



Project Profile

Sector: Contaminated Land

Project: Bioaccessibility and plant uptake of arsenic

Client: Borough Council of Wellingborough

Period: 1999 to 2003

The Borough Council of Wellingborough has commissioned LQM to undertake several investigations of the potential risk to human health posed by naturally-occurring arsenic in the Wellingborough area.

Wellingborough is underlain by Northamptonshire Ironstone, which is known to contain elevated levels of naturally-occurring arsenic. In some areas this results in background levels of arsenic in surface soils that exceed the UK Soil Guideline Values for Arsenic.

Projects undertaken have included investigations of the bioaccessibility of this naturally-occurring arsenic (i.e. the amount of arsenic that could potentially be absorbed by the body) and the extent to which it is taken up by plants in the Wellingborough area. Bioaccessibility of naturally-occurring arsenic was determined from a number of sites around the Wellingborough area using novel, cutting-edge laboratory analysis techniques. Plant uptake of naturally-occurring arsenic was determined at several sites across the Wellingborough area. This involved the on-site or off-site cultivation, or sampling, of a variety of vegetable species and analysis using appropriate sample preparation and laboratory techniques. The usefulness and applicability of these data within the detailed quantitative risk assessment process was then explored.

Other projects have included a site-specific risk assessment involving the direct measurement of arsenic exposure and correlation with analytical data for arsenic in garden soil, garden-grown vegetables & fruit and home-made preserves prepared from them.

These projects have aided the Council in understanding the nature of the naturally-occurring arsenic in the area, the associated risks to human health and how to regulate arsenic contamination in the area under planning and contaminated land legislation.