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**The development of a sampling protocol for radioactive elements in a fractured rock aquifer of South Africa**

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The occurrence of radioactive elements in the Karoo Supergroup was first detected in in 1964 during kimberlite exploration. Most of the uraniferous occurrences are located in the fluvial-channel sandstones of the Adelaide Subgroup of the Beaufort Group. This work outlines the methodology employed in order to develop a sampling protocol for radioactive elements in fractured rock aquifers focused around the aforementioned area. This has included the analysis of previously developed sampling protocols, historical data as well as the field application of a draft protocol to the area around Beaufort West in South Africa. The selected test site is showcased and the developed protocol is outlined in order to better understand the application of sampling in fractured rock aquifers. This includes the pre-sampling procedures, purging of the well, sampling devices, *in situ* methodologies as well as sampling frequency. Furthermore, the Theory of Sampling applied to a study of this nature is outlined in order to properly contextualise the work. Thereafter, the future outlook for improvements related to this specific protocol is highlighted within the context of the theory of sampling.

