	6600
Phenanthrene	12	12	17
Phenol	19	19	19
Polychlorinated Biphenyls	0.35	0.35	1.1
Pyrene	78	78	96
Selenium	4.8	4.8	11
Silver	40	40	80
Styrene	0.7	0.7	34
Tetrachloroethane, 1,1,1,2-	0.12	0.12	0.14

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Tetrachloroethane, 1,1,2,2-	0.1	0.1	0.1
Tetrachloroethylene	0.28	0.28	1.9
Thallium	1	1	3.3
Toluene	2.3	2.3	6.4
Trichlorobenzene, 1,2,4-	0.36	0.36	3.2
Trichloroethane, 1,1,1-	0.38	0.38	6.1
Trichloroethane, 1,1,2-	0.1	0.1	0.1
Trichloroethylene	0.061	0.061	0.55
Trichlorofluoromethane	8	8	8
Trichlorophenol, 2,4,5-	8.8	8.8	18
Trichlorophenol, 2,4,6-	2.1	2.1	2.1
Uranium	23	23	66
Vanadium	86	86	130
Vinyl Chloride	0.04	0.04	0.043
Xylene Mixture	3.1	3.1	26
Zinc	680	680	680
Electrical Conductivity (mS/cm)	1.4	1.4	2.8
Sodium Adsorption Ratio	10	10	24

Notes:

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 7: Ceiling Values for Full Depth and Shallow Soils in A Non-Potable Ground Water Condition

Small Volume

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	16	160
Acenaphthylene	0.3	0.3
Acetone	32	32
Aldrin	0.05	0.088
Anthracene	1.3	1.3
Antimony	7.5	63
Arsenic	18	18
Barium	780	1300
Benzene	0.21	0.64
Benz[a]anthracene	1	1.9
Benzo[a]pyrene	0.6	0.6
Benzo[b]fluoranthene	1.6	1.9
Benzo[ghi]perylene	13	19
Benzo[k]fluoranthene	1.6	1.9
Beryllium	8	16
Biphenyl 1,1'-	0.31	52
Bis(2-chloroethyl)ether	1	1
Bis(2-chloroisopropyl)ether	0.67	11
Bis(2-ethylhexyl)phthalate	8	56
Boron (Hot Water Soluble)*	3	4
Boron (total)	240	240
Bromodichloromethane	26	36
Bromoform	0.54	1.2
Bromomethane	0.05	0.05
Cadmium	1.4	3.8
Carbon Tetrachloride	0.05	0.21
Chlordane	0.05	0.05
Chloroaniline p-	1	1
Chlorobenzene	3.7	4.8
Chloroform	0.1	0.94

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chlorophenol, 2-	3.2	6.2
Chromium Total	320	320
Chromium VI	16	16
Chrysene	14	19
Cobalt	22	160
Copper	200	460
Cyanide (CN-)	0.1	0.1
Dibenz[a h]anthracene	0.2	0.2
Dibromochloromethane	19	26
Dichlorobenzene, 1,2-	6.1	14
Dichlorobenzene, 1,3-	9.6	19
Dichlorobenzene, 1,4-	0.17	0.4
Dichlorobenzidine, 3,3'-	2	2
Dichlorodifluoromethane	32	32
DDD	3.8	4.6
DDE	0.26	0.52
DDT	1.4	1.4
Dichloroethane, 1,1-	3.5	17
Dichloroethane, 1,2-	0.1	0.1
Dichloroethylene, 1,1-	0.05	0.064
Dichloroethylene, 1,2-cis-	3.4	55
Dichloroethylene, 1,2-trans-	0.084	1.3
Dichlorophenol, 2,4-	3.4	6.8
Dichloropropane, 1,2-	0.05	0.16
Dichloropropene,1,3-	0.1	0.34
Dieldrin	0.05	0.088
Diethyl Phthalate	0.56	0.56
Dimethylphthalate	0.5	0.5
Dimethylphenol, 2,4-	420	780
Dinitrophenol, 2,4-	38	120
Dinitrotoluene, 2,4 & 2,6-	1.8	2.4
Dioxane, 1,4	3.6	3.6
Dioxin/Furan (TEQ)	0.000013	0.000099
Endosulfan	0.04	0.3
Endrin	0.04	0.04
Ethylbenzene	4	9.5

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Ethylene dibromide	0.05	0.05
Fluoranthene	1.4	19
Fluorene	120	120
Heptachlor	0.15	0.19
Heptachlor Epoxide	0.05	0.05
Hexachlorobenzene	1	1.3
Hexachlorobutadiene	0.024	0.062
Hexachlorocyclohexane Gamma-	0.056	0.056
Hexachloroethane	0.11	0.21
Hexane (n)	2.9	46
Indeno[1 2 3-cd]pyrene	0.76	1.5
Lead	120	240
Mercury	0.27	3.9
Methoxychlor	0.26	1.6
Methyl Ethyl Ketone	16	70
Methyl Isobutyl Ketone	1.7	31
Methyl Mercury **	0.0084	0.0084
Methyl tert-Butyl Ether (MTBE)	1.5	15
Methylene Chloride	0.17	1.6
Methlynaphthalene, 2-(1-) ***	0.99	150
Molybdenum	14	80
Naphthalene	0.76	9.6
Nickel	200	540
Pentachlorophenol	0.1	2.9
Petroleum Hydrocarbons F1****	55	55
Petroleum Hydrocarbons F2	98	230
Petroleum Hydrocarbons F3	600	3400
Petroleum Hydrocarbons F4	5600	6600
Phenanthrene	12	24
Phenol	19	19
Polychlorinated Biphenyls	0.35	1.1
Pyrene	78	96

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Selenium	4.8	11
Silver	40	80
Styrene	0.7	34
Tetrachloroethane, 1,1,1,2-	0.12	0.14
Tetrachloroethane, 1,1,2,2-	0.1	0.1
Tetrachloroethylene	0.28	4.5
Thallium	1	3.3
Toluene	2.3	68
Trichlorobenzene, 1,2,4-	0.36	3.2
Trichloroethane, 1,1,1-	0.38	6.1
Trichloroethane, 1,1,2-	0.1	0.1
Trichloroethylene	0.061	0.91
Trichlorofluoromethane	8	8
Trichlorophenol, 2,4,5-	8.8	20
Trichlorophenol, 2,4,6-	7.6	7.6
Uranium	23	66
Vanadium	86	130
Vinyl Chloride	0.04	0.043
Xylene Mixture	3.1	26
Zinc	680	680
Electrical Conductivity (mS/cm)	1.4	2.8
Sodium Adsorption Ratio	10	24

Notes:

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 8: Ceiling Values for Full Depth Excess Soil for Use within 30 m of A Water Body in A Potable Ground Water Condition

Small Volume

(Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	0.1	0.14	0.14
Acenaphthylene	0.19	0.19	0.19
Acetone	1	1	1
Aldrin	0.05	0.05	0.05
Anthracene	0.44	0.44	0.44
Antimony	2	2.6	2.6
Arsenic	11	18	18
Barium	390	440	440
Benzene	0.04	0.04	0.04
Benz[a]anthracene	0.64	0.72	0.72
Benzo[a]pyrene	0.16	0.6	0.6
Benzo[b]fluoranthene	0.6	0.94	0.94
Benzo[ghi]perylene	0.4	1.4	1.4
Benzo[k]fluoranthene	0.48	0.96	0.96
Beryllium	4	5	5
Biphenyl 1,1'-	0.1	0.1	0.1
Bis(2-chloroethyl)ether	0.5	0.5	0.5
Bis(2-chloroisopropyl)ether	0.67	0.67	1
Bis(2-ethylhexyl)phthalate	8	8	8
Boron (Hot Water Soluble)*	1.5	3	3
Boron (total)	72	72	72
Bromodichloromethane	0.1	0.1	0.1
Bromoform	0.1	0.1	0.1
Bromomethane	0.1	0.1	0.1
Cadmium	1.4	1.4	2.4
Carbon Tetrachloride	0.066	0.066	0.1
Chlordane	0.05	0.05	0.05
Chloroaniline p-	1	1	1
Chlorobenzene	0.1	0.1	0.1
Chloroform	0.1	0.1	0.1
Chlorophenol, 2-	0.2	0.2	0.2

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chromium Total	130	140	140
Chromium VI	1.3	1.3	1.3
Chrysene	0.68	5.6	5.6
Cobalt	22	22	44
Copper	120	180	180
Cyanide (CN-)	0.1	0.1	0.1
Dibenz[a h]anthracene	0.2	0.2	0.2
Dibromochloromethane	0.1	0.1	0.1
Dichlorobenzene, 1,2-	0.1	0.1	0.1
Dichlorobenzene, 1,3-	0.1	0.1	0.1
Dichlorobenzene, 1,4-	0.1	0.1	0.1
Dichlorobenzidine, 3,3'-	2	2	2
Dichlorodifluoromethane	0.1	0.1	0.1
DDD	0.1	0.1	0.1
DDE	0.1	0.1	0.1
DDT	0.078	1.4	1.4
Dichloroethane, 1,1-	0.1	0.1	0.1
Dichloroethane, 1,2-	0.1	0.1	0.1
Dichloroethylene, 1,1-	0.051	0.051	0.1
Dichloroethylene, 1,2-cis-	0.1	0.1	0.1
Dichloroethylene, 1,2-trans-	0.1	0.1	0.1
Dichlorophenol, 2,4-	0.19	0.19	0.19
Dichloropropane, 1,2-	0.05	0.05	0.1
Dichloropropene,1,3-	0.1	0.1	0.1
Dieldrin	0.05	0.05	0.05
Diethyl Phthalate	0.56	0.56	0.56
Dimethylphthalate	0.5	0.5	0.5
Dimethylphenol, 2,4-	0.4	0.4	0.4
Dinitrophenol, 2,4-	4	4	4
Dinitrotoluene, 2,4 & 2,6-	1	1	1
Dioxane, 1,4	0.4	0.4	0.4
Dioxin/Furan (TEQ)	0.000013	0.000013	0.000013
Endosulfan	0.04	0.04	0.04
Endrin	0.04	0.04	0.04
Ethylbenzene	0.1	0.1	0.1
Ethylene dibromide	0.079	0.079	0.079

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Fluoranthene	1.4	1.4	1.4
Fluorene	0.38	0.38	0.38
Heptachlor	0.05	0.05	0.05
Heptachlor Epoxide	0.05	0.05	0.05
Hexachlorobenzene	0.04	0.04	0.04
Hexachlorobutadiene	0.02	0.02	0.02
Hexachlorocyclohexane Gamma-	0.02	0.02	0.02
Hexachloroethane	0.02	0.02	0.02
Hexane (n)	0.1	0.1	0.1
Indeno[1 2 3-cd]pyrene	0.4	0.46	0.46
Lead	45	120	240
Mercury	0.2	0.27	0.54
Methoxychlor	0.1	0.1	0.1
Methyl Ethyl Ketone	1	1	1
Methyl Isobutyl Ketone	1	1	1
Methyl Mercury **	NV	NV	NV
Methyl tert-Butyl Ether (MTBE)	0.1	0.1	0.1
Methylene Chloride	0.1	0.1	0.1
Methlynaphthalene, 2-(1-) ***	0.1	0.99	1.2
Molybdenum	4	4	4
Naphthalene	0.1	0.18	0.18
Nickel	74	160	160
Pentachlorophenol	0.1	0.1	0.1
Petroleum Hydrocarbons F1****	34	50	50
Petroleum Hydrocarbons F2	20	20	20
Petroleum Hydrocarbons F3	300	480	480
Petroleum Hydrocarbons F4	240	240	240
Phenanthrene	1.1	1.4	1.4
Phenol	1	1	1
Polychlorinated Biphenyls	0.35	0.35	0.6
Pyrene	0.98	2	2
Selenium	2.4	3	3
Silver	1	1	1
Styrene	0.1	0.1	0.1
Tetrachloroethane, 1,1,1,2-	0.1	0.1	0.1

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Tetrachloroethane, 1,1,2,2-	0.1	0.1	0.1
Tetrachloroethylene	0.1	0.1	0.1
Thallium	1	1	2
Toluene	0.4	0.4	0.4
Trichlorobenzene, 1,2,4-	0.1	0.1	0.1
Trichloroethane, 1,1,1-	0.1	0.1	0.1
Trichloroethane, 1,1,2-	0.1	0.1	0.1
Trichloroethylene	0.05	0.05	0.05
Trichlorofluoromethane	0.1	0.5	0.5
Trichlorophenol, 2,4,5-	0.2	0.2	0.2
Trichlorophenol, 2,4,6-	0.2	0.2	0.2
Uranium	3.8	5	5
Vanadium	86	86	130
Vinyl Chloride	0.04	0.04	0.04
Xylene Mixture	0.1	0.1	0.1
Zinc	340	580	580
Electrical Conductivity (mS/cm)	0.7	1.4	1.4
Sodium Adsorption Ratio	5	10	10

Notes:

NV: No Value

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 9: Ceiling Values for Full Depth Excess Soil for Use within 30 m of A Water Body in A Non-Potable Ground Water Condition

Small Volume

(Unit in µg/g)

Contaminant	Residential/ Parkland/Institutional/ Property Use	Industrial/Commercial/ Community Property Use
Acenaphthene	0.14	0.14
Acenaphthylene	0.19	0.19
Acetone	1	1
Aldrin	0.05	0.05
Anthracene	0.44	0.44
Antimony	2.6	2.6
Arsenic	18	18
Barium	440	440
Benzene	0.04	0.04
Benz[a]anthracene	0.72	0.72
Benzo[a]pyrene	0.6	0.6
Benzo[b]fluoranthene	0.94	0.94
Benzo[ghi]perylene	1.4	1.4
Benzo[k]fluoranthene	0.96	0.96
Beryllium	5	5
Biphenyl 1,1'-	0.1	0.1
Bis(2-chloroethyl)ether	1	1
Bis(2-chloroisopropyl)ether	0.67	1
Bis(2-ethylhexyl)phthalate	8	8
Boron (Hot Water Soluble)*	3	3
Boron (total)	72	72
Bromodichloromethane	0.1	0.1
Bromoform	0.1	0.1
Bromomethane	0.1	0.1
Cadmium	1.4	2.4
Carbon Tetrachloride	0.066	0.1
Chlordane	0.05	0.05
Chloroaniline p-	1	1
Chlorobenzene	0.1	0.1
Chloroform	0.1	0.1
Chlorophenol, 2-	0.2	0.2

Contaminant	Residential/ Parkland/Institutional/ Property Use	Industrial/Commercial/ Community Property Use
Chromium Total	140	140
Chromium VI	1.3	1.3
Chrysene	5.6	5.6
Cobalt	22	44
Copper	180	180
Cyanide (CN-)	0.1	0.1
Dibenz[a h]anthracene	0.2	0.2
Dibromochloromethane	0.1	0.1
Dichlorobenzene, 1,2-	0.1	0.1
Dichlorobenzene, 1,3-	0.1	0.1
Dichlorobenzene, 1,4-	0.1	0.1
Dichlorobenzidine, 3,3'-	2	2
Dichlorodifluoromethane	0.1	0.1
DDD	0.1	0.1
DDE	0.1	0.1
DDT	1.4	1.4
Dichloroethane, 1,1-	0.1	0.1
Dichloroethane, 1,2-	0.1	0.1
Dichloroethylene, 1,1-	0.051	0.1
Dichloroethylene, 1,2-cis-	0.1	0.1
Dichloroethylene, 1,2-trans-	0.1	0.1
Dichlorophenol, 2,4-	0.2	0.2
Dichloropropane, 1,2-	0.05	0.1
Dichloropropene,1,3-	0.1	0.1
Dieldrin	0.05	0.05
Diethyl Phthalate	0.56	0.56
Dimethylphthalate	0.5	0.5
Dimethylphenol, 2,4-	0.4	0.4
Dinitrophenol, 2,4-	4	4
Dinitrotoluene, 2,4 & 2,6-	1	1
Dioxane, 1,4	0.4	0.4
Dioxin/Furan (TEQ)	0.000013	0.000013
Endosulfan	0.04	0.04
Endrin	0.04	0.04
Ethylbenzene	0.1	0.1
Ethylene dibromide	0.1	0.1

Contaminant	Residential/ Parkland/Institutional/ Property Use	Industrial/Commercial/ Community Property Use
Fluoranthene	1.4	1.4
Fluorene	0.38	0.38
Heptachlor	0.05	0.05
Heptachlor Epoxide	0.05	0.05
Hexachlorobenzene	0.04	0.04
Hexachlorobutadiene	0.02	0.02
Hexachlorocyclohexane Gamma-	0.02	0.02
Hexachloroethane	0.02	0.02
Hexane (n)	0.1	0.1
Indeno[1 2 3-cd]pyrene	0.46	0.46
Lead	120	240
Mercury	0.27	0.54
Methoxychlor	0.1	0.1
Methyl Ethyl Ketone	1	1
Methyl Isobutyl Ketone	1	1
Methyl Mercury **	NV	NV
Methyl tert-Butyl Ether MTBE)	0.1	0.1
Methylene Chloride	0.1	0.1
Methlynaphthalene, 2-(1-) ***	0.99	1.2
Molybdenum	4	4
Naphthalene	0.18	0.18
Nickel	160	160
Pentachlorophenol	0.1	0.1
Petroleum Hydrocarbons F1****	50	50
Petroleum Hydrocarbons F2	20	20
Petroleum Hydrocarbons F3	480	480
Petroleum Hydrocarbons F4	240	240
Phenanthrene	1.4	1.4
Phenol	1	1
Polychlorinated Biphenyls	0.35	0.6
Pyrene	2	2
Selenium	3	3
Silver	1	1
Styrene	0.1	0.1
Tetrachloroethane, 1,1,1,2-	0.1	0.1

Contaminant	Residential/ Parkland/Institutional/ Property Use	Industrial/Commercial/ Community Property Use
Tetrachloroethane, 1,1,2,2-	0.1	0.1
Tetrachloroethylene	0.1	0.1
Thallium	1	2
Toluene	0.4	0.4
Trichlorobenzene, 1,2,4-	0.1	0.1
Trichloroethane, 1,1,1-	0.1	0.1
Trichloroethane, 1,1,2-	0.1	0.1
Trichloroethylene	0.05	0.05
Trichlorofluoromethane	0.5	0.5
Trichlorophenol, 2,4,5-	0.2	0.2
Trichlorophenol, 2,4,6-	0.2	0.2
Uranium	5	5
Vanadium	86	130
Vinyl Chloride	0.04	0.04
Xylene Mixture	0.1	0.1
Zinc	580	580
Electrical Conductivity (mS/cm)	1.4	1.4
Sodium Adsorption Ratio	10	10

Notes:

NV: No Value

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 2.1: Ceiling Values for Full Depth Excess Soil in A Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	0.5	0.5	0.5
Acenaphthylene	0.17	0.17	0.17
Acetone	1	1	1
Aldrin	0.05	0.05	0.088
Anthracene	0.12	0.32	0.32
Antimony	7.5	7.5	63
Arsenic	11	18	18
Barium	790	790	1300
Benzene	0.029	0.029	0.04
Benz[a]anthracene	1	1	1.9
Benzo[a]pyrene	0.16	0.6	0.6
Benzo[b]fluoranthene	1.6	1.6	1.6
Benzo[ghi]perylene	13	13	19
Benzo[k]fluoranthene	1.6	1.6	1.6
Beryllium	8	8	16
Biphenyl 1,1'-	0.05	0.05	0.05
Bis(2-chloroethyl)ether	0.5	0.5	0.5
Bis(2-chloroisopropyl)ether	0.5	0.5	0.5
Bis(2-ethylhexyl)phthalate	8	8	20
Boron (Hot Water Soluble)*	3	3	4
Boron (total)	230	230	230
Bromodichloromethane	0.05	0.05	0.05
Bromoform	0.1	0.1	0.1
Bromomethane	0.05	0.05	0.05
Cadmium	1.4	1.4	3.8
Carbon Tetrachloride	0.05	0.05	0.05
Chlordane	0.05	0.05	0.05
Chloroaniline p-	0.5	0.5	0.5
Chlorobenzene	0.083	0.083	0.083
Chloroform	0.097	0.097	0.097
Chlorophenol, 2-	0.19	0.19	0.19

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chromium Total	320	320	320
Chromium VI	16	16	16
Chrysene	0.47	5.5	5.5
Cobalt	22	22	160
Copper	200	200	450
Cyanide (CN-)	0.051	0.051	0.051
Dibenz[a h]anthracene	0.2	0.2	0.2
Dibromochloromethane	0.05	0.05	0.05
Dichlorobenzene, 1,2-	4.6	4.6	14
Dichlorobenzene, 1,3-	0.52	0.52	0.52
Dichlorobenzene, 1,4-	0.05	0.05	0.05
Dichlorobenzidine, 3,3'-	1	1	1
Dichlorodifluoromethane	3.1	3.1	3.1
DDD	6.6	6.6	9.2
DDE	0.26	0.26	0.52
DDT	0.078	1.4	1.4
Dichloroethane, 1,1-	0.1	0.1	0.1
Dichloroethane, 1,2-	0.05	0.05	0.05
Dichloroethylene, 1,1-	0.05	0.05	0.05
Dichloroethylene, 1,2-cis-	0.05	0.05	0.05
Dichloroethylene, 1,2-trans-	0.05	0.05	0.05
Dichlorophenol, 2,4-	0.1	0.1	0.1
Dichloropropane, 1,2-	0.05	0.05	0.05
Dichloropropene,1,3-	0.05	0.05	0.05
Dieldrin	0.05	0.05	0.088
Diethyl Phthalate	0.5	0.5	0.5
Dimethylphthalate	0.5	0.5	0.5
Dimethylphenol, 2,4-	0.86	0.86	0.86
Dinitrophenol, 2,4-	2	2	2
Dinitrotoluene, 2,4 & 2,6-	0.5	0.5	0.5
Dioxane, 1,4	0.2	0.2	0.2
Dioxin/Furan (TEQ)	0.000013	0.000013	0.000044
Endosulfan	0.04	0.04	0.04
Endrin	0.04	0.04	0.04
Ethylbenzene	0.05	0.05	0.05
Ethylene dibromide	0.05	0.05	0.05

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Fluoranthene	0.58	1.1	1.1
Fluorene	14	14	14
Heptachlor	0.072	0.072	0.072
Heptachlor Epoxide	0.05	0.05	0.05
Hexachlorobenzene	0.034	0.034	0.034
Hexachlorobutadiene	0.02	0.02	0.02
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01
Hexachloroethane	0.02	0.02	0.02
Hexane (n)	3.2	3.2	3.2
Indeno[1 2 3-cd]pyrene	0.76	0.76	1.5
Lead	90	120	250
Mercury	0.24	0.27	0.27
Methoxychlor	0.26	0.26	0.38
Methyl Ethyl Ketone	0.5	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5	0.5
Methyl Mercury **	0.00097	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.05	0.05	0.05
Methylene Chloride	0.1	0.1	0.1
Methlynaphthalene, 2-(1-) ***	0.096	0.59	0.59
Molybdenum	14	14	80
Naphthalene	0.2	0.2	0.2
Nickel	200	200	540
Pentachlorophenol	0.1	0.1	0.34
Petroleum Hydrocarbons F1****	17	25	50
Petroleum Hydrocarbons F2	16	16	52
Petroleum Hydrocarbons F3	480	480	480
Petroleum Hydrocarbons F4	5600	5600	6600
Phenanthrene	0.21	0.69	0.69
Phenol	4.9	4.9	4.9
Polychlorinated Biphenyls	0.35	0.35	1.1
Pyrene	14	14	14
Selenium	4.8	4.8	11
Silver	40	40	80
Styrene	0.05	0.05	0.05
Tetrachloroethane, 1,1,1,2-	0.059	0.059	0.1

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Tetrachloroethane, 1,1,2,2-	0.05	0.05	0.05
Tetrachloroethylene	0.05	0.05	0.05
Thallium	1	1	3.3
Toluene	0.2	0.2	0.2
Trichlorobenzene, 1,2,4-	0.35	0.35	1
Trichloroethane, 1,1,1-	0.21	0.21	0.25
Trichloroethane, 1,1,2-	0.05	0.05	0.05
Trichloroethylene	0.05	0.05	0.05
Trichlorofluoromethane	0.34	0.51	0.51
Trichlorophenol, 2,4,5-	0.21	0.21	0.21
Trichlorophenol, 2,4,6-	8.8	8.8	20
Uranium	23	23	66
Vanadium	86	86	130
Vinyl Chloride	0.02	0.02	0.02
Xylene Mixture	0.091	0.091	0.091
Zinc	670	670	670
Electrical Conductivity (mS/cm)	1.4	1.4	2.8
Sodium Adsorption Ratio	10	10	24

Notes:

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 3.1: Ceiling Values for Full Depth Excess Soil in A Non-Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	16	17
Acenaphthylene	0.17	0.17
Acetone	3.6	3.6
Aldrin	0.05	0.088
Anthracene	0.32	0.32
Antimony	7.5	63
Arsenic	18	18
Barium	790	1300
Benzene	0.029	0.069
Benz[a]anthracene	1	1.9
Benzo[a]pyrene	0.6	0.6
Benzo[b]fluoranthene	1.6	1.9
Benzo[ghi]perylene	13	19
Benzo[k]fluoranthene	1.6	1.9
Beryllium	8	16
Biphenyl 1,1'-	0.3	43
Bis(2-chloroethyl)ether	1	1
Bis(2-chloroisopropyl)ether	0.5	11
Bis(2-ethylhexyl)phthalate	8	55
Boron (Hot Water Soluble)*	3	4
Boron (total)	230	230
Bromodichloromethane	12	12
Bromoform	4.2	4.9
Bromomethane	0.05	0.05
Cadmium	1.4	3.8
Carbon Tetrachloride	0.05	0.05
Chlordane	0.05	0.05
Chloroaniline p-	0.51	0.51
Chlorobenzene	0.55	0.55
Chloroform	0.16	0.51

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chlorophenol, 2-	3.1	4.7
Chromium Total	320	320
Chromium VI	16	16
Chrysene	14	19
Cobalt	22	160
Copper	200	450
Cyanide (CN-)	0.051	0.051
Dibenz[a h]anthracene	0.2	0.2
Dibromochloromethane	11	11
Dichlorobenzene, 1,2-	4.6	14
Dichlorobenzene, 1,3-	9.6	14
Dichlorobenzene, 1,4-	0.1	0.1
Dichlorobenzidine, 3,3'-	2	2
Dichlorodifluoromethane	3.7	3.7
DDD	6.6	9.2
DDE	0.26	0.52
DDT	1.4	1.4
Dichloroethane, 1,1-	0.18	0.72
Dichloroethane, 1,2-	0.05	0.081
Dichloroethylene, 1,1-	0.05	0.05
Dichloroethylene, 1,2-cis-	0.069	0.069
Dichloroethylene, 1,2-trans-	0.05	0.05
Dichlorophenol, 2,4-	3.4	6.7
Dichloropropane, 1,2-	0.05	0.061
Dichloropropene,1,3-	0.076	0.1
Dieldrin	0.05	0.088
Diethyl Phthalate	0.5	0.5
Dimethylphthalate	0.5	0.5
Dimethylphenol, 2,4-	90	90
Dinitrophenol, 2,4-	13	13
Dinitrotoluene, 2,4 & 2,6-	1.8	2.3
Dioxane, 1,4	3.6	3.6
Dioxin/Furan (TEQ)	0.000013	0.000099
Endosulfan	0.04	0.04
Endrin	0.04	0.04
Ethylbenzene	2.8	3.8

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Ethylene dibromide	0.05	0.05
Fluoranthene	1.4	19
Fluorene	14	14
Heptachlor	0.072	0.072
Heptachlor Epoxide	0.05	0.05
Hexachlorobenzene	1	1.3
Hexachlorobutadiene	0.02	0.02
Hexachlorocyclohexane Gamma-	0.01	0.01
Hexachloroethane	0.02	0.26
Hexane (n)	3.2	3.2
Indeno[1 2 3-cd]pyrene	0.76	1.5
Lead	120	250
Mercury	0.27	0.27
Methoxychlor	0.26	0.38
Methyl Ethyl Ketone	14	52
Methyl Isobutyl Ketone	0.89	25
Methyl Mercury **	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.1	0.1
Methylene Chloride	0.12	0.39
Methlynaphthalene, 2-(1-) ***	0.92	17
Molybdenum	14	80
Naphthalene	1.2	3.5
Nickel	200	540
Pentachlorophenol	0.1	0.34
Petroleum Hydrocarbons F1****	25	50
Petroleum Hydrocarbons F2	16	52
Petroleum Hydrocarbons F3	600	3400
Petroleum Hydrocarbons F4	5600	6600
Phenanthrene	12	25
Phenol	11	11
Polychlorinated Biphenyls	0.35	1.1
Pyrene	140	140
Selenium	4.8	11
Silver	40	80

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Styrene	0.5	14
Tetrachloroethane, 1,1,1,2-	0.059	0.1
Tetrachloroethane, 1,1,2,2-	0.093	0.1
Tetrachloroethylene	0.05	0.05
Thallium	1	3.3
Toluene	0.99	16
Trichlorobenzene, 1,2,4-	0.35	2.6
Trichloroethane, 1,1,1-	0.21	0.79
Trichloroethane, 1,1,2-	0.093	0.1
Trichloroethylene	0.05	0.05
Trichlorofluoromethane	0.91	0.91
Trichlorophenol, 2,4,5-	6.2	6.2
Trichlorophenol, 2,4,6-	0.86	0.86
Uranium	23	66
Vanadium	86	130
Vinyl Chloride	0.02	0.02
Xylene Mixture	1.8	6
Zinc	670	670
Electrical Conductivity (mS/cm)	1.4	2.8
Sodium Adsorption Ratio	10	24

Notes:

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 4.1: Ceiling Values for Stratified Excess Soil in A Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Acenaphthene	0.5	0.5	0.5	0.5
Acenaphthylene	0.17	0.17	0.17	0.17
Acetone	1	1	1	1
Aldrin	0.05	0.47	0.088	0.47
Anthracene	0.32	0.32	0.32	0.32
Antimony	7.5	63	63	130
Arsenic	18	18	18	50
Barium	790	7700	1300	7700
Benzene	0.029	0.029	0.04	0.04
Benz[a]anthracene	1	1.9	1.9	4.6
Benzo[a]pyrene	0.6	0.6	0.6	0.6
Benzo[b]fluoranthene	1.6	1.6	1.6	1.6
Benzo[ghi]perylene	13	19	19	54
Benzo[k]fluoranthene	1.6	1.6	1.6	1.6
Beryllium	8	120	16	120
Biphenyl 1,1'-	0.05	0.05	0.05	0.05
Bis(2-chloroethyl)ether	0.5	0.5	0.5	0.5
Bis(2-chloroisopropyl)ether	0.5	0.5	0.5	0.5
Bis(2-ethylhexyl)phthalate	8	20	20	20
Boron (Hot Water Soluble)*	3	NA	4	NA
Boron (total)	NA	5000	NA	5000
Bromodichloromethane	0.05	0.05	0.05	0.05
Bromoform	0.1	0.1	0.1	0.1
Bromomethane	0.05	0.05	0.05	0.05
Cadmium	1.4	16	3.8	16
Carbon Tetrachloride	0.05	0.05	0.05	0.05
Chlordane	0.05	1.6	0.05	3.4
Chloroaniline p-	0.5	0.5	0.5	0.5
Chlorobenzene	0.083	0.083	0.083	0.083
Chloroform	0.097	0.097	0.097	0.097

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Chlorophenol, 2-	0.19	0.19	0.19	0.19
Chromium Total	320	11000	320	11000
Chromium VI	16	80	16	80
Chrysene	5.5	5.5	5.5	5.5
Cobalt	22	250	160	2500
Copper	200	1900	450	1900
Cyanide (CN-)	0.051	0.051	0.051	0.051
Dibenz[a h]anthracene	0.2	0.2	0.2	0.52
Dibromochloromethane	0.05	0.05	0.05	0.05
Dichlorobenzene, 1,2-	4.6	9.8	14	14
Dichlorobenzene, 1,3-	0.52	0.52	0.52	0.52
Dichlorobenzene, 1,4-	0.05	0.05	0.05	0.05
Dichlorobenzidine, 3,3'-	1	1	1	1
Dichlorodifluoromethane	3.1	3.1	3.1	3.1
DDD	6.6	9.2	9.2	15
DDE	0.26	6.5	0.52	15
DDT	1.4	6.5	1.4	22
Dichloroethane, 1,1-	0.1	0.1	0.1	0.1
Dichloroethane, 1,2-	0.05	0.05	0.05	0.05
Dichloroethylene, 1,1-	0.05	0.05	0.05	0.05
Dichloroethylene, 1,2-cis-	0.05	0.05	0.05	0.05
Dichloroethylene, 1,2-trans-	0.05	0.05	0.05	0.05
Dichlorophenol, 2,4-	0.1	0.1	0.1	0.1
Dichloropropane, 1,2-	0.05	0.05	0.05	0.05
Dichloropropene,1,3-	0.05	0.05	0.05	0.05
Dieldrin	0.05	7.9	0.088	12
Diethyl Phthalate	0.5	0.5	0.5	0.5
Dimethylphthalate	0.5	0.5	0.5	0.5
Dimethylphenol, 2,4-	0.86	0.86	0.86	0.86
Dinitrophenol, 2,4-	2	2	2	2
Dinitrotoluene, 2,4 & 2,6-	0.5	0.5	0.5	0.5
Dioxane, 1,4	0.2	0.2	0.2	0.2
Dioxin/Furan (TEQ)	0.000013	0.000044	0.000044	0.000044
Endosulfan	0.04	0.04	0.04	0.04
Endrin	0.04	7.8	0.04	7.8

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Ethylbenzene	0.05	0.05	0.05	0.05
Ethylene dibromide	0.05	0.05	0.05	0.05
Fluoranthene	1.1	1.1	1.1	1.1
Fluorene	14	14	14	14
Heptachlor	0.072	.072	0.072	0.072
Heptachlor Epoxide	0.05	0.05	0.05	0.05
Hexachlorobenzene	0.034	.034	0.034	0.034
Hexachlorobutadiene	0.02	0.02	0.02	0.02
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01	0.01
Hexachloroethane	0.02	0.02	0.02	0.02
Hexane (n)	3.2	3.2	3.2	3.2
Indeno[1 2 3-cd]pyrene	0.76	1.9	1.5	5.4
Lead	120	1000	250	1000
Mercury	0.27	0.27	0.27	1.9
Methoxychlor	0.26	0.38	0.38	0.39
Methyl Ethyl Ketone	0.5	0.5	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5	0.5	0.5
Methyl Mercury **	0.00097	0.00097	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.05	0.05	0.05	0.05
Methylene Chloride	0.1	0.1	0.1	0.1
Methlynaphthalene, 2-(1-) ***	0.59	0.59	0.59	0.59
Molybdenum	14	1200	80	2500
Naphthalene	0.2	0.2	0.2	0.2
Nickel	200	1000	540	1000
Pentachlorophenol	0.1	0.34	0.34	0.34
Petroleum Hydrocarbons F1****	25	25	50	50
Petroleum Hydrocarbons F2	16	16	52	52
Petroleum Hydrocarbons F3	480	480	480	480
Petroleum Hydrocarbons F4	5600	6900	6600	6900
Phenanthrene	0.69	0.69	0.69	0.69
Phenol	4.9	4.9	4.9	4.9
Polychlorinated Biphenyls	0.35	2.7	1.1	7.3
Pyrene	14	14	14	14
Selenium	4.8	1200	11	2500

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Silver	40	490	80	980
Styrene	0.05	0.05	0.05	0.05
Tetrachloroethane, 1,1,1,2-	0.059	0.059	0.1	0.1
Tetrachloroethane, 1,1,2,2-	0.05	0.05	0.05	0.05
Tetrachloroethylene	0.05	0.05	0.05	0.05
Thallium	1	3.3	3.3	33
Toluene	0.2	0.2	0.2	0.2
Trichlorobenzene, 1,2,4-	0.35	0.35	1	1
Trichloroethane, 1,1,1-	0.21	0.21	0.25	0.25
Trichloroethane, 1,1,2-	0.05	0.05	0.05	0.05
Trichloroethylene	0.05	0.05	0.05	0.05
Trichlorofluoromethane	0.51	0.51	0.51	0.51
Trichlorophenol, 2,4,5-	0.21	0.21	0.21	0.21
Trichlorophenol, 2,4,6-	8.8	24	20	24
Uranium	23	300	66	300
Vanadium	86	160	130	330
Vinyl Chloride	0.02	0.02	0.02	0.02
Xylene Mixture	0.091	0.091	0.091	0.091
Zinc	670	15000	670	15000
Electrical Conductivity (mS/cm)	1.4	1.4	2.8	2.8
Sodium Adsorption Ratio	10	10	24	24

Notes:

NA: Not Applicable

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 5.1: Ceiling Values for Stratified Excess Soil in A Non-Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Acenaphthene	16	16	17	74
Acenaphthylene	0.17	0.17	0.17	0.17
Acetone	3.6	3.6	3.6	3.6
Aldrin	0.05	6.4	0.088	13
Anthracene	0.32	0.32	0.32	0.32
Antimony	7.5	63	63	130
Arsenic	18	18	18	50
Barium	790	7700	1300	7700
Benzene	0.029	0.029	0.069	0.15
Benz[a]anthracene	1	1.9	1.9	72
Benzo[a]pyrene	0.6	0.6	0.6	7.2
Benzo[b]fluoranthene	1.6	1.9	1.9	72
Benzo[ghi]perylene	13	19	19	720
Benzo[k]fluoranthene	1.6	1.9	1.9	72
Beryllium	8	120	16	120
Biphenyl 1,1'-	0.3	11	43	43
Bis(2-chloroethyl)ether	1	1	1	21
Bis(2-chloroisopropyl)ether	0.5	11	11	11
Bis(2-ethylhexyl)phthalate	8	7100	55	7100
Boron (Hot Water Soluble)*	3	NA	4	NA
Boron (total)	NA	5000	NA	5000
Bromodichloromethane	12	12	12	12
Bromoform	4.2	4.9	4.9	4.9
Bromomethane	0.05	0.05	0.05	0.05
Cadmium	1.4	16	3.8	16
Carbon Tetrachloride	0.05	0.05	0.05	0.05
Chlordane	0.05	1.6	0.05	3.4
Chloroaniline p-	0.51	0.51	0.51	0.51
Chlorobenzene	0.55	0.55	0.55	0.55
Chloroform	0.16	0.16	0.51	0.51

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Chlorophenol, 2-	3.1	4.7	4.7	4.7
Chromium Total	320	11000	320	11000
Chromium VI	16	80	16	80
Chrysene	14	19	19	720
Cobalt	22	250	160	2500
Copper	200	1900	450	1900
Cyanide (CN-)	0.051	0.051	0.051	0.051
Dibenz[a h]anthracene	0.2	0.2	0.2	7.2
Dibromochloromethane	11	11	11	11
Dichlorobenzene, 1,2-	4.6	9.8	14	14
Dichlorobenzene, 1,3-	9.6	14	14	14
Dichlorobenzene, 1,4-	0.1	0.1	0.1	0.1
Dichlorobenzidine, 3,3'-	2	2	2	15
Dichlorodifluoromethane	3.7	3.7	3.7	3.7
DDD	6.6	9.2	9.2	110
DDE	0.26	6.5	0.52	110
DDT	1.4	6.5	1.4	110
Dichloroethane, 1,1-	0.18	0.18	0.72	0.72
Dichloroethane, 1,2-	0.05	0.05	0.081	0.081
Dichloroethylene, 1,1-	0.05	0.05	0.05	0.05
Dichloroethylene, 1,2-cis-	0.069	0.069	0.069	0.069
Dichloroethylene, 1,2-trans-	0.05	0.05	0.05	0.05
Dichlorophenol, 2,4-	3.4	11	6.7	11
Dichloropropane, 1,2-	0.05	0.05	0.061	0.061
Dichloropropene,1,3-	0.076	0.076	0.1	0.1
Dieldrin	0.05	7.9	0.088	12
Diethyl Phthalate	0.5	0.5	0.5	0.5
Dimethylphthalate	0.5	0.5	0.5	0.5
Dimethylphenol, 2,4-	90	90	90	90
Dinitrophenol, 2,4-	13	13	13	13
Dinitrotoluene, 2,4 & 2,6-	1.8	2.3	2.3	3.4
Dioxane, 1,4	3.6	180	3.6	180
Dioxin/Furan (TEQ)	0.000013	0.00065	0.000099	0.0088
Endosulfan	0.04	0.04	0.04	0.04
Endrin	0.04	7.8	0.04	7.8

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Ethylbenzene	2.8	3.8	3.8	3.8
Ethylene dibromide	0.05	0.05	0.05	0.05
Fluoranthene	1.4	19	19	720
Fluorene	14	14	14	14
Heptachlor	0.072	0.072	0.072	0.072
Heptachlor Epoxide	0.05	0.05	0.05	0.05
Hexachlorobenzene	1	1.3	1.3	1.6
Hexachlorobutadiene	0.02	0.02	0.02	0.02
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01	0.01
Hexachloroethane	0.02	0.02	0.26	0.44
Hexane (n)	3.2	3.2	3.2	3.2
Indeno[1 2 3-cd]pyrene	0.76	1.9	1.5	72
Lead	120	1000	250	1000
Mercury	0.27	0.27	0.27	1.9
Methoxychlor	0.26	0.38	0.38	0.39
Methyl Ethyl Ketone	14	32	52	52
Methyl Isobutyl Ketone	0.89	6.6	25	25
Methyl Mercury **	0.00097	0.00097	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.1	0.1	0.1	0.1
Methylene Chloride	0.12	0.12	0.39	0.39
Methlynaphthalene, 2-(1-) ***	0.92	17	17	17
Molybdenum	14	1200	80	2500
Naphthalene	1.2	1.2	3.5	46
Nickel	200	1000	540	1000
Pentachlorophenol	0.1	0.34	0.34	0.34
Petroleum Hydrocarbons F1****	25	25	50	50
Petroleum Hydrocarbons F2	16	16	52	52
Petroleum Hydrocarbons F3	600	5800	3400	5800
Petroleum Hydrocarbons F4	5600	6900	6600	6900
Phenanthrene	12	46	25	46
Phenol	11	11	11	11
Polychlorinated Biphenyls	0.35	2.7	1.1	7.3
Pyrene	140	140	140	140
Selenium	4.8	1200	11	2500

Contaminant	Residential/Parkland/Institutional Property Use		Industrial/Commercial/Community Property Use	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Silver	40	490	80	980
Styrene	0.5	3.2	14	14
Tetrachloroethane, 1,1,1,2-	0.059	0.059	0.1	0.1
Tetrachloroethane, 1,1,2,2-	0.093	0.093	0.1	0.1
Tetrachloroethylene	0.05	0.05	0.05	0.05
Thallium	1	3.3	3.3	33
Toluene	0.99	9	16	16
Trichlorobenzene, 1,2,4-	0.35	0.35	2.6	2.6
Trichloroethane, 1,1,1-	0.21	0.21	0.79	0.79
Trichloroethane, 1,1,2-	0.093	0.093	0.1	0.1
Trichloroethylene	0.05	0.05	0.05	0.05
Trichlorofluoromethane	0.91	0.91	0.91	0.91
Trichlorophenol, 2,4,5-	6.2	6.2	6.2	6.2
Trichlorophenol, 2,4,6-	0.86	0.86	0.86	0.86
Uranium	23	300	66	300
Vanadium	86	160	130	330
Vinyl Chloride	0.02	0.02	0.02	0.02
Xylene Mixture	1.8	1.8	6	6
Zinc	670	15000	670	15000
Electrical Conductivity (mS/cm)	1.4	1.4	2.8	2.8
Sodium Adsorption Ratio	10	10	24	24

Notes:

NA: Not Applicable

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 6.1: Ceiling Values for Full Depth and Shallow Soils in A Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/ Commercial/Community Property Use
Acenaphthene	0.5	0.5	0.5
Acenaphthylene	0.17	0.17	0.17
Acetone	1	1	1
Aldrin	0.05	0.05	0.088
Anthracene	0.1	0.32	0.32
Antimony	7.5	7.5	63
Arsenic	11	18	18
Barium	790	790	1300
Benzene	0.02	0.02	0.02
Benz[a]anthracene	1	1	1.7
Benzo[a]pyrene	0.16	0.6	0.6
Benzo[b]fluoranthene	1.6	1.6	1.6
Benzo[ghi]perylene	2.1	2.1	2.1
Benzo[k]fluoranthene	1.6	1.6	1.6
Beryllium	8	8	16
Biphenyl 1,1'-	0.05	0.05	0.05
Bis(2-chloroethyl)ether	0.5	0.5	0.5
Bis(2-chloroisopropyl)ether	0.5	0.5	0.5
Bis(2-ethylhexyl)phthalate	8	8	20
Boron (Hot Water Soluble)*	3	3	4
Boron (total)	230	230	230
Bromodichloromethane	0.05	0.05	0.05
Bromoform	0.1	0.1	0.1
Bromomethane	0.05	0.05	0.05
Cadmium	1.4	1.4	3.8
Carbon Tetrachloride	0.05	0.05	0.05
Chlordane	0.05	0.05	0.05
Chloroaniline p-	0.5	0.5	0.5
Chlorobenzene	0.083	0.083	0.083
Chloroform	0.05	0.05	0.05
Chlorophenol, 2-	0.19	0.19	0.19

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/ Commercial/Community Property Use
Chromium Total	320	320	320
Chromium VI	16	16	16
Chrysene	0.47	3.3	3.3
Cobalt	22	22	160
Copper	200	200	450
Cyanide (CN-)	0.051	0.051	0.051
Dibenz[a h]anthracene	0.2	0.2	0.2
Dibromochloromethane	0.05	0.05	0.05
Dichlorobenzene, 1,2-	4.6	4.6	14
Dichlorobenzene, 1,3-	0.52	0.52	0.52
Dichlorobenzene, 1,4-	0.05	0.05	0.05
Dichlorobenzidine, 3,3'-	1	1	1
Dichlorodifluoromethane	3.1	3.1	3.1
DDD	0.55	0.55	0.55
DDE	0.26	0.26	0.52
DDT	0.078	1.4	1.4
Dichloroethane, 1,1-	0.05	0.05	0.05
Dichloroethane, 1,2-	0.05	0.05	0.05
Dichloroethylene, 1,1-	0.05	0.05	0.05
Dichloroethylene, 1,2-cis-	0.05	0.05	0.05
Dichloroethylene, 1,2-trans-	0.05	0.05	0.05
Dichlorophenol, 2,4-	0.1	0.1	0.1
Dichloropropane, 1,2-	0.05	0.05	0.05
Dichloropropene,1,3-	0.05	0.05	0.05
Dieldrin	0.05	0.05	0.088
Diethyl Phthalate	0.5	0.5	0.5
Dimethylphthalate	0.5	0.5	0.5
Dimethylphenol, 2,4-	0.86	0.86	0.86
Dinitrophenol, 2,4-	2	2	2
Dinitrotoluene, 2,4 & 2,6-	0.5	0.5	0.5
Dioxane, 1,4	0.2	0.2	0.2
Dioxin/Furan (TEQ)	0.000013	0.000013	0.000029
Endosulfan	0.04	0.04	0.04
Endrin	0.04	0.04	0.04
Ethylbenzene	0.05	0.05	0.05
Ethylene dibromide	0.05	0.05	0.05

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/ Commercial/Community Property Use
Fluoranthene	0.58	1.1	1.1
Fluorene	13	13	13
Heptachlor	0.05	0.05	0.05
Heptachlor Epoxide	0.05	0.05	0.05
Hexachlorobenzene	0.034	0.034	0.034
Hexachlorobutadiene	0.012	0.012	0.012
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01
Hexachloroethane	0.02	0.02	0.02
Hexane (n)	0.05	0.05	0.05
Indeno[1 2 3-cd]pyrene	0.76	0.76	1.5
Lead	90	120	250
Mercury	0.16	0.27	0.27
Methoxychlor	0.1	0.1	0.1
Methyl Ethyl Ketone	0.5	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5	0.5
Methyl Mercury **	0.00097	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.05	0.05	0.05
Methylene Chloride	0.07	0.07	0.07
Methlynaphthalene, 2-(1-) ***	0.096	0.59	0.59
Molybdenum	14	14	80
Naphthalene	0.16	0.18	0.18
Nickel	200	200	540
Pentachlorophenol	0.1	0.1	0.34
Petroleum Hydrocarbons F1****	17	25	25
Petroleum Hydrocarbons F2	10	10	10
Petroleum Hydrocarbons F3	480	480	480
Petroleum Hydrocarbons F4	5600	5600	6600
Phenanthrene	0.21	0.69	0.69
Phenol	4.9	4.9	4.9
Polychlorinated Biphenyls	0.3	0.3	0.3
Pyrene	1.6	2.1	2.1
Selenium	4.8	4.8	11
Silver	40	40	80
Styrene	0.05	0.05	0.05
Tetrachloroethane, 1,1,1,2-	0.05	0.05	0.05

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/ Commercial/Community Property Use
Tetrachloroethane, 1,1,2,2-	0.05	0.05	0.05
Tetrachloroethylene	0.05	0.05	0.05
Thallium	1	1	3.3
Toluene	0.2	0.2	0.2
Trichlorobenzene, 1,2,4-	0.1	0.1	0.1
Trichloroethane, 1,1,1-	0.071	0.071	0.071
Trichloroethane, 1,1,2-	0.05	0.05	0.05
Trichloroethylene	0.05	0.05	0.05
Trichlorofluoromethane	0.34	0.51	0.51
Trichlorophenol, 2,4,5-	0.21	0.21	0.21
Trichlorophenol, 2,4,6-	8.8	8.8	20
Uranium	23	23	66
Vanadium	86	86	130
Vinyl Chloride	0.02	0.02	0.02
Xylene Mixture	0.091	0.091	0.091
Zinc	670	670	670
Electrical Conductivity (mS/cm)	1.4	1.4	2.8
Sodium Adsorption Ratio	10	10	24

Notes:

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 7.1: Ceiling Values for Full Depth and Shallow Soils in A Non-Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	2.1	2.1
Acenaphthylene	0.17	0.17
Acetone	3.6	3.6
Aldrin	0.05	0.088
Anthracene	0.32	0.32
Antimony	7.5	63
Arsenic	18	18
Barium	790	1300
Benzene	0.02	0.02
Benz[a]anthracene	1	1.7
Benzo[a]pyrene	0.6	0.6
Benzo[b]fluoranthene	1.6	1.9
Benzo[ghi]perylene	2.1	2.1
Benzo[k]fluoranthene	1.6	1.9
Beryllium	8	16
Biphenyl 1,1'-	0.3	43
Bis(2-chloroethyl)ether	1	1
Bis(2-chloroisopropyl)ether	0.5	11
Bis(2-ethylhexyl)phthalate	8	20
Boron (Hot Water Soluble)*	3	4
Boron (total)	230	230
Bromodichloromethane	12	12
Bromoform	4.2	4.9
Bromomethane	0.05	0.05
Cadmium	1.4	3.8
Carbon Tetrachloride	0.05	0.05
Chlordane	0.05	0.05
Chloroaniline p-	0.51	0.51
Chlorobenzene	0.55	0.55
Chloroform	0.05	0.05
Chlorophenol, 2-	3.1	4.7

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chromium Total	320	320
Chromium VI	16	16
Chrysene	3.3	3.3
Cobalt	22	160
Copper	200	450
Cyanide (CN-)	0.051	0.051
Dibenz[a h]anthracene	0.2	0.2
Dibromochloromethane	11	11
Dichlorobenzene, 1,2-	1.4	1.4
Dichlorobenzene, 1,3-	9.6	14
Dichlorobenzene, 1,4-	0.1	0.1
Dichlorobenzidine, 3,3'-	2	2
Dichlorodifluoromethane	3.7	3.7
DDD	0.55	0.55
DDE	0.26	0.52
DDT	1.4	1.4
Dichloroethane, 1,1-	0.18	2.9
Dichloroethane, 1,2-	0.05	0.05
Dichloroethylene, 1,1-	0.05	0.05
Dichloroethylene, 1,2-cis-	0.05	0.05
Dichloroethylene, 1,2-trans-	0.05	0.05
Dichlorophenol, 2,4-	3.4	6.7
Dichloropropane, 1,2-	0.05	0.05
Dichloropropene,1,3-	0.05	0.05
Dieldrin	0.05	0.088
Diethyl Phthalate	0.5	0.5
Dimethylphthalate	0.5	0.5
Dimethylphenol, 2,4-	90	90
Dinitrophenol, 2,4-	13	13
Dinitrotoluene, 2,4 & 2,6-	1.8	2.3
Dioxane, 1,4	3.6	3.6
Dioxin/Furan (TEQ)	0.000013	0.000029
Endosulfan	0.04	0.04
Endrin	0.04	0.04
Ethylbenzene	1.2	1.2
Ethylene dibromide	0.05	0.05

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Fluoranthene	1.4	19
Fluorene	13	13
Heptachlor	0.05	0.05
Heptachlor Epoxide	0.05	0.05
Hexachlorobenzene	1	1.3
Hexachlorobutadiene	0.012	0.012
Hexachlorocyclohexane Gamma-	0.01	0.01
Hexachloroethane	0.02	0.02
Hexane (n)	0.05	0.05
Indeno[1 2 3-cd]pyrene	0.76	1.5
Lead	120	250
Mercury	0.27	0.27
Methoxychlor	0.1	0.1
Methyl Ethyl Ketone	4.5	4.5
Methyl Isobutyl Ketone	0.89	1.9
Methyl Mercury **	0.00097	0.00097
Methyl tert-Butyl Ether MTBE)	0.1	0.1
Methylene Chloride	0.07	0.073
Methlynaphthalene, 2-(1-) ***	0.92	17
Molybdenum	14	80
Naphthalene	0.18	0.18
Nickel	200	540
Pentachlorophenol	0.1	0.34
Petroleum Hydrocarbons F1****	25	25
Petroleum Hydrocarbons F2	10	10
Petroleum Hydrocarbons F3	600	3400
Petroleum Hydrocarbons F4	5600	6600
Phenanthrene	12	25
Phenol	11	11
Polychlorinated Biphenyls	0.3	0.3
Pyrene	2.1	2.1
Selenium	4.8	11
Silver	40	80
Styrene	0.45	0.45

Contaminant	Residential/Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Tetrachloroethane, 1,1,1,2-	0.05	0.05
Tetrachloroethane, 1,1,2,2-	0.05	0.05
Tetrachloroethylene	0.05	0.05
Thallium	1	3.3
Toluene	0.99	1.8
Trichlorobenzene, 1,2,4-	0.1	0.1
Trichloroethane, 1,1,1-	0.071	0.071
Trichloroethane, 1,1,2-	0.05	0.05
Trichloroethylene	0.05	0.05
Trichlorofluoromethane	0.91	0.91
Trichlorophenol, 2,4,5-	6.2	6.2
Trichlorophenol, 2,4,6-	0.86	0.86
Uranium	23	66
Vanadium	86	130
Vinyl Chloride	0.02	0.02
Xylene Mixture	0.24	0.24
Zinc	670	670
Electrical Conductivity (mS/cm)	1.4	2.8
Sodium Adsorption Ratio	10	24

Notes:

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 8.1: Ceiling Values for Full Depth Excess Soil for Use within 30 m of A Water Body in A Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	0.1	0.14	0.14
Acenaphthylene	0.17	0.17	0.17
Acetone	1	1	1
Aldrin	0.05	0.05	0.05
Anthracene	0.1	0.32	0.32
Antimony	2	2.6	2.6
Arsenic	11	18	18
Barium	390	430	430
Benzene	0.029	0.029	0.04
Benz[a]anthracene	0.64	0.72	0.72
Benzo[a]pyrene	0.16	0.6	0.6
Benzo[b]fluoranthene	0.59	0.94	0.94
Benzo[ghi]perylene	0.4	1.4	1.4
Benzo[k]fluoranthene	0.48	0.97	0.97
Beryllium	4	5	5
Biphenyl 1,1'-	0.05	0.05	0.05
Bis(2-chloroethyl)ether	0.5	0.5	0.5
Bis(2-chloroisopropyl)ether	0.5	0.5	0.5
Bis(2-ethylhexyl)phthalate	8	8	8
Boron (Hot Water Soluble)*	1.5	3	3
Boron (total)	72	72	72
Bromodichloromethane	0.05	0.05	0.05
Bromoform	0.1	0.1	0.1
Bromomethane	0.05	0.05	0.05
Cadmium	1.4	1.4	2.4
Carbon Tetrachloride	0.05	0.05	0.05
Chlordane	0.05	0.05	0.05
Chloroaniline p-	0.5	0.5	0.5
Chlorobenzene	0.083	0.083	0.083
Chloroform	0.097	0.097	0.097

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Chlorophenol, 2-	0.19	0.19	0.19
Chromium Total	130	140	140
Chromium VI	1.3	1.3	1.3
Chrysene	0.47	3.3	3.3
Cobalt	22	22	80
Copper	120	180	180
Cyanide (CN-)	0.051	0.051	0.051
Dibenz[a h]anthracene	0.2	0.2	0.2
Dibromochloromethane	0.05	0.05	0.05
Dichlorobenzene, 1,2-	0.1	0.1	0.1
Dichlorobenzene, 1,3-	0.1	0.1	0.1
Dichlorobenzene, 1,4-	0.05	0.05	0.05
Dichlorobenzidine, 3,3'-	1	1	1
Dichlorodifluoromethane	0.1	0.1	0.1
DDD	0.1	0.1	0.1
DDE	0.1	0.1	0.1
DDT	0.078	1.4	1.4
Dichloroethane, 1,1-	0.1	0.1	0.1
Dichloroethane, 1,2-	0.05	0.05	0.05
Dichloroethylene, 1,1-	0.05	0.05	0.05
Dichloroethylene, 1,2-cis-	0.05	0.05	0.05
Dichloroethylene, 1,2-trans-	0.05	0.05	0.05
Dichlorophenol, 2,4-	0.1	0.1	0.1
Dichloropropane, 1,2-	0.05	0.05	0.05
Dichloropropene,1,3-	0.05	0.05	0.05
Dieldrin	0.05	0.05	0.05
Diethyl Phthalate	0.5	0.5	0.5
Dimethylphthalate	0.5	0.5	0.5
Dimethylphenol, 2,4-	0.4	0.4	0.4
Dinitrophenol, 2,4-	2	2	2
Dinitrotoluene, 2,4 & 2,6-	0.5	0.5	0.5
Dioxane, 1,4	0.2	0.2	0.2
Dioxin/Furan (TEQ)	0.000013	0.000013	0.000013
Endosulfan	0.04	0.04	0.04
Endrin	0.04	0.04	0.04
Ethylbenzene	0.05	0.05	0.05

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Ethylene dibromide	0.05	0.05	0.05
Fluoranthene	0.58	1.1	1.1
Fluorene	0.38	0.38	0.38
Heptachlor	0.05	0.05	0.05
Heptachlor Epoxide	0.05	0.05	0.05
Hexachlorobenzene	0.034	0.034	0.034
Hexachlorobutadiene	0.02	0.02	0.02
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01
Hexachloroethane	0.02	0.02	0.02
Hexane (n)	0.1	0.1	0.1
Indeno[1 2 3-cd]pyrene	0.4	0.46	0.46
Lead	45	120	250
Mercury	0.2	0.27	0.27
Methoxychlor	0.1	0.1	0.1
Methyl Ethyl Ketone	0.5	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5	0.5
Methyl Mercury **	NV	NV	NV
Methyl tert-Butyl Ether (MTBE)	0.05	0.05	0.05
Methylene Chloride	0.1	0.1	0.1
Methlynaphthalene, 2-(1-) ***	0.096	0.59	0.59
Molybdenum	4	4	4
Naphthalene	0.1	0.18	0.18
Nickel	74	160	160
Pentachlorophenol	0.1	0.1	0.1
Petroleum Hydrocarbons F1****	17	25	46
Petroleum Hydrocarbons F2	16	16	20
Petroleum Hydrocarbons F3	300	480	480
Petroleum Hydrocarbons F4	240	240	240
Phenanthrene	0.21	0.69	0.69
Phenol	1	1	1
Polychlorinated Biphenyls	0.3	0.3	0.3
Pyrene	0.98	2.1	2.1
Selenium	2.4	3.1	3.1
Silver	1	1	1
Styrene	0.05	0.05	0.05

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/Commercial/Community Property Use
Tetrachloroethane, 1,1,1,2-	0.059	0.059	0.1
Tetrachloroethane, 1,1,2,2-	0.05	0.05	0.05
Tetrachloroethylene	0.05	0.05	0.05
Thallium	1	1	2
Toluene	0.2	0.2	0.2
Trichlorobenzene, 1,2,4-	0.1	0.1	0.1
Trichloroethane, 1,1,1-	0.1	0.1	0.1
Trichloroethane, 1,1,2-	0.05	0.05	0.05
Trichloroethylene	0.05	0.05	0.05
Trichlorofluoromethane	0.1	0.51	0.51
Trichlorophenol, 2,4,5-	0.2	0.2	0.2
Trichlorophenol, 2,4,6-	0.2	0.2	0.2
Uranium	3.8	5	5
Vanadium	86	86	130
Vinyl Chloride	0.02	0.02	0.02
Xylene Mixture	0.091	0.091	0.091
Zinc	340	590	590
Electrical Conductivity (mS/cm)	0.7	1.4	1.4
Sodium Adsorption Ratio	5	10	10

Notes:

NV: No Value

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 9.1: Ceiling Values for Full Depth Excess Soil for Use within 30 m of A Water Body in A Non-Potable Ground Water Condition

Volume Independent

(Unit in µg/g)

Contaminant	Residential/Parkland/Institutional/ Property Use	Industrial/Commercial/Community Property Use
Acenaphthene	0.14	0.14
Acenaphthylene	0.17	0.17
Acetone	1	1
Aldrin	0.05	0.05
Anthracene	0.32	0.32
Antimony	2.6	2.6
Arsenic	18	18
Barium	430	430
Benzene	0.029	0.04
Benz[a]anthracene	0.72	0.72
Benzo[a]pyrene	0.6	0.6
Benzo[b]fluoranthene	0.94	0.94
Benzo[ghi]perylene	1.4	1.4
Benzo[k]fluoranthene	0.97	0.97
Beryllium	5	5
Biphenyl 1,1'-	0.1	0.1
Bis(2-chloroethyl)ether	1	1
Bis(2-chloroisopropyl)ether	0.5	1
Bis(2-ethylhexyl)phthalate	8	8
Boron (Hot Water Soluble)*	3	3
Boron (total)	72	72
Bromodichloromethane	0.1	0.1
Bromoform	0.1	0.1
Bromomethane	0.05	0.05
Cadmium	1.4	2.4
Carbon Tetrachloride	0.05	0.05
Chlordane	0.05	0.05
Chloroaniline p-	0.51	0.51
Chlorobenzene	0.1	0.1
Chloroform	0.1	0.1

Contaminant	Residential/Parkland/Institutional/ Property Use	Industrial/Commercial/Community Property Use
Chlorophenol, 2-	0.2	0.2
Chromium Total	140	140
Chromium VI	1.3	1.3
Chrysene	3.3	3.3
Cobalt	22	80
Copper	180	180
Cyanide (CN-)	0.051	0.051
Dibenz[a h]anthracene	0.2	0.2
Dibromochloromethane	0.1	0.1
Dichlorobenzene, 1,2-	0.1	0.1
Dichlorobenzene, 1,3-	0.1	0.1
Dichlorobenzene, 1,4-	0.1	0.1
Dichlorobenzidine, 3,3'-	2	2
Dichlorodifluoromethane	0.1	0.1
DDD	0.1	0.1
DDE	0.1	0.1
DDT	1.4	1.4
Dichloroethane, 1,1-	0.1	0.1
Dichloroethane, 1,2-	0.05	0.081
Dichloroethylene, 1,1-	0.05	0.05
Dichloroethylene, 1,2-cis-	0.069	0.069
Dichloroethylene, 1,2-trans-	0.05	0.05
Dichlorophenol, 2,4-	0.2	0.2
Dichloropropane, 1,2-	0.05	0.061
Dichloropropene,1,3-	0.076	0.1
Dieldrin	0.05	0.05
Diethyl Phthalate	0.5	0.5
Dimethylphthalate	0.5	0.5
Dimethylphenol, 2,4-	0.4	0.4
Dinitrophenol, 2,4-	4	4
Dinitrotoluene, 2,4 & 2,6-	1	1
Dioxane, 1,4	0.4	0.4
Dioxin/Furan (TEQ)	0.000013	0.000013
Endosulfan	0.04	0.04
Endrin	0.04	0.04
Ethylbenzene	0.1	0.1

Contaminant	Residential/Parkland/Institutional/ Property Use	Industrial/Commercial/Community Property Use
Ethylene dibromide	0.05	0.05
Fluoranthene	1.4	1.4
Fluorene	0.38	0.38
Heptachlor	0.05	0.05
Heptachlor Epoxide	0.05	0.05
Hexachlorobenzene	0.04	0.04
Hexachlorobutadiene	0.02	0.02
Hexachlorocyclohexane Gamma-	0.01	0.01
Hexachloroethane	0.02	0.02
Hexane (n)	0.1	0.1
Indeno[1 2 3-cd]pyrene	0.46	0.46
Lead	120	250
Mercury	0.27	0.27
Methoxychlor	0.1	0.1
Methyl Ethyl Ketone	1	1
Methyl Isobutyl Ketone	0.89	1
Methyl Mercury **	NV	NV
Methyl tert-Butyl Ether (MTBE)	0.1	0.1
Methylene Chloride	0.1	0.1
Methlynaphthalene, 2-(1-) ***	0.92	1.2
Molybdenum	4	4
Naphthalene	0.18	0.18
Nickel	160	160
Pentachlorophenol	0.1	0.1
Petroleum Hydrocarbons F1****	25	46
Petroleum Hydrocarbons F2	16	20
Petroleum Hydrocarbons F3	480	480
Petroleum Hydrocarbons F4	240	240
Phenanthrene	1.4	1.4
Phenol	1	1
Polychlorinated Biphenyls	0.3	0.3
Pyrene	2.1	2.1

Contaminant	Residential/Parkland/Institutional/ Property Use	Industrial/Commercial/Community Property Use
Selenium	3.1	3.1
Silver	1	1
Styrene	0.1	0.1
Tetrachloroethane, 1,1,1,2-	0.059	0.1
Tetrachloroethane, 1,1,2,2-	0.093	0.1
Tetrachloroethylene	0.05	0.05
Thallium	1	2
Toluene	0.4	0.4
Trichlorobenzene, 1,2,4-	0.1	0.1
Trichloroethane, 1,1,1-	0.1	0.1
Trichloroethane, 1,1,2-	0.093	0.1
Trichloroethylene	0.05	0.05
Trichlorofluoromethane	0.51	0.51
Trichlorophenol, 2,4,5-	0.2	0.2
Trichlorophenol, 2,4,6-	0.2	0.2
Uranium	5	5
Vanadium	86	130
Vinyl Chloride	0.02	0.02
Xylene Mixture	0.1	0.1
Zinc	590	590
Electrical Conductivity (mS/cm)	1.4	1.4
Sodium Adsorption Ratio	10	10

Notes:

NV: No Value

*: The boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.