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## Hydraulic fracturing "fracking" near dams

Presently, there is no consensus in the scientific community concerning the degree of hazard to the safety of dams or the functioning of dams, and hydraulic flow control systems that is posed by hydraulic fracturing "fracking" near or at moderate distances from dams. In fact, the matter is only beginning to receive attention now, and most notably by the US Army Corps of Engineers, TransAlta and BC Hydro.

While it is generally recognized that dams are intended to withstand earthquakes that are several orders of magnitude greater than the energy released by the hydraulic fracturing process, it is also recognized that hydraulic fracturing near to tectonic faults could induce tectonic activity with resulting earthquakes. While dams are normally capable of structurally withstanding earthquakes involving releases of energy that are an order of magnitude of more greater than any recorded hydraulic fracture induced earthquake, the normal functioning of these dams may be disturbed somewhat by the lesser earthquakes that are directly or indirectly associated with hydraulic fracturing. For example one should ensure that vibration sensitive electronic control equipment is not affected by shaking due to these lesser hydraulic fracture induced events.

Further, since hydraulic fracturing once initiated is essentially an uncontrolled process, the potential for the propagation of cracks along existing joints and bedding planes for significant distances beyond the direct zone of influence may be a concern. This is particularly the case if there are adversely oriented bedding planes that intersect the base of the dam or reservoir that permit hydraulic connection between the dam/reservoir and lower horizons.

Against this background, concerns about the structural capacity of dams to withstand the vibratory effects of hydraulic fracturing operations, including those that have induced the largest earthquakes along known faults are minor in comparison with the collateral effects that these vibrations can have on the water storage and flow control functions of the dams and reservoirs.

Against this background, and in the light of the weakness in the scientific understanding of the totality of the implications of hydraulic fracturing, as well as the lack of consensus in the informed scientific BC Hydro's Director of Dam Safety is considering formulating a position on the matter of hydraulic fracturing in the proximity of dams of the following form:

BC Hydro is not opposed to the extraction of natural resources by means of hydraulic fracturing or similar uncontrolled process provided that the proponent(s) objectively demonstrate that the process will not induce activity or create features that have the potential to have a detrimental effect on the functional performance capacity of the dam and reservoir with respect to the containment and conveyance functions.