

## Radioactive Contaminated Land - Briefing Note 1 Potential Sources of Radioactive Contamination

Until 1963, there was little or no regulation of radioactive substances in the UK. This was changed when the Radioactive Substances Act 1960<sup>1</sup> (RSA) came into force. For the first time it controlled how people used and disposed of radioactive substances. Many industries operated in the UK using radioactive substances before this time. Some of these industries used radioactive substances specifically for their radioactive properties. Examples include using radium-based paints to create luminous effects on products, and the early research and development into nuclear power.

Radioactive substances were also used for other properties, such as their density, strength or chemical properties. Thorium, for example, was used in manufacturing gas mantles as thorium oxide produces a bright light when heated by a gas flame. Other industries processed raw materials, and in doing so concentrated their naturally-occurring radioactive content in process wastes. For example, smelting tin and copper-bearing ores and extracting phosphate from phosphate-rich minerals both produced residues with elevated levels of uranium and thorium, and their decay products.

Sometimes the general lack of regulation for radioactive substances meant sites where these types of activities took place became contaminated with radioactivity. This may have been as a result of poor work practices, spills and minor accidents, or as a consequence of on-site disposals of radioactive waste. Nearby sites may also have been used to dispose of the radioactive residues and by-products. The location and condition of some of these sites has been known and managed for a long time. In other cases that knowledge may have been lost.

Radioactive substances are used in a wide range of activities today, most notably in the nuclear sector (including power generation, the nuclear fuel cycle, weapons manufacture and the production of certain healthcare products). They are also used in hospitals; educational establishments; research organisations; and the oil and gas industries. Since the RSA came into force the regulation of radioactive substances means their use and disposal has been better controlled. This means these activities will be less likely to contaminate the land with radioactivity.

Defra has published an Industry Profiles Report on activities that could have caused land to become contaminated with radioactivity. The report also identifies activities where the level of contamination means the land could potentially be regulated under the Part 2A Contaminated Land Regime. You can find the Industry Profiles Report on Defra's website.