

Boeing Comments on Phase II Sediment Sampling Addendum 2012-03-22

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Phase II Addendum Page 2 and Table 1	Phase I soil and sediment sampling utilized numerous lines of inquiry including prior sampling results (e.g. the 1992 McLaren/Hart study). Phase II soil and sediment sampling is intended as confirmation and step-out sampling for those locations with RTL exceedances identified in Phase I. Therefore, why are 1992 McLaren/Hart results being used as rationale for step-outs in Phase II?																
Phase II Addendum Page 2 and Table 1	<p>Down-gradient of Outfall 003 (RMHF)</p> <p>Sample EPASED-13 indicated slightly elevated NORM, U-238, U-234 and Th-234, each in the U-238 decay series.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Radionuclide</th> <th style="text-align: center;">Result and Error (pCi/g)</th> <th style="text-align: center;">RTL (pCi/L)</th> <th style="text-align: center;">Result/RTL</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">U-238</td> <td style="text-align: center;">2.3 +/- 0.11</td> <td style="text-align: center;">1.8</td> <td style="text-align: center;">1.28</td> </tr> <tr> <td style="text-align: center;">U-234</td> <td style="text-align: center;">2.47 +/- 0.12</td> <td style="text-align: center;">2.02</td> <td style="text-align: center;">1.22</td> </tr> <tr> <td style="text-align: center;">Th-234</td> <td style="text-align: center;">3.45 +/- 0.16</td> <td style="text-align: center;">3.19</td> <td style="text-align: center;">1.10</td> </tr> </tbody> </table> <p>These exceedances are similar to the slight NORM exceedances identified in sample 10045 in subarea 5C, for which EPA correctly determined that no further action was warranted. Furthermore the uranium isotopic ratios for sample EPASED-13 are consistent with non-enriched, naturally occurring uranium.</p> <p>The proposed step out samples for isotopic uranium analysis therefore appears to be a classic case of “chasing NORM”, which EPA has claimed it wants to avoid.</p> <p>No exceedances of any other radionuclide, including Cs-137, Sr-90 or tritium were found in any other Phase I sample in the drainage from Outfall 003. According to EPA protocols, there should therefore be no reason to perform further step-out sampling and analysis for gamma spec (incl. Cs-137), Sr-90 or tritium.</p> <p>However EPA is proposing using the prior 1992 McLaren/Hart data to justify further step-out sampling and analysis for gamma spec (incl. Cs-137), Sr-90 and tritium in addition to isotopic uranium.</p> <p>EPA cites 1992 data for Sr-90 as 0.08 to 0.15 pCi/g. These results are less than the EPA RTL of 0.485 pCi/g, so why would further Sr-90 analysis be justified?</p>	Radionuclide	Result and Error (pCi/g)	RTL (pCi/L)	Result/RTL	U-238	2.3 +/- 0.11	1.8	1.28	U-234	2.47 +/- 0.12	2.02	1.22	Th-234	3.45 +/- 0.16	3.19	1.10
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	<p>EPA cites 1992 data for tritium as 900 to 1,500 pCi/L of moisture in soil. 1,500 pCi/L is 1.5 pCi/cc or 1.5 pCi/g of water. Assuming dry soil with a moisture content of 10%, this is equivalent to 0.15 pCi/g of soil. This is less than the EPA RTL for soil of 11.9 pCi/g, so why would further tritium analysis be justified?</p>								
Phase II Addendum Page 2 and Table 1	<p>Down-gradient of Outfall 004 (SRE)</p> <p>Sample EPASED-17 indicated Cs-137 at 0.208 pCi/g.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Radionuclide</th> <th style="text-align: center;">Result and Error (pCi/g)</th> <th style="text-align: center;">RTL (pCi/L)</th> <th style="text-align: center;">Result/RTL</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Cs-137</td> <td style="text-align: center;">0.208 +/- 0.013</td> <td style="text-align: center;">0.207</td> <td style="text-align: center;">1.0048</td> </tr> </tbody> </table> <p>Notwithstanding DTSC's position on analysis errors, any reasonable person would consider the result to be statistically identical to the RTL. The analysis error (0.013) is thirteen times larger than the difference (0.001) between the result and the RTL. It is a misuse of data, to make step-out, and ultimately, remedial decisions based on the third decimal place, when the numbers are, at best, only accurate to the second decimal place.</p> <p>No exceedances of any other radionuclide, including Sr-90 were found in any other Phase I sample in the drainage from Outfall 004. According to EPA protocols, there should therefore be no reason to perform further step-out sampling and analysis for Sr-90.</p> <p>Yet EPA is nevertheless recommending 16 step-out samples in eight locations with gamma spec. (incl. Cs-137) and Sr-90 based on this result. In reality, EPA is also justifying these step-out samples again based on the prior 1992 McLaren/Hart results.</p> <p>EPA cites 1992 data for Sr-90 as 0.08 to 0.09 pCi/g. These results are less than the EPA RTL of 0.485 pCi/g, so why would further Sr-90 analysis be justified?</p>	Radionuclide	Result and Error (pCi/g)	RTL (pCi/L)	Result/RTL	Cs-137	0.208 +/- 0.013	0.207	1.0048
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	<p>In general, when Phase II step-out samples are taken because of Cs-137 exceedances, will the lab be directed to only report Cs-137 in its gamma spec results?</p>								