



BC Contaminated Sites Protocol #11/12

What Effect Will it Have on Risk Assessment ?

5th Annual Symposium on
Contaminated Site Risk Assessment in BC
Science Policy and Practice

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Context of Discussion

1. Brief Recap – What is Protocol 12?
2. What are some of the issues and uncertainties?
3. Continuous Improvement - what can “we” do as Protocol 12 takes effect?
4. Debate by all - participate!



What are P11 and P12 About?

- Classification and re-classification of sites – distinction between high risk sites and non-high (regular) risk sites
- P12 describes the process to be followed:
 - flow chart logic
 - exposure questionnaire
 - report template
- P11 defines upper cap (UC) concentrations (numerical contaminant benchmarks) infer high hazard



Why Do We Need P11/P12 ?

- High risk sites require:
 - “high standards of care and responsiveness in investigation and remediation”
 - ***Involvement of BCMOE to ensure appropriate and timely actions***
- Means of MOE involvement and oversight are not entirely clear
- P12 does NOT address high risk due to immediate threats to health and safety



When Did it Kick In?

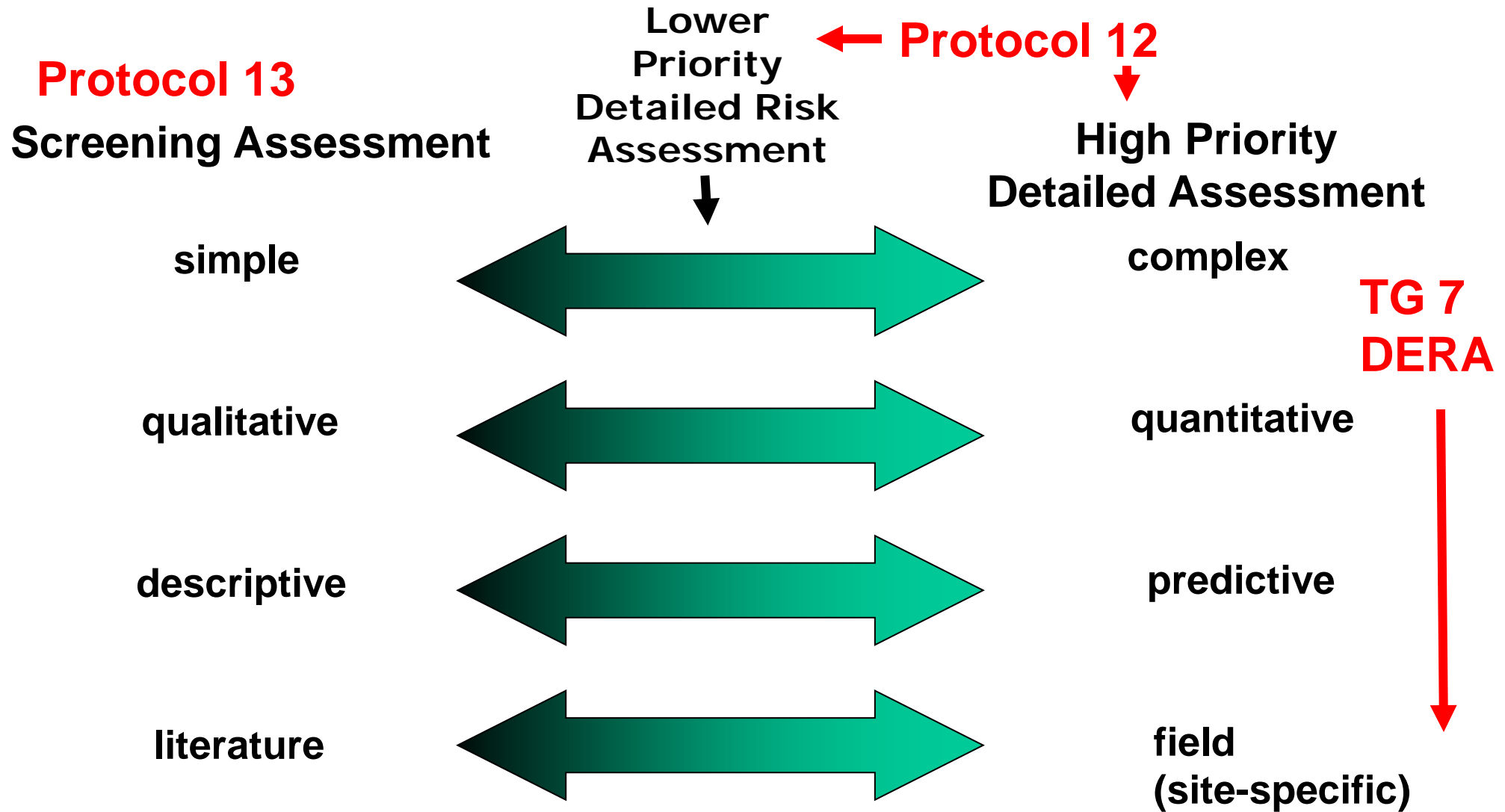
- June 1st, 2010
- In debate and draft over past year
- Note recent revisions in last week of May 2010
 - new definitions listed (P11/P12)
 - high risk site, non-high risk site
 - Revised DW-UC for Al, Fe, and Mn (P11, Table 5)
 - Revised AW-UC for VHw_{6-10} , $EPHw_{10-19}$ (P11, Table 5)
 - Deletion of select sentences/paragraphs on handling of remediated and managed high risk sites (P12)
 - Simplified reporting on Site Risk Classification (P12)



What are the Key Objectives?

- Key objectives of P12 are to:
 1. distinguish highest priority sites from, lower priority sites;
 2. target high level of care and responsiveness by responsible parties and BCMOE
- “High Risk Site” is unfortunate terminology given established CSR language
 - no quantitative risk assessment - actual risk unknown
 - really qualitative assessment to infer high relative risk
 - better described as High Priority Site or High Hazard Site
- Detailed (quantitative) site-specific risk assessment is still applicable at high risk sites

Screening Level, Lower Priority, High Priority Risk Assessment/Management



Principle of How Protocol 12 Works

Inference of High Risk decreed by either of two basic principles:

1. Mobile nonaqueous phase liquid present (P#16);

- e.g., observed in soil, or over a prescribed area,
- e.g., fluctuating water table
- e.g., >2mm product in well
- etc.

OR

2. “High risk exposure is likely”;

- Upper cap concentrations exceeded, *and*
- Complete exposure pathways are present [**but not quantified**]

Scope of Exposure in P12 Application



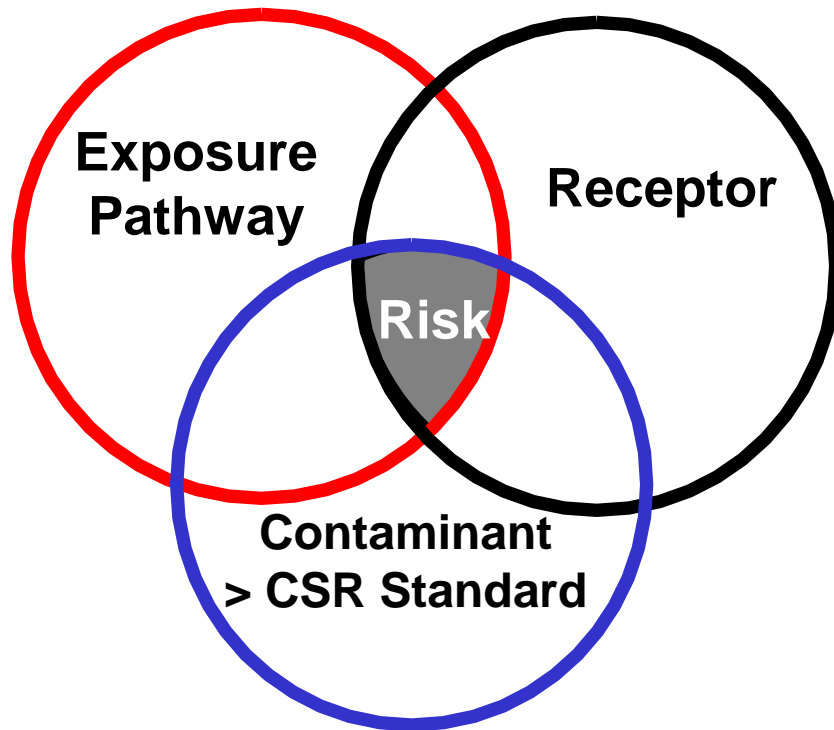
Human Health

- Soil exposure
- Vapour exposure
- Water exposure

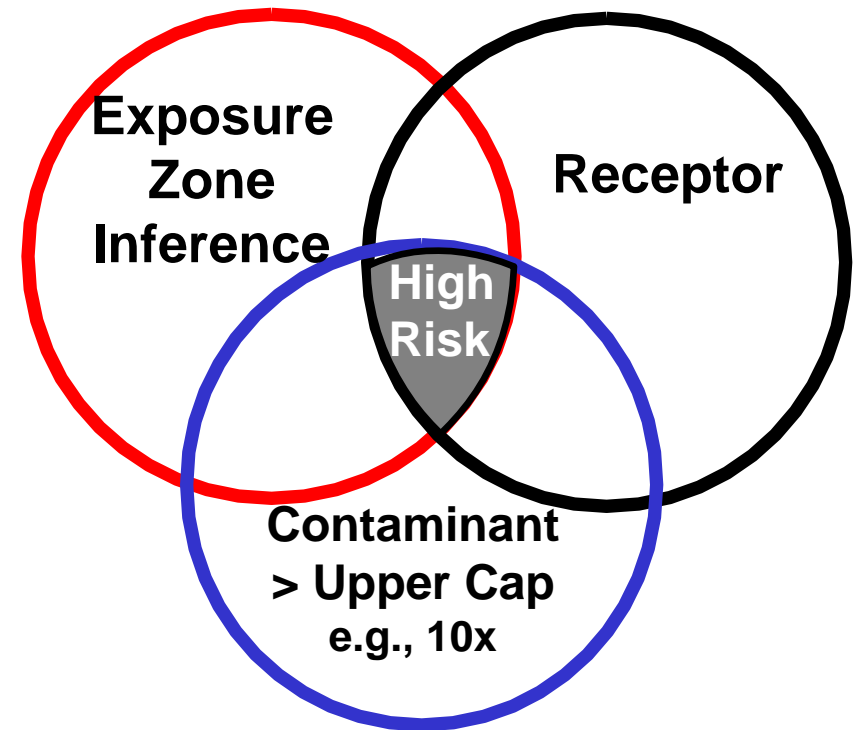
Ecological Health

- Soil exposure – terrestrial life
- Water exposure – aquatic life
- Sediment exposure – aquatic life
- Water exposure – livestock water
- Water exposure – crop irrigation

Distinction Between CSR HHERA and P12



CSR: Characterizes All Risk Components to Acquire Instrument



**P12: Inferred Exposure, plus UC
Infers High Risk Sites for Prioritization**

Some Concerns and Issues to Work Through

- Comment period improved many items, some remaining concerns:
 1. Data effort required to assess High Risk Status
“simple, objective measurements”
 2. Confusion about of “high risk” vs “high hazard” vs “high priority”
leans more towards “hazard”, more palatable as high priority
 3. Stigma of high risk site label
lawyers, vendors, buyers will dislike high risk



Some Concerns and Issues (cont'd)

- Duration of HRS label before being reclassified – private sector perception and land transaction
 - Supplemental data vs mitigation vs administrative processing time
- Groundwater use as DW in large urban centres
 - Will TG 6 prevail as guidance for GW?
 - Proportion of sites captured as High Risk Sites
 - Will upper caps be a good screen? (e.g., 10x multiplier)



Issue: Exceedance of Upper Cap



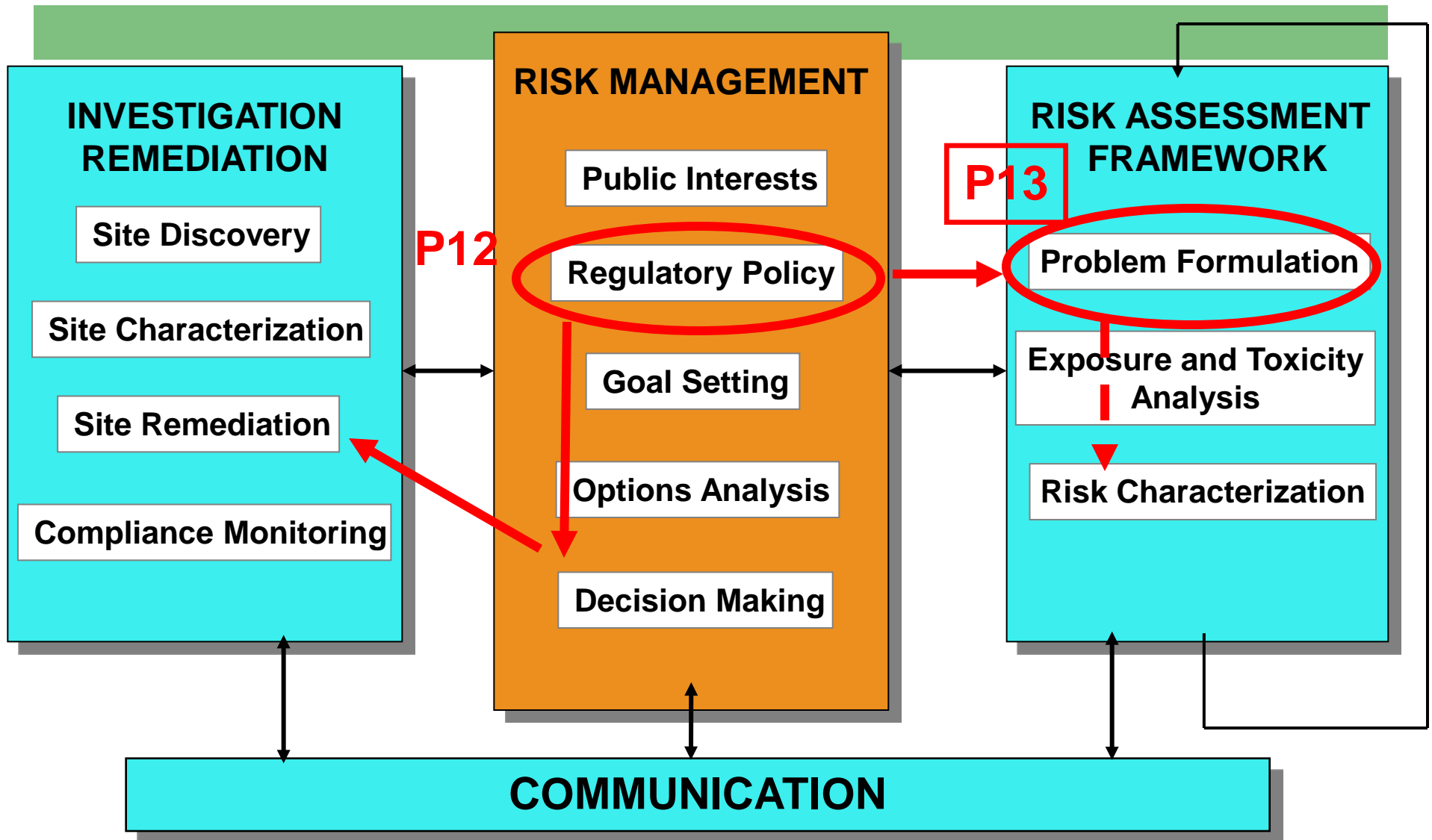
- Real context is whether a high hazard exists
 - High Hazard infers High Priority
- Is exceedance of upper cap triggered?
 - Absolute interpretation e.g., is $C_{max} > \text{Upper Cap}$?
 - Statistical interpretation e.g., mean, UCLM, 90%ile, n,
- What will be the percentage of sites deemed to be High Risk?
 - 10% is targeted and manageable by MOE
 - what if 20 – 50%?
 - MOE resources possibly bottlenecked on detailed collaborative risk assessment

MOE Oversight of High Risk Sites

- Key unknown implication to risk practitioners is effect of oversight by MOE
- How much meeting, correspondence and pre-approval in methods will be needed?
 - patience
 - thoroughness in QA/QC of HHERA
- Tech'l methods not likely to change substantially for HRS
 - New ways to streamline reports and strategic mitigation or risk management plans



Integrated Risk Management Framework for Contaminated Sites



Questions and Discussion



Thank you
Debate

I told you so...sort of

- We are more standardized – Technical Guidance, more technical guidance to come
 - Good - intent to yield consistent level of RA quality
 - Bad - too prescriptive guidance can become constraining to meaning RA/RM (e.g., US EPA RAGs)
 - “Scientifically defensible” was the original “guidance”... do not lose sight of this
 - **We can do better:** New and existing policy/regs should be scrutinized for unnecessary and constraining guidance;

