Guide for Completing
Phase Two Environmental Site Assessments
under Ontario Regulation 153/04

June 2011

Ontario

DISCLAIMER

This practical guide for the completion of a phase two environmental site assessment describes and comments on certain environmental site assessment requirements in Ontario Regulation 153/04. The guide is targeted at qualified persons conducting or supervising environmental site assessments for the purpose of submitting and filing a record of site condition, but may also be useful for those retaining qualified persons, such as property owners, who wish to have a record of site condition filed.

While the guide does describe and comment on requirements for environmental site assessments, readers are cautioned that this guide contains selective and general information only, and readers may not rely on its contents as accurately or completely setting out requirements which may apply in any particular case. Nor must this guide be taken as legal or other professional advice. Where the guide differs in any way from applicable legislation the legislation prevails. The conduct of an environmental site assessment and the obtaining of, and acting on, appropriate professional advice while doing so is, and remains, the sole responsibility of those involved with the environmental site assessment.

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PIBS 8486e

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List of Acronyms

APEC	area of potential environmental concern
cm	centimetre
COC	contaminant of concern
CSM	conceptual site model
the Act	Environmental Protection Act
ESA	environmental site assessment
ESR	Environmental Site Registry
m	metre
m^2	square metre
m^3	cubic metre
MGRA	modified generic risk assessment
Ministry	Ministry of the Environment
PCA	potentially contamination activity
PID	photoionization detector
QA/QC	quality assurance/quality control
QP	qualified person
RA	risk assessment
RPD	relative percent difference
RSC	record of site condition
SCS	site condition standard
the Regulation	Ontario Regulation 153/04
UVF	ultraviolet fluorescence
VOC	volatile organic compound
XRF	x-ray fluorescence

Selected Definitions from Ontario Regulation 153/04

This section provides a selected list of definitions of terms that appear in Ontario Regulation 153/04. It is important to note that some definitions do not apply to the entire Ontario Regulation 153/04, and the reader is advised to look at the definitions sections throughout Ontario Regulation 153/04 to determine where these apply.

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

"**area of natural significance**" means any of the following:

1. An area reserved or set apart as a provincial park or conservation reserve under the Provincial Parks and Conservation Reserves Act, 2006.
2. An area of natural and scientific interest (life science or earth science) identified by the Ministry of Natural Resources as having provincial significance.
3. A wetland identified by the Ministry of Natural Resources as having provincial significance.
4. 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.
5. 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.
6. An area identified by the Ministry of Natural Resources as significant habitat of a threatened or endangered species.
7. An area which is habitat of a species that is classified under section 7 of the Endangered Species Act, 2007 as a threatened or endangered species.
8. 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 applies.
9. An area set apart as a wilderness area under the Wilderness Areas Act.

"**areas of potential environmental concern**" means the area on, in or under a phase one property where one or more contaminants are potentially present, as determined through the phase one environmental site assessment, including through,

(a) identification of past or present uses on, in or under the phase one property, and
(b) identification of potentially contaminating activity.

"**associated product**" means any product of petroleum or any other liquid product used as a fuel, other than gasoline, wax and asphalt.

"**building**", as defined in subsection 1(1) of the Building Code Act, 1992, means:

(a) a structure occupying an area greater than ten square metres consisting of a wall, roof and floor or any of them or a structural system serving the function thereof including all plumbing, works, fixtures and service systems appurtenant thereto,
(b) a structure occupying an area of ten square metres or less that contains plumbing, including the plumbing appurtenant thereto,
(c) plumbing not located in a structure,
(c.1) a sewage system, or
(d) structures designated in the building code.

"**bulk liquid dispensing facility**" means premises at which solvents, gasoline or associated products are stored in one or more storage tanks and dispensed for sale.

"**certification date**", in relation to a record of site condition, means the certification date applicable to the record of site condition.

"**coarse textured soil**" means soil that contains more than 50 per cent by mass of particles that are 75 micrometres or larger in mean diameter.

"**contaminants of concern**" means,

(a) one or more contaminants found on, in or under a property at a concentration that exceeds the applicable site condition standards for the property, or
(b) one or more contaminants found on, in or under a property for which no applicable site condition standard is prescribed under Part IX (Site Condition Standards and Risk Assessments) of Ontario Regulation 153/04 and which are associated with potentially contaminating activity.

"**description**", in reference to a description approved by the Surveyor General, means a plan of survey prepared, signed and sealed by a surveyor or a descriptive map of a property.

"**dry cleaning equipment**", means dry cleaning equipment as defined in Ontario Regulation 323/94 made under the Environmental Protection Act. *(Note: O. Reg. 323/94 states: "dry cleaning equipment" means any device used to clean material with dry cleaning solvent or to remove residual dry cleaning solvent from previously cleaned material).*

"**enhanced investigation property**" means a property that is being used or has been used, in whole or in part, in a manner described in clause 32(1)(b) to which subsection 32(2) does not apply;

[32(1)(b): "if the property is used or has ever been used, in whole or in part, for an industrial use or for any of the following commercial uses: as a garage, a bulk liquid dispensing facility (including a gasoline outlet), or for the operation of dry cleaning equipment." 32(2): "Clause (1)(b) does not apply if (a) the property is currently used for an agricultural or other use, or a community use, an institutional use, a parkland use or a residential use; and (b) since the latest date on which the property stopped being

used for any of the types of industrial or commercial uses described above, a record of site condition has been filed in the Environmental Site Registry under section 168.4 of the Environmental Protection Act for the use described in clause (a)" i.e., an agricultural or other use, or a community use, an institutional use, a parkland use or a residential use].

"**environmental site assessment**" means an investigation in relation to land to determine the environmental condition of property, and includes a phase one environmental site assessment and a phase two environmental site assessment.

"**garage**" means a place or premises where motor vehicles are received for maintenance or repairs for compensation.

"**gasoline**" means a product of petroleum that may include oxygenates and gasoline additives that has a flash point below 37.8°C, that is a liquid at standard temperature and pressure and that is designed for use in an engine.

"**gasoline outlet**" means any premises to which the public is invited, at which gasoline or an associated product is sold and is put into the fuel tanks of motor vehicles or floating motorized watercraft, or into portable containers.

"***in situ***" means in place.

"**medium**" means soil, ground water or sediment.

"**medium and fine textured soil**" means soil that contains 50 per cent or more by mass of particles that are smaller than 75 micrometres in mean diameter.

"**monitoring well**", means a well that is a test hole as defined in Regulation 903 of the Revised Regulations of Ontario, 1990 (Wells) made under the Ontario Water Resources Act *(Note: A test hole is defined in Regulation 903 as a well that:*

(a) is made to test or to obtain information in respect of ground water or an aquifer, and
(b) is not used or intended for use as a source of water for agriculture or human consumption).

"**non-potable ground water site condition standards**" means,

(a) the full depth generic site condition standards prescribed under section 37 of Ontario Regulation 153/04 in relation to the contaminants prescribed under that section, or
(b) the stratified site condition standards prescribed under section 39 of Ontario Regulation 153/04 in relation to the contaminants prescribed under that section.

"**owner**", in relation to a record of site condition or risk assessment, includes a beneficial owner of or receiver in respect of the property for which the record of site condition is submitted for filing, is to be submitted for filing or is filed or for which the risk assessment is submitted.

"**phase one property**" means the property that is the subject of a phase one environmental site assessment.

"**phase one study area**" means the area that includes a phase one property, any other property that is located, wholly or partly, within 250 metres from the nearest point on a boundary of the phase one property and any property that the qualified person determines should be included as a part of the phase one study area under clause 3(1)(a) of Schedule D of Ontario Regulation 153/04.

"**phase two property**" means the property that is the subject of a phase two environmental site assessment.

"**potable ground water site condition standards**" means,

(a) the full depth generic site condition standards prescribed under section 36 of Ontario Regulation 153/04 in relation to the contaminants prescribed under that section, or
(b) the stratified site condition standards prescribed under section 38 of Ontario Regulation 153/04 in relation to the contaminants prescribed under that section.

"**potentially contaminating activity**" means a use or activity set out in Column A of Table 2 of Schedule D of Ontario Regulation 153/04 that is occurring or has occurred in a phase one study area.

"**RSC property**", in relation to a record of site condition, means the property in respect of which the record of site condition is submitted for filing or is filed.

"**road**" means the part of a common or public highway, street, avenue, parkway, square, place, bridge, viaduct or trestle that is improved, designed or ordinarily used for regular traffic and includes the shoulder.

"**rock**" means a naturally occurring aggregation of one or more naturally occurring minerals that is 2 millimetres or larger in size or that does not pass the US #10 sieve.

"**sampling location**" means an area of the property that does not have a radius larger than two metres.

"**sediment**" means the soil, to a maximum depth of 0.15 metres, located at the base of a water body.

"**shallow soil property**" means a property of which 1/3 or more of the area consists of soil equal to or less than 2 metres in depth beneath the soil surface, excluding any non-soil surface treatment such as asphalt, concrete or aggregate.

"**site condition standards**" means the full depth background site condition standards, full depth generic site condition standards and stratified site condition standards.

"**site investigation**" means a site investigation that includes both a field investigation and a non-field investigation.

"**soil**" means, except for the purposes of shallow soil property as defined in section 41 of Ontario Regulation 153/04, unconsolidated naturally occurring mineral particles and other naturally occurring material resulting from the natural breakdown of rock or organic matter by physical, chemical or biological processes that are smaller than 2 millimetres in size or that pass the US #10 sieve.

"**soil**" means, for the purposes of the definition of shallow soil property, unconsolidated naturally occurring mineral particles and other naturally occurring material resulting from the natural breakdown of rock or organic matter by physical, chemical or biological processes that are smaller than 2 millimetres in size or that pass the US #10 sieve, and includes a mixture of soil and rock if less than 50 per cent by mass of the mixture is rock.

"**Soil, Ground Water and Sediment Standards**" means the "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act" published by the Ministry of the Environment and dated April 15, 2011.

"**soil type**" means soil texture class as determined pursuant to Figure 3.16 and Chapter 3 of the Soil Survey Manual, United States Department of Agriculture, Natural Resources Conservation Service

"**solvent**" means any volatile organic compound that is used as a cleaning agent, diluent, dissolver, thinner, or viscosity reducer, or for a similar purpose.

"**subsurface soil**" means soil that is more than 1.5 metres beneath the soil surface, including the bottom .5 metres of any non-soil surface treatment such as asphalt, concrete or aggregate above the soil surface, but excluding the thickness of any such non-soil surface treatment that is greater than 0.5 metres.

"**surface soil**" means soil that is no more than 1.5 metres beneath the soil surface, including the bottom .5 metres of any non-soil surface treatment such as asphalt, concrete or aggregate above the soil surface, but excluding the thickness of any such non-soil surface treatment that is greater than 0.5 metres.

"**surveyor**" means a person licensed under the Surveyors Act to practice cadastral surveying in Ontario.

"**test hole**", means a test hole as defined in Regulation 903 of the Revised Regulations of Ontario, 1990 (Wells) made under the Ontario Water Resources Act. *(Note: A test hole is defined in Regulation 903 as a well that:*

(a) is made to test or to obtain information in respect of ground water or an aquifer, and
(b) is not used or intended for use as a source of water for agriculture or human consumption).

"**water body**" means a permanent stream, river or similar watercourse or a pond or lake, but does not include a pond constructed on the property for the purpose of controlling surface water drainage.

1. Introduction

The requirements for environmental site assessments (ESAs) completed to support the filing of a record of site condition (RSC) have changed. Some of these changes will affect you if you are a property owner, developer, lender, municipality, or qualified person (QP).

Further changes to ESAs will occur as of July 1, 2011. These changes apply only to ESAs used in RSC submissions, and not where an ESA is being prepared for other purposes (e.g., property sale).

Changes affecting ESAs were made to the Environmental Protection Act (the Act) in 2007: some of these are in effect already; some will come into effect together with changes to Ontario Regulation 153/04 (the Regulation). Such changes will apply to all ESAs prepared in support of RSCs as of July 1, 2011.

Section 168.3(1) of the Act, and the Regulation, define phase one and phase two ESAs and set out rules for their conduct.

Generally, the components of a phase two ESA are the same as in the previous version of the Regulation and are as follows: planning a site investigation; site investigation; review and evaluation; phase two ESA report preparation; and delivery of the report to the owner. However, the Regulation contains more detailed descriptions of what each of these “components” includes. For various components, there are also requirements and objectives.

The more detailed rules regarding ESAs are described in the Regulation as requirements. Both objectives and requirements are important. For example, when a RSC is submitted for filing it may undergo a review in which the Ministry of the Environment (Ministry) may identify a defect in the RSC that must be addressed before the RSC can be filed. Failure to meet either an objective or a requirement is considered to be a defect, which could prevent the filing of a RSC.

1.1 Key Features of the Changes Affecting ESAs

The key features of the changes affecting ESAs include:

- The replacement of the current cross-referencing to the Canadian Standards Association (CSA) standards (adopted originally for a wide range of ESAs, not just those prepared in support of RSCs) with detailed, stand-alone rules for ESAs prepared in support of the filing of a RSC. This change will help standardize ESAs, improve their quality, and make them more widely accepted;
- RSCs will be checked and potentially reviewed before they are filed to the Environmental Site Registry (ESR). Questions about the RSC submission may be asked by the Ministry before the RSC is filed;

- New circumstances under which a phase two ESA must be completed before a RSC can be submitted have been introduced. As of July 1, 2011, a phase two ESA is required if a potentially contaminating activity (PCA) took place or is occurring at the property. A list of PCAs can be found in Table 2 of the Regulation. In addition, a phase two ESA may be required if a PCA is identified within the study area; the QP has discretion on whether the PCA would result in an area of potential environmental concern (APEC). If the QP identifies an APEC on the property as a result of the PCA in the study area, the completion of a phase two ESA is mandatory for the filing of a RSC. (Note that there are exceptions to these rules as set out in s. 32 of the Regulation.);
- The preparation of a "conceptual site model" (CSM). The CSM creates a closer relationship between ESAs and risk assessments (RAs) and is a useful tool for QPs to summarize site conditions;
- Persons who conduct or supervise ESAs (i.e., QPs) must be members of the Association of Professional Geoscientists of Ontario (APGO) or licence holders of Professional Engineers Ontario (PEO);
- QPs are prohibited from conducting or supervising ESAs if the QP, or the QP's employer, hold a direct or indirect interest in the property being assessed;
- QPs and owners must retain reports for a specified period of time after they are prepared; and,
- QPs and owners are required to take steps to obtain relevant information about the property, and owners are obliged to provide this information to the QP.

1.2 The RSC Process and Changes to the Regulation

This section provides, through a series of questions and answers, information about the RSC process and changes to the Regulation.

What is a record of site condition (RSC)?

A RSC is a document filed electronically in the ESR. It is a report documenting the results of one or more ESAs of a property conducted or supervised by a QP. The ESA will either confirm that there is no evidence of contaminants at the property that would interfere with any future use of the property or that contaminants at the property do not exceed certain concentration limits (standards). The standards are set based on the intended use (residential, commercial, etc.) of the property and on certain physical characteristics of the property. Where the RSC involves standards, the RSC would confirm that the standards for the intended use had been met.

What is an environmental site assessment (ESA)?

An environmental site assessment (ESA) involves the study of a property to determine if contaminants are present and, if so, the location and concentration of these contaminants. In addition, an ESA includes the completion of a report documenting the study results.

The Act defines a phase one ESA and a phase two ESA as follows:

- *"phase one environmental site assessment" means an assessment of property conducted in accordance with the regulations by or under the supervision of a qualified person to determine the likelihood that one or more contaminants have affected any land or water on, in or under the property; and,*
- *"phase two environmental site assessment" means an assessment of property conducted in accordance with the regulations by or under the supervision of a qualified person to determine the location and concentration of one or more contaminants in the land or water on, in or under the property.*

These definitions apply only to ESAs prepared in support of the filing of a RSC. ESAs are often prepared in other circumstances. For example, ESAs may be required by financial institutions or municipalities for property transactions. An ESA completed in support of the filing of a RSC must be conducted by a QP who must conduct or supervise the work. Under the Regulation, the QP is required to do some of the work directly (such as review and evaluation), while other tasks may be supervised by the QP.

Who is a qualified person (QP)?

A QP who may conduct or supervise an ESA to be used in support of the submission of a RSC is defined under the Regulation as someone:

- *who holds a licence, limited licence or temporary licence under the Professional Engineers Act; or,*
- *who holds a certificate of registration under the Professional Geoscientists Act, 2000 and is a practising member, temporary member or limited member of the APGO.*

You are advised to do your own research to determine the experience, record of success and expertise of individuals whom you are proposing to hire to complete environmental assessment and risk assessment work. The Ministry cannot provide recommendations. An individual can start this search by reviewing the RSCs which have been filed by a QP on the ESR.

What is a contaminant?

The Act defines a contaminant as follows:

- *"contaminant" means any solid, liquid, gas, odour, heat, sound, vibration, radiation or combination of any of them resulting directly or indirectly from human activities that causes or may cause an adverse effect.*

For RSCs, the standards for selected contaminants are set out in the "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act". These standards are referred to as the applicable site condition

standards. Some standards will change as of July 1, 2011; however, continued use of the existing standards is permitted if the RSC is submitted before January 1, 2013, provided certain steps were taken by the end of December, 2010, and other requirements were met.

If the applicable site condition standards cannot be met (testing shows concentrations of contaminants are higher than the applicable site condition standards), then a RA may be prepared and submitted to the Ministry. The RA must propose use of a different standard (standard specified in a RA) for the contaminant at the property, taking into consideration the individual characteristics of the property. If the Director accepts the RA, then the standard specified in a RA may be used when submitting a RSC.

If the contaminants at the property meet either the applicable site condition standards or the standards specified in a risk assessment for the contaminant, then a RSC which demonstrates this and meets other requirements, including those for ESAs, may be filed.

It is important to note that applicable site condition standards or the standards specified in a risk assessment are equally protective with respect to the level of risk protection each is intended to achieve.

When do I, as a property owner, need a RSC?

If you are thinking of changing the use of a property you own, then it is important to review the Act and the Regulation to determine if a RSC must be filed.

Generally, if the property is being used partly or wholly for commercial, industrial or community uses a RSC is required before the use is changed to one or more of the following: institutional, residential, parkland, agricultural or other uses. The RSC must be obtained before the use changes; however, some steps toward construction are allowed. The Regulation (section 14) and Part XV.1 of the Act contain detailed provisions, including definitions of each use.

Note that the above provides a general outline of when RSCs must be filed under the Act; however, RSCs may be required by financial institutions, other lenders or municipalities in other circumstances.

Where do I find the new rules concerning ESAs?

Generally the rules about ESAs are found in Parts VI, VII and VIII of the Regulation, (sections 22 to 33.8) and in Schedules D and E of the Regulation. Other sections relevant to ESAs include Part I; sections 16, 17, 18 and 55; and Schedule F of the Regulation. Phase two ESA rules are mainly found in Parts VI and VIII of the Regulation (sections 22, 32 to 33.8) and Schedule E of the Regulation.

Why are there so many uses of "property" in the Regulation?

Ontario Regulation 153/04 contains a variety of terms involving "property". For example, the Regulation refers to RSC property, phase one property, phase two property and RA property. RSCs and ESAs are prepared in relation to a particular property. The preparation of a RSC is also related to either the intended use or all possible uses of the property. In this context, a property may be a legal parcel, part of a legal parcel or a combination of parcels; however, if it is a combination of parcels, each parcel must be owned by the same person or entity.

The "RA property", "phase one property", "phase two property" and "RSC property" may refer to the same property, or to increasingly smaller portions of the same property. The phase one investigations, when carried out before a RA, must be conducted on the entire RA property. However, phase two investigations may subsequently be conducted on the entire phase one property or on only a portion of it. Accordingly a phase two property may include all or a portion of the phase one property. And a RSC property may comprise all or a portion of a phase two property, but it is important to keep in mind the requirements with respect to a RSC property which must be met during a phase two ESA

In the event that a RA is being undertaken, phase one and phase two ESAs will be required for the entire RA property before the RA is initiated. Before a RSC is submitted, however, there will need to be ESA work (sampling to demonstrate that the standards specified in the risk assessment are met) before a RSC may be submitted.

A RSC has been filed. Since then, (a) the owner's address has changed; or (b) a municipal address has been assigned to the RSC property. Can changes be made to the RSC without filing a new RSC?

Yes, you can contact the Ministry and request that the Director make a change like this to the filed RSC. This can be done without filing a new RSC in either of the above circumstances and several more outlined in the Regulation. (See s. 8 of the Regulation.) Generally, however, a filed RSC cannot be changed.

I, as a QP, have been retained to conduct or supervise a phase two ESA.

If you are a QP retained to conduct or supervise a phase two ESA, there are a number of questions to ask yourself. The following is a sampling of questions; it is not intended to be complete.

> **Is this ESA in support of the submission of a RSC?**
>
> *If the answer is yes, then the requirements of the Regulation and Part XV.1 of the Act apply. If the answer is no, then the requirements do not apply.*

Do you or your employer have a direct or indirect interest in the property being assessed?

You must determine the answer. If the answer is yes, you may not accept the engagement.

I own a property and have been told that I need a phase two ESA. What does this mean?

Under the Act, you are not required to file a RSC or complete a phase two ESA unless you are intending to change the use of the property. If you are intend to change the use of the property, then you must determine if the change is one where a RSC must be filed before the change can occur such as a change from commercial to residential. If a RSC is required, then, at a minimum a phase one ESA (which meets the requirements of the Regulation) must be prepared and a RSC based on this ESA must be submitted and filed before the use can change.

A phase two ESA is required, however, before a RSC may be submitted, if:

- *The property is being, or was, used for industrial uses or as one of the following commercial uses: as a garage; as a bulk liquid dispensing facility, including a gasoline outlet; or for the operation of dry cleaning equipment;*
- *A PCA is going on or has gone on at the property;*
- *An APEC has been identified at the property resulting from a PCA in the phase one study area; or,*
- *For any other reason a contaminant has affected any land or water on, in or under the property.*

Note that there are exceptions to the above. See s. 32 of the Regulation for details.

In other circumstances, lenders, insurers, municipalities or other proponents may want you to submit and file a RSC before they take certain actions such as making a loan or granting a planning permission. If you want to submit and file a RSC under these circumstances, even though it is not required under the Act, the completion of a phase one ESA must meet all of the objectives and requirements of the Regulation.

You may also encounter the terms "environmental site assessment" or "phase two ESA" in another context (other than used in the Regulation), such as when selling or buying a property when no change of use is involved. In this case, and in any other situation when no RSC is being submitted and filed, it is up to the parties involved to decide what kind of assessment to do and whether to follow the rules for a phase two ESA in the Regulation.

If you must obtain a phase two ESA in support of the submission and filing of a RSC, then the QP you retain to complete the ESA must follow the rules in Part XV.1 of the Act and in the Regulation. These are described in detail in Part VIII and Schedule E of the Regulation and generally involve the QP planning a physical intrusive investigation of

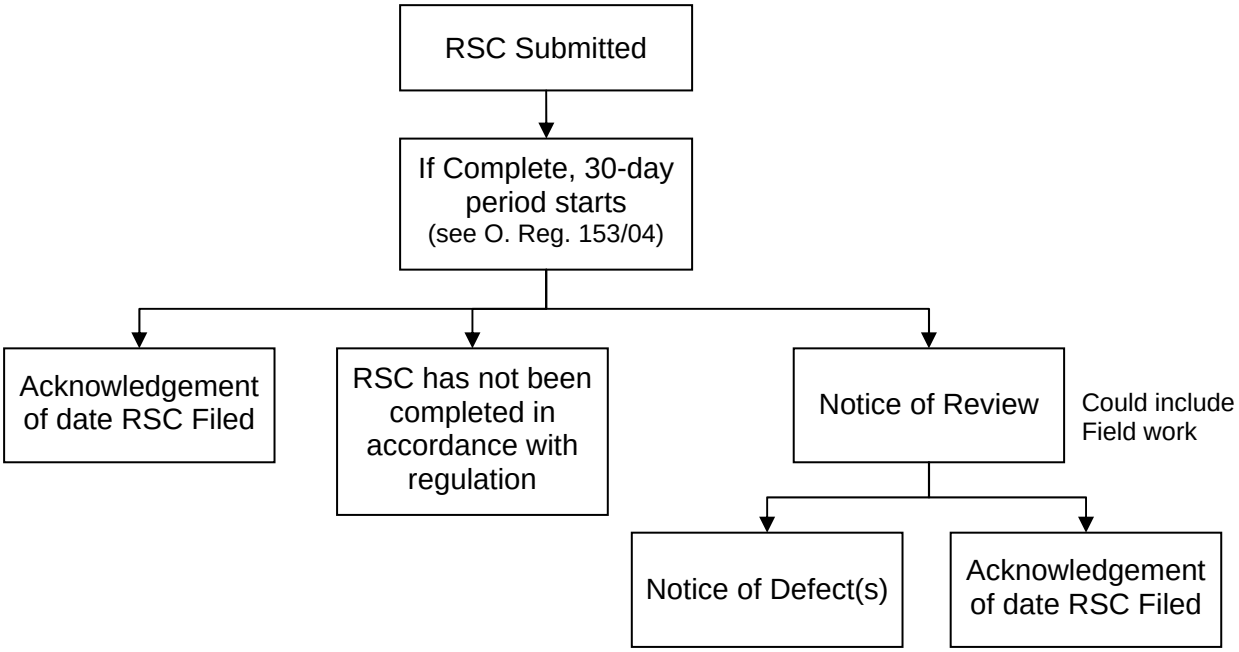
the property, conducting and supervising this site investigation and determining the location and concentration of contaminants on, in or under the property.

Why do you say "submit and file" a RSC?

The amendments to the Regulation require the submission of a RSC before it is filed on the ESR. Figure 1-1 illustrates the submission and filing process. Once a RSC is submitted and complete, the Ministry will advise you, the owner of the property, within 30 business days whether the RSC has been: (a) filed as is; (b) is being returned because it has not been completed in accordance with the Regulation; or, (c) has been selected for a review.

If the RSC was not completed in accordance with the Regulation, your QP will be told the reason(s) why the RSC is being returned. If a review is being done by the Ministry, you will be given a preliminary estimate of the time it is expected the review will take. In addition, the phase one ESA report prepared in support of the RSC and any further ESA reports and other documents relied on by the QP in making "certifications" required when submitting a RSC will likely be requested and looked at as part of the review by the Ministry.

Figure 1-1: RSC Submission and Filing Process



The filing date of the RSC is significant because this is when you, the property owner, and your successors are protected, subject to certain conditions, from various orders which could be issued under the Act or the Ontario Water Resources Act (OWRA)*. The filing date is also important because you cannot change the use of the property, where the RSC is one that has to be filed before the change can occur, until the filing date (there are certain exceptions for some preliminary construction activities).*

The following sections provide a general description of some of the major changes to the Regulation.

1.3 Retention of Reports

Refer to section 18 of the Regulation

The owner of the RSC property and the QP who signed the RSC must retain and store the reports that are listed in the RSC for a period of seven years after the date the RSC is filed in the ESR.

- Example Scenarios -

I, as a QP, am leaving my employer/shutting down my firm. What, if anything, must I do with old ESA reports?

You must either retain a copy of any report you relied on in making a certification in a RSC, or take all reasonable steps to ensure that your employer retains any such report, for seven years after the date the RSC was filed.

I, as a property owner, have received a copy of the phase two ESA report prepared by the QP. I also have some other reports I provided to the QP. What, if anything, do I have to do with them once the RSC is filed?

If any of the reports were relied on by the QP in making a certification in the RSC, you must retain a copy of each such report for seven years after the date the RSC was filed. (The RSC form requires the QP to identify these reports.) The phase two ESA report which supported the submission of the RSC would be one of the reports you must keep.

1.4 Obligations in Providing Relevant Information and Reports

Refer to section 22(3) of the Regulation

Owners of the phase one property or any other person funding the phase one ESA are required to provide QPs with information relevant to the environmental condition of the phase one property, if the information is within the possession or control of any of the owners or any other person funding the phase one ESA.

- Example Scenarios -

Are there any things I must or should do when working with the QP?

Yes. In addition to: (a) determining whether the QP has the required qualifications and experience; and, (b) does not have any relationship, directly or indirectly through his/her employer, to the property that would disqualify the QP from doing the work (i.e., a direct or indirect interest in the property), you need to provide the QP with information about

the property, including any required written information. When it comes time to submit the RSC, you will need to certify a number of things that are detailed in the Regulation.

What if there is information that is considered to be unfavourable with regard to the property? What if I know about this information but I don't have it myself? Do I have to give it to the QP?

If there is information "relevant to [the] RSC", then, generally, you must provide it to the QP. This includes some information that you do not possess. Information relevant to a RSC includes:

- *other environmental site assessment reports;*
- *remediation reports;*
- *reports prepared in response to an order or request by the Ministry; and,*
- *any other reports relating to the presence of a contaminant on, in or under the phase one property or to the existence of an area of potential environmental concern.*

The obligation to provide the QP with relevant information applies to any information you or someone else funding the RSC possesses or controls, therefore you are obliged to take steps to provide the information to the QP where someone else physically has the information. When the RSC is being submitted you will have to certify you have "conducted reasonable inquiries to obtain" all such information, and that you have or have not obtained all of which you are aware and disclosed it to the QP. You must let the QP know what you have not been able to obtain as well as provide a copy of what you have obtained.

1.5 Reports Required for Submitting a RSC for Filing

Refer to sections 28 and 33.5 of the Regulation

In order to submit a RSC for filing, a phase one ESA must be completed. The minimum reporting requirement to support a RSC filing is therefore the completion of a phase one ESA report. In the simplest case, there will be no previous reports used, or relied on, and a phase one ESA is the only report required.

A phase two ESA is mandatory where the use of the phase one property or any part of it has been, or is, industrial or one of the following commercial uses: as a garage; as a bulk liquid dispensing facility, including a gasoline outlet; or for the operation of dry cleaning equipment. It is also mandatory where the phase one ESA investigation demonstrates a PCA, present or past, on the property, or one off-property, which has created an APEC on the phase one property.

Note that there are exceptions to the above. See s. 32 of the Regulation.

In addition to the mandatory phase two situations detailed in the Regulation, the QP must always consider whether further investigation, such as a phase two ESA, should be conducted before a RSC is submitted.

If a phase two ESA is required, then at a minimum, a phase one and a phase two ESA report are required. However, depending on the complexity of the ESAs conducted, it may be necessary to reference several previous reports of various kinds, including risk assessment reports. If these reports are outdated, the QP may be required to update the information prior to completing the reports required for submission of a RSC.

Note that ESA and risk assessment reports are not submitted with the RSC; the reports associated with the completion of a RSC may be requested if a review is being conducted by the Ministry. Risk assessment reports must be submitted to the Ministry; however, this submission occurs in advance of the RSC.

The following reports must be listed in the RSC (in the context of a RSC based on a phase one ESA alone):

- the document used as the phase one ESA report; and,
- any reports or other documents that the QP relied on in order to make the certifications in section 10 of Schedule A of the Regulation and what was used in conducting the phase one ESA.

A report can be used as a phase one ESA report for a RSC if:

- The ESA, including the report, meet the requirements of the Regulation and Schedule D for a phase one ESA;
- The date the last work on all of the records review, interviews and site reconnaissance was completed, is no more than 18 months prior to the submission of the RSC or the commencement of the phase two ESA;
- In the professional opinion of the QP, there is no new or materially changed APEC at the RSC property;
- The report is a single document; and,
- The report is the most recent document that meets all of the requirements.

If any of this is not the case, the QP must complete a phase one ESA update in order to submit a RSC. The QP must carry out and then report on the activities undertaken as necessary to meet any of the following requirements which need to be revisited and met:

- The general objectives of the phase one ESA; and,
- The specific objectives and requirements of the phase one ESA.

Therefore, when submitting a RSC for filing in a situation where the RSC is based on a phase one ESA, there will be one phase one ESA report, and as many updated reports as are required to document any updating work needed.

Where a RSC is submitted for filing in a situation where the RSC is based on a phase one ESA and a phase two ESA, there are similar rules (see section 33.5 of the Regulation and section 26 of Schedule A of the Regulation).

The following must be listed in the RSC:

- the document used as the phase two ESA report;
- any reports or other documents that the QP relied on in order to make the certifications in Part IV (sections 13 to 35) of Schedule A of the Regulation; and,
- any reports or other documents what were used in conducting the phase two ESA.

A report can be used as a phase two ESA report for a RSC if:

- The ESA, including the report, meet the requirements and Schedule E of the Regulation for a phase two ESA;
- The date that the last work completed on planning, conducting, and reviewing and evaluating the site investigation was no more than 18 months prior to the submission of the RSC or the commencement of a RA;
- In the professional opinion of the QP, there is no new or materially changed APEC at the RSC property;
- The report is a single document; and,
- The report is the most recent document that meets all of the requirements.

If a report cannot be used as a phase two ESA, based on the above information, then a QP must complete a phase two ESA update in order to submit a RSC. The QP must carry out and then report on the activities undertaken, as necessary to meet any of the following requirements:

- The general objectives of the phase two ESA; and,
- The specific objectives and requirements of the phase two ESA.

1.6 Using Old Phase Two Environmental Site Assessment Reports

Refer to section 33.5 of the Regulation

Section 33.5 of the Regulation sets out rules for ensuring that the assessment and report used to support the filing of a RSC are up to date. If the last phase two ESA work conducted on planning, carrying out, and reviewing and evaluating the site investigation was completed more than 18 months before the filing of a RSC or the commencement of a RA, a phase two ESA update must be completed. The update will ensure that any new or materially changed APEC that has potentially affected the RSC property, or any other unmet objective or requirement, has been investigated and documented. However, if the phase two ESA work was completed less than 18 months ago, but it

does not meet one or more requirements of the Regulation (including the report format) the QP must conduct further work. This work must be documented in an update report and, along with the phase two ESA report, must meet the requirements of the Regulation.

The rules are as follows. In order to use a phase two ESA in support of a RSC, or in planning, conducting or supervising a RA to be used in support of a RSC:

- The date the last work was done on planning and carrying out the site investigation and reviewing and evaluating it can be no more than 18 months before the RSC is submitted or the commencement of a RA;
- The QP must be of the opinion that there is no new or materially changed APEC at the property;
- The phase two ESA must meet all other requirements of Part VIII and Schedule E of the Regulation, including the requirements of a phase two ESA report (see Table 1 of Schedule E of the Regulation for these requirements); and,
- The phase two ESA report must be a single document and be the most recent report which meets the requirements of Part VIII and Schedule E of the Regulation for a phase two ESA report.

If any of this is not the case, the QP must first update the phase two ESA by conducting or supervising any portions of a phase two ESA that may be necessary to meet the objectives and requirements for a phase two ESA and its components before either submitting a RSC for filing, or beginning a RA. In some cases the update may simply state that no work is necessary to meet the objectives and requirements. In other cases, additional work up to, and including, an entirely new phase two ESA may be required. When an update has been done, the requirement that the phase two ESA report must be a single document does not apply. The requirements for the phase two ESA, including the reporting requirements, may be met through the work documented and reported on in the separate documents. However, it is important to remember that the update report must clearly explain how the combined documents meet the requirements and objectives along with the reasons why an update was needed.

- Example Scenarios -

Is there a "phase two ESA" already prepared?

If there has been previous work or a previous report completed, you will need to determine a number of things. For example, does the work or report meet the requirements for a phase two ESA. This will involve reviewing Parts VI and VIII of the Regulation as well as Schedule E of the Regulation. There are at least four things to determine:

1. *Although you have not conducted or supervised the completion of the work or report, is the report and the work underlying the report something that could be used to submit a RSC?*

2. *Can a RSC be submitted based on this report (and the phase one ESA report) alone (there is no other information contained in other reports that is necessary to meet the requirements/objectives of the Regulation)?*
3. *If the answer to the questions above is yes, then you must complete the steps required before a QP may use the work of another QP who actually conducted or supervised the work (see Section 1.7 below).*
4. *If the answer to either of the above questions is no, then you must determine what further work needs to be done (what requirements or objectives must be met) before the previous work or a previous report can be used to submit a RSC.*

I, as a QP, have an "old" phase two ESA report. What can I do with it?

If the report is 18 months or older, since the last work planning or conducting the site investigation and reviewing and evaluating it was done, you will need to do an update. The extent of the update will depend on the circumstances. For example:

- *Where a phase two ESA, including the report: (a) meets the new requirements/objectives of the Regulation; (b) the last work was completed just over 18 months ago; and, (c) there have been no changes at the property, the update may consist of a letter outlining and documenting these facts.*
- *Where, on the other hand: (a) circumstances have changed; (b) more time has passed; and, (c) the last work was completed five years ago, the update would most likely be extensive (and may require additional field work). In this situation, it may be more practical to complete a new ESA.*

The QP must document all reports and data consulted, and indicate what was used and how it was used in the phase two ESA.

1.7 When You Are Not the QP Who Conducted or Supervised the Phase Two Environmental Site Assessment

Refer to section 33.7 of the Regulation

In some instances, property owners may retain multiple QPs to conduct ESA work at a property. As mentioned previously, if you are the QP who has been retained to submit a RSC for filing but you did not conduct or supervise the phase two ESA, you must do certain things before the RSC may be filed or before a risk assessment may be initiated. This is the case even if the phase two ESA has been recently completed.

First, you must review the phase two ESA and any other material necessary to determine if the phase two ESA meets the requirements of Part VIII (sections 32 to 33.8) and Schedule E of the Regulation. This includes determining if the phase two ESA

report meets the requirements for reports (see Table 1 of Schedule E of the Regulation).

You must also determine whether the phase two CSM, part of the report, accurately reflects the current environmental condition of the property prior to any actions taken to reduce the concentration of contaminants.

In addition, you must determine whether a new or materially changed APEC exists at the phase two property.

Furthermore, where you conclude the following:

- the phase two ESA does not meet the requirements of Part VIII (sections 32 to 33.8) and Schedule E of the Regulation;
- the phase two CSM does not accurately reflect the environmental condition of the property prior to any actions taken to reduce the concentration of contaminants; or,
- there is a new or materially changed APEC at the phase one property,

you must also conduct or supervise any additional work on the phase two ESA that is necessary to meet the general and specific objectives, and the requirements, for a phase two ESA (see section 33.1 and Schedule E of the Regulation).

This provision is not intended to take away from any professional obligations you may have in this situation under the statutes which govern your profession (see subsection 33.7(4) of the Regulation). The work to be completed may involve the completion of a new phase two ESA (see subsection 33.7(3) of the Regulation).

The QP should consider whether other provisions involving the use of phase two ESA reports apply. Section 33.5 of the Regulation applies to work and reports that can be used as a phase two ESA when submitting a RSC, or planning, conducting or supervising a risk assessment in support of a RSC. It may be possible to use the same work to meet obligations which exist under sections 33.5 and 33.7 of the Regulation.

If you determine that no further work is needed under section 33.7 (and 33.5) of the Regulation, then you and the owner may submit a RSC or begin a risk assessment, assuming all associated requirements have been met.

2. Phase Two ESAs and RSCs

2.1 When Is a Phase Two ESA Required?

As outlined above, and in the “Guide for Completing Phase One Environmental Site Assessments under Ontario Regulation 153/04”, it is not always necessary that a phase two ESA be completed before a RSC can be filed.

However there are some circumstances in which a phase two ESA is explicitly required for this purpose. Section 32 of the Regulation sets out the following specific circumstances where a phase two ESA is required where:

- Subject to certain exceptions, the property is being, or was used, for industrial uses or as a garage, a bulk liquid dispensing facility (including a gasoline outlet) or for the operation of dry cleaning equipment; and,
- Subject to certain exceptions, a PCA is occurring or has occurred at the property;

In addition a phase two ESA is required where:

- An APEC has been identified at the property resulting from a PCA in the phase one study area; or,
- For any other reason, a contaminant has affected any land or water on, in or under the property.

Where the property is currently being used for parkland, community, institutional, residential, or agricultural or other purposes, and there has been a RSC filed since it was last used for industrial purposes or as a garage, bulk liquid dispensing facility or for the operation of dry cleaning equipment, then a phase two ESA is not mandatory.

A phase two ESA is also not mandatory for any part of the property that is being, or was used, for quarrying to excavate consolidated or unconsolidated aggregate, or for the aspect of the production of oil and gas consisting of the presence of an oil or gas well on, in or under the property.

Note that there are exceptions to the above. See s. 32 of the Regulation.

2.2 Overview of a Phase Two ESA

The Act defines a phase two ESA as:

- “an assessment of property conducted in accordance with the regulations by or under the supervision of a qualified person to determine the location and concentration of one or more contaminants in the land or water on, in or under the property.”

The phase two ESA begins with planning a physical site investigation; this is followed by carrying out the site investigation, then reviewing and evaluating the investigation. Finally, a report is prepared and delivered to the owner of the phase two property.

In order to submit a RSC, there must be certifications that contaminants at the RSC property meet applicable standards. There are two kinds of standards, those contained in the “Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the

Environmental Protection Act" (applicable site condition standards), and standards prepared for use at a particular property (standards specified in a risk assessment).

Both kinds of standards are prepared using a risk assessment methodology. However, when developing the applicable site condition standards a number of generic assumptions are made about things such as exposure to contaminants and the physical characteristics of the property. When developing standards specified in a risk assessment, the actual property characteristics are considered in conducting the risk assessment.

Therefore, one of the key purposes of a phase two ESA to be used in support of a RSC is to determine whether the relevant standards have been met. This process will typically involve sampling and analysis of soil, sediment and/or ground water for contaminants, and determining which standards are applicable site condition standards. Where a risk assessment has been conducted and accepted by the Ministry, sampling and analysis will also be involved in a phase two ESA to determine if the standards specified in a risk assessment have been met (unless the contaminant concentrations have been reduced to meet the applicable site condition standards, or the contaminants have been removed).

The requirements, objectives and provisions relevant to a phase two ESA are found in a number of different places in the Regulation including Parts VI and VIII and Schedule E.

In addition, the following items contain important information:

- Part IX of the Regulation (Site Condition Standards and Risk Assessments – especially sections 34 to 43 and 47);
- The document "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act" (Soil, Ground Water and Sediment Standards); and,
- The document "Analytical Protocol".

The standards, which may be "applicable site condition standards", for a contaminant can be found in a list of tables in the Soil, Ground Water and Sediment Standards. The rules for determining applicable site condition standards and the applicable tables for a particular case, are found in sections 34 to 43 of the Regulation.

Section 47 of the Regulation and the Analytical Protocol set out some of the rules that apply when a sample is collected and analyzed. The remaining rules can be found in Schedule E of the Regulation.

2.3 General Objectives

Refer to section 33.1 of the Regulation

The general objectives of a phase two ESA are specified in section 33.1 of the Regulation. The QP must ensure that the general objectives of a phase two ESA are

achieved in order to file a RSC. If the general objectives of a phase one ESA are not met, and the Ministry conducts a review of that RSC, it may not be possible to file the RSC.

2.4 Components

Refer to section 33.2 of the Regulation

The components of the phase two ESA have not changed and are as follows:

- Planning the site investigation;
- Site investigation;
- Evaluation of information from site investigation;
- Phase two ESA report; and,
- Delivery of report to the owner of the phase two property.

2.5 Responsibility of a QP

Refer to section 33.3 of the Regulation

Section 33.3 of the Regulation specifies that a QP must conduct or supervise the phase two ESA. Throughout the Regulation, including Schedule E, certain aspects of the phase two ESA must be conducted by a QP. In all cases, the QP is responsible for ensuring that the phase two ESA is conducted in accordance with the requirements of Part VIII and Schedule E of the Regulation.

2.6 Impediments in Conducting the Phase Two ESA

Refer to section 33.4 of the Regulation

The QP is required to identify any physical impediment which interferes, or may interfere with, or limit the ability to: (a) meet the requirements or objectives of a phase two ESA; (b) conduct investigations of the property; and, (c) ensure that any such impediment does not preclude meeting the requirement or objectives of a phase two ESA. If access to the property is denied in any respect, it is presumed that this is an impediment that precludes meeting the requirements or objectives of a phase two ESA unless the reason is safety or inaccessibility. Where the reason for denial of access is based on considerations of safety or the inaccessibility of the property, the QP must document this. For example, if an inaccessible confined space existed on the phase two property, the requirements do not force the QP to enter this space. However, the QP would need to conduct additional work to ensure the objectives and requirements were met such as interviewing someone familiar with the inaccessible space.

Any denial of access must be documented in the phase two ESA report.

3. The Standards

The RSC property must meet the applicable site condition standards or standards specified in a risk assessment for each relevant contaminant on, in or under the property.

Where the standards to be met are the applicable site condition standards for a contaminant, you will need to know the applicable property use for the RSC being submitted for filing, and certain physical characteristics of the property.

The rules for determining the applicable site condition standards for a particular property are set out in sections 34 to 43 of the Regulation.

3.1 Applicable Site Condition Standards

Refer to sections 34 to 43 of the Regulation

The concentration of each contaminant on, in or under the property must not exceed the applicable site condition standard for the contaminant, unless there are standards specified in a risk assessment for the RSC property. The tables of standards relevant to property uses and property characteristics are set out the Soil, Ground Water and Sediment Standards. A summary of the tables is shown below in Table 3-1. Most of the tables apply to various types of property use and, in some cases, characteristics of the property and neighbourhood. A more detailed review of the determination of applicable site condition standards is described below.

Table 3-1: List of Site Condition Standards Tables (Soil, Ground Water and Sediment Standards and sections 34 to 43 of the Regulation)

Site Condition Standards	Approach	Ground Water Condition	Table Number
Background (sections 34, 41)	Full Depth	Potable	1
Generic (section 36)	Full Depth	Potable	2
Generic – shallow soil (sections 36, 43.1)	Full Depth	Potable	6
Generic – within 30 metres (m) of a water body (sections 36, 43.1)	Full Depth	Potable	8
Generic – shallow soil and within 30 m of a water body (section 36)	Full Depth	Potable	Lowest values from Tables 6 and 8
Generic (section 37)	Full Depth	Non-Potable	3
Generic – shallow soil (sections 37, 43.1)	Full Depth	Non-Potable	7
Generic – within 30 m of a water body (sections 37, 43.1)	Full Depth	Non-Potable	9
Generic – shallow soils and within 30 m of a	Full Depth	Non-Potable	Lowest values from

Site Condition Standards	Approach	Ground Water Condition	Table Number
water body (section 37)			Tables 7 and 9
Generic (sections 38, 40)	Stratified	Potable	4
Generic (sections 39, 40)	Stratified	Non-Potable	5

3.1.1 Use of the Table 1 site conditions standards

Refer to sections 34, 41 and 43.1 of the Regulation

The Table 1 standards, sometimes referred to as background, are different from the standards in other tables. These standards are based on a background sampling program of sites not contaminated by point sources, and are not based on potential effect concentrations. They represent an upper end of the normal range (more than the 97.5 percentile). Therefore, sites meeting these standards fall within the range of normal background concentrations in Ontario.

The Table 1 standards were changed in the April 15, 2011 Soil, Ground Water and Sediment Standards document and will apply to RSCs submitted as of July 1, 2011. In addition to the changes in the concentration standards, there have also been some changes to the Regulation with respect to when the standards in Table 1 will be the applicable site condition standards for a RSC property.

Effective July 1, 2011, the full depth background site condition standards will no longer be the applicable site condition standards when a RSC property is a shallow soil property and/or is within 30 metres of a water body. In such cases, the applicable standards will be derived from the new Tables 6 to 9.

The full depth background site condition standards will continue to apply if any one of the following conditions exist:

- the property is within an area of natural significance, includes or is adjacent to an area of natural significance or part of such an area, or includes land that is within 30 m of an area of natural significance or part of such an area;
- the surface soil at the property has a pH value of less than 5 or greater than 9;
- the subsurface soil at the property has a pH value of less than 5 or greater than 11; or,
- a QP is of the opinion that, given the characteristics of the property and the certifications the QP would be required to make in a RSC in relation to the property, it is appropriate to apply the Table 1 site condition standards to the property.

3.1.2 Potable versus non-potable ground water

Refer to sections 35 to 37 and paragraph 19(2)1 of Schedule A of the Regulation

In all cases when determining applicable site condition standards, it is necessary to consider whether standards based on potable or non-potable ground water conditions are the applicable site condition standards for the property. Non-potable ground water site condition standards may be used if all of the following circumstances exist:

- the property, and all other properties located, in whole or in part, within 250 m of the boundaries of the property are supplied by a municipal drinking water system and have no wells*;
- the property is either,
    - not located in an area designated in a municipal official plan as a well-head protection area or other designation identified by the municipality for the protection of ground water, or
    - located in such a designated area but the municipality has consented in writing to the application of the non-potable ground water site condition standards in preparing a RSC for the property;
- the RSC does not specify agricultural or other use as the type of property use for which the RSC is filed;
- the owner or the QP has within six months immediately before the submission of the RSC, given the clerk of the local municipality and of any upper-tier municipality in which the property is located, written notice of intention to apply the non-potable ground water site condition standards in preparing a RSC for the property. And, within 30 days after receiving this notice,
    - neither the local municipality nor the upper-tier municipality (if any) has given written notice (called a “notice of objection”) to the owner that it objects to that application of the non-potable ground water site condition standards, or
    - a local or upper-tier municipality has given a notice of objection to the owner, and the municipality, at any time after giving the notice of objection, has withdrawn the objection and given written consent to the owner for the application of the non-potable ground water site condition standards.

* *Note that in section 35 of the Regulation “well” means a hole made in the ground to locate or to obtain ground water which is used or intended for use as a source of water and includes a spring around or in which works are made or equipment is installed for collection or transmission of water, but does not include a hole not used or intended for use as a source of water for agriculture or human consumption, such as,*

(a) a hole solely intended to test or to obtain information in respect of ground water or an aquifer, or

> *(b) a hole solely made to lower or control the level of ground water in the area of the hole or to remove material that may be in the ground water.*

A municipality cannot override the requirement to use potable site condition standards if:

- the property, and all other properties located, in whole or in part within 250 m of the boundaries of the property are not supplied by a municipal drinking water system and have wells; or,
- the RSC specifies agricultural or other use as the type of property use for which the RSC is submitted for filing.

The potable ground water site condition standards may be applied without permission from the municipality.

3.1.3 Full depth versus stratified approach

Refer to sections 38 to 40 of the Regulation

The full depth site condition standards may be used for any intended property use. The soil standards, both surface and subsurface, are set out in Tables 2, 3 and 6 to 9 of the Soil, Ground Water and Sediment Standards.

In addition to the full depth site condition standards, the stratified site condition standards may (subject to certain limits) also be used. The soil standards which must be met for surface soil (top 1.5 metres below soil surface) and subsurface soil (more than 1.5 metres below soil surface) are set out in Tables 4 and 5 of the Soil, Ground Water and Sediment Standards.

The QP needs to ensure that sufficient sampling of both surface and subsurface soil is conducted to demonstrate that stratified site condition standards are met. For example, if there is an exceedance of a standard in a subsurface soil sample, a corresponding surface sample should be considered to be collected from the same vicinity to determine if the surface soil was also impacted and vice versa in order to determine if the property meets the surface soil standards in Table 5.

The stratified site condition standards cannot be applied if any of the following conditions apply:

- agricultural or other use is specified as the type of property use for which the RSC is submitted for filing;
- the RSC property is a shallow soil property; or,
- the RSC property includes all or part of a water body, or is adjacent to a water body or includes land that is within 30 m of a water body.

3.1.4 Soil texture

Refer to section 42 of the Regulation

The tables in the Soil, Ground Water and Sediment Standards contain one standard for coarse textured soil and another standard for medium and fine textured soil for each contaminant. The QP is required to apply the following rules in determining which standard applies to a property for a contaminant:

- If the QP determines that at least 1/3 of the soil at the RSC property, measured by volume, consists of coarse textured soil, the QP must apply the standard for coarse textured soil; and,
- In any other case, the QP may apply the standard for medium and fine textured soil.

The most conservative site condition standards are the coarse textured soil and the QP should consider the texture of the soils where the contaminants are found and selection of a more conservative standard if there is uncertainty about the heterogeneity of the soil texture. If the QP applies a medium and fine textured soil standard for the RSC property, the QP must collect and analyse soil samples for grain size analysis in accordance with the requirements in Schedule E of the Regulation (see section 17, paragraph 4 of Schedule E of the Regulation).

3.1.5 Applicable site condition standards: “N/A”, “N/V” or not listed

Refer to section 43 of the Regulation

If a cell in a standards table indicates “N/A” (not applicable) or “N/V” (no value) for a contaminant found in an environmental medium for a type of property use, or that contaminant is not listed in the standards table, no applicable site condition standard is prescribed for that contaminant found in that environmental medium in relation to that type of property use.

In these cases, if the contaminant is detected in the environmental medium on the phase two property and is associated with a PCA, the owner of the property may submit to the Director a new science RA if the owner or QP is of the opinion that a RA is necessary in order to complete the certification statements required in the RSC.

3.1.6 Meeting the site condition standards

Refer to sections 48 and 49 of the Regulation

It is important to know how to determine if contaminants at a property are present at levels that meet or do not meet the applicable site condition standards or a standard specified in a RA for a contaminant (see sections 48 and 49 of the Regulation).

A property meets the applicable site condition standards or a standard specified in a RA if the standard is met at each sampling point where a sample is collected on, in or under the property.

If two or more samples of soil or sediment are collected from sampling points at the same sampling location that are at the same depth on, in or under the property, the property meets a standard if the average of the sampling results meets the applicable site condition standard.

In the Regulation, sampling point is not defined, but sampling location means an area of the property that has a radius of two metres or less. Therefore, in order to average analytical results, or composite soil samples (other than for analysis of volatile organic compounds (VOCs)), the sampling points need to be located within a 2 metre radius of each other.

It is important to note that compositing of samples of soil or sediment to be analysed for volatile contaminants, including VOCs is not permitted.

3.1.7 Exemption from meeting the site condition standards

Refer to subsection 48(3) of the Regulation

If the QP determines that an applicable site condition standard is exceeded solely because a substance has been used, by the Crown as represented by Ministry of Transportation or a Crown agent or employee of the Crown or a Crown agent, on a highway for the purpose of keeping the highway safe for traffic under conditions of snow or ice or both, the applicable site condition standard is deemed not to be exceeded for the purposes of the RSCs, Part XV.1 of the Act. The circumstances in which the substance is used are described in section 2 of Regulation 339 of the Revised Regulations of Ontario, 1990 as well as in subsection 48(3) of the Regulation.

For example, a private parking lot or commercial establishment where salt is applied by the property owner or private contractor to control ice and/or snow is not covered under this exemption for salt-related contaminants. However, if the property borders a highway as defined in Regulation 339, where salt has been applied by a government or municipal authority, salt-related impacts are localized to the area adjacent to the roadway, and the distribution is consistent with application of salt to the “highway” and nothing else, the property is deemed to meet the site condition standards for the salt-related contaminants applied to the highway which are now on the RSC property.

3.1.8 Meeting the petroleum hydrocarbon standards

Refer to section 49 of the Regulation

There are additional rules relating to petroleum hydrocarbon standards.

A property does not meet an applicable site condition standard in relation to a petroleum hydrocarbon standard unless the QP has determined that there is no evidence of free

product, including but not limited to, any visible petroleum hydrocarbon film or sheen present in the ground water or surface water or in any ground water or surface water samples.

Where potable conditions apply to the property, the property does not meet an applicable potable site condition standard (for ground water) unless the QP has determined that there is no indication of objectionable petroleum hydrocarbon odour and taste associated with the ground water. Note that the QP is not, and has never been, required to "taste" the ground water in order to make this determination.

3.2 Analytical Procedures

Refer to section 47 and Schedule E of the Regulation and the Analytical Protocol

The Analytical Protocol is a document that sets out the sample handling and storage requirements, analytical methods and method specific quality control and assurance procedures for laboratories to use when sampling and analysis is for the purpose of filing a RSC. Section 47 of the Regulation incorporates the Analytical Protocol into the Regulation and contains other rules about sampling and analysis. The purpose of section 47 and the Analytical Protocol are to ensure that appropriate samples are submitted to laboratories, the samples are analyzed with methods that are suitable for the purpose and that the results of the laboratory analyses are reported with sufficient quality upon which to base decisions required for the Regulation. Note that Schedule E of the Regulation also contains requirements for sample collection and handling in the field.

Where a QP collects a sample of any medium on the property for the purpose of analysing the sample for a contaminant as part of a phase one or phase two ESA or a RA, or for the purpose of identifying the maximum concentration of a contaminant in a RSC, the QP must ensure that:

- the samples are handled and stored in accordance with the Analytical Protocol (see section 2, sample handling and storage requirements of the Analytical Protocol for details);
- the collection and chain of custody of samples are carried out in accordance with the requirements in Part VIII and Schedule E of the Regulation;
- the analyses of the samples are carried out by a laboratory that,
    - has been accredited in accordance with the International Standard ISO/IEC 17025 – General Requirement for the Competence of Testing and Calibration Laboratories, dated May 5, 2005, as amended from time to time, and
    - has been accredited in accordance with the standards, if standards for proficiency testing have been developed by the Standards Council of Canada, the Canadian Association for Laboratory Accreditation or another accreditation body accepted by the Director for a parameter set out in the Soil, Ground Water and Sediment Standards;

- the laboratory provides the certificate of analysis or analytical report prepared in accordance with the Analytical Protocol and the requirements below; and,
- the laboratory is not instructed to exclude, from an analytical report or certificate of analysis, any of the parameters which were analyzed.

If a sample is submitted by a QP to a laboratory for analysis for a contaminant, the laboratory must conduct the analysis for the contaminant in accordance with the Analytical Protocol and provide a certificate of analysis or analytical report to the QP that specifies the analytical method used for conducting the analysis for the contaminant.

The certificate of analysis or analytical report must contain a complete record of the submission and analysis, including all correspondence between the laboratory and the QP, or anyone under the supervision of the QP, with respect to the sample collection, chain of custody, handling and analysis.

This shall include:

- the laboratory name, address, contact and phone number;
- client name, client contact, address and phone number;
- sample identification number for tracking purposes;
- sample type and location;
- sampling date;
- date the sample was received;
- date the sample was analyzed;
- method identification and method reference as specified in the Analytical Protocol;
- chemical parameter measured;
- reporting limits, including adjustment for sample size, moisture content or dilution factor;
- method specific quality assurance/quality control (QA/QC) requirements as specified in the Analytical Protocol;
- authorization to release the certificate including,
    - the name, function, and signature or equivalent of any person authorizing the release, and
    - a statement that the results relate only to the items tested and to all the items tested;
- certification that the data met all analytical requirements in the Analytical Protocol with, if applicable, a detailed description of and rationale for qualification for required exceptions; and,
- all information recorded by the laboratory with respect to the condition of samples brought to the laboratory, including information recorded with respect to sample quality, holding time, preservation and storage, and sample containers.

The analysis of a sample for a contaminant may be conducted by a laboratory using a method other than a method specified in the Analytical Protocol if the laboratory obtains the written permission of the Director to use that analytical method for that contaminant. Documentation of this permission should be provided in the phase two ESA report.

The QP must obtain from the laboratory written confirmation that the laboratory has,

- conducted its analysis for a contaminant in accordance with the Analytical Protocol, or in accordance with an analytical method for which the laboratory has obtained the written permission of the Director, and
- provided an analytical report or certificate of analysis that has been prepared in accordance with the Analytical Protocol and the requirements outlined above.

3.3 Soil Brought to a RSC Property

Refer to Schedule E and section 55 of the Regulation

Soil that did not originate at a RSC property may be brought from another property to the RSC property to remain there to backfill an excavation, or for final grading following the filing of a RSC. The QP who has conducted or supervised the phase two ESA must ensure that the following requirements have been met in accordance with section 55 of the Regulation and additional requirements in Schedule E of the Regulation. The requirements in section 55 are as follows:

- the RSC property is being used or has been used, in whole or in part, for an industrial use or one of the commercial uses mentioned in clause 32(1)(b) of the Regulation;
- the RSC property is a property where a PCA has been identified as occurring or having occurred;
- the RSC property is a property where one or more contaminants of concern have been identified as present.

If the above conditions apply, then, as set out in Schedule E, soil may be brought to the phase two property provided it meets the applicable site condition standards or any standards specified in a risk assessment.

If any of the above conditions do not exist, soil that did not originate at a RSC property may be brought from another property to the phase two property to remain there to backfill an excavation or for final grading following the filing of a RSC if the soil meets the standards set out in Table 1 of the Soil, Ground Water and Sediment Standards.

In either case, Schedule E sets out rules for determining if the standards have been met. This determination must be made before the soil is brought to the RSC property.

4. Planning the Phase Two Site Investigation

Refer to sections 2 to 4 of Schedule E of the Regulation

This part of Schedule E of the Regulation contains both generic requirements (applicable to all media, soil, ground water or sediment, which may be investigated) and specific requirements (for example, those applicable when soil vapour investigations are being undertaken for the purposes of a RA).

Section 2 sets out the objectives of planning, section 3 contains the general requirements for plans, and section 4 contains additional requirements for planning an investigation of soil vapour.

A sampling and analysis plan is required for each investigation. The sampling and analysis plan must include QA/QC provisions, criteria, general requirements, data quality objectives and standard operating procedures.

4.1 Specific Objectives

Refer to section 2 of Schedule E of the Regulation

There are specific objectives for planning the site investigation component of a phase two ESA; they are intended to help to achieve the general objectives of a phase two ESA. These planning objectives should:

- result in an appropriate information base for the phase two property;
- use pre-existing and ongoing information;
- include a sampling and analysis plan that will adequately assess all areas where contaminants may be present in land or water on, in or under the property; and,
- include a quality assurance program designed to effectively limit errors and bias in sampling and analysis through implementation of measures to ensure data are useful, appropriate and accurate in determining whether applicable site condition standards, or standards specified in a risk assessment, are met.

4.2 Requirements

Refer to subsections 3(1) and 3(2) of Schedule E of the Regulation

The following requirements must be met in planning any site investigation:

- The phase one CSM and information obtained from the phase one ESA and other documents must be used in determining the media for investigation, locations and depths for sampling and parameters for laboratory analysis;
- There must be a sampling and analysis plan that includes a QA/QC program, data quality objectives, standard operating procedures and a description of any

physical impediments that interfere with or limit the ability to conduct sampling and analysis; and,

- Information obtained after completion of the phase one ESA should be used to modify the site investigation as appropriate.

The sampling and analysis plan has several required components, as well as general requirements and criteria. These are addressed in the remaining parts of section 3 of the Regulation.

4.2.1 Quality assurance/quality control program for sampling and analysis plan

Refer to subsection 3(3) of Schedule E of the Regulation

For each sampling and analysis plan, there must be a QA/QC program. The requirements for this include the following:

- All non-dedicated sampling and monitoring equipment must be cleaned following each use (and should be clean prior to any sampling and monitoring use);
- Where ground water samples are to be analyzed for VOCs, one trip blank sample shall be submitted for laboratory analysis with each laboratory submission;
- Specification of the minimum requirements for the number, type and frequency of field quality control measures including trip blanks, field duplicates and calibration checks on field instruments; and,
- Sufficient field duplicate samples must be collected in each medium being sampled, so that at least one field duplicate sample can be, and is, submitted for laboratory analysis for every 10 samples submitted to the laboratory.

4.2.1.1 Data quality objectives for sampling and analysis plan

Refer to subsection 3(4) of Schedule E of the Regulation

There should be data quality objectives for the sampling and analysis plan.

Data quality objectives outline the overall level of uncertainty that a QP will accept in collecting field data in order to develop a CSM. The data quality objectives for any field data collected during the phase two ESA must ensure that the decision making is not affected and the overall objectives of the investigation are met. Data quality objectives are set to determine precision, accuracy, reproducibility, representativeness, and completeness for field data (i.e., relative percent difference (RPD), matrix spikes, matrix spike duplicates, data qualifiers, etc.).

4.2.1.2 Standard operating procedures

Refer to subsection 3(5) and section 11 of Schedule E of the Regulation

Standard operating procedures must be developed (and followed) during the field investigation for all of the following field investigation methods which apply:

- borehole drilling;
- excavating;
- soil sampling;
- field screening measurements, including calibration procedures;
- monitoring well installation;
- monitoring well development;
- field measurement of water quality indicators, including calibration procedures;
- sediment sampling; and,
- ground water sampling.

Deviation from standard operating procedures as appropriate may be acceptable if there is a professional rationale for this deviation. The rationale for any deviation must be documented in a manner that is sufficient to allow a third party to review the adequacy of the methods used.

The format of the standard operating procedure is not specified in the Regulation and the QP may use any format that he and she considers appropriate.

4.2.2 Sampling and analysis plan, general requirements and criteria

Refer to subsections 3(6) and 3(7) of Schedule E of the Regulation

The sampling and analysis plan must include identification of, and rationale and procedures for the following:

- the choice of sampling system, such as a judgmental, random or grid sampling;
- the sampling media;
- the number of samples;
- sampling frequency;
- sampling points;
- sampling depth intervals, including the screened intervals of the monitoring wells;
- other field information to be obtained, including water levels, field measurements and elevation surveying; and,
- samples to be submitted for laboratory analysis.

The plan should include all media (soil, sediment or ground water) relevant to the phase two ESA. For example, the plan should include any media which are present on, in or

under the phase two property and are expected to contain one or more contaminants, due to the presence of PCAs or APECs or for some other reason.

A sampling and analysis plan must include:

- consideration by the QP of findings about PCAs, all contaminants of potential concern or appropriate subsets, and any other information and matters relating to the environmental condition of the property that are relevant to an informed professional judgment; and,
- determination by the QP of sampling and analysis for all contaminants of potential concern or appropriate subsets, and appropriate sampling and analysis for any other relevant contaminants.

4.2.3 Soil vapour investigations

Refer to section 4 of Schedule E of the Regulation

Where a site investigation includes a soil vapour investigation (usually where a modified generic risk assessment is to be done and empirical soil vapour data are to be included in order to modify the assumed value), the requirements of section 3 of the Regulation apply with necessary modifications. However, there are additional planning requirements set out in section 4 of the Regulation.

For example, standard operating procedures must also be developed for soil vapour probe installation, development, performance, leak testing, purging and sampling.

In addition, where a site investigation includes a soil vapour investigation, and soil vapour samples are to be analyzed for VOCs, one trip blank sample must be submitted for laboratory analysis with each laboratory submission and at least one field duplicate sample must be submitted for laboratory analysis for every ten samples submitted to the laboratory.

For soil vapour QA/QC requirements, refer to the Ministry “Draft Technical Guidance: Soil Vapour Intrusion Assessment” document (November 2010).

5. Conducting the Phase Two Site Investigation

Refer to sections 5 to 41 of Schedule E of the Regulation

Part III of Schedule E of the Regulation contains the objectives and requirements for a site investigation, beginning with:

- the specific objectives;
- the circumstances when ground water sampling and analysis are needed;
- delineation requirements;
- field investigation equipment, methods and requirements;

- sampling location and sampling point requirements;
- collecting, handling and analyzing samples;
- selecting samples for analysis;
- measuring ground water levels and determining ground water flow direction;
- documenting the field investigation;
- soil vapour investigation requirements;
- soil excavated at or brought to the phase two property;
- actions taken to reduce the concentration of contaminants;
- confirmation sampling and analysis; and,
- site assessment requirements for risk assessment.

A number of the above provisions will likely apply to all site investigations (objectives, delineation, field investigation equipment, methods and requirements, etc.); however, other provisions will apply in more specialized circumstances (soil vapour investigation, soil brought to the property, site assessment requirements for risk assessments and confirmation sampling). Therefore, while the Regulation and this guide is structured to present a sequence of activities, the QP should recognize that the sequence and its contents will vary, and may involve iteration and reiteration.

5.1 Specific Objectives

Refer to section 5 of Schedule E of the Regulation

The specific objectives of the site investigation component of a phase two ESA are:

- To determine what applicable site condition standards apply to the phase two property;
- To confirm if contaminants are present on the phase two property, and if so, their type, location and concentration;
- To determine if any contaminants on the phase two property are present at concentrations greater than the applicable site condition standards or standards specified in the RA for the contaminants (where a RA has been accepted by the Director with respect to contaminants on the phase two property) by investigating and characterizing soil, ground water and sediment, and further investigating and characterizing applicable media following any remediation.

5.2 Ground Water Sampling and Analysis

Refer to subsection 22(1), section 32, and section 6 of Schedule E of the Regulation

A site investigation must include the investigation, sampling and analysis of ground water on, in or under the phase two property where:

- the property is an enhanced investigation property; or,

- where it is advisable to do so in order to achieve the phase two ESA objectives or other provisions of the Regulation and Schedules.

- Example Scenario -

I am a QP who has been retained to file a RSC for a property that has little, or no, soil present at the property. Can I conduct a phase two ESA and submit a RSC for the property?

Yes, it may be possible to conduct a phase two ESA and submit a RSC for filing although the steps you need to take may depend on the circumstances. For example, you must look at sections 8(3) and 8(4) of Ontario Regulation 179/09. When section 8(4) applies and the soil present at the site is not sufficient to investigate, sample and analyze to meet the requirements and objectives of a phase two ESA, you will need to consider if there has been an investigation, sampling and analysis of soil, already undertaken. If a previous investigation has been undertaken, you will need to determine if this investigation can be part of the phase two ESA and if it meets the requirements and objectives for a phase two ESA with respect to soil. To do this you will need to consider the various objectives and requirements for a phase two ESA and its components, including any timing issues. If the answer is yes, then you may use this investigation as part of the phase two ESA.

If the answer is no, or no investigation has already been undertaken, then the phase two ESA must include investigation, sampling and analysis of ground water on, in or under the phase two property. This may include investigation, sampling and analysis of ground water in bedrock on the property.

5.3 Delineation

Refer to section 7 of Schedule E of the Regulation

For each contaminant present in soil, ground water or sediment on the phase two property, all areas where a contaminant is present at a concentration greater than the applicable site condition standard or standard specified in a RA that has been accepted by the Director must be laterally and vertically delineated.

There is some flexibility as to the timing of delineation.

Delineation must be conducted, as appropriate in the circumstances, either during the investigation and characterization of contaminants, or following any remediation (called action taken to reduce the concentration of the contaminant(s)) on, in or under the phase two property.

During delineation, samples of each medium (soil, ground water or sediment) being investigated must be collected from depths and locations on, in or under the phase two property and analyzed for contaminants, until it is determined that samples have been

collected from the areas of highest concentration of contaminants on, in or under the phase two property.

It is necessary to identify and locate the areas of highest concentration of each contaminant in each medium.

If the concentration of a single soil sample or the average concentration of duplicate soil samples is greater than the applicable site condition standard, the QP must assume that concentrations of the soil are greater than the applicable site condition standard up to the next sampling location where concentrations are equal to or below the applicable site condition standard. Lateral and vertical delineation can be achieved by conducting additional sampling to better define contaminated areas, or to consider all material to the next sampling site as contaminated.

If delineation involves contaminants in sediment on, in or under the phase two property, the depth and thickness of sediment where a contaminant is present at a concentration greater than the applicable site condition standard or standard specified in a RA must be determined for the contaminant, in addition to the above requirements.

5.4 Field Investigation Equipment, Method and Requirements

Refer to sections 8 to 12 of Schedule E of the Regulation

These sections deal with several different matters such as:

- the screening of wells and sampling depth intervals;
- the nature and treatment of wells where sampling is being undertaken to demonstrate if standards have been met ;
- documentation;
- if field screening equipment measurements may be used to determine whether standards have been met;
- requirements to follow standard operating procedures in the sampling and analysis plan and to document deviations; and,
- identifying and investigating aquifers and aquitards.

Most of the sections focus on investigations of ground water (sections 8, 9 and 12) while other sections (10 and 11) are relevant to investigations of all media.

Section 8

For a ground water sampling method to be used to characterize contamination or determine if the concentration of a contaminant is above, at or below an applicable site condition standard or standard specified in a RA for the contaminant, the following requirements must be met:

- Sampling depth intervals, including the screened intervals of monitoring wells shall be positioned, within the geologic formation in which a contaminant may be present so as to isolate the contaminated zones and to delineate both dissolved and separate phase contaminants. Please note that more than one monitoring well may be required at a single location in order to sample dissolved and separate phase contaminants separately;
- Where petroleum hydrocarbons or light non-aqueous phase liquids may be present on, in or under the phase two property, sampling depth intervals, including screened intervals of monitoring wells, must be positioned to intersect the water table; and,
- Where a monitoring well is being used, monitoring well screens must not be greater than 3.1 metres in length, based on the saturated length of the screen. This means that the screen can be longer than 3.1 meters but the saturated screen length must be no more than 3.1 metres.

Section 9

Where sampling of ground water is being undertaken to determine if the applicable site condition standard for a contaminant has been met, the following requirements must be followed:

- Samples shall be collected from a monitoring well or equivalent professionally acceptable ground water collection method (e.g., sampling from a drive-point sampler). Ground water samples must not be collected from a test pit, excavation, open borehole, undeveloped monitoring well, or any other similar source;
- A monitoring well from which a sample is to be taken must be developed prior to sample collection to remove any fluids that may have been introduced into the well during drilling and to remove particulates that may have become entrained in the well and filter pack;
- A monitoring well from which a sample is to be taken must be appropriately purged immediately prior to sample collection; and,
- Precautions must be taken to minimize the potential for cross-contamination or contamination through preferential pathways.

The following information must be documented with respect to well development and purging:

- the date and time the development or purging started and stopped;
- the volume of fluid removed from the well during development or purging;
- a rationale for concluding the development or purging was complete (e.g., water quality parameters have stabilized);
- a description of any water quality parameters measured in the field, such as pH, specific conductance and temperature; and,

- a description of the measures taken to minimize cross contamination between wells when using non-dedicated equipment.

Section 10

Field screening equipment measurements cannot be used to demonstrate that the applicable site condition standard or standard specified in a RA for a contaminant have been met on, in or under the phase two property.

Section 11

Standard operating procedures identified in the sampling and analysis plan are to be followed during the field investigation. A QP, or someone supervised by a QP, may deviate from the standard operating procedures but the QP must determine there is a professional rationale for the deviation. The standard operating procedures, and any deviations and associated rationales, used in the field investigation must be documented in a manner sufficient to allow a third party to review the adequacy of the methods used.

Section 12

All aquifers and aquitards on a phase two property which are relevant for determining the location and concentration of contaminants must be identified and investigated.

5.5 Sampling Location and Sampling Point Requirements

Refer to section 48, sections 13 to 16 of Schedule E of the Regulation

Sections 13 to 16 of Schedule E of the Regulation contain requirements for sampling points and sampling locations.

Section 13

Section 13 requires that when sampling points are being determined for soil and ground water during the field investigation, the following must be taken into account:

- The sampling and analysis plan;
- Any new information about APECs, contaminants and geologic and hydrogeologic conditions identified during the investigation up to the time of sampling;
- The phase one CSM from the phase one ESA; and,
- The objectives and requirements of the site investigation.

Sections 14 and 15

When it is necessary to sample sediment, section 14 requires that the following additional factors also be considered when choosing sampling points for sediment sampling:

- The size of the sampling area;
- The location of depositional areas; and,
- New information about APECs, contaminants and geologic and hydrogeological conditions identified during the field investigation.

Section 15 requires that sediment sampling locations on, in or under the phase two property should be chosen to likely have contaminants present at concentrations above the applicable site condition standards. Sampling should be conducted for all contaminants expected to be present and should be based on the applicable criteria set out in section 14, such as the size of the sampling area, etc.

Section 16

If at any time during the phase two field investigation, concentrations of an analysed ground water sample exceed the applicable site condition standard for a contaminant, ground water samples must be collected cross-gradient and down-gradient from this sampling point. These additional samples must be analyzed for each contaminant that was shown to be present at a concentration greater than the applicable site condition standard for the contaminant, and for any other associated or related contaminants.

5.6 Collecting, Handling and Analyzing Samples

Refer to sections 17 to 19 of Schedule E of the Regulation

Section 17

Section 17 sets out the following soil sampling requirements:

- Soil samples collected for characterization or delineation (where delineation is being undertaken before remediation) must be collected from undisturbed soils (from the walls and floor of the excavation) on, in or under the phase two property, and not from stockpiled soil;
- However, where delineation is occurring following remediation, soil samples must be collected both from undisturbed soil on, in or under the phase two property and from any stockpiles of soil intended to remain on the property permanently;
- Soil samples must be collected using professionally acceptable soil collection methods;
- Precautions must be taken to minimize the potential for cross-contamination or contamination through preferential pathways; and,

- Grain size analysis must be undertaken by a laboratory whenever a standard for medium and fine textured soil is to be applied. More than one representative sample from different soil horizons where contamination is found or where contaminants would be likely to travel should be collected when determining soil texture.

Section 18

Section 18 requires the QP to ensure the number of soil samples collected and analyzed is sufficient to determine the subsurface stratigraphy at or under the phase two property and the location of contaminants in soil on, in or under the phase two property.

Section 19

Section 19 requires that, for sediment samples, a record must be made of the depth at which each sample was collected and of the depth interval each sample is intended to represent.

5.7 Contaminant Not Listed

Refer to section 43, section 9 of Schedule C and section 20 of Schedule E of the Regulation

Where a contaminant is identified on, in or under the phase two property during the site investigation and the contaminant is one for which there is no standard listed in the Soil, Ground Water and Sediment Standards, samples of the contaminant shall be collected and analyzed if the contaminant is a contaminant of concern (COC). In such circumstances the contaminant would be a COC if it is associated with a PCA.

Note: where such a contaminant is associated with a PCA, and the QP is of the view that a RA is necessary in order to complete the certifications in a RSC prescribed by Schedule A, the owner of the property may submit a new science RA described in section 9 of Schedule C.

5.8 Selecting Soil Samples for Analysis

Refer to section 21 of Schedule E of the Regulation

The following must be considered in selecting soil samples for analysis in order to determine the maximum concentration of a contaminant in each area of the phase two property to be investigated:

- Any evidence (e.g., visual, olfactory, etc.) of the presence of a contaminant; and,
- The maximum concentrations of a contaminant measured using field screening equipment (e.g., photoionization detector (PID), x-ray fluorescence (XRF), ultraviolet fluorescence (UVF)), and any other field screening means (e.g., field

test kits) which may be necessary to ensure the analysis includes such maximum concentrations.

5.9 Measuring Ground Water Levels and Determining Ground Water Flow Direction

5.9.1 Variation in ground water level

Refer to section 22 of Schedule E of the Regulation

Ground water level measurements and ground water flow direction determinations must be completed during the site investigation by taking into consideration any temporal ground water level variations on the phase two property. Additionally, consideration must be given on if and how such variations may affect the distribution and concentration of contaminants in the ground water.

Ground water level measurements and ground water flow direction determinations shall be conducted at the times and places needed, and shall be included whenever ground water sampling is undertaken.

5.9.2 Ground water flow directions

Refer to section 23 of Schedule E of the Regulation

Ground water flow directions must be determined through an assessment that includes the following:

- measuring water levels to interpret ground water flow directions in any aquifer that is on a phase two property and in which a contaminant may be present at a concentration above the applicable site condition standard for the contaminant;
- using water level measurements that are representative of static and actual conditions;
- taking into account all water level measurements made when ground water samples have been collected;
- determining the direction of interpreted ground water flow in each aquifer investigated;
- assessing the potential for temporal variability in ground water flow direction;
- determining a reference elevation for each monitoring well reported to the nearest centimetre relative to a geodetic or permanent and recoverable benchmark;
- measuring water levels in a monitoring well at least 24 hours after the development of the well. Water levels obtained from other temporary professionally acceptable devices cannot be used in determining the ground water flow direction;

- determining the ground water elevation of each aquifer in which water level measurements were taken;
- installing a minimum of three monitoring wells (not placed in a straight line) in each aquifer to be investigated, at locations and in a manner appropriate to interpret horizontal flow directions;
- determining horizontal and vertical hydraulic gradients for each aquifer; and,
- taking water level measurements whenever ground water samples are collected from a monitoring well.

Where petroleum hydrocarbons, light non-aqueous phase liquids, volatile contaminants (including VOCs) or dense non-aqueous phase liquids may be present on the property, each monitoring well must be tested with an interface probe to determine if light or dense non-aqueous phase liquids are present in the well. Where light or dense non-aqueous liquids are present, the thickness of such free product must be measured and taken into consideration in determining water levels and interpreting ground water flow directions.

5.10 Documenting the Field Investigation

5.10.1 Finalized field logs, soil

Refer to section 24 of Schedule E of the Regulation

During the field investigation, field logs must be recorded and finalized for all intrusive sampling points (i.e., test holes including boreholes, test pits, or any subsurface sample using hand held or mechanical equipment) to document the soil conditions on the phase two property. The following types of information must be collected. A finalized field log must include:

- a unique identification number;
- the date;
- a description of type and condition of geologic material or other material encountered;
- the soil colour;
- the soil vapour measurement from field screening for volatile contaminants, including VOCs;
- the soil moisture content, using a qualitative description;
- the observations concerning the soil (i.e., visual and/or olfactory evidence of contamination);
- the identification of soil samples sent for laboratory analysis;
- the soil sample depths;
- the soil sampling methods;
- evidence of free product;

- the total depth drilled; and,
- any drilling refusal.

The type of intrusive sampling method and location of any intrusive sampling points should also be included in the field log.

5.10.2 Borehole logs for monitoring wells and test holes

Refer to section 25 of Schedule E of the Regulation

During the field investigation, borehole logs for all test holes and monitoring wells constructed must be prepared to document the ground water conditions on the phase two property. A finalized field log (i.e., a borehole log) for a monitoring well must include:

- the surveyed location and elevation of the well;
- the monitoring well identification number;
- the details of the well construction, including screened interval, sand pack, seal location and thickness, well diameter and screen slot size;
- the date;
- the total depth drilled; and,
- any drilling refusal.

The monitoring well log can be incorporated and graphically depicted on the borehole logs. The drilling and well installation method used should also be included in the field log.

5.10.3 Finalized field logs, sediment

Refer to section 26 of Schedule E of the Regulation

During the field investigation, borehole logs must be recorded and finalized for all sediment sampling to document the presence of contaminants on the phase two property that may be present at concentrations above the applicable site condition standards. A finalized field log for sediment must include:

- a unique sample identification number;
- the date;
- the sediment type(s) (i.e., gravel, sand, silt, clay or organic);
- the sediment colour(s);
- the mixing layer depth;
- a description of bottom dynamics where samples are collected;
- the sediment moisture content, using a qualitative description;
- any significant observations concerning the sediment (i.e., visual and olfactory evidence of contamination);

- the identification of sediment samples sent for laboratory analysis;
- the sediment sample depths;
- the sediment sampling methods;
- evidence of free product or strong chemical odour; and,
- the presence or absence of aquatic biota in the sediment.

The type of intrusive sampling method and location of any intrusive sampling points should also be included in the field log.

5.10.4 Investigation requirements, soil vapour

Refer to sections 27 and 28 of Schedule E of the Regulation

A soil vapour investigation may be required as part of a modified generic risk assessment (MGRA). The requirements that apply to an investigation of soil vapour that is being undertaken as part of a site investigation at a phase two property must be met. Please refer to the Ministry "Draft Technical Guidance: Soil Vapour Intrusion Assessment" document (November 2010) for more information.

Measurements taken using field screening equipment cannot be used to determine the soil vapour concentration of a contaminant on the phase two property.

5.10.4.1 Finalized field logs, soil vapour

Refer to section 29 of Schedule E of the Regulation

During the field investigation, borehole logs must be recorded and finalized for all soil vapour probes constructed to document the subsurface conditions on the phase two property.

In addition to the applicable information entered into the field log with respect to soil samples, a finalized field log for a soil vapour probe must include:

- the location and elevation of the well or probe;
- the identification number; and,
- the details of the soil vapour probe construction, including screened interval, sand pack, seal location and thickness, soil vapour probe diameter and screen slot size, as applicable.

5.11 Soil Excavated at or Brought to the Phase Two Property

Refer to sections 30 to 36 of Schedule E of the Regulation

There are several provisions that deal with soil that is either excavated at the phase two property and is stored there for possible reuse, or is brought there from another property

to be reused. These provisions are found in sections 30 to 36 of Schedule E of the Regulation.

5.11.1 Specific objectives

Refer to section 30 of Schedule E of the Regulation

Section 30 of Schedule E of the Regulation sets out the specific objectives of the requirements concerning soil excavated at the phase two property for possible reuse there, or soil that is brought to the phase two property from another property to remain at the phase two property after the phase two ESA. The purpose of the specific objectives is to determine reliably that this soil meets the applicable site condition standards or any standard specified in a RA with respect to the property, for all contaminants in the soil, and that the standards will still be met when the soil is used or reused at the property.

5.12 Segregation of Soil Excavated from the Phase Two Property

Refer to section 35 of Schedule E of the Regulation

Soil that is excavated and remains at the property for possible reuse must meet some requirements. If soil is excavated from, or under, the phase two property, and it is to remain there in stockpiles for possible reuse, the soil must be segregated in separate stockpiles on the phase two property according to contaminant and estimated levels of contamination. Decisions on soil segregation must be based on *in situ* characterization, field screening, sample collection and analysis or indications of contamination. Any one or more of these techniques can be utilized.

5.12.1 Sampling and analysis of excavated soil in stockpiles

Refer to section 36 of Schedule E of the Regulation

Where soil excavated from, or under, the phase two property is stockpiled for possible reuse, the soil must be sampled and analyzed as follows, *before* it is reused:

- Samples of the soil from each stockpile to be reused must be collected and analyzed so as to characterize the contaminants present in the excavated soil;
- Samples must be selected for analysis and contaminants chosen for analysis on the basis of all available information, including the phase one ESA and subsequently obtained information;
- Analysis must include analysis for any contaminants which may have been introduced during remediation;
- Sampling locations must be chosen so as to ensure uniformly distributed and representative sampling collection throughout the stockpile;
- Samples must not be collected from the surface of a stockpile; and,

- Samples of soil from stockpiles must be collected and analyzed by an accredited laboratory, at or above the applicable minimum frequencies set out in Table 2 of Schedule E of the Regulation (see below).

Excerpt from Schedule E: Table 2

Table 2: Minimum Stockpile Sampling Frequency

Pile Volume (m^3)	Field Screening Samples	Samples for Laboratory Analysis
Less than 50 m^3	A minimum of 5 samples	A minimum of 1 sample
>50 m^3 to 150 m^3	A minimum of 15 samples	A minimum of 3 samples
>150 m^3 to 500 m^3	A minimum of 30 samples	A minimum of 5 samples
>500 m^3 to 1,500 m^3	A minimum of 50 samples	A minimum of 10 samples
>1,500 m^3	A minimum of 75 samples	A minimum of 15 samples

5.12.2 Sampling and analysis of soil to be brought to phase two property

Refer to sections 31 to 34 of Schedule E of the Regulation

Where soil is excavated at, or brought from another property to a phase two property the same soil sampling and analytical requirements as previously discussed for conducting the phase two ESA apply with necessary modifications. For example, on a field log for soil samples collected from stockpiles, a description of soil type, colour, texture, moisture content, soil vapour measurements, etc. is required, but, since the sample is not from a core, depth may not be required.

Where soil from another property is to be brought to and remain at the phase two property after the filing of a RSC, the following requirements must be met:

- Before any soil is brought to the phase two property, samples of this soil must be collected and analyzed and the concentrations of contaminants must be known;
- Any sample(s) collected and analyzed must be:
    - representative samples collected at locations and frequencies, following a sampling plan determined by the QP, which will be adequate to allow the concentrations of any contaminants in the soil to be known; and,
    - collected for the purpose of determining if contaminants are present in the soil as a result of any PCA or other environmental condition at the property from which the soil originated and at any property at which the soil has subsequently been stored. Additional consideration must be given to any potential contaminant introduced during handling, storage or transportation of the soil before it arrives at the phase two property; and,
- The concentration of each contaminant in the soil must be less than or equal to the applicable site condition standards or the standards specified in the RA for the contaminant (where a RA has been accepted with respect to contaminants on the phase two property) assuming it was already on the phase two property.

Note that selection of parameters for analysis should be based on potential COCs resulting from past activities anywhere the soil to be brought to the phase two property had been previously located. This does not imply that all parameters in the applicable Soil, Ground Water and Sediment Standards tables need to be analysed.

The sampling requirements are as follows:

- At least one soil sample must be analyzed for each 160 cubic metres (m^3) of soil for the first 5,000 m^3 to be assessed at each source from which soil is being brought to the phase two property; and,
- At least one soil sample must be analyzed for each additional 300 m^3 of soil.

5.13 Remediation

5.13.1 Required precautionary measures during remediation

Refer to section 37 of Schedule E of the Regulation

Precautionary measures are required before and during a remediation program. Contaminants may be introduced to a medium that could have an adverse effect on the phase two property. Additionally, there is a potential that by-products (i.e., new contaminants) may be produced as a result of chemical reactions. Therefore, before remediation is started, baseline and background conditions must be established in order to detect any increases of contaminant concentrations on the phase two property following remediation. Sampling and analysis must also be undertaken in order to establish baseline and background conditions, and to determine if there has been any increase in contaminant concentrations.

5.14 Confirmation Sampling and Analysis

5.14.1 Objectives of confirmation sampling and analysis

Refer to section 39 of Schedule E of the Regulation

The specific objectives of confirmation sampling and analysis are the following:

- To confirm the effect and effectiveness of remediation on, in or under the phase two property;
- To provide a reliable basis for conclusions as to whether the applicable site condition standards or standards specified in a RA have been met for each contaminant; and,
- To identify and demonstrate the location and concentration of contaminants on the phase two property following the completion of remediation.

5.14.2 Requirements for confirmation sampling and analysis

Refer to paragraphs 1, 2 and 3 of section 40 of Schedule E of the Regulation

The following requirements apply to confirmation sampling and analysis:

- Confirmation sampling and analysis must be done during and following remediation;
- Where confirmation sampling will be conducted, the same soil sampling and analytical requirements as discussed below for conducting the phase two ESA apply with necessary modifications; and,
- When remediation on the phase two property is to be undertaken, the QP must:
    - design and implement a sampling and analysis program to collect samples and analyze them from all locations where remediation was undertaken so as to demonstrate whether the phase two property meets the applicable site condition standards or any standard specified in a RA for all COCs, and
    - ensure samples are collected and analyzed for each contaminant in any area (location and depth) and medium where the contaminant was present at a concentration greater than the applicable site condition standard or standard specified in a RA for the contaminant before remediation. The maximum concentration of the contaminant must be located during confirmation sampling.

Note that the following sections of Schedule E of the Regulation are grouped together in the following text to highlight recording, collection, handling and analysis requirements specific to soil, ground water and sediment in planning and conducting the phase two ESA.

Therefore, references to various sections of Schedule E are not in sequence and the reader should refer to the Regulation and Schedule E of the Regulation.

5.14.3 Confirmation sampling and analysis, soil

Refer to subsection 40(7) of Schedule E of the Regulation

Where part or all of land on the phase two property has been excavated, the QP must ensure that:

- confirmation samples of soil are collected from each wall and floor of the excavation and analyzed in order to demonstrate that the limits of the excavation are appropriate and that the excavation has included all areas where a contaminant may be present at a concentration greater than the applicable site condition standard or any standard specified in a RA; and,
- the number and location of samples at each excavation is equal to or greater than the minimum requirements set out in Table 3 of Schedule E of the

Regulation (see below). Table 3 only sets out requirements for floor areas up to 1,000 m^2. Where the floor area of the excavation is greater than this:

- the number of wall and floor samples must be greater than shown in Table 3 for areas of 750 to 1,000 m^2;
- the sampling should follow the rules in Note 1 of Table 3; and,
- the sampling should be adequate to demonstrate that the limits of the excavation are appropriate and that the excavation has included all areas where a contaminant may be present at a concentration greater than the applicable site condition standard or any standard specified in a RA.

Excerpt from Schedule E: Table 3

Table 3: Minimum Confirmation Sampling Requirements for Excavation

Floor Area (m^2)	Floor Samples	Sidewall Samples[1]
<25	2	2
>25 to 50	2	3
>50 to 100	3	3
>100 to 250	3	5
>250 to 500	4	6
>500 to 750	4	7
>750 to 1,000	5	8
Note 1: Sidewall samples should not all be taken from the same wall, and should represent worst-case.		

5.14.4 Ground water remediation

5.14.4.1 Precautionary measures

Refer to subsection 37(2) of Schedule E of the Regulation

Sampling of appropriate monitoring wells and analysis of ground water samples must be conducted for appropriate contaminants, including contaminants created or introduced to the property during remediation.

5.14.4.2 Free product

Refer to section 38 of Schedule E of the Regulation

The volume of any free product removed from ground water on the phase two property must be monitored and recorded.

5.14.5 Confirmation sampling and analysis, ground water

Refer to subsections 40(6) and 40(8) of Schedule E of the Regulation

Samples collected from monitoring wells into which material was introduced into the monitoring well for purposes of remediation must not be used to meet the objectives of confirmation sampling, including being used as evidence to demonstrate that the phase two property meets the applicable site condition standards or any standard specified in a RA for a contaminant. For example, injection wells cannot be sampled to confirm if remediation was successful.

When remediation has been undertaken on the phase two property, the QP must ensure that:

- confirmation sampling of ground water is conducted as follows:
    - where the remediation is *in situ* remediation, until the results from analysis of samples collected from four consecutive quarterly sampling events, the first of which is conducted a minimum of 90 days after the last remedial action, are for all contaminants analyzed equal to or below the applicable site condition standards or, where applicable, any standards specified in a RA, and
    - where the remediation of ground water is achieved by remediation of soil on the phase two property, until the results from analysis of samples collected from two consecutive quarterly sampling events, the first of which is conducted a minimum of 90 days after the last remedial action, are for all contaminants analyzed equal to or below the applicable site condition standards or, where applicable, any standards specified in a RA; and,
- the contaminants sampled and analyzed include all contaminants for which remediation was undertaken and any contaminants which may have been introduced or released during remediation.

Where ground water confirmation sampling is being undertaken, the QP must ensure that water level measurements are also taken in the monitoring wells from which the confirmation samples are being taken.

5.15 Site Assessment Requirements for RA

Refer to sections 41 and 42 of Schedule E of the Regulation

Where the owner of a phase two property wishes to submit a MGRA, the QP must ensure that wherever an assumed value for any assumption set out under an assumption category in Table 4 of Schedule E to be modified from the assumed value for the assumption used by the Ministry to develop the full depth generic site condition standards, an assessment is carried out that satisfies the minimum requirements and meets the objective set out in Table 4 with respect to that assumption category.

Where any assumed value for any assumption set out under an assumption category in Table 4 is modified, the same sampling and analytical requirements as previously discussed for conducting the phase two ESA apply with necessary modifications.

6. Review and Evaluation of Information

Refer to section 43 of Schedule E of the Regulation

The QP (not a person supervised by the QP) must review, interpret and evaluate the information used in the planning, and obtained from conducting the site investigation.

Based on the review, interpretation and evaluation, the QP must prepare a phase two CSM of the phase two property that demonstrates the current condition of the phase two property or, where remedial actions have been undertaken, the condition of the phase two property before the remedial actions were undertaken.

The format of the phase two CSM must consist of:

- diagrams, cross-sections and figures; and,
- narrative, including explanation of the contents of the diagrams, cross-sections and figures and the logical basis for the interpretations and scientific processes that account for the contaminant distribution.

The narrative description must include a discussion of APECs and any subsurface structures and utilities on the phase two property that may affect contaminant distribution and transport. The narrative must also include a description of, and, as appropriate, figures illustrating, the physical setting of the phase two property including:

- stratigraphy from ground surface to the deepest aquifer or aquitard investigated;
- hydrogeological characteristics, including aquifers, aquitards and, in each hydrostratigraphic unit where one or more contaminants are present at concentrations above the applicable site condition standards, lateral and vertical hydraulic gradients;
- approximate depth to bedrock;
- approximate depth to water table;
- any environmentally sensitive areas, shallow soil conditions or water bodies that may apply to the selection of applicable site condition standards at the phase two property;
- areas where soil has been brought from another property and placed on the phase two property; and,
- approximate locations, if known, of any proposed buildings and other structures.

Where a contaminant is present on the phase two property at a concentration greater than the applicable site condition standards or standard specified in a RA, the phase two CSM must identify each area and medium where the contaminant is present, and

the contaminants associated with each of these areas. Additionally, the phase two CSM must include a narrative description of:

- what is known about each of the areas where a contaminant is present at a concentration greater than the applicable site condition standards;
- the distribution, in each of these areas and each medium where the contaminant is present, together with figures showing the distribution;
- anything known about the reason for the discharge into the natural environment of the contaminants present on the phase two property;
- anything known about migration away from any APEC of the contaminants present on the phase two property, including the identification of any preferential pathways;
- climatic or meteorological conditions that may have influenced distribution and migration of the contaminants, such as temporal fluctuations in ground water levels; and,
- if applicable, information concerning soil vapour intrusion of the contaminants into buildings including:
    - relevant construction features of a building, such as a basement or crawl space,
    - building heating, ventilating and air conditioning design and operation, and
    - subsurface utilities.

Where contaminants on the phase two property are present at concentrations greater than the applicable site condition standards, the phase two CSM must include one or more cross-sections showing:

- the lateral and vertical distribution of a contaminant in each area where the contaminant is present at concentrations greater than the applicable site condition standards in soil, ground water and sediment;
- approximate depth to water table in each of these areas;
- stratigraphy from ground surface to the deepest aquifer or aquitard investigated; and,
- any subsurface structures and utilities that may affect contaminant distribution and transport in each of these areas.

For each area where a contaminant is present on the property at a concentration greater than the applicable site condition standards for the contaminant, the phase two CSM must include a diagram identifying, with narrative explanatory notes:

- the release mechanisms;
- contaminant transport pathway;
- the human and ecological receptors located on the phase two property;
- receptor exposure points; and,

- routes of exposure.

During the completion of the phase two ESA or any subsequent phase one or phase two ESA of the phase two property or other site assessment work with respect to the phase two property, the QP must update the review, evaluation and interpretation as further information becomes available.

7. Phase Two ESA Report

7.1 Specific Objectives

Refer to sections 44 and 45 of Schedule E of the Regulation

The QP must ensure that a phase two ESA report meets the following requirements and specific objectives:

- To document the presence or absence of contaminants in the land or water on the phase two property.
- To document the determination of the location of one or more contaminants in the land or water on the phase two property.
- To provide a record of a phase two ESA of the phase two property that demonstrates, in a manner that is clear and can be assessed and reconstructed, how the phase two ESA of the property was carried out, and, in particular, to document and demonstrate:
    - how the general and specific objectives of a phase two ESA, including each of its components, were achieved and how the minimum requirements for the objectives were met,
    - to document the basis for certifications in a RSC as to whether all or that part of the phase two property that may comprise the RSC property meets the applicable site condition standards or standards specified in a RA for one or more contaminants, and
    - to document information needed to undertake a RA of the phase two property with respect to one or more contaminants.

7.2 General Requirements

Refer to sections 46 and 47 of Schedule E of the Regulation

The phase two ESA report must be based on information obtained from planning and conducting the phase two ESA, interpretation and evaluation of the information from planning and conducting the phase two ESA, and any additional information that the QP considers relevant.

The phase two ESA report must be divided into the report sections as specified in Table 1 of Schedule E of the Regulation, include the headings and sub-headings set out

in Table 1, and address the requirements set out each heading and sub-heading in Table 1. The QP may include additional report sections, headings and sub-headings and other information in the phase two ESA report.

The phase two ESA report must have the appendices, references, and figures specified in Table 1 attached to the report.

Figures, maps, site plans and cross-sections in the phase two ESA report must contain a scale, north arrow and a title block that includes:

- a descriptive title;
- the address, if any, of the phase two property;
- the name of the QP's firm, company or partnership, if any; and,
- the date the figure, map, site plan or cross-section was created.

7.2.1 Reporting exemptions

Refer to subsection 47(4) of Schedule E of the Regulation

The following sub-headings of Table 1 and the requirements associated with the sub-headings do not apply to the phase two ESA report unless there has been sampling of ground water during the phase two ESA:

- Ground Water: Monitoring Well Installation;
- Ground Water: Field Measurement of Water Quality Parameters; and,
- Ground Water: Sampling.

The following sub-headings in Report Section 6 (Review and Evaluation) of Table 1 and the requirements associated with the subheadings do not apply unless there has been sampling of ground water during the phase two ESA:

- Ground Water: Elevations and Flow Direction;
- Ground Water: Hydraulic Gradients; and,
- Ground Water: Quality.

The sub-heading "Sediment: Quality" in Report Section 6 (Review and Evaluation) of Table 1 and the requirements associated with it do not apply unless there has been sampling of sediment during the phase two ESA.

The requirements in Report Section 9 (Figures and Tables) of Table 1 which refer to monitoring wells, ground water, ground water elevations or analytical results of ground water sampling do not apply unless there has been sampling of ground water during the phase two ESA.

The requirements in Report Section 9 (Figures and Tables) of Table 1 which refer to analytical results of sediment sampling do not apply unless there has been sampling of sediment during the phase two ESA.

Heading “(b) (Remediation)” in Report Section 10 (Appendices) of Table 1 and the requirements associated with it do not apply where no remediation has been conducted.

The requirements under the heading “(b) (Remediation)” in Report Section 10 (Appendices) of Table 1 which refer to remediation of ground water do not apply unless there has been remediation of ground water during the phase two ESA.

The following requirements associated with heading “(c) (Soil Excavated at or Brought to the Phase Two Property)” in Report Section 10 (Appendices) of Table 1 do not apply, unless the conditions in the paragraph are met:

- Subparagraph (i) (Soil Brought to the Phase Two Property) does not apply unless soil which did not originate at the phase two property has been brought from another property to the phase two property to remain there after the phase two ESA.
- Subparagraph (ii) (Segregation of Soil) does not apply unless soil has been excavated at the phase two property and placed in a stockpile for possible reuse at the phase two property.
- Subparagraph (iii) (Stockpiles) does not apply unless the soil in stockpiles is to be reused at the phase two property.

Heading “(d) (MGRA)” in Report Section 10 (Appendices) of Table 1 and the requirements associated with it do not apply where the owner does not intend to submit such a RA.

7.3 Mandatory Requirements

Refer to Table 1 of Schedule E of the Regulation

In addition to the above requirements, please refer to Table 1 of Schedule E of the Regulation regarding reporting requirements. Reports must follow the headings, sub-headings, and minimum requirements listed in Table 1 of Schedule E. Additional information may be provided in the report as the QP deems necessary.

Additional Resources and References

Ministry of the Environment, Environmental Assessment and Approvals Branch, Program Support Services:

Brownfields Filing and Review
416-326-2945

Ministry of the Environment's Brownfields website:

www.ene.gov.on.ca/en/subject/brownfields

Ministry of Municipal Affairs and Housing's Brownfields website:

www.ontario.ca/brownfields