

Case Study



Intrusive Investigation at Former Uranium ore site, Belgium

From 1922 until the mid-1960s radium was extracted from uranium ore at a production plant in Belgium. In the process of production operations some buildings and areas of land became contaminated with radium. When processing uranium ceased the contaminated buildings were demolished and areas of contaminated land remediated and the associated wastes were disposed of in heaps, or “storts”, at the site.

Through competitive tender, Nuvia won a contract to undertake intrusive investigations at the site.

Stort 1 is a large mound containing approximately 210,000m³ of iron hydroxide and gypsum residues from cobalt production. Radiation surveys of the surface of the mound confirmed the presence of elevated radiation dose rates, the source of which is believed to be contaminated waste from the dredging of a nearby stream that was disposed of within the mound.

Nuvia undertook a characterisation exercise on the mound during May 2002. Characterisation comprised a walkover gamma flux survey of the mound surface using the Groundhog GPS coupled radiation detection system, combined with installation of 50 sampling and radiation measurement boreholes. Samples of the mound were taken at 3m intervals of depth during the drilling of each borehole. These samples were consigned for quantitative determination of radioactivity content by high-resolution gamma spectrometry. Following installation of a borehole liner, sensitive sodium iodine scintillation detectors were lowered to the base of each borehole and gamma flux measurements recorded at 0.5 m intervals of depth.

The results from the borehole survey were incorporated in a 3D model of the mound, enabling the distribution of discrete volumes of contaminated material to be identified, and the total radioactivity content of the mound to be calculated.

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