

**GEOENVIROLOGIC PROFESSIONAL DEVELOPMENT
AND
THE CSAP SOCIETY**

EXAM PREPARATION WORKSHOP
SESSION 2 – REGULATORY EXAM

8:15 - 8:30	Registration and Breakfast
8:30 – 8:45	Introductions and Overview of “Mock” Questions Prepared
8:45 – 9:15	Review of Reference Materials <ul style="list-style-type: none"> - Minimum qualified candidate - Syllabus and reference list - Roster practice guidelines and checklists
9:15 – 10:00	Discussion Topics <p>Site identification (10%)</p> Site trigger Offsite contamination Land transaction Site Profile <p>Site investigation (30%)</p> Applicable legislation (federal and provincial) Identification of potential contamination Confirmation of contamination Applicable numerical standards Background Exemptions Statistical Definition of a contaminated site Delineate contamination <p>Notifications (5%)</p> Offsite contamination Independent remediation

10:00 – 10:15	Break
10:15 – 11:15	<p>Discussion Topics Continued</p> <p>Remediation (20%)</p> <p>Remediation standards</p> <p>Regulatory remediation processes</p> <p>Remediation plans</p> <p>Confirm remediation</p> <p>Regulatory instruments (25%)</p> <p>Administrative forms</p> <p>Determinations</p> <p>Approval in principal</p> <p>Certificate of compliance</p> <p>Contaminated soil relocation agreements</p> <p>Ministry only instruments (e.g. Orders and VRAs)</p> <p>Federal Authorizations</p> <p>Review process (10%)</p> <p>Ministry process</p> <p>CSAP process</p> <p>Quality review</p>
11:15 – 12:00	<p>Next Sessions and “Homework”</p> <ul style="list-style-type: none"> - “mock” mini-test - overview of next sessions - group assignments

Examination Schedule and Location

Standards Assessment Technical Part - Tuesday, Nov 17, 2009 from 8:30am to 1:30pm (5 hours)

Risk Assessment Technical Part - Thursday, Nov 19, 2009 from 8:30am to 1:30pm (5 hours)

Regulatory Part - Wednesday, Nov 18, 2009 from 8:30am to 12:30pm (4 hours)

The examination is offered in a computer-based format and will be held at the following computer test lab:

ICBA Computer Test Lab

211 - 3823 Henning Street, Burnaby, BC, Canada V5C 6P3

Internet

Login: geoenvir

Password: geoenviro1

Open Wireless (ubc)

Select the SSID “ubc” and press connect Open your web browser, and you will automatically be redirected to the secure wireless login site. Enter your CWL account information to authenticate to the wireless service, after which you should be able to access the internet.

UBC IT Services – 604.822.2008

CSAP Examinations Summary

November 2008 Examination Summary:

- **Regulatory: 66% of candidates passed**
- Standards Assessment Technical: 87% of candidates passed
- Risk Assessment Technical: 42% passed
- Candidates were invited to complete feedback forms following each part of the exam and the feedbacks have been [collated](#) [pdf 89kb].

October 2007 Examination Summary:

- **Regulatory: 70% of candidates passed**
- Standards Assessment Technical: 50% of candidates passed
- Risk Assessment Technical: 33% of candidates passed

Questions and Answers (Q&As)

The following is a collection of questions and detailed answers regarding the interpretation of applicable contaminated sites legislation, policies, protocols and procedures.

Additional information regarding the application of the contaminated sites regime is presented on our website in numerous [fact sheets](#), [guidance documents](#), [protocols](#), [procedures](#) and [policies](#).

If you require further assistance, please view our [contact list](#) to direct your question to the appropriate ministry staff member.

[Regulatory](#)

[Administrative](#)

[Technical](#)

[Interim Guidance for Site Vapour Assessment](#)

[Draft Guidance for Vapour Investigation and Remediation](#)

Frequently Asked Questions (FAQs)

The following is a collection of answers to commonly asked questions relating to contaminated sites in B.C. and the basic application of the contaminated sites provisions of the *Environmental Management Act*.

[Contaminated Sites Legal Instruments](#)

[General](#)

[Legislation and Regulations](#)

[Liability](#)

[Ministry Services & Fees](#)

[Site Information Requests & the Site Registry](#)

[Site Investigation and Remediation Process](#)

[Standards](#)

[Types of Contamination](#)


[Interim Guidance for Site Vapour Assessment](#)

Mini Quiz

Each CSAP exam has been prepared with the expectations that the average candidate would complete the exam in 3 hours. However, additional time has been allowed to minimize time pressure and focus on testing for competency (rather than how quickly someone can recall, process or look up information).

The exams have 75 questions each, which means 2 minutes and 24 seconds per question for an average candidate completing the exam in 3 hours. The extra time given equates to 1 minute per regulatory question (4 hours long exam); and almost 2 minutes for the technical exams (5 hours long exams).

Answer the following “Practice” questions within the average time of 2.4 minutes per question. Use your reference materials if necessary.



Mini quiz Q1 – Regulatory: Remediation

When is the blending/dilution of petroleum hydrocarbon soils an acceptable remediation approach?

- a) Never
- b) In order to reduce stockpile concentrations to levels below those presented in the Hazardous Waste Regulation prior to transporting the soils to a permitted facility
- c) As part of a risk management plan where the blended soil will cause no unacceptable risk to human or environmental health and will result in a net benefit to the environment
- d) As part of a remedial plan involving the relocation of soils using a contaminated soil relocation agreement in order to reduce the rate of contaminant release into the environment



Mini Quiz Q2 – Regulatory/Standards: Remediation

A site investigator is conducting a Screening Level Risk Assessment, as per Protocol 13, for an agricultural (AL) site that has benzene in soil at a concentration of 60 ug/g and benzene in soil vapour at 1.0 ug/m³. Based on these results and application of the SLRA:


- A. The human health vapour pathway screens out because the soil vapour is less than the applicable Sch 11 vapour standard
- B. The human health vapour pathway screens out because benzene in soil is less than the applicable AL soil standard.
- C. At AL sites, the presence of vapours precludes the application of the SLRA/P13
- D. SLRA/P13 does not apply to agricultural sites.



Mini Quiz Q3 – Regulatory/Standards: Remediation

There is a former wood storage/treatment site that has Mn in soil = 500 ug/g and Mn in groundwater = 75 ug/L. The drinking water standards apply at the site and Mn exceeds the CSR DW groundwater standard of 50 ug/L. The approved professional is conducting an SLRA at the Site to determine whether leachate or contaminated groundwater has the potential to migrate off-site and reach nearby drinking water wells. Does the leaching potential of Mn in soil need to be addressed as part of assessing the drinking water pathway?


- A. Yes, because the groundwater exceedance triggers the need to evaluate leaching from soil.
- B. No, because Mn does not exceed the soil standard.
- C. Yes, because there is no Mn soil standard and therefore it is considered conservative to assess it.
- D. No, because Mn in groundwater is within 2 x times the CSR DW standard.



Mini Quiz Q4 – Regulatory: Site Identification

A Local Government owned a parkland property with a) historical rifle range most recently used as recreational area; and b) recently closed rifle range directly adjacent to the former historical rifle range. Through investigation activities high concentrations of lead and other metals were found in the surface soils of the former historical rifle range. Upper cap concentrations would indicate a high risk classification under Draft Protocol 12. Investigation of a local creek indicated it was not adversely effected; nevertheless, it drains into a important fish bearing river. These finding prompt the Local Government to cancel the recreational use of this former rifle range property and cancel the rifling activities on the adjacent property. The Local Government wishes to return both parcels to parkland use with the construction of a trail to connect with other existing trails. The Local Government believes that no Development Permit will be required for the trail construction. Is there a requirement to submit a site profile and is the Local Government required to obtain an instrument under EMA?

- A. Yes the submission of a Site Profile is required but no formal EMA instrument is necessary
- B. No a Site Profile is not required nor is an official EMA instrument necessary
- C. Yes a Site Profile is required and there is a need to seek a formal EMA instrument because of the high risk classification




Mini Quiz Q5 – Regulatory: Site Identification

A developer in the District of Saanich wishes to redevelop a property that previously served as the site of a veneer manufacturing facility for which a site profile has never previously been filed. When and to whom must he/she provide a Site Profile?

- A. N/A, Saanich has opted out of the Site Profile process
- B. At the time of the rezoning application, to the municipality
- C. At the time of the rezoning application, to the Site Registrar
- D. Within 10 days of the rezoning application, to the municipality


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Mini Quiz Q6 – Regulatory

For the purposes of applying for a legal instrument, two land uses may exist at a Contaminated Site when:

- A. A retail mall Site is crossed by a creek with riparian habitat.
- B. Never, as a Contaminated Site can only have one primary land use.
- C. A gas station has groundwater contamination that has migrated onto an adjacent owner's residential property.
- D. An industrial Site is redeveloped with a commercial building that includes condominiums on the second floor.



Mini Quiz Q7 – Regulatory: Site Identification


In how many days (minimum) must a Site Profile be submitted before an owner dismantles a building or structure, or otherwise decommissions a site which was used for an industrial or commercial purpose or activity in Schedule 2?

- A. 4
- B. 6
- C. 8
- D. 10

Mini Quiz Q8 – Regulatory

Soil contamination sourced from a leaking diesel UST was remediated to meet the CSR IL standards for LEPH/HEPH and all related PAHs. However, a plume of contaminated groundwater (**BaP** marginally above AW and DW standards) exists 30 m downgradient of the source site and has migrated below 2 adjacent properties with different owners. The RP from the source site has provided notification to the owners of the adjacent properties about the offsite migration. All 3 properties are zoned for industrial uses and all are used for heavy equipment maintenance. The CSR DW and AW standards are applicable to the 3 properties. In consideration of and MoEs procedure for establishing the boundaries of a site and if there are no viable exposure pathways to humans and aquatic receptors, can SLRA be used as a tool to obtain a certificate of compliance for the off-site plume of contaminated groundwater?

- A. Yes. The plume extends under 3 properties all having the same land uses as such the plume represents a single site and SLRA can be used.
- B. Yes, but separate instruments are needed for each legal property
- C. No. SLRA can not be used when there is a future potential use of groundwater for drinking
- D. No. SLR can not be used if there is offsite migration.



Mini Quiz Q9 – Regulatory: Regulatory Instruments

A consultant is preparing a plan for a contaminated soil relocation agreement. The plan is to ship off approximately 1200 m³ of soil to a site that has a total area of 11,000 m² and has been identified with two distinct terrain units. What is the minimum number of soil samples required for pH analysis?


- A. 21
- B. 41
- C. 42
- D. 47



Mini Quiz Q10 – Regulatory: Regulatory Instruments

A 40m³ stockpile of soil on a residential site containing PCB at concentrations exceeding the hazardous waste level is to be transferred to another property. The properties are not adjacent but have the same owner. The receiving site is used for industrial purposes. In this scenario, is it appropriate to use a CSRA?

- A. Yes. Although the properties belong to the same owner, they are not adjacent so a CSRA is necessary.
- B. Yes. CSRAs are meant for relocating soil from sites with more restrictive use (e.g. residential) to sites with less restrictive use (e.g. industrial) as is the case here.
- C. No. Because the soil exceeds hazardous waste levels, the soil can only be deposited at an authorized site.
- D. No. Quantities of soil less than 50m³ are exempt from the requirement for a CSRA regardless of its content.



Mini Quiz Q11 – Regulatory: Site Identification

A fuel station is being decommissioned and the owner wants to redevelop the property into a dry cleaner. The municipality the site is located in has opted out of the Site Profile requirement. Does the owner need to submit a Site Profile?

- A. Yes. Decommissioning requires that the owner submit a site profile to the Director of Waste Management regardless of the municipality opting out of the Site Profile requirement.
- B. Yes. Redevelopment of a property with a Schedule 2 use requires a Site Profile be submitted to the municipality regardless of whether it has opted out of the Site Profile requirement.
- C. No. Since the municipality has opted out of the Site Profile requirement, a Site Profile is not required.
- D. No. Since the property will continue to be used for a Schedule 2 use, a Site Profile is not required.



Mini Quiz Q12 – Regulatory: Regulatory Instruments or Notifications

Sediment is being dredged from a contaminated area of a federal marine harbour for remediation purposes. Sodium concentrations in the sediment are between 160 mg/kg and 460 mg/kg, chloride concentrations are between 180 mg/kg and 340 mg/kg, and copper concentrations are between 65 mg/kg and 145 mg/kg. The sediment is being taken to the contractor's equipment yard located on provincial land for temporary storage and processing prior to shipment to an authorized disposal facility. The owner is required to:

- A. Notify the Ministry of Environment that independent remediation is being undertaken;
- B. Prepare a Site Profile for submission to the Ministry of Environment upon commencement of remediation;
- C. Obtain a Soil Relocation Agreement from the Ministry of Environment for the temporary storage yard prior to the commencement of remediation;
- D. Notify the Ministry of Environment once the sediment has been transported to the authorized disposal facility.



Mini Quiz Q13 – Regulatory/Standards Site Investigations

A soil sample analyzed for PAHs had the concentrations shown below. What is the correct PAH TEQ for sample?

– 2-Methylnaphthalene	20 mg/kg
– Benzo(a)anthracene	50 mg/kg
– Benzo(a)pyrene	40 mg/kg
– Benzo(b)fluoranthene	<20 mg/kg
– Benzo(k)fluoranthene	<20 mg/kg
– Dibenzo(a,h)anthracene	20 mg/kg
– Fluoranthene	<20 mg/kg
– Fluorene	50 mg/kg
– Indeno(1,2,3-cd)pyrene	50 mg/kg
– Naphthalene	100 mg/kg

A. 73 mg/kg

B. 79 mg/kg

C. 81 mg/kg


D. 85 mg/kg



Mini Quiz Q14 – Regulatory Remediation

Remediation is being undertaken on a provincial site that is being used for industrial purposes. A large underground storage tank that historically contained diesel fuel leaked creating a soil and groundwater contamination plume that extended to a stream that runs through the site. The remediation plan includes excavating out one side of the riparian zone and base of the stream and restoration of the area. The remediation standards applicable to the site are:

- A. Industrial land use standards.
- B. Industrial land use standards for the upland areas, and sediment standards for the stream.
- C. Industrial land use standards for the site, wildlands standards for the riparian zone, and sediment standards for the stream.
- D. Industrial land use standards for the upland areas, urban park standards for the riparian zone, and sediment standards for the stream.



Mini Quiz Q15 – Regulation: Site Identification

A facility that had previously conducted Schedule 2 activities is planning to decommission all of the equipment associated with those activities. No subsurface activities will be conducted. The site has never generated a Site Profile, but if it did, there would be no "Yes" answers in Section IV to IX. The property is not for sale, and no permits are required for the decommissioning work. Is a Site profile necessary, and if so, who should it be issued to?

- A. There is no obligation to generate a Site Profile at this time.
- B. A site profile needs to be generated and submitted to The Director of Waste Management.
- C. A site profile needs to be generated and submitted to the Site Registrar.
- D. A site profile needs to be generated and submitted to the Municipality.