

Comments and responses received on Corrective Action Plan Addendum for PC 2010-3028 published October 2, 2014

Comment	Comment submitted by/date	DEQ response
<p>We believe from the review of the Addendum, that Kleinfelder and Fairfax Petroleum Realty are attempting to justify a minimal cleanup, which is not acceptable to Great Falls. We believe the cleanup can and should be more complete and to lower levels of residual contamination of Methyl Tertiary Butyl Ether (MTBE) than proposed and will be in consonance with the policy of the DEQ, and in consonance with the risk-based decision criteria of the DEQ.</p>	<p>Great Falls Citizen's Association December 1, 2014 (GFCA)/ Great Falls Business and Professional Association December 1, 2014 (GFPA)</p>	<p>DEQ considers that Fairfax Petroleum Realty has presented information and a methodology to support their corrective action technology and end points that are consistent with DEQ petroleum program guidance, past practice on DEQ cases, and consistent with industry practice. DEQ agrees, however, that further analysis of the "shallow zone" groundwater end point is required before that can be confirmed as protective.</p>
<p>Continue the groundwater pumping from recovery wells on the original site until all the monitoring data on site is below the end point for a period of time. At that time, pump from a monitoring well to the southeast and a monitoring well to the south, near the leading edges of the plume, to more completely recover contamination, until these outer regions are below the end point/</p>	<p>GFCA / GFPA</p>	<p>DEQ agrees that consideration should be given to further action offsite if the offsite end points have not been met or do not appear to be on a path to being met when onsite remediation appears complete, Fairfax Petroleum Realty's consultant, Kleinfelder, suggest a similar approach in section 9.2 of the CAPA.</p>
<p>There should be a single end point used for the entire cleanup, not one for the shallower groundwater and one for the deeper groundwater as proposed, since the groundwater is all interconnected, and because the two proposed end points were not derived using a common methodology and assumptions. The cleanup should also not ignore contamination at any locations, as proposed. Certain questions and irregularities in the derivation of the end point should be explored and resolved in a technical meeting among the parties.</p>	<p>GFCA</p>	<p>In complex groundwater environments, where different units have different capacities to store and transmit water and, therefore, contaminants, a single end point may not be appropriate. That appears to be the situation at the former Great Falls Exxon. DEQ agrees that no locations can be ignored and should be assessed based on an overall potential flow of contaminants, as well as the end point adopted for that interval.</p>
<p>Concerned of possible vapor intrusion to the affected Great</p>	<p>GFPA</p>	<p>Shallow groundwater moving beneath commercial</p>

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Falls business properties.		properties from the former Exxon contains MTBE either below detectable concentrations or several orders of magnitude below concentrations that DEQ's voluntary remediation program has indicated would pose a potential risk of vapor intrusion into commercial or residential properties. In addition, on-site shallow vapor sampling shows no detectable concentrations of MTBE. No significant amounts of petroleum vapor have been recovered by the on-site vapor extraction remedial system. There are therefore multiple lines of evidence that there is no significant risk of vapor intrusion to off-site commercial or residential properties. DEQ does not require action beyond that already described in the approved CAP either on or off-site.
Sensitive sampling and analysis of the soil vapor extraction effluent should be carried out before shutting down the SVE system in order to attempt a quantification of recovered vapor.	GFCA February 12, 2015	DEQ agrees
Recommend adopting the 474 ug/l MTBE end point for shallow and deep groundwater		DEQ proposes a remedial end point for the intermediate zone bedrock groundwater of 343 ug/l to be protective (achieve the DEQ risk management level of 12 ug/l) of any hypothetical well that might connect to the MTBE contaminated bedrock groundwater. DEQ agrees with the shallow groundwater remediation objective for MTBE of 5,000 ug/l as an interim objective that Fairfax Petroleum will need to demonstrate is protective of the bedrock groundwater objective

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		and is low enough that natural degradation in the shallow groundwater prevents movement of the contamination beyond the former Shell (current Exxon)
Recommend monitoring a perimeter set of wells semi-annually for five years after remediation shut down.		DEQ will request two years of post-active remediation monitoring to verify the remediation system has achieved the remediation objectives. This period, and number of monitoring events, provides an adequate number of samples to provide a reasonable level of confidence that groundwater concentrations are stable or reducing.