

Site Investigation | Risk Assessment

Investigation of Contamination and Ground Gases on a Former Colliery and Landfill Site.

Introduction

Ecologia carried out a site investigation on behalf of a local authority under Part 2A of the Environmental Protection Act (1990) to assess potential contamination at a former colliery and landfill site. Residential houses were located on site with a village and groundwater pumping station adjacent to the site. Chalk hills designated as a site of outstanding natural beauty were also located adjacent to the west of the site. The site is located within a groundwater Source Protection Zone (SPZ I) and over a major chalk aquifer.



Site Investigation

Ecologia designed a site investigation to address the following;

- Confirm the extent and distribution of any potential contamination from the past land use.
- Assess if any contamination encountered on site presented a significant risk to identified receptors including the major aquifer beneath the site.
- Assess the possible presence of ground gas generated from the past land use and assess if there was significant risk to the site and the neighbouring village.

An appropriate investigation strategy was devised comprising deep boreholes installed with pipe work to enable groundwater monitoring, a combination of trial pits and boreholes around the former colliery and the installation of piezometers within grid cells on the landfill as an exploratory method of investigation followed by the installation of boreholes with pipe work for ground gas monitoring purposes.

Findings

A detailed report of the work carried out on site was completed and included borehole and trial pit logs, laboratory data (soil and water analysis) and gas monitoring data.

The data obtained from the deep boreholes did not indicate a significant risk to the groundwater resulting from the past use of the site.

Leachate results did not indicate that there was a significant possibility of significant harm to human health or the groundwater although dissolved phase hydrocarbons were encountered in some boreholes. There was thought to be a potential risk that hydrocarbons could leach into the groundwater. As groundwater data did not indicate a significant risk further monitoring was recommended to confirm this.

The data obtained from the soils did not indicate that there was a significant possibility of significant harm to human health, the grazing sheep or structures resulting from the past use of the site.

The gas monitoring identified a potential risk from landfill gas to the buildings on site and the properties in the village to the south of the site due to gas migration. Further monitoring was therefore recommended to define this risk.